



PROCEEDINGS

THE 3rd MUHAMMADIYAH INTERNATIONAL PUBLIC HEALTH & MEDICINE CONFERENCE



THEME
**"DEMOGRAPHIC DIVIDEND TOWARDS
THE TRANSFORMATION OF HEALTH SERVICES"**

25-26 July, 2023
Faculty of Public Health
University of Muhammadiyah Jakarta

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Program Book

THE 3RD MUHAMMADIYAH INTERNATIONAL PUBLIC HEALTH AND MEDICINE CONFERENCE

"Demographic Dividend Towards the
Transformation of Health Services"

FACULTY OF PUBLIC HEALTH
UNIVERSITAS MUHAMMADIYAH JAKARTA

Supported by:



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**3rd MUHAMMADIYAH INTERNATIONAL
PUBLIC HEALTH AND MEDICINE CONFERENCE (MIPHC)
“Demographic Dividend Towards the Transformation of Health
Services”
Jakarta, July 27th – 28th 2023**

ABOUT OUR EVENT

We cordially invite you to the 3rd Muhammadiyah International Public Health and Medicine Conference (MIPHC) 2023, an international scientific event that brings together health and medical experts, researchers, scholars, policy makers to share experience, exchange information, and discuss about our conference theme, Demographic Bonus Toward the Transformation of Health Services.

Demographic bonus is a situation where there is an increase in the population of a country at productive

age, which ranges from 16 to 65 years. This increase was followed by a decrease in birth and death rates. In the demographic bonus era, 69% of Indonesia's population is in the productive age category in June 2022.

Indonesia is currently entering the demographic bonus era, where the population of productive age is more than those of non-productive age. This has the potential for changes in the age structure of the population, where there will be a decrease in the proportion of young people and an increase in the proportion of the working age population. This will reduce the dependency ratio on public health services, because people of productive age are expected to be able to cover their own health needs. The demographic bonus can reduce the burden on the government in fulfilling various public rights, including health, especially for young people, which are likely to be covered by the productive abilities of people of productive age.

However, there are still many health problems during this demographic bonus period. An example is the Maternal Mortality Rate and the Infant Mortality Rate. Until now, the Maternal Mortality Rate (MMR) is still in the range of 305 per 100,000 live births, it has not reached the

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The 3rd Muhammadiyah International Public Health and Medicine Conference

**THE 3rd MUHAMMADIYAH INTERNATIONAL
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Theme "Demographic Dividend Towards The Transformation of Health Services"

Speakers

- Prof. Dr. Balaiah Subudhi
Universiti Putra Malaysia
- Prof. Anwar Mallongi
SKM, MSc, Ph.D
Universitas Islamuddin
- Assoc. Prof. Dr. Roshan Samsudhar
Social and Environmental Medicine,
Mahidol University, Thailand
- Prof. How-Ran Chao
National Pingtung
University of Science and Technology
- Assoc. Wafar Al-Jarrah
University of Caza, Palestine
- Prof. Anwar Abdullah
BSc, PH, MSc, MSc, PhD
Universitas Muhammadiyah Aceh
- Prof. Vladimir Cichovic
Institute for Medical Research
University of Belgrade, Norway

Opening Speech

- Dr. Ma'mun Murod
Al Barbasy, M.Si
Rector of University
Muhammadiyah of Jakarta
- Dr. Andriyani, M.Kes
Dean of Faculty
Public Health, University
Muhammadiyah of Jakarta
- Prof. Dr. H. Arif Sumantri
SKM, M.Kes.
President of Indonesian
Association of Environmental
Health Experts

DATE: 27th-28th JULY 2023

Important Date

- Abstract Submission: Present - June 05th 2023
- Notification of Abstract: July 01st 2023
- Deadline Full Paper Submission: July 04th 2023
- Early Bird Registration: Present - Mei 30th 2023
- Date Conference: 27-28th July 2023

Abstract Sub Theme

- Epidemiology
- Public Health Nutrition
- Environmental Health
- Health Policy
- Reproductive Health
- Occupational Health and Safety
- Health Promotion
- Population

Registration Fee

- Indonesian Presenter Rp 300.000
- International Presenter 35\$
- Indonesian Participant Rp 150.000
- International Participant 50\$

Extended

SCAN REGISTRATION HERE

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target set at 183 per 100,000 live births in 2024. The results of the 2017 Indonesian Demographic and Health Survey (IDHS) reported that the IMR in Indonesia is 24 per 1,000 live births, but currently there has been a decrease in IMR in Indonesia. According to a report from the Central Statistics Agency (BPS-Badan Pusat Statistik), Indonesia has an infant mortality rate of 16.85 per 1,000 live births in 2022. The target is expected to reduce IMR to 16 per 1,000 live births in 2024 (RI Ministry of Health, 2020c). The current health problems for youth and children are quite complex, including the consequences of the Covid-19 pandemic. In addition, today's youth lifestyle, such as smoking habits, can reduce the quality of their health. Children's health is also faced with various problems, one of which is stunting, which is still high in Indonesia. Based on the Indonesian Nutrition Status Survey (SSGI-Survei Status Gizi Indonesia) of the Ministry of Health, the prevalence of stunting under five in Indonesia is 21.6% in 2022. The habit of smoking among youths makes their health quality decrease. In 2021, the percentage of youth who smoke is 22.93%. That is, out of 100 youths in Indonesia, 20 of them are active smokers. These things are quite worrying and need special attention so that they are able to optimize their abilities as adults and not become a demographic “burden”. It is hoped that youth and children will be able to maximize their potential by improving the quality of their health.

It is known that in 2030 Indonesia will be at the peak of the demographic bonus, so it is very important to increase human resource capacity to achieve above average quality human resources. The task of the Ministry of Health is to maintain the quality of public health so that the peak of the demographic bonus is not hindered due to health factors and is even expected to encourage improvements in the health sector.

The Ministry of Health initiated the transformation in the health sector. It has determined that there are 6 types of transformation that will be carried out, namely the transformation of Primary Health Services, Secondary Health Services, Health Resilience Systems, Health Financing Systems, Health Sector Human Resources, and Health Technology.

Primary Health Service Transformation.

In an effort to maximize the demographic bonus, the role of Posyandu (Integrated Health Care Post) and Puskesmas (Community Health Center) is one of the keys to creating a healthy generation. Through these two health facilities it is easy to reach the community so that the health facilities are closer and integrated. This Posyandu will act more actively not only serving



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babies and mothers but will serve the entire life cycle including adolescents, adults and the elderly.

Secondary Health Service Transformation.

This transformation will begin with the three highest causes of death in Indonesia, namely heart disease, stroke and cancer. It is targeted that hospitals in all provinces in 2024 should be able to serve heart disease, stroke and cancer.

Health Resistance.

Diagnostic and therapeutic vaccines are all in Indonesia which are produced domestically from upstream to downstream.

Health Financing.

Related to the transformation of health financing is to carry out transparency and calculations that avoid problems between service providers and those paying for services.

Health Sector Human Resources.

Equal distribution of quality human resources in the health sector is needed to increase people's access to health services. One of the efforts made is through the academic health system.

Health Technology.

One of the health technology transformations being pursued is ensuring that medical records in hospitals are properly recorded and recorded digitally. Biotechnology that can be used as a sophisticated diagnostic tool. Conditions after the demographic bonus must also be considered from now on. After the demographic bonus era is over, the population of productive age who previously dominated will automatically shift to become an older population, with specific health problems for the aging population.

Based on the explanation above, the Faculty of Public Health Universitas Muhammadiyah Jakarta held the 3rd MIPHMC (Muhammadiyah International Public Health and Medicine Conference). This conference organized by the Faculty of Public Health Universitas Muhammadiyah Jakarta in collaboration with the Faculty of Medicine and Health Universitas Muhammadiyah Jakarta, the Faculty of Nursing Universitas Muhammadiyah Jakarta, the Association of Health Experts Indonesian Environment (HAKLI), and the Association of



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Indonesian Public Health Experts Jakarta Central Branch (IAKMI DKI Jakarta). The 3rd MIPHMC is a grand event that brings together health experts and medical experts to discuss and share their expertise about our theme “Demographic Dividend Towards The Transformation of Health Services”.



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Opening Remarks of Rector of Universitas Muhammadiyah Jakarta



Assalamu'alaikum warahmatullahi wabarakatuh.

Alhamdulillahirabbil'alamin, wassalatu wassalamu
'ala asyrafil ambiyai walmursalin, wa'ala alihi
wasahbihi ajma'in.

The Honorable, all speakers

1. Mr. Prof. Anwar Mallongi, S.K.M., M.Sc., Ph.D.,
Universitas Hasanuddin, Makassar, Indonesia
2. Mrs. Prof. Dr. Juliana Jalaludin, from Universiti
Putra Malaysia, Malaysia
3. Mr. Prof. Asnawi Abdullah, BSc.PH., MHSM.,
M.Sc.HPPF., DLSHTM., Ph.D., from Universitas

Muhammadiyah Aceh, Indonesia

4. Mr. Assoc. Prof. Dr. Kraichat Tantrakarnapa., from Social and Environmental
Medicine, Mahidol University, Thailand
5. Janvier Gasana, MD., M.P.H., Ph.D., Kuwait University
6. Mr. Prof. How-Ran Chao, from National Pingtung, University of Science and
Technology
7. Mr. Assoc. Wesan Al Madhoun, Global Ambassadors of Sustainability

The Honorable Dean and Vices at Universitas Muhammadiyah Jakarta,

The Honorable President of Indonesian Environmental Health Expert Association, Prof. Dr. H.
Arif Sumantri, SKM, M.Kes.

Honorable President of Indonesia Public Health Association Jakarta Region, Mrs. Narila Mutia
Nasir, S.K.M., M.K.M., Ph.D.

Honorable Moderators, Mrs. Dr. Tria Astika, Endah Permatasari, SKM, MKM and Mrs. Narila
Mutia Natsir, SKM, MKM, Doctor of Philosophy.

and also all of distinguished guests.

Ladies and gentlemen,

This conference has become an annual event and this year is the third year this conference has
been held by Faculty of Public Health Universitas Muhammadiyah Jakarta in collaboration
with Faculty of Medicine and Health, Universitas Muhammadiyah Jakarta and Indonesian



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Environmental Health Expert Association. The outcome of this conference is international publications, both proceedings and journals, which are expected to be scopus accredited.

Dear attendees,

Let me first welcome you to the University of Muhammadiyah Jakarta and also to the “Third Muhammadiyah International Public Health and Medicine Conference” with topic “Demographic Dividend Towards the Transformation of Health Services”. Allow me, in this context, to thank each and every one of you here, from different countries, in this virtual conference today.

Ladies and gentlemen,

All countries face major challenges to ensure that their health and social systems are ready to make the most of this demographic transition. According WHO, in 2050, 80% of older people will be living in low- and middle- income countries. And between 2015 and 2050, the proportion of the world’s population over 60 years will nearly double from 12% to 22%.

In line with the statement of the dean of Faculty of Public Health, that the health sector in Indonesia needs to adjust to the changing age structure of the population, with more services for the treatment and prevention of chronic life-style diseases.

Ladies and gentlemen,

University of Muhammadiyah Jakarta has proven its strong international orientation by organising this conference. This is also shown in the attention to the practical details of international mobility. Once again, a well-deserved compliment for our host.

I would like to close my address with those words. And I wish you all an educational and fruitful conference.

Thank you for your attention.

Wassalamu’alaikum warahmatullahi wabarakatuh.



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**Opening Remark of Dean of Faculty of Public Health Universitas
Muhammadiyah Jakarta**



Honorable Mr. Dr. Ma'mun Murod, M.Si, Rector of
Universitas Muhammadiyah Jakarta,

Honorable Dean and Vice Dean in Universitas
Muhammadiyah Jakarta,

Honorable President of Indonesian Environmental
Health Expert Association, Prof. Dr. H. Arif
Sumantri, SKM, M.Kes.

Honorable President of Indonesia Public Health
Association Jakarta Region, Mrs. Narila Mutia
Nasir, S.K.M., M.K.M., Ph.D.

Honorable Speakers

1. Mr. Prof. Anwar Mallongi, S.K.M., M.Sc., Ph.D., Universitas Hasanuddin, Makassar, Indonesia
2. Mrs. Prof. Dr. Juliana Jalaludin, from Universiti Putra Malaysia, Malaysia
3. Mr. Prof. Asnawi Abdullah, BSc.PH., MHSM., M.Sc.HPPF., DLSHTM., Ph.D., from Universitas Muhammadiyah Aceh, Indonesia
4. Mr. Assoc. Prof. Dr. Kraichat Tantrakarnapa., from Social and Environmental Medicine, Mahidol University, Thailand
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7. Mr. Assoc. Wesan Al Madhoun, Global Ambassadors of Sustainability

Honorable Moderators, Mrs. Dr. Tria Astika, Endah Permatasari, SKM, MKM and Mrs. Narila Mutia Natsir, SKM, MKM, Ph.D .

Honorable Colleagues, Ladies and Gentlemen.

Ladies and Gentlemen, allow me in this opportunity to welcome all of this conference participants by first praying our grateful and praise to the Almighty God for all His blessings,



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grace, and mercies that have made us possible to gather here in this room, in excellent condition and health.

Dear speakers, distinguished guests and participants of the Third Muhammadiyah International Public Health and Medicine Conference with topic on “Demographic Dividend Towards the Transformation of Health Services”, Faculty of Public Health University of Muhammadiyah Jakarta in collaboration with Faculty of Medicine and Health University of Muhammadiyah Jakarta, Indonesian Environmental Health Expert Association, and Indonesia Public Health Association Jakarta Region is very pleased to host this virtual conference.

Good morning, and welcome.

Ladies and Gentlemen

Demographic transition explains the decline from high to low rates of birth and death, and growth rates as societies move from one demographic to another. Countries can be classified as pre-transition, early transition, late transition, and post-transition. Many pre- and early transition countries have critical shortages of health workers, especially in rural areas. Countries in late transition or post transition have ageing populations and high rates of chronic and non-communicable diseases including diabetes and cancer. On the other case, urban areas having relatively younger populations, buoyant labour market, and increased influx of migrants. On the other hand, some towns and cities in former industrial heartlands are left behind economically, characterised by high levels of unemployment, poverty, and social exclusion.

Indonesia is a country that is facing population aging, which is increasing the number of people aged 60 years or more (elderly). It is projected that the elderly population will reach 63.3 million (19.8%) by 2045. This condition is certainly a development challenge in improving human quality. A qualified population is expected not only to have a long life, but also in a healthy condition. Based on calculations from the Ministry of Health in 2017, Life Expectancy is around 71.5 years and *Healthy Life Expectancy* is around 62.7 years. This means that the population only lives a healthy life of about 62-63 years out of 71-72 years of life that is expected to be lived.

In Indonesia, the Minister of Health initiated a transformation in the health sector that will be carried out, such as the transformation of primary services, referral services, health security



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systems, health financing systems, health human resources, health technology, and biotechnology. The health sector in Indonesia needs to adjust to the changing age structure of the population, with more services for the treatment and prevention of chronic life-style diseases. New public health campaigns and services are needed. Family planning and reproductive health services need to be upgrade. More attention also needs to be given to the social determinants of health inequality.

Ladies and Gentlemen,

Conferences such as this provide a valuable opportunity for research scientists, industry specialists and decision-makers to share experiences.

I am grateful to the many experts who have come to share their knowledge in this conference. I also welcome the many representatives of governments, industry associations and NGOs who have joined us.

I am sure you will have fruitful and rewarding exchanges both today and tomorrow. I wish you every success with this important conference and I look forward to learning about the outcome.

Thank you.



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Speakers and Moderator

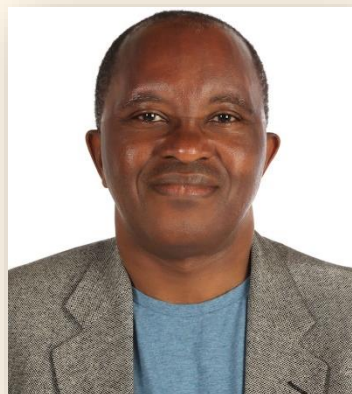
	Prof. Anwar Mallongi, S.K.M., M.Sc., Ph.D. (Universitas Hasanuddin, Makassar, Indonesia)
	Prof. Dr. Juliana Jalaludin (Universiti Putra Malaysia, Malaysia)
	Prof. Asnawi Abdullah, BSc.PH., MHSM., M.Sc.HPPF., DLSHTM., Ph.D. (Universitas Muhammadiyah Aceh, Indonesia)



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Assoc. Prof. Dr. Kraichat Tantrakarnapa (Social and Environmental Medicine, Mahidol University, Thailand)



Prof. Janvier Gasana, MD., M.P.H., Ph.D. (Kuwait University)



Prof. How-Ran Chao (National Pingtung University of Science and Technology)



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	Moderator: Narila Mutia Nasir, S.K.M., M.K.M., Ph.D. (Indonesian Public Health Association Jakarta Region)
	Moderator: Dr. Munaya Fauziah, SKM, M.Kes (Faculty of Public Health, Universitas Muhammadiyah Jakarta)



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6. Widya Rizki Ariandini, SKM
7. Nadilla Firda, SKM

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1. Dr. Munaya Fauziah, S.K.M., M.Kes.
2. Dr. Triana Srisantyorini, S.K.M., M.Kes
3. Dr. Suherman, M.K.M
4. Ernyasih, S.K.M., M.K.M
5. Dr. Dewi Purnamawati, S.K.M., M.K.M.
6. Dr. Januar Ariyanto, S.K.M, M.K.M



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7. Gilang Anugerah Munggaran, S.K.M, M.K.M
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1. Nadilla Firda, S.K.M. M.K.M
2. Ayunda Larasati Sekarputri, S.K.M., M.K.M.
3. Atrio Wahyudi, S.Kom.
4. Bella Mutia Durrotun Nafisah, S.E.
5. Fitri Mufidah, S.Ak.
6. Vidiastuti Muljono, S.I.P., M.A.
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10. Widya Rizky Ariandini, S.K.M., M.K.M.
11. Dwi Ratna Sari, S.Ak.
12. Puspa Nujulla, S.K.M.
13. Zenina Zahra Ainaya, S.Psi
14. Ridwan Kamil, S.Kom.

Room Moderator And Assistant Room Moderator

Room	Room Moderator	Room Moderator Assistant	Total Presenter
1	Dr. Munaya Fauziah, S.K.M., M.Kes.	Puspa Nujulla, S.K.M.	15
2	Dr. Triana Srisantyorini, S.K.M., M.Kes	Ayunda Larasati Sekarputri, S.K.M., M.K.M.	15
3	Dr. Suherman, M.K.M	Zenina Zahra Ainaya, S.Psi.	15
4	Ernyasih, S.K.M., M.K.M	Bella Mutia Durrotun Nafisah, S.E.	15
5	Dr. Dewi Purnamawati, S.K.M., M.K.M.	Fitri Mufidah, S.Ak.	15



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Room	Room Moderator	Room Moderator Assistant	Total Presenter
6	Dr. Januar Ariyanto, S.K.M, M.K.M	Vidiastuti Muljono, S.I.P., M.A.	15
7	Gilang Anugerah Munggaran, S.K.M, M.K.M	Atrio Wahyudi, S.Kom.	15
8	dr. Siti Nur Aisyah Jauharoh, Ph.D.	Riza Faizah, S.K.M.	15
9	Fini Fajrini, S.K.M., M.K.M.	Yuwanita Sinta Dewi, S.K.M.	15
10	Yustiyani, S.Gz., M.Si.	Widya Rizky Ariandini, S.K.M., M.K.M.	15
11	Nur Romdhona, S.H., M.Kes.	Dwi Ratna Sari, S.Ak.	15
12	Nurmalia Lusida, S.K.M, M.K.M.	Irna Hasanah, S.Pd., M.K.M.	15
13	Yosi Duwita Arinda, M.K.M.	Nadilla Firda, S.K.M., M.K.M.	15
14	Miftahul Arsyi, S.K.M., M.K.M.	Ridwan Kamil, S.Kom.	15

Editor Team:

1. Dr. Andriyani, M.Kes.
2. Dr. Munaya Fauziah, S.K.M., M.Kes.
3. Ernyasih, S.K.M., M.K.M.
4. Nurmalia Lusida, S.K.M., M.K.M.
5. Ayunda Larasati Sekarputri, S.K.M., M.K.M.
6. Ridwan Kamil, S.Kom.
7. Yosi Duwita Arinda, M.K.M.
8. Miftahul Arsyi, M.K.M.

Reviewer Team:

Number	Name	Institution
1.	Dr. Andriyani, M.Kes.	Faculty of Public Health, Universitas Muhamamdiyah Jakarta
2.	Dr. Munaya Fauziah, S.K.M., M.Kes.	Faculty of Public Health, Universitas Muhamamdiyah Jakarta
3.	Dr. Triana Srisantyorini, S.K.M., M.Kes.	Faculty of Public Health, Universitas Muhamamdiyah Jakarta
4.	Dr. Suherman, M.K.M.	Faculty of Public Health, Universitas Muhamamdiyah Jakarta
5.	Ernyasih, S.K.M., M.K.M.	Faculty of Public Health, Universitas Muhamamdiyah Jakarta
6.	Dr. Dewi Purnamawati, S.K.M., M.K.M.	Faculty of Public Health, Universitas Muhamamdiyah Jakarta
7.	Prof. Anwar Mallongi, S.K.M., M.Sc., Ph.D.	Universitas Hasanuddin, Makassar, Indonesia
8.	Prof. Dr. Juliana Jalaludin	Universiti Putra Malaysia, Malaysia
9.	Nurmalia Lusida, S.K.M., M.K.M.	Faculty of Public Health, Universitas Muhamamdiyah Jakarta
10.	Prof. Asnawi Abdullah, BSc.PH., MHSM., M.Sc.HPPF., DLSHTM., Ph.D.	Universitas Muhammadiyah Aceh, Indonesia
11.	Assoc. Prof. Dr. Kraichat Tantrakarnapa	Social and Environmental Medicine, Mahidol University, Thailand
12.	Janvier Gasana, MD., M.P.H., Ph.D.	Kuwait University



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Number	Name	Institution
13.	Prof. How-Ran Chao	National Pingtung, University of Science and Technology
14.	Assoc. Prof. Dr. Wesan Al Madhoun	Global Ambassadors of Sustainability
15.	Ayunda Larasati Sekarputri, S.K.M., M.K.M.	Faculty of Public Health, Universitas Muhammadiyah Jakarta
16.	Dr. Tria Astika EP., M.K.M.	Faculty of Medicine and Health, Universitas Muhammadiyah Jakarta
17.	Narila Mutia Nasir, S.K.M., M.K.M., Ph.D.	Indonesian Public Health Association Jakarta Region

General Assisstant:

1. Agus Mulyadi
2. Yanuar Pramono
3. Hilman Mafajan
4. Ujang Heryana
5. Iwan Rusmawan
6. Andi Ubaidillah
7. Jamaludin
8. Jamal
9. Sigit Rahman Saleh
10. Mustakim



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Conference Theme and Topics

Theme

Demographic Dividend Towards the Transformation of Health Services

Topic include but not limited to:

Epidemiology

Health Promotion

Health Policy

Environmental Health

Occupational Health and Safety

Reproductive Health

Population Study

Medicine

Maternal and Child Health

Pediatrics

Surgery

Internal Medicine

Nursing

Midwifery



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List of Institution

Institution

Universitas Muhammadiyah Jakarta
University of Gaza Palestine
Mahidol University, Thailand
Kuwait University
Universiti Putra Malaysia, Malaysia
National Pingtung University
Indonesia Public Health Association Jakarta
Indonesian Environmental Health Expert Association
UIN Syarif Hidayatullah Jakarta
Universitas Muhammadiyah Aceh
Universitas Hasanuddin

Participant Institution

Universitas Muhammadiyah Jakarta
Universitas Muhammadiyah Semarang
Universitas Warmadewa
UIN Syarif Hidayatullah Jakarta
Badan Riset dan Inovasi Nasional
Bhakti Kencana University
Universitas Muhammadiyah Maluku Utara
Universitas Hang Tuah Pekanbaru
Universitas Ahmad Dahlan Yogyakarta
Binawan University
Universitas Muslim Indonesia
Universitas Gunadarma
Universitas Muhammadiyah Aceh
Universitas Muhammadiyah Kalimantan



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IPB University

YARSI University

Universitas Sumatera Utara

Politeknik Nusa Utara

Universitas Indonesia

Universitas Sebelas Maret

STIKES Mitra Keluarga

Universitas Pekalongan

Universitas Muhammadiyah Semarang

Universitas Islam Indonesia

Universitas Lampung

Institut Teknologi Kesehatan Malang

Universitas Airlangga Surabaya

Universitas Jenderal Soedirman

Universitas Math'laul Anwar, Pandeglang, Banten

Contributing Country

Indonesia

Thailand

Malaysia

Norwegia

Palestine

Taiwan



Guidelines

Abstract Guidelines

1. Abstract submission should not more than 250 words
2. Abstract title should be brief and reflect the content of the abstract
3. Abstract should be submitted in the structure paragraph format following the template
4. Figure, picture, table or chart are not allowed to write in the abstract
5. Abstract should be written in standard English
6. Abstract should be submitted through submission system
7. The authors confirm that the abstract derived from the paper has not been previously published at the at the time of submission

Oral Presentation Guidelines

1. Participants are expected to attend on the first and second day
2. Please use Microsoft Power Point or Acrobat PDF for the presentation file (maximum 10 slides)
3. Save the file with format name of Paper ID Presenter_Room (the room will be informed later after the abstract acceptance).
4. Please be ready in the virtual room 10 minutes before the session begin
5. Oral presentation will be strictly limited to 5 minutes for each presenter. Presentation in english.
6. Please rename your name to: Room_PaperID_Name (the example: 1_EOH001_RIDWAN KAMIL)



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Publication

The screenshot shows the MIPHMC website interface. At the top, there are links for 'Register' and 'Login'. Below the navigation bar, the main header reads 'MUHAMMADIYAH INTERNATIONAL PUBLIC HEALTH AND MEDICINE PROCEEDING' with the tagline 'Publish Every November'. The 'CURRENT ISSUE' section highlights 'Vol. 1 No. 1 (2021): PROCEEDING MUHAMMADIYAH INTERNATIONAL PUBLIC HEALTH AND MEDICINE CONFERENCE - FIRST EDITION'. It includes a thumbnail of the conference proceedings and a brief description of the event. On the right side, there are links for 'INFORMATION' (For Readers, For Authors, For Librarians), 'CURRENT ISSUE' (with links for PDF, HTML, and EPUB), 'LANGUAGE' (English, Bahasa Indonesia), 'MAKE A SUBMISSION', and 'VISITOR COUNTER' (showing 00002100).

The paper submitted in this conference will be published in the International Proceeding [Muhammadiyah International Public Health and Medicine Proceeding \(fkmumj.ac.id\)](http://Muhammadiyah International Public Health and Medicine Proceeding (fkmumj.ac.id)) (google scholar index), National Journal (Sinta Index), and other National Journal with ISSN: The further information for the publication will be announced later in this website.

This block contains two screenshots from the MIPHMC website. The left screenshot shows the 'PROCEEDING MUHAMMADIYAH INTERNATIONAL PUBLIC HEALTH AND MEDICINE CONFERENCE - SECOND EDITION' for 'Vol. 2 No. 1 (2022)'. It features a thumbnail of the conference proceedings and a brief description of the event. The right screenshot shows the 'VISITOR COUNTER' section, which displays the number '00006033' and the Creative Commons Attribution-NonCommercial 4.0 International License logo.



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Platform Conference (Zoom Meeting)



Note: Please use the background provided by the committee

Day One

Topic: The 3rd Muhammadiyah International Public Health and Medicine Conference

Time: Jul 27, 2023 07:00 AM Jakarta

Join Zoom Meeting

<https://us02web.zoom.us/j/81713374073?pwd=R0MyY2RZMTMxZDI3RGxOYk5jWWt6UT09>

Meeting ID: 817 1337 4073

Passcode: miphmc3

Day Two

Topic: The 3rd Muhammadiyah International Public Health and Medicine Conference - Presentation the Article

Time: Jul 28, 2023 07:00 AM Jakarta

Join Zoom Meeting

<https://us02web.zoom.us/j/81710308385?pwd=eVROSkVLZm0gOZkFQa3pTOG1mekwyZz09>

Meeting ID: 817 1030 8385

Passcode: miphmc3



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**R U N D O W N
THE 3rd MUHAMMADIYAH INTERNATIONAL PUBLIC HEALTH AND
MEDICINE CONFERENCE (MIPHMC)
“Demographic Dividend Towards the Transformation of Health Services”
Jakarta, 27th – 28th July 2023**

**Day 1
OPENING CEREMONY**

Day 1 (27th July, 2023)

Time	Program
08.30 – 09.00	: Registration
09.00 – 09.40	: Opening & Remarks - Opening by MC Bergas Sakti Yugo Welirang and Ananda Kezia Nashra. R - Recite Al-Quran Dr. Suherman, S.Pi, M.Sc. - National Anthem - Mars FKM UMJ
09.40 – 10.30	: Welcoming Speech 1. Rector of University of Muhammadiyah Jakarta Dr. Ma'mun Murod, M.Si. 2. Dean of Faculty of Medicine and Health, University of Muhammadiyah Jakarta Dr. dr. Muhammad Fachri, Sp.P., FAPSR
10.30 – 11.50	: Session 1 1. Prof. Anwar Mallongi, SKM, M.Sc, Ph.D (Universitas Hasanuddin) 2. Assoc. Prof. Wesam Al-Madhoun (University of Gaza, Palestine) 3. Prof. Juliana Jalaludin, B.Sc, M.Sc, Ph.D (Universiti Putra Malaysia) 4. Prof. How-Ran Chao (National Pingtung University of Science and Technology) Moderator: Narila Mutia Nasir, SKM, MKM, Ph.D
11.50 – 13.00	: Break
13.00 – 14.00	: Session 2 1. Assoc. Prof. Dr. Kraichat Tantrakarnapa (Social and Environmental Medicine, Mahidol University, Thailand) 2. Prof. Asnawi Abdullah, B.Sc.PH, MHSM, M.Sc. HPPF-DLSHTM, Ph.D (Universitas Muhammadiyah Aceh) 3. Janvier Gasana, MD., M.P.H., Ph.D. (Kuwait University) Moderator: Dr. Munaya Fauziah, SKM, M.Kes
14.00 – 14.10	: Closing Day 1



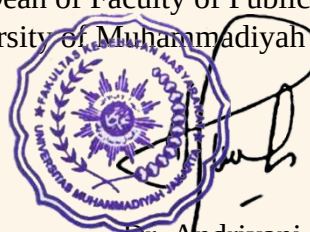
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**Day 2
PARALLEL SESSION**

Day 2 (28th July, 2023)

Time	Program
09.00 – 11.30	Parallel Session 1
11.30 – 12.30	Break
12.30 – 14.30	Parallel Session 2
14.30 – 14.40	Announcement for the Best Presenter
14.40 – 14.50	Closing Day 2

Jakarta, January 9th 2023
Dean of Faculty of Public Health
University of Muhammadiyah Jakarta



Dr. Andriyani. M.Kes



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PARALLEL SESSION

Room 1	
Moderator	Dr. Munaya Fauziah, S.K.M., M.Kes.
Moderator Assistant	Puspa Nujulla, S.K.M.
Time	08.30 – 11.30 WIB
Conference Theme	Epidemiology

Number	Paper ID	Name	Title	Author Institution
1	EPI001	1. Asep Kusnali 2. Tati Suryati Warouw	Potential Risk Factors to Prevent the Rise Electric Cigarette Consumption among Indonesian Adolescent Aged 13 to 15 Years Old	BRIN, Bogor
2	EPI002	1. Dewi Putri Andini 2. Andriyani 3. Nurmalia Lusida 4. Ernyasih	Faktor-faktor yang Berhubungan dengan Kejadian Hipertensi di Puskesmas Ciseeng Kabupaten Bogor Tahun 2022	Faculty of Public Health, Universitas Muhammadiyah Jakarta
3	EPI003	1. Imah Nur Chasanah	Factors Related with COVID-19 Mortality in Indonesia: A Systematic Review	Universitas Jenderal Soedirman
4	EPI004	1. Mega Asyifa 2. Dadang Herdiansyah 3. Andriyani 4. Ernyasih	Stigma Against PLHIV among Students of SMAN 1 Ciawi in 2022	Faculty of Public Health, Universitas Muhammadiyah Jakarta
5	EPI005	1. Mugi Wahidin 2. Anhari Achadi 3. Besral 4. Soewarta Kosen	Projection of Direct Cost of Diabetes Mellitus in Indonesia Till 2045: A Dynamic Modelling Based on Prevalent Cases	Universitas Indonesia
6	EPI006	1. Nurnida Ashofa 2. Nurmalia Lusida 3. Andriyani 4. Ernyasih	Relationship between Diet and Stress with a History of Gastritis in Adolescents at Madrasah Aliyah Negeri 2 Cipondoh Tangerang City in 2023	Faculty of Public Health, Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
7	EPI007	1. Rahmadani Sitepu 2. Irnawati Marsaulina 3. Nurmaini 4. Taufik Ashar	Identification of Malaria Incidence in Langkat District North Sumatra Province	Universitas Sumatera Utara
8	EPI008	1. Reza Anindita 2. Eka Wahyu Wulandari 3. Maulin Inggraini 4. Melania Perwitasari 5. Maya Uzia Beandrade 6. Dede Nathalia 7. Intan Kurnia Putri	Epidemiology of Pityriasis Versicolor in Elementary School Children in The Bantar Gebang Garbage Dump, Bekasi, West Java	STIKES Mitra Keluarga
9	EPI009	1. Sri Malasari Dewi 2. Andriyani 3. Nurmalia Lusida 4. Ernyasih	The Impact of Cervical Cancer Stage on The Quality of Life among Patients Using EORTC QLQ-C30 at Yayasan Kanker in 2023	Faculty of Public Health, Universitas Muhammadiyah Jakarta
10	EPI010	1. Urpiyatul Ulya	Hubungan Antara Pengetahuan, Sikap, dan Personal Hygiene Dengan Kejadian Skabies di Pondok Pesantren Darul Ilmi Cengklong Tahun 2022	Faculty of Public Health, Universitas Muhammadiyah Jakarta
11	EPI011	1. Lely Andayasari 2. Rofingatul Mubasyiroh	Unmet Need for Dental Health Service in Adult in Indonesia: Result of National Study in 2018	National Research and Innovation Agency
12	EPI012	1. Mutiara Mauliza Simbolon 2. Cindy Artha Ujung 3. Nurmalia Lusida	Obesity and Coronary Heart Disease: Literature Review	Faculty of Public Health Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
		4. Yosi Duwita Arinda		
13	EPI015	1. Hari Fitriani 2. M. Atoillah Isfandiari 3. Endro Pramono 5. Arina M. Ersanti	Analysis of Health Problems in Cases of Diptheria Immunization Preventable Diseases (PD3I) in Blitar Regency	Faculty of Public Health, Universitas Airlangga
14	EPI022	1. Hirfa Turrahmi 2. Tria Astika Endah Permatasari 3. Heri Rosyati 4. Elli Hidayat	The Relationship between Body Mass Index (BMI), Albumin Levels, Mean Arterial Pressure (MAP), and Food Intake on the Incidence of Preeclampsia: A Prospective Cohort Study	Faculty of Midwifery Universitas Muhammadiyah Jakarta



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PARALLEL SESSION

Room 2	
Moderator	Dr. Triana Srisantyorini, S.K.M., M.Kes.
Moderator Assistant	Ayunda Larasati Sekarputri, S.K.M., M.K.M.
Time	08.30 – 11.30 WIB
Conference Theme	Health Promotion (HPM)

Number	Paper ID	Name	Title	Author Institution
1	HPM001	1. Dhirajaya Dharma Kadar	Efficacy of Metamizole as Preventive Treatment for Renal-Ischemic Reperfusion Injury After Renal Sparing Surgery in Wistar Rats: An Analysis of Biochemistry Markers	Universitas Sumatera Utara
2	HPM002	1. Kharisma Muhammad 2. Nabil Hajar 3. Bintang Tatius	The Relationship between Physical Fitness Levels with Blood Pressure and Lung Vital Capacity of Medicine	Universitas Muhammadiyah Semarang
3	HPM003	1. Made Indra Wijaya 2. Komang Triyani Kartinawati 3. Luh Gede Pradnyawati 4. I Gusti Ngurah Made Bayuningrat 5. Tanjung Subrata 6. I Made Pariartha 7. A.A Gede Indraningrat 8. Made Dharmesti Wijaya 9. Kartika Sari	Challenges to Stunting Primordial Prevention through Future Brides and Grooms Accompaniment: Qualitative Finding from the PentaCOME Project	The Faculty of Medicine and Health Sciences, University of Warmadewa
4	HPM004	1. Nailul Izza 2. Lely Indirawati 3. Mahmudah	The Effect of Hypertension and Obesity on The Occurrence of Diabetes	Research Center for Public Health and Nutrition, National



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Number	Paper ID	Name	Title	Author Institution
		4. Astridya Paramita 5. Diah Indriani	Mellitus among Indonesian Urban Workers	Research and Innovation Agency, Republic of Indonesia, Bogor, Indonesia; Faculty of Public Health Universitas Airlangga Surabaya
5	HPM005	1. Rr. Vita Nurlatif 2. Sumardiyono 3. Setyo Sri Rahardjo	Determinants of Self-Management People with Diabetes Mellitus of Productive Age in Pekalongan Regency, Central Jawa, Indonesia	Universitas Pekalongan
6	HPM006	1. Rudiansyah Harahap 2. Nabil Hajar 3. Ivo Dewi Kristiyani 4. Wahyu Hidayat Azzaazi	Body Mass Index, Ankle ROM and Bimalleolar Width Associated With Chronic Ankle Instability in Basketball Player: A Crossectional Study	Universitas Muhammadiyah Semarang
7	HPM007	1. Awang Saputra 2. Adi Fahrudin 3. Munaya Fauziah 4. Saiful Bahri 5. Muhammad Fachri	Approaches Islamic Religiosity Guidance on Mental Health Disorder	Doctoral Post Graduate School, Universitas Muhammadiyah Jakarta
8	HPM008	1. Ari Retno Setiyawaty 2. Dewi Purnamawati	Anemia in Young Women in the City of South Tangerang in 2023	Faculty of Public Health, Universitas Muhammadiyah Jakarta
9	HPM009	1. Lidya Zahroh 2. Surya Rostyana	The Influence of Exclusive Breastfeeding in Preventing Diarrhea in Children (Literature Review)	Faculty of Public Health, Universitas Muhammadiyah Jakarta
10	HPM010	1. Hiziriah Mistiani 2. Khansa Shabrina Qanitah	Stroke Risk Factors and Self Management as One of the Stroke Recovery Efforts	Faculty of Public Health, Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Tittle	Author Institution
11	HPM011	1. Muhannad Aslam Effendy 2. Monica Azzahra 3. Nurmalia Lusida 4. Yosi Duwita Arinda	Prevention of Diarrhea in Children under the Age of 5 in Developing Countries: Literature Review	Faculty of Public Health, Universitas Muhammadiyah Jakarta
12	HPM012	1. Fasfahis Sophal Jamil 2. Liana Nur Azkya 3. Rahmat Kurniawan 4. Septiana Rochmayanti 5. Munaya Fauziah	Smoking Phenomena in Students in South Tangerang City	Faculty of Public Health, Universitas Muhammadiyah Jakarta
13	HPM036	1. Ananda Kezia Nashra Rahmadita 2. Shifa Safira 3. Nurmalia Lusida 4. Yosi Duwita Arinda	The Improtance of Influenza Vaccination for Hajj Pilgrims: A Literature Review	Faculty of Public Health, Universitas Muhammadiyah Jakarta
14	HPM037	1. Nuni Apriani 2. Fitriani Rayasari 3. Dewi Anggraini	Application of Evidence-Based Nursing Practice: Active Cycle of Breathing Technique in Patient with COPD	Faculty of Nursing, Universitas Muhammadiyah Jakarta



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PARALLEL SESSION

Room 3	
Moderator	Dr. Suherman, M.K.M.
Moderator Assistant	Zenina Zahra Ainaya, S.Psi.
Time	08.30 – 11.30 WIB
Conference Theme	Public Health Nutrition (PHN)

Number	Paper ID	Name	Title	Author Institution
1	PHN001	1. Fitria Mushollini 2. Harsono Salimo 3. Lilik Retna Kartika Sari	Differences in Food Intake (Energy, Protein, Fat and Carbohydrates) in Child Wasting by Giving Cookies of Purple Sweet Potato and Tempeh Flour	Universitas Sebelas Maret
2	PHN002	1. Pratiwi Wulandari 2. Adi Magna Patriadi Nuhriawangsa	Effect of Red Beans and Black Beans on Blood Glucose and Insulin Levels with a Diabetes Mellitus: A Systematic Review	Universitas Sebelas Maret
3	PHN003	1. Ratna Wulandari 2. Ahmad Syafiq	The Effect of Nutrition Education to Prospective Bride in Pregnancy Nutrition Preparation to Prevent Risk of Stunting: Study Literature Review	Faculty of Public Health, Universitas Indonesia
4	PHN004	1. Made Ayu Lely Suratri 1. Vebby Amelia Edwin	Factors Associated with the Occurrence of Stunting in Children in the DIY Province	National Research and Innovation Agency
5	PHN005	1. Adenan	Risk Factor of Fatigue: A systematic Review among Bus Driver of Massal transportation In Indonesia	Universitas Indonesia
6	PHN006	1. Alma Alfianti 2. Dewi Purnamawati 3. Nurfadhilah 1. Luqman Effendi	The Relationship between Husband's Knowledge and Support with Fe Tablet Consumption Compliance in Pregnant Women in The Working Area of Cireundeu Puskesmas in 2022	Faculty of Public Health, Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
7	PHN007	1. Clara Andayu Daemonika 2. Andriyani 3. Nurmalia Lusida 1. Ernyasih	Factors Related to Fe Tablet Consumption Compliance in Pregnant Women at Puskesmas Ciputat Timur 2022	Faculty of Public Health, Universitas Muhammadiyah Jakarta
8	PHN008	1. Ghina Az Zahra 2. Siti Riptifah Tri Handari 3. Munaya Fauziah 4. Nurmalia Lusida	Determinants of The Implementation of Early Breastfeeding Initiation (IMD) in The Working Area of The Pondok Cabe Ilir Health Center in 2022	Faculty of Public Health, Universitas Muhammadiyah Jakarta
9	PHN009	1. Maysi Kamia 2. Munaya Fauziah 3. Andriyani 4. Nurmalia Lusida	Gambaran Gizi Lebih, Perilaku Sarapan, Aktivitas Fisik, dan Durasi Tidur Siswa SMATT Daarul Rahman Depok Tahun 2022	Faculty of Public Health, Universitas Muhammadiyah Jakarta
10	PHN010	1. Zulia Damayanti	Hubungan Perilaku Makan Anak dan Pola Asuh Ibu dengan Status Gizi Siswa Sekolah Dasar Islam Terpadu Bintang Tangerang Selatan Tahun 2022	Faculty of Public Health, Universitas Muhammadiyah Jakarta
11	PHN020	1. Rr. Evy Andarini 2. Dewi Purnamawati	Literatur Review: Gambaran Pola Asuh Oran Tua dalam Pencegahan Stunting pada Balita di Kota Kupang Provinsi Nusa Tenggara Timur	Faculty of Public Health, Universitas Muhammadiyah Jakarta



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PARALLEL SESSION

Room 4	
Moderator	Ernyasih, S.K.M., M.K.M.
Moderator Assistant	Bella Mutia Durrotun Nafisah, S.E.
Time	08.30 – 11.30 WIB
Conference Theme	Public Health Nutrition (PHN) and Population (POP)

Number	Paper ID	Name	Title	Author Institution
1	PHN011	1. Aditya 2. Diah M. Utari 3. Munaya Fauziah 4. Masayu Rubianti 5. Dewi Purnamawati	Determinan Tingkat Kegoyangan Gigi Pasien Diabetes Mellitus di Puskesmas Kedung Badak Kota Bogor 2023	Faculty of Public Health, Universitas Muhammadiyah Jakarta
2	PHN012	1. Eminita Krina 2. Dewi Purnamawati	Supplementary Feeding (PMT) Program for Toddlers from Local Food at Panunggangan Public Health Center, Tangerang City, 2023	Faculty of Public Health, Universitas Muhammadiyah Jakarta
3	PHN013	1. Lintang Mega Pertiwi 2. Mohammad Fanani 3. Nur Hafidha Hikmayani	Effect of Thiamine, BMI, Sleep Duration, and Anxiety in Neurotic, Stress, and Somatoform Disorder	Universitas Sebelas Maret
4	PHN014	1. Ery Kustini 2. Dewi Purnamawati	Knowledge and Support of Parents Towards Adolescent Blood Tablet Consumption Compliance in Adolescent Women in Pasar Minggu District	Faculty of Public Health, Universitas Muhammadiyah Jakarta
5	PHN015	1. Ega Galuh Prabawangi 2. Anik Lestari	The Effect of Nutrition Education on The Knowledge	Universitas Sebelas Maret



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Number	Paper ID	Name	Title	Author Institution
		3. Suminah	of Feeding Practice for Mothers Having Wasting Toddlers Aged 6-24 Months	
6	PHN016	1. Annisa Muthmainnah 2. Fathatul Fuadiyah 3. Najla Nabilah 4. Rheina Qur'ani Awalina 5. Munaya Fauziah	Qualitative Study of Student Perceptions Related to Junk Food Consumption Habits on Nutritional Status	Faculty of Public Health, Universitas Muhammadiyah Jakarta
7	PHN017	1. Diah Auliany 2. Dewi Purnamawati	Hubungan Pengetahuan Ibu dan Asupan Makan terhadap Status Gizi Anak Peserta Pos Gizi di Puskesmas Baja Kota Tangerang	Faculty of Public Health, Universitas Muhammadiyah Jakarta
8	PHN018	1. Tria Astika Endah Permatasari 2. Yudi Chadirin 3. Ernirita 4. Anisa Nurul Syafitri 5. Devina Alifia Fadhilah	Food Consumption Behavior and Home Sanitation as Predictor in The Initial Application of Stunting Detection	Faculty of Medicine and Health, Universitas Muhammadiyah Jakarta
9	PHN019	1. Moudina Ismi Azizah 2. Fathatul Fuadiyah 3. Najla Nabilah 4. Rheina Qur'ani Awalina 5. Munaya Fauziah	Qualitative Study of Student Perceptions Related to Junk Food Consumption Habits on Nutritional Status	Faculty of Medicine and Health, Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Tittle	Author Institution
10	POP001	1. Listya Nur'Aini 2. Andriyani 3. Nurmalia Lusida 6. Ernyasih	Analisis Kinerja Karyawan Unit Admission Rumah Sakit Permata Pamulang Tahun 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
11	POP002	1. Reza Avrilia Rahmawati 2. Valia Anindya Putri 3. Nurmalia Lusida 4. Yosi Duwita Arinda	Blended Learning in Improving Student Learning Outcome and Motivation in The New Normal Era: A Review	Faculty of Public Health Universitas Muhammadiyah Jakarta



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PARALLEL SESSION

Room 5	
Moderator	Dr. Dewi Purnamawati, S.K.M., M.K.M.
Moderator Assistant	Fitri Mufidah, S.Ak.
Time	08.30 – 11.30 WIB
Conference Theme	Environmental Health (EOH) and Health Promotion (HPM)

Number	Paper ID	Name	Title	Author Institution
1	EOH001	1. Siti Aisah 2. Rosyidatul Lutfiah 3. Andi Setiawan 4. Ni Luh Gede Ratna Juliasih	Utilization of Mangrove Endophytic Fungi as A Sustainable and Environmentally Friendly Source of Chitosan	Faculty of Mathematics and Natural Sciences, Universitas Lampung
2	EOH002	1. Adinda Nurfadia 2. Gilang Anugerah Munggaran 3. Ernyasih 4. Andriyani	Correlation Characteristics, Knowledge, Attitudes, and Community Perception with Household Waste Management Behavior in RW 04 Pondok Kangan Timur Sub District in 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
3	EOH003	1. Anisya Aulia Lestari 2. Ernyasih	The Correlation of Climate Elements (Air Temperature, Rainfall, and Relative Humidity) to Acute Respiratory Infection in Tangerang Selatan City, 2018-2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
4	EOH004	1. Geia Celia Al-‘Ariq 2. Ernyasih 3. Suherman 4. Andriyani	Analisis Dampak Perubahan Iklim terhadap Kesehatan Mental Anak di Sekolah Dasar Negeri Setu Kota Tangerang Selatan Tahun 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
5	EOH005	1. Indah Febriza 2. Istianah Surury	Gambaran Higiene Sanitasi Gerai	Faculty of Public Health Universitas



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Number	Paper ID	Name	Title	Author Institution
		3. Mizna Sabilla 4. Dadang Herdiansyah	Pangan Jajanan di Taman Kota Manggar Tahun 2023	Muhammadiyah Jakarta
6	EOH006	1. Miftah Hasana Lubis 2. Nurmalia Lusida 3. Andriyani 4. Ernyasih	Hubungan Pengetahuan Makanan Jajanan dengan Kejadian Diare pada Siswa SD Negeri Setu Kota Tangerang Selatan	Faculty of Public Health Universitas Muhammadiyah Jakarta
7	EOH007	1. Mita Rizqi Inayah 2. Ernyasih 3. Suherman 4. Munaya Fauziah	Analysis of The Impact of Climate Change on Adolescent Mental Health at MTS Development Nurul Islam in 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
8	EOH008	1. Najwa Kamila 2. Munaya Fauziah 3. Ernyasih 4. Nurmalia Lusida	Relationship of Knowledge, Attitude towards Clean and Healthy Living Behavior of Students at SMP Bina Insan Cilegon City in 2023	Faculty of Public Health Universitas Muhammadiyah Jakarta
9	EOH009	1. Sinta Amalia 2. Triana Srisantyorini 3. Ernyasih 4. Nurmalia Lusida	Faktor-faktor yang Berhubungan dengan Perilaku Pedagang dalam Pengelolaan Sampah di Pasar Induk Jatiuwung Kota Tangerang	Faculty of Public Health Universitas Muhammadiyah Jakarta
10	EOH010	1. Nabila Aulia Zahra 2. Tri Utami Rosyidah	Islam in Maintaining Cleanliness and Health	Faculty of Public Health Universitas Muhammadiyah Jakarta
11	HPM038	1. Dwi Handayani 2. Martuti	Predictive Factors Related to Fatigue in Type 2 Diabetes Mellitus Patients at Persahabatan Hospital Jakarta	Faculty of Nursing, Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
12	HPM039	1. Dewi 2. Fitriani Rayasari 3. Dewi Anggraini 4. Uswatun Hasanah	The Application of Psychological Intervention and Education Based on the Health Belief Model to Increasing Self Efficacy in MDR-TB Patients	Rumah Sakit Islam Jakarta Pondok Kopi
13	HPM058	1. Eva Desvita 2. Yani Sofiani 3. Ninik Yunitri	Pengaruh Bridging Exercise Terhadap Kekuatan Otot dan Keseimbangan Tubuh pada Pasien Stroke di RS Pusat Otak Nasional	Faculty of Nursing Universitas Muhammadiyah Jakarta
14	HPM063	1. Aisah Mamang 2. Syamsul Anwar 3. Ninik Yunitri	Effect of Counseling and Supervision of Taking Medication for the Elderly on Compliance with Taking TB Medication	Faculty of Nursing Universitas Muhammadiyah Jakarta
15	HPM064	1. Musripah 2. Ninik Yunitri 3. Syamsul Anwar	The Effect of Cervical Cancer Education using Theory-Based Education Health Belief Model on Improving Cervic Cancer Screening in Women of Reproductive Age	Faculty of Nursing Universitas Muhammadiyah Jakarta



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PARALLEL SESSION

Room 6	
Moderator	Dr. Januar Ariyanto, S.K.M., M.K.M.
Moderator Assistant	Vidiastuti Muljono, S.I.P., M.A.
Time	08.30 – 11.30 WIB
Conference Theme	Environmental Health (EOH) and Health Promotion (HPM)

Number	Paper ID	Name	Title	Author Institution
1	EOH011	1. Vivinda Trisnowati Putri 2. Ernyasih 3. Andriyani 4. Nurmalia Lusida	Climatic Relationship (Temperature, Humidity and Rainfall) with Dengue Hemorrhagic Fever (DHF) Incidence in South Tangerang City 2016-2020	Faculty of Public Health Universitas Muhammadiyah Jakarta
2	EOH012	1. Winalda Eka Pratiwi 2. Ernyasih 3. Nurmalia Lusida 4. Andriyani	Hubungan Pengetahuan, Pendidikan, dan Sikap Ibu Rumah Tangga terhadap Pengelolaan Sampah Popok Sekali Pakai di Desa Buaran Mangga Besar Tahun 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
3	EOH013	1. Fauzul Hayat 2. Nurce Arifiati 3. Nia Kurniatillah	Factor Influencing Community Participation in Waste Banks during COVID-19 in Cilegon City, Banten, Indonesia	Faculty of Public Health Universitas Falatehan; UNBAJA
4	EOH014	1. Adira Adhalina 2. Khairil Amin	Islam Maintains Health and Cleanliness	Faculty of Public Health Universitas Muhammadiyah Jakarta
5	EOH015	1. Asti Al Hikmah 2. Marselita Maharani 3. Naufal Alif Ramadhan 4. Salwa Salmabila 5. Munaya Fauziah	Mothers' Perceptions of Diarrhea in Children on Household Sanitation in the Old Bojongsari Area of Depok City in 2023	Faculty of Public Health Universitas Muhammadiyah Jakarta
6	EOH016	1. Salwa Nur Aliyyah	Perceptions of Prevention Behavior of	Faculty of Public Health



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Number	Paper ID	Name	Title	Author Institution
		2. Vicky Abiansyah 3. Yashinta Frida Legita 4. Winona Rahmawati 5. Munaya Fauziah	Dengue Hemorrhagic Fever	Universitas Muhammadiyah Jakarta
7	EOH017	1. Husnul Paninda Hakim 2. Muhammad Ragil 3. Baday Putra Fatihah	Literature Review of Acute Respiratory Infection	Faculty of Public Health Universitas Muhammadiyah Jakarta
8	EOH018	1. Febya Asmirna 2. Dewi Purnamawati	Factors Affecting the Occurrence of Scabies in Cibinong Correctional Facility	Faculty of Public Health Universitas Muhammadiyah Jakarta
9	EOH019	1. Syifa Tiara Nabila 2. Gilang Anugerah Munggaran 3. Triana Srisantyorini 4. Hardiman	Hubungan Perilaku Ibu Rumah Tangga dalam Pengelolaan Sampah di RW 07 Kelurahan Petukangan Selatan Tahun 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
10	EOH020	5. Nurul Anggraini 6. Dewi Purnamawati 7. Triana Srisantyorini 8. Munaya Fauziah	The Relationship between Environmental Sanitation and The Incidence of Diarrhea in Toddlers in The Work Area of The Cireunde Health Center, South Tangerang City in 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
11	HPM013	1. Mujahidah Nur 2. Rahmatika Ratu	Mental Health in Islamic Perspective (Literature Review)	Faculty of Public Health Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
12	HPM014	1. Audi Afansyah Malik 2. Nasywa Malika Putri Zahro 3. Salwa Khoirunnisa 4. Yosi Duwita Arinda 5. Nurmalia Lusida	Factors that Cause Dental Caries in Children	Faculty of Public Health Universitas Muhammadiyah Jakarta
13	HPM015	1. Fadila Yoga Ardhiansyah 2. Hisam Mahdiy Aaminuddin 3. Nurmalia Lusida 4. Yosi Duwita Arinda	Kualitas Hidup pada Masyarakat Lanjut Usia Penderita Hipertensi di Indonesia	Faculty of Public Health Universitas Muhammadiyah Jakarta
14	HPM016	1. Rizky Aditya 2. Siti Mutia Latif	Stroke dalam Kesehatan dan Islam (Kajian Literatur)	Faculty of Public Health Universitas Muhammadiyah Jakarta
15	HPM065	1. Ikrima Rahmasari 2. Yani Sofiani 3. Ninik Yunitri 4. Wati Jumaiyah	Abdominal Massage Can Reduce Constipation in Patients on Traction	Faculty of Public Health Universitas Muhammadiyah Jakarta



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PARALLEL SESSION

Room 7	
Moderator	Gilang Anugerah Munggaran, S.K.M., M.K.M.
Moderator Assistant	Atrio Wahyudi, S.Kom.
Time	08.30 – 11.30 WIB
Conference Theme	Health Policy (HPC) and Health Promotion (HPM)

Number	Paper ID	Name	Title	Author Institution
1	HPC001	1. Mardiana Dwi Puspitasari 2. Mugia Bayu Rahardja 3. Indra Murty Surbakti	Progress in Health Coverage among Indonesian Older People toward the World Health Organization's Decade of Healthy Aging 2020-2030	BRIN; BKKBN
2	HPC002	1. Mutia Ayu Putri Setiawan 2. Istianah Surury	Factors Related to Sexual Harassment on Public Transportation in Jabodetabek in 2022	Faculty of Public Health, Universitas Muhammadiyah Jakarta
3	HPC003	1. Pajrianti Muslimah 2. Rr. Arum Ariasih	Analysis of Factors Associated with Long Waiting Time Finished Drug Prescription Services in Hospital Pharmacy Installations in Indonesia (2019 Health Facility Research Data Analysis)	Faculty of Public Health, Universitas Muhammadiyah Jakarta
4	HPC004	1. Putri Amartya Alfiz 2. Rr. Arum Ariasih 3. Fini Fajriani 4. Noor Latifah	Analisis Proses Rekrutmen Sumber Daya Manusia (SDM) di Rumah Sakit Permata Pamulang Tahun 2022	Faculty of Public Health, Universitas Muhammadiyah Jakarta
5	HPC005	1. Sani Rachman Soleman	The History of Community Outbreak Marburg Viral Disease: A Preparedness Action for Indonesia	Faculty of Medicine, Universitas Islam Indonesia



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Number	Paper ID	Name	Title	Author Institution
6	HPC006	1. Tri Fajari Agustini 2. Amal Chalik Sjaaf	Clinician Research Capacity in L.G.N.G Ngoerah National General Hospital, Denpasar: Education Hospital, Indonesia	Faculty of Public Health, Universitas Indonesia
7	HPC007	1. El Nino De Santos Gulo 2. Kemal N. Siregar 3. Dewi Purnamawati 4. Tria Astika Endah Permatasari 5. Toha Muhaimin	Quality of Life in People with HIV/AIDS (ODHA) in Bogor City in 2023	Faculty of Public Health Universitas Muhammadiyah Jakarta; Faculty of Medicine Universitas Muhammadiyah Jakarta; Universitas Indonesia; YPI
8	HPC008	1. Choirun Nissa 2. Nafis Salsa Billa Zahra 3. Sri Hapsari SP	Faktor Determinan Status Gizi Anak Usia 11-12 Tahun pada Masa Pandemi COVID-19	Institut Teknologi Kesehatan Malang
9	HPC009	1. Sesilia Fransiska 2. Sudarto Ranoatmodjo 3. Abul A'la Al Maududi 4. Dewi Purnamawati 5. Mike Kaltarina	Medical Record Completeness at Bogor Family Medical Center Hospital	Faculty of Public Health Universitas Muhammadiyah Jakarta; Universitas Indonesia
10	HPM017	1. Ainu Aqilah 2. Izzana Fatima 3. Lisma Dila 4. Nurmalia Lusida 5. Yosi Duwita Arinda	The Influence of Social Media Use on Adolescent Mental Health from an Islamic and Health Perspective	Faculty of Public Health, Universitas Muhammadiyah Jakarta
11	HPM018	1. Muhammad Jundi Madani 2. Muhamad Aufa Rizqi 3. Alifah Syifa Fadhilah	The Impact of Conventional and Electronic Cigarette (E-Cigarette) Consumption on Adolescents	Faculty of Public Health, Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
		4. Nurmalia Lusida 5. Yosi Duwita Arinda		
12	HPM019	1. Zahra Diva Pratama 2. Sindy Aulia Fauzi 3. Muhammad Zindan	Risk Factors and Diabetes Mellitus Self-Care and Islamic Perspective	Faculty of Public Health, Universitas Muhammadiyah Jakarta
13	HPM020	1. Martshiva Huditia Sofiani 2. Shila Najla Hafidzah	Islamic View of Drugs	Faculty of Public Health, Universitas Muhammadiyah Jakarta
14	HPM021	1. Andini Bintang Octaviani 2. Aryo Dwi Haryanto	Risk Factors for Acute Respiratory Infection (ISPA): Literature Review	Faculty of Public Health, Universitas Muhammadiyah Jakarta
15	HPM062	1. Agung Widiastuti 2. Yani Sofiani 3. Ninik Yunitri 4. Wati Jumaiyah	Application of Cognitive Behaviour Therapy to Reduce Kinesiophobia in Post Operation Total Knee Replacement	Faculty of Nursing Universitas Muhammadiyah Jakarta



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PARALLEL SESSION

Room 8	
Moderator	dr. Siti Nur Aisyah Jauharoh, Ph.D.
Moderator Assistant	Riza Faizah, S.K.M.
Time	08.30 – 11.30 WIB
Conference Theme	Health Policy (HPC) and Health Promotion (HPM)

Number	Paper ID	Name	Title	Author Institution
1	HPC010	1. Ruri Purwandani 2. Dewi Purnamawati	Pencapaian Indikator Nasional Mutu Rumah Sakit di Indonesia	Ditjen Pelayanan Kesehatan, Kementerian Kesehatan
2	HPC011	1. Tanti Oktriani 2. Dewi Purnamawati	Implementasi Indikator Nasional Mutu Pelayanan Kesehatan Puskesmas di Provinsi Jawa Barat	Direktorat Mutu Pelayanan Kesehatan, Kementerian Kesehatan
3	HPC012	1. Sinta Dewi Lestyoningrum 2. Yuni Purwatiningsih 3. Debri Rizki Faisal	The Diarrhea on Babies (Aged 0-59 Months): Does Healthcare Access Have an Affect?	BRIN Bogor
4	HPC013	1. Ratu Qurroh Ain 2. Ratu Ayu Dewi Sartika 3. Suherman 4. Budi Hartono	Provision of Incentives and Work Motivation on Performance through Organizational Citizenship Behavior in Ciawi Regional General Hospital	Faculty of Public Health, Universitas Muhammadiyah Jakarta
5	HPC014	1. Tri Suryani 2. Dewi Purnamawati 3. Tria Astika Endah Permatasari	The Effectiveness of The Stunting Prevention Program at The Baja City Health Center, Tangerang City	Faculty of Public Health, Universitas Muhammadiyah Jakarta
6	HPC015	1. Lukman Waris 2. Nurce Arifiati 3. Harimat Hendrawan 4. Tri Siswati	Evaluation of Public Health Program Sustainability at Nusantara Sehat Team-Based in Public Health Centre	Faculty of Public Health, Universitas Falatehan



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Number	Paper ID	Name	Title	Author Institution
7	HPC016	1. Shermina Oruh 2. Nurgadima Achmad Djalaluddin 3. Lukman Waris	The Effect of Perception on Obesity and Alcohol Drinking Prediabetes Causes Type 2 Diabetes Mellitus in the Toraja Ethnic in South Sulawesi Province	Faculty of Public Health, Universitas Pejuang Republik Indonesia
8	HPC017	1. Marsha Danessa 2. Dewi Purnamawati	Literatur Review: Efektivitas Implan Steroid sebagai Terapi Edema Makula pada Okulasi Vena Retina	Faculty of Public Health, Universitas Muhammadiyah Jakarta
9	HPC018	1. Amelia Meda Septira 2. Roro Tryanandha Nabilla 3. Masfur Muzakki 4. M. Raihan Halim 5. Munaya Fauziah	Factors Affecting University Muhamamdiyah Jakarta Student Difficulty Quirrtting Smoking	Faculty of Public Health, Universitas Muhammadiyah Jakarta
10	HPM022	1. Revalin Yosinta Rohma 2. Tsalsiatun Najah Bancin	Hypertension in Islamic and Health Perspective	Faculty of Public Health, Universitas Muhammadiyah Jakarta
11	HPM023	1. Nadia Nurjihan 2. Rifdah Aulia Rahmani	Literatur Review: Cigarette in the Perspective of Islam and Health	Faculty of Public Health, Universitas Muhammadiyah Jakarta
12	HPM024	1. Dewi Yuniasih	The Quick Overview of Snakebite Research in Indonesia with The Open Knowledge Map	Faculty of Medicine, Universitas Ahmad Dahlan, Yogyakarta
13	HPM025	1. Raflizar 2. Muldiasman 3. Candra Nadi 4. Sudikno	The Effect of Assistance on Pregnant Women on The Height of Newborns in Locus and Non-Locus Stunting Areas	Research Center for Public Health and Nutrition, Research Organization for Health, National Research and



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Number	Paper ID	Name	Title	Author Institution
				Innovation Agency Indonesia
14	HPM060	1. Endrat Kartiko Utomo 2. Diana Irawati 3. Dewi Anggraini 4. Rizky Nugraha Agung	Effectiveness of Lavender Aromatherapy on Sleep Quality of Chronic Kidney Patients Undergoing Haemodialysis	Universitas Muhammadiyah Jakarta
15	HPM061	1. Adi Buyu Prakoso 2. Uswatul Khasanah 3. Dewi Anggraini 4. Nurhayati	Application of Diabetes Self-Management Education in Lowering Blood Sugar Levels in the Elderly	Faculty of Nursing Universitas Muhammadiyah Jakarta



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PARALLEL SESSION

Room 9	
Moderator	Fini Fajrini, S.K.M., M.K.M.
Moderator Assistant	Yuwanita Sinta Dewi, S.K.M.
Time	08.30 – 11.30 WIB
Conference Theme	Occupational Health and Safety (OHS) and Health Promotion (HPM)

Number	Paper ID	Name	Title	Author Institution
1	OHS001	1. Alvian Mohamad Yapanto 2. Khairani Ayu Lestari 3. Edi Prasetyo	Revolutionizing Medical Education: The Power of Virtual Reality in Neurology Training	Faculty of Medicine, YARSI University
2	OHS002	1. Ekka Ina Oktavia 2. Januar Ariyanto 3. Nurmalia Lusida 4. Andriyani	Faktor-faktor yang Berhubungan dengan Keluhan Muskuloskeletal Disorders (MSDS) pada Pekerja Konstruksi Apartemen di Tangerang	Faculty of Public Health Universitas Muhammadiyah Jakarta
3	OHS003	1. Fanie Oktavia Larasati 2. Andriyani 3. Nurmalia Lusida 4. Ernyasih	Factors Related to Unsafe Actions at PT. Jaya Kencana South Quarter Project in 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
4	OHS004	1. Fidela Angelina Hafiz 2. Triana Srisantyorini 3. Dihartawan 4. Januar Ariyanto	Factors Related to The Incidence of Eye Fatigue to Computer Exposure in Workers at PT. A.W Faber-Castell Indonesia Bekasi in 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
5	OHS005	1. Gherice E. Serumena 2. Aragar Putri 3. Abdul Baktiansyah 4. Triana Srisantyorini 5. Syamsiar S. Russeng	The Effectiveness of Using Screens on Computer Monitors Against Eye Muscle Fatigue of Employees at The Ambon City Education Office in 2023	Faculty of Public Health Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
6	OHS006	1. Hadis Akbari 2. Munaya Fauziah 3. Andriyani 4. Triana 5. Srisantyorini 6. Agus Triyono	Determinants of Implementation of OHS Culture at RSIA Bunda Ciputat, South Tangerang City in 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
7	OHS007	1. Haliqatul Zadidah 2. Rusman Effendi 3. Januar Ariyanto 4. Dihartawan	Factors Associated with The Behavior of Personal Protective Equipment (APD) in Workers at Height at PT. Taisei-Csc Jo The Savyavasa Luxury Residence Project Year 2023	Faculty of Public Health Universitas Muhammadiyah Jakarta
8	OHS008	1. Hanannida Azura 2. Hardiman	Gambaran Perilaku Kepatuhan Penggunaan Alat Pelindung Diri (APD) pada Pekerja Dinding Beton Proyek Pembangunan Gedung MRT-HUB di PT.PP (Persero) Tbk	Faculty of Public Health Universitas Muhammadiyah Jakarta
9	OHS009	1. Siti Nur Ramdaniati 2. E. Egriana Handayani 3. Dedeh Jubaedah	The Relationship of Knowledge, Attitudes and Compliance with The Use of Personal Protective Equipment (PPE) with Safety Behavior among SPBE Employees in Pandeglang District	Miathla’ul Anwar University
10	OHS010	1. Mardian Okbi	Analysis of Fatigue Work Factors in Construction Workers of PT. Mandala Putera in The Bank Indonesia Karawang Project in 2023	Faculty of Public Health Universitas Muhammadiyah Jakarta
11	OHS011	1. Kristianto 2. Suhendar Sulaeman 3. Dewi Purnamawati 4. Miciko Umeda	Nurse Competency Development Strategy in Improving Price Service at Karya Bhakti Pratiwi Hospital	Faculty of Public Health Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
12	OHS012	5. Budi Hartanto		
		1. Sidria Septiono	Accident Factor Finding by Domino Theory to Improve Accident Case in the Future at Construction Activity	Faculty of Public Health Universitas Muhammadiyah Jakarta
		2. Dewi Purnamawati		
13	HPM040	1. Riandi Alfin 2. Fitriani Rayasari 3. Dewi Anggraini	Analysis of The Application of Evidence Based Nursing Practice Buerger Allen's Exercise in Patients with Diabetic Type II	Faculty of Health, Universitas ‘Aisyiyah Bandung
14	HPM041	1. Desy Anggraini	Effect of Muscle Relaxation Against Fatigue in Chemotherapy Patients Lung Cancer at RSUP Persahabatan, East Jakarta	Faculty of Nursing Universitas Muhammadiyah Jakarta
15	HPM042	1. Sri Murtini 2. Rizki Nugraha Agung 3. Ninik Yunitri 4. Yani Sofiyani	Pengaruh Intervensi Terapi Musik terhadap Tingkat Kecemasan pada Pasien Stroke	Faculty of Nursing Universitas Muhammadiyah Jakarta



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PARALLEL SESSION

Room 10	
Moderator	Yustiyani, S.Gz., M.Si.
Moderator Assistant	Widya Rizky Ariandini, S.K.M., M.K.M.
Time	08.30 – 11.30 WIB
Conference Theme	Reproductive Health (RDH) and Population (POP)

Number	Paper ID	Name	Title	Author Institution
1	RDH001	1. Betty Roosiermiatie 2. Arief Priyo Nugroho 3. Felly Philipus Senewe	A Study of Maternal Health Services by Private Midwives in Surabaya City, Indonesia	BRIN
2	RDH002	1. Gracia Christy Tooy 2. Grace Angel Wuaten 3. Meityn Disye Kasaluhe 4. Yana Sambeka	The Relation of Parenting Style to Premartial Sexual Behavior at SMA X, Central Tabukan District	Nusa Utara State Polytechnic
3	RDH003	1. Marya Yenita Sitohang 2. Riza Fatma Arifa	Unpacking Factors Contributing to Married Women's Ability to Negotiate Sexual and Reproductive Health: Implications for Women's Empowerment and Gender Equality	BRIN
4	RDH004	1. Dona Martilova 2. Nurmaini 3. Fikarwin Zuska 4. Sri Rahayu Sanusi	Analysis of Factors Influencing the Selection of Birth Attendants in the Talang Mamak Tribe Community of Indragiri Hulu District	Faculty of Public Health, Universitas Sumatera Utara
5	RDH005	1. Linda Wahyuni Putri	Literature Review: Husband's Role in Reducing the Incidence of Postpartum Depression in	Faculty of Public Health, Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
			Working Women in Indonesia	
6	RDH006	1. Mike Aprillia Hermanto 2. Silvi Karmila Sari 3. Kayla Tarsya Zanita	Islam and Reproductive Health	Faculty of Public Health Universitas Muhammadiyah Jakarta
7	RDH007	1. Siti Ashmaraji Darmawan 2. Istianah Surury 3. Rr. Arum Ariasih 4. Munaya Fauziah	Kejadian Dismenorea Primer Siswi SMA Negeri 1 Garut Tahun 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
8	RDH008	1. Dika Maretika Sobari 2. Tria Astika Endah Permatasari 3. Dewi Purnamawati	Analysis of Related Factors with Anemia Incidence of School Adolescent Girl Senior High School in Working Area Puskesmas Sentul, Bogor District	Faculty of Public Health Universitas Muhammadiyah Jakarta
9	RDH009	1. Ananda Putri Norma Rahayu 2. Nurmalia Lusida	Hubungan Tingkat Stres dan Status Gizi dengan Ketidakteraturan Siklus Menstruasi Remaja Kelas XII di SMK Nusantara 02 Kesehatan Ciputat Tahun 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
10	RDH010	1. Apipah Auliah N 2. Nurfadhilah 3. Triana Srisantyorini 4. Ernyasih	Hubungan Gaya Hidup Sehat, Status IMT, dan Tingkat pengetahuan Agama Terkait <i>Menarche</i> dengan Kejadian <i>Menarche</i> Dini pada Anak Sekolah Dasar X Kota Tangerang Selatan Tahun 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
11	POP003	1. Muhamad Jumliadi 2. Dani Saputra	Evaluation Analysis of Family Development	BRIN; BKKBN Provinsi Sumatera Selatan



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Number	Paper ID	Name	Title	Author Institution
			Program and Family Planning Province of South Sumatera in 2021	
12	POP004	1. Ahmad Mausul 2. Ratu Ayu Dewi Sartika 3. Agus Nurudin 4. Dewi Purnamawati 5. Budi Hartono	Factors Associated with Inpatient Loyalty in RSUD Kota Bogor	Faculty of Public Health Universitas Muhammadiyah Jakarta
13	POP005	1. Mugia Bayu Rahardja 2. Mardiana Dwi Puspitasari 4. Indra Murty Surbakti	Working Poor among Indonesian Older People: A Challenge to Achieving SDG Target 1.1 and Healthy Aging	BRIN Jakarta; BKKBN Jakarta
14	RDH016	1. Hamidah 2. Riza Aulia	The Effect of Hormonal Contraception on Obesity in Women of Reproductive Age in Jakarta, Indonesia	Faculty of Medicine and Health Universitas Muhammadiyah Jakarta



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PARALLEL SESSION

Room 11	
Moderator	Nur Romdhona, S.H., M.Kes.
Moderator Assistant	Dwi Ratna Sari, S.Ak.
Time	08.30 – 11.30 WIB
Conference Theme	Reproductive Health (RDH) and Health Promotion (HPM)

Number	Paper ID	Name	Title	Author Institution
1	RDH011	1. Violita Agnoviardi 2. Mizna Sabilla 3. Luqman Efendi 4. Istianah Surury	Determinants of COVID-19 Prevention Behavior in Women of Reproductive Age in South Tangerang City 2020	Faculty of Public Health Universitas Muhammadiyah Jakarta
2	RDH012	1. Zuyyina Adhal Tasyiaqurin 2. Andriyani 3. Nurmalia Lusida 4. Ernyasih	Faktor-faktor yang Berhubungan dengan Tingkat Kehadiran Remaja di Posyandu Remaja Wilayah Kerja Puskesmas Cipondoh Tahun 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
3	RDH013	1. Hirfa Turrahmi	The Relationship Body Mass Index (BMI), Albumin Levels, Mean Arterial Pressure (MAP), and Food Intake on the Incidence of Preeclampsia: A Prospective Cohort Study	Faculty of Public Health Universitas Muhammadiyah Jakarta
4	RDH014	1. Donita Lutfia Hasanah 2. Naida Salsabila	Islam and Reproductive Health	Faculty of Public Health Universitas Muhammadiyah Jakarta
5	RDH015	1. Aisyah Hamilaturrizqi 2. Sekar Ayu Amalia Handika 3. Yosi Duwita Arinda 4. Nurmalia Lusida	Public Perception and Stigma Regarding Vasectomy in Men: A Literature Review	Faculty of Public Health Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
6	HPM026	1. Shiva Nabilah 2. Dewi Purnamawati 3. Tria Astika Endah Permatasari 4. Toha Muhaimin 5. Fatimah	Qualitative Study of The Utilization of Antenatal Care (ANC) Services at The Tanara Health Center, Serang District	Faculty of Public Health Universitas Muhammadiyah Jakarta
7	HPM027	1. Adinda Jilan Hikaru Winnia 2. Afifah	Risk Factors for Hypertension	Faculty of Public Health Universitas Muhammadiyah Jakarta
8	HPM028	1. Askah Alizah 2. Teddy Pratama 3. Bergas Sakti Yugo Welirang	Islamic View of Drugs	Faculty of Public Health Universitas Muhammadiyah Jakarta
9	HPM029	1. Dewi Ghinawati 2. Lingga Nur Afifah 3. Yuwanita Aisha 4. Nurmalia Lusida	Risk Factors of Drug Abuse among Adolescents: A Review	Faculty of Public Health Universitas Muhammadiyah Jakarta
10	HPM030	1. Dhiya Rahmawati 2. Naila Mahira 3. Yosi Duwita Arinda 4. Nurmalia Lusida	The Effectiveness of Quran Reading Therapy for Stroke Patients	Faculty of Public Health Universitas Muhammadiyah Jakarta
11	HPM031	1. Rudiansyah Harahap 2. Muhammad Riza Setiawan 3. Lukman Faishal 4. Hayyin Assofa	Body Mass Index and Working Posture Affect the Incidence of Knee Pain (Osteoarthritis Genue) in Pedicab Pedal in Menara Kudus: A Cross-Sectional Study	Universitas Muhammadiyah Semarang
12	HPM032	1. Febriyanti 2. Dewi Purnamawati	Tingkat Kepesertaan Keluarga Berencana terhadap Pemakaian Kontrasepsi di Kecamatan Leuwisadeng 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Tittle	Author Institution
13	HPM033	1. Trisya Allinda 2. Riana Rahmawati	Self-Medication Practices for Acne Vulgaris among Medical Students: A Study in Yogyakarta	Universitas Islam Indonesia
14	HPM034	1. Rd. Yunina Endang Sari 2. Dewi Purnamawati	Factors Influencing the Optimization of Outpatient Unit in Sawojajar Mother and Children Hospital	Faculty of Public Health Universitas Muhammadiyah Jakarta
15	HPM035	1. Villiandra Assya 2. Ilham Malik Ibrahim 3. Osyama Almuji	Cigarette in The View of Islam and Health	Faculty of Public Health Universitas Muhammadiyah Jakarta



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PARALLEL SESSION

Room 12	
Moderator	Nurmalia Lusida, S.K.M., M.K.M.
Moderator Assistant	Irna Hasanah, S.Pd., M.K.M.
Time	08.30 – 11.30 WIB
Conference Theme	Occupational Health and Safety (OHS) and Health Promotion (HPM)

Number	Paper ID	Name	Title	Author Institution
1	OHS013	1. Hanifah Fauziah Suhendra 2. Dihartawan 3. Munaya Fauziah 4. Suherman	Hubungan Karakteristik Individu dengan Gejala Nyeri Punggung Bagian Bawah pada Pekerja Konveksi Putri Daffa Depok Tahun 2023	Faculty of Public Health Universitas Muhammadiyah Jakarta
2	OHS014	1. Maulida Khalizahy Rahmatia 2. Azizah Zen 3. Fini Fajrini 4. Munaya Fauziah	Hubungan Stres Kerja dengan Kinerja Perawat terhadap Proses Asuhan Keperawatan di Unit Rawat Inap RSUD Khidmat Sehat Afiat Kota Depok Tahun 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
3	OHS015	1. Milla Puspa Andini Alydrus 2. Yahya Thamrin 3. Triana Srisantyorini 4. Januar Ariyanto 5. Syaiful Bahri	Analysis of The Relationship between Demographic Factors and Occupational Psychological Factors with The Behavior of Occupational; Safety and Health (K3) Implementation in The Road Infrastructure Development Project of PT.	Faculty of Public Health Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
			Consultant Engineering Blessings in Tangerang Regency in 2023	
4	OHS016	1. Muhamad Saleh Arifin 2. Hardiman 3. Suherman 4. Dihartawan	Hubungan Sikap dan Pengetahuan Perawat terhadap Kepatuhan Penggunaan Alat Pelindung Diri (APD) di Instalasi Rawat Jalan RSU Tangerang Selatan	Faculty of Public Health Universitas Muhammadiyah Jakarta
5	OHS017	1. Nur Kholifah 2. Luqman Effendi 3. Nurfadhilah 4. Dihartawan	Hubungan Persepsi dengan Kepatuhan Penggunaan Alat Pelindung Diri pada Pekerja di Proyek Pembangunan BBPPT Kominfo Depok	Faculty of Public Health Universitas Muhammadiyah Jakarta
6	OHS018	1. Salsabila Nuraini 2. Nur Romdhona 3. Fini Fajrini 4. Noor Latifah	Factors Associated with The Incidence of Low Back Pain Based on the Numeric Pain Rating Scale in Daily Workers at The BBPPT Kominfo Depok Project	Faculty of Public Health Universitas Muhammadiyah Jakarta
7	OHS019	1. Selvi Fathia 2. Hardiman 3. Triana Srisantyorini 4. Dihartawan	Analysis of The Application of an Active Fire System According to Minister of Public Works No. 26/PRR/M/2008 at Mediterania Garden Residence 2	Faculty of Public Health Universitas Muhammadiyah Jakarta
8	OHS020	1. Shalsa Biella 2. Noor Latifah 3. Fini Fajrini	Factors Related to Work Stress in The Online Motorcycle Taxis Driver	Faculty of Public Health Universitas



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Number	Paper ID	Name	Title	Author Institution
		4. Dadang Herdiansyah	Community in Depok City in 2022	Muhammadiyah Jakarta
9	OHS021	1. Gayuh Ageng Munawwaroh 2. Syarafina Zhalifunnafsi Sartono 3. Tri Wulandari	Gangguan Kesehatan Mata pada Pekerja Bengkel Las Listrik di Kecamatan Pamulang Kota Tangerang Selatan	Faculty of Public Health Universitas Muhammadiyah Jakarta
10	OHS022	1. Fitria Oriza 2. Andriyani 3. Munaya Fauziah 4. Suherman 5. Lilis Suryani	Determinants of Hands Hygiene Compliance Behavior of Employees at Pamulang Health Center, Tangerang Selatan City, 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
11	HPM043	1. M. Didin Wahyudin 2. Rizki Nugraha Agung 3. Ninik Yunitri 4. MG. Enny Mulyatsih	Penerapan Evidence Based Nursing Practice Pemberian Head Up 30 Derajat terhadap Peningkatan Saturasi Oksigen Pasien Stroke Iskemik	Faculty of Nursing Universitas Muhammadiyah Jakarta
12	HPM044	1. Egi Mulyadi 2. Wati Jumaiyah 3. Ninik Yunitri	Penerapan Evidence Based Practice Efektivitas Health Education dalam Self Care pada Pasien dengan Heart Failure	Faculty of Nursing Universitas Muhammadiyah Jakarta
13	HPM045	1. Ika Mustafida	Pengaruh Relaksasi Otot Progresif terhadap Kelelahan pada Diabetes Mellitus Tipe 2 di Wilayah Kerja Puskesmas Kecamatan Cempaka Putih Jakarta Pusat	Faculty of Nursing Universitas Muhammadiyah Jakarta
14	HPM047	1. Erwan Setiyono	Efektifitas Mobilisasi Dini	Faculty of Nursing



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Number	Paper ID	Name	Title	Author Institution
			terhadap Kekuatan Otot dan Skala Nyeri pada Pasien Post Orif Fraktur Tibia Fibula di Rumah Sakit di Jakarta Pusat	Universitas Muhammadiyah Jakarta
15	HPM059	1. Anggriyana Tri Widiyanti 2. Diana Irawati 3. Dewi Anggraini	Penerapan Evidence Based Nursing Intervensi Multifaset dalam Peningkatan Kepatuhan Program Pengobatan Hemodialisis	Universitas ‘Aisyiyah Bandung



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PARALLEL SESSION

Room 13	
Moderator	Yosi Duwita Arinda, M.K.M.
Moderator Assistant	Nadilla Firda, S.K.M., M.K.M.
Time	08.30 – 11.30 WIB
Conference Theme	Occupational Health and Safety (OHS)

Number	Paper ID	Name	Title	Author Institution
1	OHS023	1. Mochamad Faiz Abdurrahman 2. Nurmalia Lusida 3. Andriyani 4. Ernyasih	Factors Associated with Unsafe Action in Workers at The Project X in 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
2	OHS024	1. Sarah Nisa Utami 2. Dewi Purnamawati	Analisis Implementasi Sistem Manajemen Keselamatan dan Kesehatan Kerja (SMK3) Fasyankes pada Puskesmas di Indonesia (Literature Review)	Faculty of Public Health Universitas Muhammadiyah Jakarta
3	OHS025	1. Eneng Hasanah 2. Dewi Purnamawati	Perbedaan Pengetahuan Perawat tentang <i>Patient Safety</i> Sebelum dan Sesudah Mendapat Edukasi dalam Pencegahan Kejadian <i>Flebitis</i> di RS Rumah Sehat Terpadu DD Tahun 2023	Faculty of Public Health Universitas Muhammadiyah Jakarta
4	OHS026	1. Alvi Fauziah 2. Dewi Purnamawati	Description of Hypertension at Pondok Pucung Public Health Center South Tangerang City in 2022	Faculty of Public Health Universitas Muhammadiyah Jakarta
5	OHS027	1. Aenul Wardah 2. Dewi Purnamawati	Implementation of Clinical Pathway in Sectio Caesaria Cases to Improve The Quality, Cost, and Variance of Services	Faculty of Public Health Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
			at Setia Mitra Hospital	
6	OHS028	1. Sukriyadi 2. Dewi Purnamawati	Faktor-faktor yang Berhubungan dengan Kejadian Penyakit Infeksi Saluran Pernapasan Akut (ISPA) pada Pekerja Fabrikasi di PT IHI Power Service Indonesia	Faculty of Public Health Universitas Muhammadiyah Jakarta
7	OHS029	1. Mariyatul Qibtiyah 2. Januar Ariyanto 3. Triana Srisantyorini 4. Aragar Putri 5. Agus Triyono	Ergonomic Risk Analysis and Musculoskeletal Disorders (MSDs) Final Inspection Operator on Automotive Industry in Tangerang	Faculty of Public Health Universitas Muhammadiyah Jakarta
8	OHS030	1. Aisyah Nabila Putri 2. Faiza Hukma Shabiyya 3. Haifa Rizki Farchani 4. Jermaine Affan Yani 5. Munaya Fauziah	Overview of the Behavior of Sanitation and Food Safety in Padang Restaurant	Faculty of Public Health Universitas Muhammadiyah Jakarta
9	OHS031	1. Munaya Fauziah 2. Ega Puspitasari 3. Gita Nurwulan 4. Raihan Ali 5. Irna Hasanah	Description of Stress Levels of FKM UMJ Students	Faculty of Public Health Universitas Muhammadiyah Jakarta
10	OHS032	1. Aphrodite Dine Herlinda	Overview of Work Fatigue in Jabodetabek Online Drivers in 2023	Faculty of Public Health Universitas Muhammadiyah Jakarta
11	HPM048	1. Noviana Haryanti 2. Rizky Nugraha Agung 3. Ninik Yunitri	Penerapan Terapi Musik White Noise terhadap Gangguan Tidur pada Pasien Stroke	Faculty of Nursing Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
		4. Fitriyan Rayasari		
12	HPM049	1. Agus Purnama 2. Rizky Nugraha Agung 3. Ninik Yunitri 4. Yani Sofiyani	Benefits of Auricular Acupressure on Depression in Stroke Patient	Faculty of Nursing Universitas Muhammadiyah Jakarta
13	HPM055	1. Ivana Thalita 2. Amelia Rahma	Mental Health in Islam	Faculty of Public Health Universitas Muhammadiyah Jakarta
14	HPM056	1. Siti Latipah 2. Yani Sofiani 3. Ninik Yunitri	Efektivitas Posisi Lateral terhadap Kejadian Dekubitus pada Pasien Stroke	Faculty of Nursing Universitas Muhammadiyah Jakarta
15	HPM057	1. Elli Hidayati 2. Syahrul Rauf 3. Mochammad Hatta 4. Sonny T. Lisal 5. Fatimah 6. Hamidah	Effect of Interactive Education (IPE) on Stress Levels among Primigravid Trimester III Pregnant Women	Faculty of Medicine and Health Universitas Muhammadiyah Jakarta



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PARALLEL SESSION

Room 14	
Moderator	Miftahul Arsyi, S.K.M., M.K.M.
Moderator Assistant	Ridwan Kamil, S.Kom.
Time	08.30 – 11.30 WIB
Conference Theme	Epidemiology (EPI) and Health Promotion (HPM)

Number	Paper ID	Name	Title	Author Institution
1	EPI012	1. Mubayinah 2. Munaya Fauziah 3. Dewi Purnamawati	Analysis Of Antibody Response To SARS-CoV-2 Post Covid 19 Vaccination Sinovac In Employee At Prodia Laboratory	Faculty of Public Health, Universitas Muhammadiyah Jakarta
2	EPI013	1. Dini Srie Agustin 2. Sudarto Ranoatmodjo 3. Dewi Purnamawati	The Relationship between Attitude Regarding COVID-19 to Compliance with Self-Isolation in Preventing the Transmission of COVID-19 at Puskesmas Jampang, Bogor District, 2021	Faculty of Public Health, Universitas Muhammadiyah Jakarta
3	EPI014	1. Ahmad Farid Amin 2. Dewi Purnamawati	Prevalence of HIV Infection in Tangerang City in 2022	Faculty of Public Health, Universitas Muhammadiyah Jakarta
4	EPI016	1. Lutfiah Kurnia Putri Ramadhani 2. Meyda Cahya Irani 3. Fifi Safina Salma	Risk Factors of Corona Virus Diseases 19 (COVID-19): Literature Review	Faculty of Public Health, Universitas Muhammadiyah Jakarta
5	EPI017	1. Syfa Fitra Al Rahma 2. Kana Larasati	COVID-19 in The Islamic View	Faculty of Public Health, Universitas Muhammadiyah Jakarta
6	EPI018	1. Cut Zhiva Neysa Alzena 2. Shivani Aulia Maryono	Risk Factors of Diabetes Mellitus and Diabetic Foot as a Complication	Faculty of Public Health, Universitas Muhammadiyah Jakarta



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Number	Paper ID	Name	Title	Author Institution
				Muhammadiyah Jakarta
7	EPI019	1. Andika Surya Noviar 2. Muhammad Virgi Ristanto 3. Aulia Nurcantika 4. Yosi Duwita Arinda 5. Nurmalia Lusida	Effect of Ramadan Fasting on People with Type 2 Diabetes Mellitus	Faculty of Public Health, Universitas Muhammadiyah Jakarta
8	EPI020	1. Viola Bunga Aprilia 2. Karenina Dwi Ramadhanti 3. Shivana Aulia Maryono	Diarrhea in Mother and Child	Faculty of Public Health, Universitas Muhammadiyah Jakarta
9	EPI021	1. Aisyah Hanifah 2. Faisal Adani 3. Selfia Risianti 4. Syarafina Zhalifunnafsi 5. Munaya Fauziah	Description of Implementation of Blood Supplemented Tablets (TTD) in The Realization of Anemia-Free Healthy Adolescent Program	Faculty of Public Health, Universitas Muhammadiyah Jakarta
10	HPM046	1. Rinawati 2. Wati Jumaiyah 3. Ninik Yunitri 6. Rizki Nugraha Agung	Manfaat Chin Tuck Againsts Resistance (CTAR) terhadap Disfagia pada Pasien Stroke	Faculty of Nursing Universitas Muhammadiyah Jakarta
11	HPM050	1. Rohani 2. Wati Jumaiyah 3. Ninik Yunitri 4. Rizki Nugraha Agung	Mirror Therapy To Improve Upper Extremity Motor Function In Stroke Patients	Faculty of Nursing Universitas Muhammadiyah Jakarta
12	HPM051	1. Satriani	Penerapan Evidence Base Nursing Practice Pengaruh Crossword Puzzle's terhadap Gangguan Kognitif pada Pasien Stroke Iskemik	Faculty of Nursing Universitas Muhammadiyah Jakarta
13	HPM052	1. Ganjar Kundi Prasetya	Edukasi Mobil Phone dalam Menurunkan	Faculty of Nursing



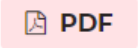
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Number	Paper ID	Name	Title	Author Institution
		2. Ninik Yunitri 3. Rizki Nugraha Agung 4. Fitriani Rayasari	Tekanan Darah pada Pasien Stroke	Universitas Muhammadiyah Jakarta
14	HPM053	1. Hasian Leniwita 2. Ninik Yunitri 3. Yani Sofiyani	Effectivness Edukasi dan Latihan Range of Motion (ROM) pada Pasien Post Stroke	Faculty of Nursing Universitas Muhammadiyah Jakarta
15	HPM054	1. Nuzula Firdaus 2. Rizki Nugraha Agung 3. Ninik Yunitri 4. Yani Sofiyani	Manfaat Familiar Auditory Sensory Training (FAST) terhadap Tingkat Kesadaran pada Pasien Stroke	Faculty of Nursing Universitas Muhammadiyah Jakarta

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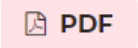
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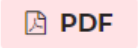
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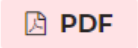
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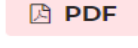


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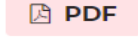
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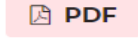
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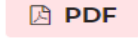
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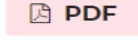
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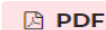


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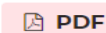
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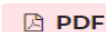


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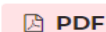


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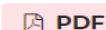


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PROGRESS IN HEALTH COVERAGE AMONG INDONESIAN OLDER PEOPLE TOWARD THE WORLD HEALTH ORGANIZATION'S DECADE OF HEALTHY AGING 2021-2030

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ABSTRACT

Introduction. Older people are associated with health decline and age-related disability. Person-centered integrated care is an action plan for the 'Decade of Healthy Aging 2021-2030' to ensure older people enjoy healthier lives. **Purpose.** To participate in the Decade movement, evidence of the progress in health coverage among Indonesians elderly from 2015 to 2022 should be presented. **Methods.** This study uses the 2015, 2020, and 2022 National Socio-Economic Survey (SUSENAS) datasets with a sample of 94,326, 121,961, and 122,344 elderly aged 60 and over, respectively. Univariate analysis is used to determine the percentage of elderly utilizing outpatient treatment between 2015 and 2022. **Results.** The proportion of elderly without health insurance fell from approximately 45.4 percent in 2015 to 26.4 percent in 2015, and 26 percent in 2022. However, the proportion of older people with health insurance and a health problem but not seeking outpatient treatment rose from around 35.8 percent in 2015 to 45.2 percent in 2020, and 48.2 percent in 2022. Self-medication has been the highest prevalent reason for not utilizing outpatient treatment over time. Self-medication increased from about 57.5 percent in 2015 to 62.1 percent in 2020 and 73.9 percent in 2022. Only about 2.8 percent of the elderly did not utilize outpatient treatment in 2022 due to the COVID-19 pandemic. **Conclusion.** As self-medication was the most common reason, community awareness and collaboration with health care providers should be encouraged to carry out person-centered integrated treatment.

Keywords: self-medication, person-centered integrated care, healthy aging.

ABSTRAK

Pendahuluan. Lanjut usia (lansia) sangat erat kaitannya dengan penurunan derajat kesehatan dan disabilitas yang sejalan dengan penambahan usia. Perawatan terpadu yang berpusat pada kebutuhan individu lansia merupakan suatu rencana aksi dari gerakan 'Decade of Healthy Aging 2021-2030' untuk memastikan lansia menikmati hidup yang lebih sehat. **Tujuan.** Untuk berpartisipasi dalam gerakan ini, bukti keberhasilan peningkatan cakupan kesehatan semesta pada lansia dari tahun 2015 hingga 2022 akan disajikan. **Metode.** Penelitian ini menggunakan data Survei Sosial Ekonomi Nasional (SUSENAS) tahun 2015, 2020, dan 2022 dengan sampel masing-masing sebanyak 94.326, 121.961, dan 122.344 lansia berusia 60 tahun ke atas. Analisis univariat digunakan untuk mengetahui persentase lansia yang mengakses fasilitas kesehatan rawat jalan antara tahun 2015 dan 2022. **Hasil.** Proporsi lansia yang tidak memiliki asuransi kesehatan turun dari sekitar 45,4 persen pada tahun 2015 menjadi 26,4 persen pada tahun 2015, dan 26 persen pada tahun 2022. Namun, proporsi lansia yang memiliki asuransi kesehatan dan mempunyai masalah kesehatan tetapi tidak mengunjungi fasilitas kesehatan rawat jalan meningkat dari sekitar 35,8 persen pada tahun 2015 menjadi 45,2 persen pada tahun 2020, dan 48,2 persen pada tahun 2022. Mengobati diri sendiri telah menjadi alasan paling umum ditemui untuk tidak mengunjungi fasilitas kesehatan rawat jalan dalam kurun waktu tersebut. Persentase lansia yang beralasan mengobati diri sendiri meningkat dari sekitar 57,5 persen pada tahun 2015 menjadi 62,1 persen pada tahun 2020 dan 73,9 persen pada tahun 2022. Hanya sekitar 2,8 persen lansia yang tidak mengunjungi fasilitas kesehatan rawat jalan pada tahun 2022 karena pandemi COVID-19. **Kesimpulan.** Karena mengobati diri sendiri adalah alasan paling umum ditemui, kesadaran masyarakat dan membangun kerjasama dengan penyedia layanan kesehatan harus ditingkatkan untuk memastikan terlaksananya perawatan terpadu yang berpusat pada kebutuhan individu lansia.

Kata kunci: Pengobatan sendiri, perawatan terpadu, sehat di usia tua

INTRODUCTION

Population aging has begun to emerge as a demographic aspect of Indonesia. The proportion of the Indonesian population aged 60 and over gradually climbed from around 7.59 percent in 2010 to 10.82 percent in 2021¹. Furthermore, between 2010 and 2021, life expectancy at birth increased from around 69.81 to 71.57 years¹.

Indonesia is predicted to benefit from the second demographic dividend as adult longevity rises. The magnitude of the benefits that result from increased longevity will be greatly influenced by one critical factor: health. However, aging is often associated with health decline and age-related disability. The high prevalence of chronic noncommunicable diseases (NCD) made Indonesian older adults more vulnerable. Data showed that the prevalence of cancer, stroke, chronic kidney disease (CKD), diabetes, and hypertension increased among Indonesian adults and older individuals between 2013 and 2018².

With a rapidly aging population, Indonesia must adjust more quickly, including the development of health facilities and other social protection programs. Age-related disability, according to the International Classification of Functioning, Disability, and Health (ICF), can be reduced or postponed by engaging older people in healthy behaviors³⁻¹³ and providing them with a supportive environment¹⁴⁻¹⁷. As a result, the emphasis must change from defining healthy aging as the absence of disease to cultivating the functional ability that allows older individuals to perform meaningful activities.

The World Health Organization's (WHO) Decade of Healthy Aging 2021-2030 is a movement that focuses on evidence-based interventions that may improve disability-free life expectancy while leaving no older individual behind. There are three action programs for the Decade of Healthy Aging: 1) developing age-friendly communities; 2) assuring person-centered integrated care for older people; and 3) providing health care and assistance for older people in the community¹⁸.

Universal health coverage is necessary to achieve the target of the Sustainable Development Goal (SDG) on good health and well-being. However, achieving the target will be impossible without taking into account the basic health and social needs of older people. Person-centered integrated care should be provided¹⁸. As a result, current health systems are better intended to meet the needs of older people rather than providers, to be available in the community, and to successfully coordinate with health care providers.

Evidence should be available to carry out the action plans following the movement of the Decade. Thus, this study will examine the progress of health coverage in Indonesian older people. This study will specifically focus on describing health insurance coverage and health service utilization among Indonesian older people from 2015 to 2022 because health insurance coverage alone will not be sufficient to meet the SDG objective for good health and well-being.

METHOD

The 2015, 2020, and 2020 National Socioeconomic Survey (SUSENAS)-core datasets are used in this study. The data of SUSENAS-core is collected in March every year. Thus, using 2022 SUSENAS-core datasets to estimate healthcare utilization during the COVID-19 pandemic will be appropriate. The unit of analysis of this study is elderly persons aged 60 and over. The SUSENAS-core recorded 94,326, 121,961, and 122,344 older people aged 60 and over in 2015, 2020, and 2022, respectively. All data is weighted by incorporating the survey design and the sampling weight. Missing data is omitted.

This study examines two major indicators: the progress on health insurance coverage and outpatient treatment utilization. Outpatient treatment is used depending on the response of older people who seek outpatient care for a health concern. The variable of outpatient treatment is used to identify healthcare utilization since this behavior is more flexible on price and income than either inpatient or other preventive care¹⁹.

Furthermore, this study focuses on the reasons why people with health problems do not seek outpatient therapy. The reasons for not seeking outpatient therapy are required to examine. As the first step toward creating person-centered integrated care, it is necessary to consider the individual needs of older people.

This study uses univariate analysis for each survey wave. The frequency distribution is used to show the percentage of each variable.

SUSENAS-core datasets for 2015, 2020, and 2022 are available under the agreement between the National Population and Family Planning Board (BKKBN) and Statistics Indonesia (BPS). No personal information, such as name or address, is provided. As a result of the confidentiality of the datasets, no ethical approval should be required.

RESULTS AND DISCUSSION

Findings show that the number of Indonesian older persons without health insurance declined rapidly from approximately 45.4 percent in 2015 to 26.4 percent in 2020, and then gradually decreased to 26 percent in 2022 (table 1). Thus, over the previous seven years, Indonesians have seen a major improvement in health insurance coverage among the elderly.

Table 1. The distribution of older people aged 60 and over by type of health insurance coverage in 2015, 2020, and 2022, Indonesia

Variable		2015	2020	2022
Health Insurance Coverage*	National health insurance (BPJS)-Government funding (PBI)	26.3	44.6	47.9
	National health insurance (BPJS)-private expense (NonPBI)	10.1	23.2	20.4
	Municipal insurance (Jamkesda)	9.4	9.2	7.8
	Private insurance	0.5	0.4	0.4

Variable	2015	2020	2022
Company insurance	0.4	0.9	1.0
No health insurance	45.4	26.4	26.0

*Respondent may have more than one type of health insurance

Source: 2015, 2020, and 2022 SUSENAS-Core (authors' calculation)

The descriptive results for each survey wave are shown in Table 2. There is an intriguing finding on the use of outpatient care among the elderly with health insurance. The table shows that the percentage of the elderly who have health insurance and a health complaint but do not use outpatient care rose from around 42.8 percent in 2015 to 49.6 percent in 2020 and 50.8 percent in 2022. Thus, it is presumed that other individual needs of the elderly are not being satisfied.

Table 2. The distribution of older people aged 60 and over by health insurance coverage and a health complaint in 2015, 2020, and 2022, Indonesia

	Variables	2015	2020	2022
Outpatient treatment	Yes	64.2	54.8	51.8
	No	35.8	45.2	48.2
Reasons for not visiting outpatient treatment*	Can not afford medical cost	6.2	0.0	0.0
	Can not afford transport cost	1.3	0.8	0.4
	No accessible transportation	0.2	0.3	0.1
	Long waiting time	0.2	0.6	0.4
	Self-medication	57.5	62.1	73.9
	No family/community support to reach a health facility	0.6	1.0	0.4
	Low perceived need for medical care	28.9	33.0	20.7
	Fear of the COVID-19 spread	NA	NA	2.8
	Other reasons	5.0	2.2	1.3

*The percentage of explanations based on older people aged 60 and over who did not receive outpatient treatment.

Source: 2015, 2020, and 2022 SUSENAS-Core (authors' calculation)

Table 2 also reveals that, from 2015 to 2022, self-medication was the most common reason for the elderly with a health complaint and health insurance not seeking outpatient care. Self-medication increased dramatically from approximately 57.5 percent in 2015 to 62.1 percent in 2020 and 73.9 percent in 2022.

Help-seeking behavior among the elderly may be influenced by the COVID-19 pandemic. However, the table shows that only about 2.8 percent of the elderly did not visit outpatient care in 2022 due to the fear of the virus outbreak. Therefore, self-medication is the primary reason the Indonesian elderly do not use outpatient treatment.

Furthermore, the percentage of people who have a low perceived need for medical care has risen from 28.9 percent in 2015 to 33 percent in 2020. The high prevalence of self-medication and low perceived need for medical treatment should raise community awareness to successfully coordinate with formal health care providers.

The elderly self-medicate for a variety of reasons. Recent research has found that self-medication is popular among the elderly as a result of an open drug market²⁰ and enhanced telemedicine

technology²¹. Self-medication is especially widespread among the elderly who are already using health services, restricting data on older persons who do not seek outpatient care in the first place²². This could be a drawback of our study because SUSENAS does not give data on the elderly seeking outpatient care for the first time. Other factors impacting people's self-medication include a lack of acceptance of environmental and healthcare professional supports²³.

The prevalence of reasons for not seeking outpatient therapy other than self-medication and a low perceived need for medical care is very low. In 2020 and 2022, the prevalence of health care costs is negligible, in keeping with the rising prevalence of health insurance coverage. However, there was an increase in the prevalence of barriers to outpatient treatment from 2015 to 2020, including transportation costs, the availability of accessible transportation options, community/family support by accompanying the elderly to the health facility, and long waiting times in the health facility. According to Andersen's behavioral model of health-care use, factors such as transportation cost, availability and affordability of transportation, community/family support, and the quality of health-care services (waiting time) are enabling factors that impede service use. Previous research found that physical accessibility barriers (poor transportation system and poor facility architecture), economic barriers (low-income households), social barriers (poor family support), and unfriendly nature of the healthcare environment barriers (poor attitude of healthcare providers and long waiting times) are issues of unmet health care need for older people^{24,25}.

The data presented above confirmed the absence of fundamental social and health services for older persons in Indonesia. To satisfy the basic social requirements of these older individuals, community-based social care and assistance should be offered, such as accessible transportation for older persons and caregivers accompanying the elderly to outpatient treatment. Healthcare providers must also fulfill the needs of the elderly, as extended wait times diminish the utilization of health services.

CONCLUSION AND SUGGESTIONS

As the incidence of self-medication and the low perceived need for medical treatment becomes more common, community awareness should be raised to cooperate with formal health care practitioners and appropriately execute person-centered integrated health care. More research should be done to identify the specific factors that lead to older people's self-medication and a reduced perceived need for medical treatment.

Limitation

The study's strength is its use of nationally representative data that can be estimated at the national level. The cross-section analysis, on the other hand, just measures the relationship of the variables. In addition, information on health insurance coverage and utilization provided solely by respondents or respondents' families may be biased.

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POTENTIAL RISK FACTORS TO PREVENT THE RISE IN ELECTRIC CIGARETTE CONSUMPTION AMONG INDONESIAN ADOLESCENTS AGED 13 TO 15 YEARS OLD

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ABSTRACT

Data showing a significant increase trend in sales of electronic cigarettes in Indonesia and users aged ≥ 15 years have increased tenfold to 6.6 million in 2021, and there has been no e-cigarette regulation. The purpose of the study is to provide evidence to support policies intended for increasing the number of electric smokers. Using data from the 2019 Global Youth Tobacco Survey with national representation. Simple and multiple logistic regression analyses ($p < 0.05$) were performed. The analysis states: 15% of youth 13-15 years old use e-cigarettes and most users are boys 13 years old, with a weekly disposable income below IDR 50,000. Multivariate analysis shows; friends or shop workers who provide e-cigarettes or attend events promoting tobacco products have a 15-fold greater influence on adolescents than the reference group. When compared to not seeing the advertisements, e-cigarette advertisements on the streets/stores/TV/ internet have the potential to increase adolescent motivation by 8 times. Nonsmokers who have tried tobacco products are potentially three times more likely to be interested in e-cigarettes than those who have never tried them. Adolescent smokers are twice as likely as nonsmokers to use e-cigarettes, and close friends who smoke are twice as likely as nonsmokers to influence e-cigarette use. Information shows that the previous Tobacco Advertising Promotion and Sponsorship Policy was ineffective, it needed to be strengthened with a total ban. It is critical to strengthen smoking cessation efforts, as well as raise parental and community awareness of the dangers of consuming tobacco products.

Keywords: e-cigarette, current use, risk factor, Indonesia

ABSTRAK

Data tren penjualan rokok elektronik di Indonesia meningkat signifikan, dan pengguna usia ≥ 15 tahun meningkat sepuluh kali lipat menjadi 6,6 juta di tahun 2021, sedang regulasi rokok elektronik belum ada. Tujuan studi memberikan bukti untuk mendukung kebijakan, yang bertujuan untuk mengurangi peningkatan jumlah perokok elektrik. Menggunakan data Survey Tembakau Remaja Global (GYTS 2019) yang merepresentasikan gambaran nasional, dengan analisis uni dan multi variable RegLog berganda ($p < 0,05$). Hasil; 15% remaja usia 13-15 tahun pengguna rokok elektrik, sebagian besar penggunanya anak laki usia 13 tahun dengan uang jajan mingguan kurang dari Rp50.000. Analisis multivariat menunjukkan; teman atau pekerja toko yang menyediakan rokok elektrik atau menghadiri acara promosi produk tembakau berpengaruh 15 kali lipat lebih besar dibandingkan kelompok referensi. Iklan rokok elektrik di jalan/ TV/ toko/internet berpotensi meningkatkan motivasi merokok remaja 8 kali lipat dibandingkan dengan tidak melihat iklannya. Bukan perokok yang pernah mencoba produk tembakau berpotensi tiga kali lebih tertarik pada rokok elektrik dibandingkan mereka yang belum pernah mencoba rokok. Perokok remaja berpotensi dua kali akan mencoba rokok elektrik dibandingkan bukan perokok, dan teman dekat yang merokok berpotensi dua kali lipat akan mempengaruhi untuk merokok elektrik dibandingkan teman bukan perokok. Informasi menunjukkan bahwa Kebijakan terkait Promosi dan Sponsor Iklan Tembakau yang ada tidak efektif, perlu diperkuat dengan pelarangan total. Penting untuk memperkuat upaya berhenti merokok, serta meningkatkan kesadaran orang tua dan masyarakat akan bahaya konsumsi produk tembakau.

Kata kunci: rokok elektronik, penggunaan saat ini, faktor risiko, Indonesia

INTRODUCTION

Electronic cigarettes (e-cigarettes or e-cigs), vape pens, or personal vaporizers with a product that resembles a USB flash drive (known as JUUL) are common names for these devices. Vaping is the act of inhaling and exhaling vapor generated by heated nicotine liquid. JUUL has the same amount of nicotine as a pack of cigarettes, implying that e-cigarettes had very high nicotine levels. Unfortunately, 63% of JUUL users are not aware that these e-cigarettes contain this substance.^[1,2] To attract adolescent women, vaping liquids are frequently flavored with mango, cucumber, or various creams. The yellow liquid with a buttery flavor that is frequently added to vape juice causes inflammation and long-term death by asphyxia.^[3] E-cigarettes have the same or even worse health effects than conventional cigarettes. Several other short-term clinical consequences are well known, including the dangers of nicotine addiction to the developing adolescent brain,^[4] and negative effects on respiratory health, such as the EVALI (e-cigarette or vaping use-associated lung injury) outbreak in the United States, which resulted in over 2,800 hospitalizations and 68 cases fatalities.^[5]

At first, e-cigarettes were used as a smoking cessation effort, but their use is often modified. The existence of a "mod" is a container of liquid that allows it to be used to deliver cannabis and other drugs, which in a short time causes strong addiction.^[6] Studies in Connecticut show one in four teens reported using e-cigarette dripping, the act of inhaling vapor by placing droplets of e-liquid directly onto heated coil atomizers.^[7] To be able to quit smoking for cigarette addicts who are struggling to quit smoking, for the reason, e-cigarettes contain nicotine within the low tolerance limit that was used during the smoking cessation transition.^[8,9] A randomized trial of some nicotine-containing e-cigarettes revealed that they were at least as effective or more effective for quitting smoking than nicotine patches.^[10,11] Grana's study of five research activities concluded that using electronic cigarettes is a protective factor against traditional smoking cessation.^[12] To protect people, particularly adolescents, WHO and several stakeholders have banned the sale and use of e-cigarettes or vaping and declared it a public health epidemic.^[13-15]

In 67 countries a survey about the prevalence of current e-cigarette uses among adolescents aged 13-15 years, the lowest 1.2% (95% CI 0.8-1.9) in Togo (LIC) and the highest 35.1% (95% CI 32.4-38.0) in Guam (HIC). In 30 of the 67 countries studied, the current prevalence of e-cigarette use is relatively high, exceeding 10%. There is no reliable information on e-cigarette regulations and policies in the 23 countries surveyed. Adolescents in countries with the strictest e-cigarette regulations had a 0.6 times lower chance of being current e-cigarette users [aOR 0.6 (95% CI 0.6-0.7)] compared to those with no reliable e-cigarette policy.^[16] Southeast Asia has a large population of smokers and a growing market for e-cigarettes, making it a target for the development of the e-cigarette industry, particularly among youth. E-cigarette policies range from outright bans to no or minimal regulations.^[17] In Malaysia, for example, e-cigarette use has increased by more than 700% towards 9.8% in 2017.^[18]

Despite being a potential area for future growth in the cigarette industry, research on e-cigarettes in Southeast Asia has received little attention.^[19]

Data Global Adult Tobacco Survey in 2021 shows the prevalence of current use of electronic cigarettes in Indonesia significantly increased from 0.3% in 2011 to 3.0% (it is equal to 6.2 million people $\geq$ 15 Years old, 5.8% of men, and 0.3% of women.^[20] According to the findings of studies conducted on high school students in Jakarta, social factors, perceptions of e-cigarette use being less harmful, trendier, and less addictive than traditional cigarettes, and accessibility are all positively related to its use.^[21]

Electronic cigarettes target children, youth, and nonsmokers, potential to increase the risk of beginner smokers becoming addicted to nicotine and becoming dual users.^[22] While the National Medium-Term Development Plan needs to reduce the prevalence of smokers aged 10 to 18, the reality is that adolescent smoking is uncontrollable. In 2010, smoking prevalence among children aged 1 to 14 years increased more than eightfold to 17.5%, while youth smoking increased sixfold to 20.3% in the last ten years.^[22] However, there has been no regulation governing e-cigarettes to protect public health.^[23] The objective of this study is to gain information about the national prevalence of current electronic tobacco users among adolescents aged 13 to 15, as well as the factors that influence it. Also, to be able to compare with other countries that have overwhelmed the e-cigarette problem.

METHOD

The Global Youth Tobacco Survey (GYTS) is a cross-sectional, voluntary, school-based, independent pencil-and-paper survey based on the GYTS questionnaire was conducted in public and private schools in Indonesia, and over one hundred countries worldwide. The target demographic is students aged 13 to 15, both boys and girls. The questionnaire contains several questions about the demographic information of students and their families, as well as questions about smoking tobacco, using other tobacco products, using e-cigarettes, and using these products by other family members. It also includes questions about addiction, exposure to tobacco advertising, and knowledge of the health effects of tobacco and other nicotine-containing products.

The survey was conducted in 2019 with the assistance of 53 enumerators. Data was collected in public and private schools across 30 of the 34 provinces. By allowing anonymous and voluntary participation, survey procedures are designed to protect student privacy. Students write their responses on scannable answer sheets. Research assistants visited classes in each of the chosen schools and explained how to answer a series of questions.

All variables were created using the questionnaire included in the Supplementary Material. The goal of the predictors was to convert information from the questionnaire into binary variables. The exceptions were age, which was divided into three categories (13, 14 and 15 years old), pocket money per-week, e-cigarette information sources, and perception of an intention to begin consuming tobacco.

As outcome variables, current e-cigarette use was defined as answering “yes” to the question: “During the past 30 days, have you used the electronic cigarette?”.

Gender, age, weekly disposable income, e-cigarette information sources, parents or peers who smoke, ability to buy tobacco products in the school area, vulnerability to consuming tobacco from close friends’ smokers, non-smokers but ever tried cigarettes, currently active smoker, and perception of an intention to begin consuming tobacco are predictor variables.

A multi-stage cluster sampling was carried out, with each school assigned a probability based on the number of students enrolled. The Java-Bali region, Sumatra, and other parts of East Indonesia are divided into three geographical strata. Each stratum is represented by 50 schools in the Sampling Unit (PSU). The sample frame included all Junior and Senior High Schools with grades 7-12. A simple random method was used to conduct class sampling during a survey visit.

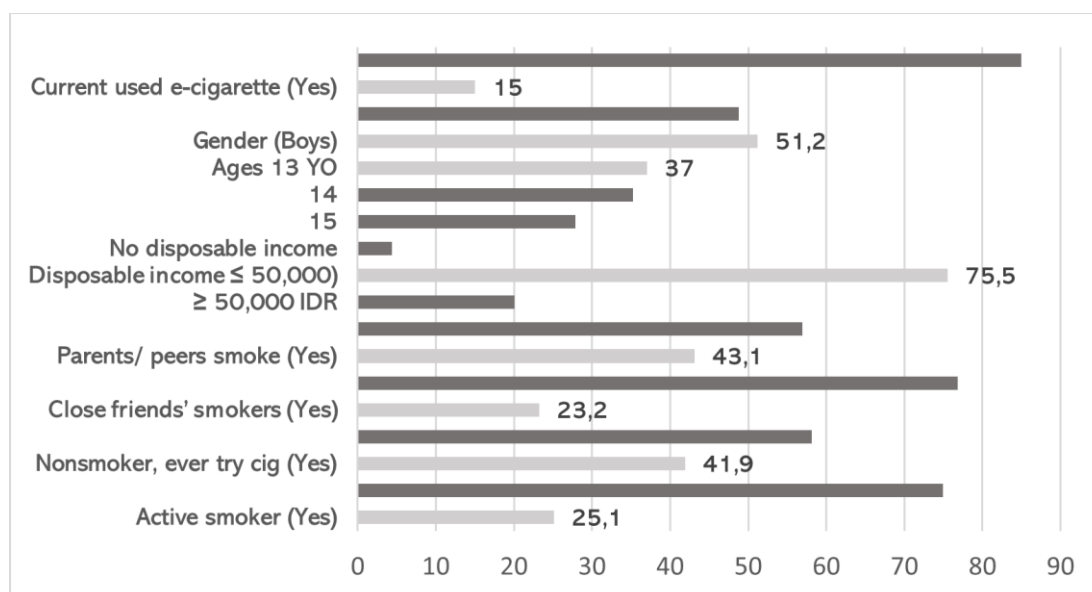
The school sample was expanded to grades 10-12 in 2019. There are 379 classrooms and 148 sample schools to choose from. All students who were present in class during the survey voluntarily filled out the answer sheets. In total, 91.0% of people responded. 9,992 eligible students in grades 7-12 completed the survey.

The chi-square test was used in univariate analysis to determine the relationship between each independent variable and the dependent. In multivariate analysis, significant variables will be used as candidate variables. The logistic regression test was performed in multivariate analysis until a fit final model (indicating the association between dependent and independent variables) was presented as adjusted odds ratios (OR) with 95% confidence intervals (CI) and a p-value of < 0.05 . To obtain representative results, we used weighted variables in the analysis and used the Stata.13 applications with the svy command.

The Health Research Ethics Commission, Health Research and Development Agency - Ministry of Health, approved this study for ethical reasons. The Ministry of Education and Culture provides assistance to the District Education Office and selects schools through official letters.

RESULTS AND DISCUSSION

Graph 1 depicts the current use of electric cigarettes 15% (95% CI: 13.2-17.0) with a predicted number of 1,173,279 or one million more teenagers aged 13-15 years. Most adolescents who have ever used or currently use electronic cigarettes are male (51.2%). Among adolescent’s electronic cigarette users, the highest percentage is among 13-year-olds (37%), and most users have a disposable income of less than 50,000 IDR (75.5%). Around 431% of e-smokers have parents/peer smokers, 23.2% have close smoker friends. About 41.9% of non-smokers who have tried smoking are currently e-cigarette users, and 25.1% of electric cigarette users are also active smokers (dual users/ conventional and electric).



Graph 1. Description of the characteristics of currently used e-cigarettes aged 13-15 years old in Indonesia.

In Table 1, the results of the bivariate analysis are presented. It was found that the prevalence of e-cigarette use was 26.4% among boys and 3.1% among girls. There was a statistically significant trend of current e-cigarette use with e-cigarette information sources was 25.1% for friend/shopkeeper/promotion event and 13.8% from ads on the street/store/TV/internet. Other factors that seemed to be significantly positively associated with e-cigarette use include: able to buy tobacco products in the school area, vulnerability to consuming tobacco from close friends' smokers, nonsmoker but ever try cigarettes, currently active smoker, perception of an intention to begin consuming tobacco and weekly disposable income (> 50.000 IDR). Ages, weekly disposable income (≤ 50.000 IDR) and parents/peers who smoke were not associated with e-cigarette use.

Table 1. Bivariate analysis of current e-cigarette use (all participants)

Predictors variables	Proportion (%)	aOR (95%.CI)	p-value
Gender			
Boys	26.4	11.3 (7.30 – 17.20)	0.0001***
Girls (Ref)	3.1		
Ages			
15 years old	15.7	1.17 (0.84 – 1.64)	0.34
14 years old	15.9	1.19 (0.86 – 1.64)	0.29
13 years old (Ref)	13.7		
Weekly disposable income			
(> IDR 50,000)	17.6	2.11 (0.96 – 4.66)	0.063
(≤ IDR 50,000)	14.6	1.69 (0.79 – 3.63)	0.172
Do not have (Ref)	9.2		
E-cigarette information sources			
From Ads on the street /store/ TV/ internet	13.8	12.5 (6.12 – 25.6)	0.0001***
Friend/ shopkeeper/ promotion event	25.1	26.2 (12.80 – 53.60)	0.0001***
Do not know (Ref)	1.3		
Parents/ peers who smoke			

Predictors variables	Proportion (%)	aOR (95%.CI)	p-value
Yes	16.7	1.26 (0.95 – 1.68)	0.105
No (Ref)	13.7		
Be able to buy tobacco products in the school area			
Yes	27.9	2.82 (2.09 – 3.80)	0.0001***
No (Ref)	12.1		
Vulnerability to consuming tobacco from close friends' smokers			
Yes	40.4	8.54 (6.06 – 12.04)	0.0001***
No (Ref)	7.4		
Nonsmoker, but ever try cigarettes			
Yes	32.0	16.7 (11.10 – 25.30)	0.0001***
No (Ref)	2.7		
Currently active smoker			
Yes	42.4	11.8 (8.96 – 15.56)	0.0001***
No (Ref)	5.9		
Perception of an intention to begin consuming tobacco			
Current smoker	24.8	2.83 (1.73 – 4.63)	0.0001***
Nonsmokers agree	42.8	6.44 (4.52 – 9.18)	0.0001***
Nonsmoker does not agree (Ref)	10.4		

The results of multivariate logistic regression analysis are shown in Table 2. boys have the potential to smoke e-cigarettes 2 times stronger than girls [(aOR) 2.68, 95% CI (1.44-4.96)]. Friends or shop workers who offer e-cigarettes or attend events promoting tobacco products have a 15-fold greater influence on adolescents smoking e-cigarettes than those who don't have friends or meet shop workers who provide e-cigarettes or attend events sponsored by tobacco products [(aOR) 15.3,95%, CI (7.7-30.37)]. When compared to not having these advertisements, seeing e-cigarette advertisements on the streets/shops/TV/internet has the potential to increase youth motivation to smoke e-cigarettes by 8 times [(aOR) 8.15, 95% CI (3.76-17.6)]. Non-smokers adolescents who have ever used tobacco products are potentially three times more likely to be interested in e-cigarettes than adolescents who have never used cigarettes at all, [(aOR) 2.65, 95% CI (1.7-3.65)]. Adolescents who are active smokers have the potential to be 2 times more likely to consume e-cigarettes than non-smokers, [(aOR) 2.5, 95% CI (1.70-3.65)]. Close friends who smoke are two times more likely to influence e-cigarette use than non-smoker friends, [(aOR) 2.1, 95% CI (1.37-3.18)].

Table 2. Multivariable analysis of current e-cigarette use (all participants)

Predictor variables	aOR (95%.CI)	p-value
Gender (Ref: girl)		
Boys	2.68 (1.44 – 4.96)	0.002*
Girls (Ref.)		
Ages		
15 years old	0.97 (0.69 – 1.37)	0.854
14 years old	1.02 (0.67 – 1.56)	0.933
13 years old (Ref.)		
Weekly disposable income		
(≥ 50,000 IDR)	1.95 (0.74 – 5.13)	0.175
(≤ 50,000 IDR)	1.41 (0.57 – 3.45)	0.449

Predictor variables	aOR (95%.CI)	p-value
Do not have		
E-cigarette information sources		
From Ads on the street /store/ TV/ internet	8.15 (3.76 – 17.6)	0.0001***
Friend/ shopkeeper/ prom event	15.3 (7.70 – 30.37)	0.0001***
Do not know (Ref.)		
Parents/ peers smoker		
Yes	0.91 (0.68 – 1.22)	0.509
No (Ref.)		
Be able to buy tobacco products in the school area		
Yes	1.04 (0.74 – 1.46)	0.813
No (Ref.)		
Vulnerability to consume tobacco from close friends' smokers		
Yes	2.1 (1.37 – 3.18)	0.001**
No (Ref.)		
Non-smoker, ever try cigarettes		
Yes	2.65 (1.48 – 4.76)	0.001**
No (Ref.)		
Currently active smoker		
Yes	2.5 (1.70 – 3.65)	0.0001***
No (Ref.)		
Perception of an intention to begin consuming tobacco		
Current smoker	1.73 (0.96 – 3.13)	0.068
Nonsmokers agree	1.72 (1.16 – 2.54)	0.070
Non-smoker does not agree (Ref.)		

The prevalence of e-cigarette smokers in Indonesia aged 13-15 years contributed 15% (95% CI: 13.2-17.0). Although e-cigarette use is quite high in Malaysia, about 9% of teenagers having used,^[24,25] the number is still lower than in Indonesia, owing to a larger population, particularly among adolescent groups. Although Malaysia does not prohibit the import of e-cigarettes, the price of e-cigarettes is higher, which is related to the control of e-cigarette use among adolescents. Electric cigarette use is generally regarded as an experiment to try new things, and thus does not necessarily reduce the number of conventional smokers among adolescents.^[26] Several studies have found that e-cigarette use among South Korean adolescents has been rapidly increasing in recent years.^[27,28] The prevalence of current e-cigarette use in South Korea rises from 2012 to 2021, from 3.3% to 11.8%,^[29] but remains lower than in Indonesia. Former smokers who have close friends who are smokers have increased their use of e cigars up to 3.3 times, from 10.95% to 36.61% compared to former smokers who do not have smoking friends.^[30] The high prevalence of e-cigarettes is also seen in Poland, where daily use of e-cigarettes doubled to 6% in 2014, while non-daily e-cigarette use increased by 15% - 16% between 2015 and 2016.^[31] This is one of the implications of the market promotion of new e-cigarettes, which encourages teenagers' curiosity to explore various variants of e-cigarettes that are packed with myths for exclusive social status groups.^[32,33] Several countries have lower rates of e-cigarette use among young people than Indonesia. Since the Thai government banned the import and sale of e-cigarettes within the country, the prevalence of e-smokers has decreased to 3.7% in 2019.^[34] According to Thai Consumer Protection Council regulations, e-cigarettes are prohibited and illegal products.^[35] Data for 2021 e-cigarette users

in Australia are 13%,^[36] and in New Zealand in 2018, the prevalence is 8%,^[37] the lowest in the Asia Pacific region among adolescents.^[38] This is made possible by government regulations that prohibit advertising and promotion, as well as the sale of e-cigarettes. However, the existence of such regulations does not result in the elimination of black-market e-cigarettes.^[37,39]

Boys were found to be more likely than girls to be e-smokers (aOR 2.68, 95% CI: 1.44-4.96). Thailand,^[34] Malaysia,^[25,26,40] and the United States^[41,42] all have the same problem, with adolescent boys being the most frequent users of e-cigarettes. Some of the factors influencing the high use of cigarettes by adolescent boys include the existence of social and cultural norms in some societies that may be more supportive or tolerant of e-cigarette use by boys than girls.^[24] According to the findings of our study, 25% of electric smokers are dual users. Several studies have also found that boys adolescents are more likely to be dual users, and advertising and marketing are two factors that influence this condition.^[41,43] The results of research by Soteriades et al show that young girls in Greece have a higher susceptibility to smoking tobacco, which may impact future use of e-cigarettes.^[44] Furthermore, Delk et al. noticed that overweight teenage girls in the United States are more likely than boys to use e-cigarettes.^[42]

Illegal marketing of e-cigarette products by friends or store employees who knowingly offer them, as well as attending events ridden for their promotion, has a 15-fold greater effect on youth trying e-cigarettes than without illicit marketing. According to Groom's mixed-method study, most teenagers get their first e-cigarette products from a friend, friend's brother, or friend of a friend, who shows them how to use the device and shares different flavors, and sometimes the senior also makes a purchase for them. According to Baker et al, the primary source of e-cigarettes is obtained from friends, followed by family members. A quarter of teens live with someone who uses an e-cigarette, which contributes to vaping. Currently, adolescents obtain e-cigarettes by borrowing and sharing vaping devices with friends.^[45,46]

E-cigarette marketers frequently target young people with appealing advertisements and aggressive marketing strategies. The messages conveyed by these advertisements can pique teenagers' interest and lead them to try these products.^[47,48] Some teenagers may believe that e-cigarettes are safer or less harmful than traditional cigarettes. They believe that even though electric cigarettes contain chemicals that have the potential to harm health,^[36,49,50] they do not contain harmful substances such as tar and carbon monoxide. In reality, JUUL e-cigarettes, which use a USB flash drive, have the same nicotine content as a pack of cigarettes.^[1] Viewing e-cigarette advertisements on the street, in stores, on TV, or on the internet has the potential to increase youth motivation to smoke by 8 until 17 times (aOR 8.15, 95% CI: 3.76-17.6) when compared to total band the tobacco ads. The study's findings also proved the impact of the most e-cig advertisements (41.9%) on non-smoker adolescents who have ever tried it and are now e-cig users. Moreover, the impact of these advertisements is highest at the youngest age (13 years), with 75% of e-cigarette smokers having pocket money of 50,000 IDR. This implies that

obtaining is also very simple; if we open the internet, we will find many offers of e-cig products that can be used immediately at very affordable prices.

The Framework Convention on Tobacco Control (FCTC) is a World Health Organization (WHO) international agreement designed to regulate the use of tobacco products, including cigarette advertising and promotion (WHO, 2013, 2018).^[51,52] Under these conditions, the FCTC has yet to be ratified, providing an opportunity to further increase young people's motivation to use advertised e-cigarettes.^[29] Indonesia has not ratified the FCTC,^[53] and there are no regulations on e-cigarettes,^[54] while rules regarding the advertising/ promotion of conventional tobacco products have been widely violated,^[55,56] which has caused a tenfold increase in the prevalence of e-cigarette smokers aged 15 and over within a decade.^[20] Adolescents' motivation to try and use e-cigarettes can increase when they are consistently exposed to appealing and tempting e-cigarette advertisements.^[43,57] This has the potential to harm adolescent health and contribute to an increase in e-cigarette use among them. As a result, it is critical to establish and enforce strict e-cigarette advertising regulations immediately, including through law enforcement and the implementation of appropriate policies. The analysis in 75 countries prove that adolescents in countries with the most stringent e-cigarette regulations have a 0.6 times lower chance of becoming current e-cigarette users (aOR 0.6, 95% CI 0.6, 0.7) compared to no regulatory policy.^[16] The measures are intended to reduce youth motivation to use advertising-influenced e-cigarettes while also protecting them from the dangers of tobacco use.

Non-smokers who have ever used conventional tobacco products are three times more likely to be interested in e-cigarettes than adolescents who have never used cigarettes at all (aOR 2.65, 95% CI: 1.7-3.65). Given this, it is critical to recognize the importance of educating children about the dangers of smoking at a young age, even beginning in preschool. This education, which targets youth who have used tobacco products, can help raise their awareness of the risks and harms associated with using tobacco products, including e-cigarettes.^[37,58] Parents and teachers play an important role in motivating teenagers to quit smoking.^[59,60] Because youth spend so much time at home and school, parents and teachers have an excellent opportunity to provide an accurate understanding of the harms of smoking, set a positive example, and provide moral support to help adolescents make healthy lifestyle choices and avoid smoking.

Adolescent active smokers are twice as likely as non-smokers to use e-cigarettes (aOR 2.5, 95% CI: 1.70-3.65). Close friends who smoke are twice as likely as friends who do not smoke to influence e-cigarette use (aOR 2.1, 95% CI: 1.37-3.18). Pressure from peers can influence boys' decisions to try or use e-cigarettes.^[30,34,60] Wang et al. discovered a link between the use of addictive substances, such as cigarettes, and the use of electric cigarettes.^[61] The influence of friends and family members who smoke are risk factors that encourage the use of e-cigarettes.

E-cigarette and traditional cigarette use increases the risk of developing serious diseases such as heart disease, lung cancer, chronic obstructive pulmonary disease (COPD), asthma, and other

respiratory disorders.^[38,62] This risk can have a significant impact on life expectancy and quality of life at a young age.^[39,63] If a child begins smoking at a young age, it has the potential to disrupt the family's income and economic stability. Spending on e-cigarettes and traditional cigarettes can deplete resources that should be allocated to other family needs such as food, education, and health care. Furthermore, the cost of smoking can prevent these children from receiving a proper education. A lack of resources to pay for education can impede children's development and limit their opportunities to receive a quality education, narrowing their prospects for a healthy and successful life.

The Sixth Session of the Conference of Parties to the WHO Framework Convention on Tobacco Control provides recommendations regarding the global regulatory framework to regulate the use of electric cigarettes. The rationale is that there are potential health risks for both users and non-users of electric cigarettes.^[13,23] Indonesia is one of the few countries that has not prohibited the use, sale, or promotion of electronic cigarettes. Currently, restrictions on the use of e-cigarettes are governed by Minister of Trade Regulation No. 86 of 2017 concerning Provisions for the Import of E-Cigarettes through distribution permits issued by government agencies responsible for drug and food control.^[64] Meanwhile, the government has not regulated the circulation of domestic e-cigarette sales, so supervision of the distribution of these products cannot be monitored,^[23,65] and protection of the public's rights, particularly those of children and adolescents, to be safe from health risks is not guaranteed.

CONCLUSION AND SUGGESTIONS

According to this study, more than one million Indonesian children aged 13 to 15 are currently using e-cigarettes. Friends, shopkeepers, or various tobacco product promotion events are the most likely sources of e-cigarette exposure for teenagers. The presence of tobacco product advertisements on the street, in stores, on television shows, and on the internet is another disturbing factor. The presence of close smoking friends is also a risk factor. Studies also show that active smokers have the potential to use e-cigarettes, as do nonsmokers who have tried smoking.

Learning from the experience of other countries has proven that the policy of limiting the distribution of e-cigarettes has been proven to be able to control the number of e-smokers and suppress novice e-smokers. Therefore, regulations related to e-cigarettes in Indonesia must be made immediately. Due to the existing advertising and promotion and sponsorship ban policies which have proven ineffective, it is necessary to implement a total ban for product advertisements that have proven to be harmful to public health. Warnings about the dangers of tobacco products, as well as knowledge about how to avoid various tobacco product promotions, must be taught from an early age by involving family members and educators in schools.

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A STUDY OF MATERNAL HEALTH SERVICES BY PRIVATE MIDWIVES IN SURABAYA CITY, INDONESIA

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ABSTRACT

Maternal mortality in Indonesia increased but the coverage of antenatal care and birth attendants by health workers is high. The majority of antenatal care was by private midwives and the majority of birth attendants was by midwives. The study aims to determine the maternal health services by private midwives in maternal health services. It was a mixed study, carried out in Surabaya City because of the highest maternal deaths in East Java Province in 2016. The secondary data of maternal health services were collected from Surabaya City Health Office and Indonesian Midwives Association of Branch Surabaya City. The qualitative data were domain on internal and external problems of private practice midwives. There were 10 informants whom selected purposively. The data were collected by round table discussion. The secondary data were analyzed univariately and the qualitative data were analyzed descriptively. From about 250 private midwives in Surabaya City, 133 were 'Delima' midwives in which a program of the Indonesia Midwives Association. Maternal health services by private midwives enhance access. The 'Delima' midwives have requirements of knowledge, enhancing skill, reporting, infrastructure standards, and development. So, the quality of maternal health services by 'Delima' midwives was relatively better. However, private midwives' services, including the 'Delima' midwives in Surabaya city had not analyzed ANC results, pregnant women visiting private midwives should visit health centers for integrated ANC, midwives' duties beyond educational competencies, and lack of mentoring for apprentice midwives because of many midwives' duties. It suggests improving the knowledge and skill of private midwives.

Keywords: Private midwives, 'Delima' midwives, Access, Maternal health services

ABSTRAK

Angka kematian ibu di Indonesia meningkat tetapi cakupan perawatan antenatal dan penolong kelahiran oleh petugas kesehatan tinggi. Mayoritas perawatan antenatal adalah oleh bidan swasta dan mayoritas penolong kelahiran adalah oleh bidan. Penelitian ini bertujuan untuk mengetahui pelayanan kesehatan ibu oleh bidan swasta dalam pelayanan kesehatan ibu. Itu adalah penelitian campuran, dilakukan di Kota Surabaya karena kematian ibu tertinggi di Provinsi Jawa Timur pada tahun 2016. Data sekunder pelayanan kesehatan ibu dikumpulkan dari Dinas Kesehatan Kota Surabaya dan Ikatan Bidan Indonesia Cabang Kota Surabaya. Data kualitatif adalah domain pada masalah internal dan eksternal bidan praktik swasta. Ada 10 informan yang dipilih secara purposive. Data dikumpulkan dengan diskusi meja bundar. Data sekunder dianalisis secara univariat dan data kualitatif dianalisis secara deskriptif. Dari sekitar 250 bidan swasta di Kota Surabaya, 133 adalah bidan 'Delima' yang merupakan program dari Ikatan Bidan Indonesia. Layanan kesehatan ibu oleh bidan swasta meningkatkan akses. Bidan 'Delima' memiliki persyaratan pengetahuan, peningkatan keterampilan, pelaporan, standar infrastruktur, dan pengembangan. Sehingga, kualitas pelayanan kesehatan ibu oleh bidan 'Delima' relatif lebih baik. Namun, layanan bidan swasta, termasuk bidan 'Delima' di kota Surabaya belum menganalisis hasil ANC, ibu hamil yang mengunjungi bidan swasta harus mengunjungi puskesmas untuk ANC terpadu, tugas bidan di luar kompetensi pendidikan, dan kurangnya pendampingan bagi bidan magang karena banyak tugas bidan. Ini menyarankan peningkatan pengetahuan dan keterampilan bidan swasta.

Kata Kunci: Bidan Swasta, bidan 'Delima', Akses, Pelayanan Kesehatan Ibu

INTRODUCTION

Indonesia's Maternal Mortality Rate(MMR) is higher than other ASEAN countries. The Indonesian Health Demographic Survey (IDHS) in 2007 showed that the MMR was 228 per 100,000 live births (LB), which increased to 359 per 100,000 LB according to the IDHS in 2012^{1,2}. Based on the Indonesia population census in 2010, the MMR was 258 per 100,000 LB. Whereas, the Sustainable Development Goals (SDGs) target is an MMR of less than 70 per 100,000 LB in 2030. Meanwhile, maternal health services coverage for antenatal care (ANC) was more than 90%, and delivery assisted by health personnel, including obstetricians, medical doctors, and midwives, was 88%³.

Some pregnant women's conditions affect maternal deaths, including three delays (i.e. too late to make a decision, too late to arrive at the service facilities, and too late to get adequate treatments) and four too late of pregnant women (i.e. too old, too young, too many children, too close spacing of births). In addition, geographical conditions and unprepared service facilities have exacerbated the problems⁴

A program to support the reduction of MMR, namely Making Pregnancy Safer, has been carried out since 2009 through 1) increasing delivery assisted by trained health personnel, 2) every obstetric complication receives adequate service, and 3) every woman of childbearing age must have access to prevention of unwanted pregnancies⁵.

Moreover, in 2013 the Ministry of Health issued a policy on the national action plan for the acceleration of reducing maternal and child mortality rates (RAN PP AKI). There were 4 (four) Basic Obstetric and Neonatal Health Centers in each district and Birth Preparedness and Complication Readiness. In 2014, the Ministry of Health's policy stated that deliveries should be assisted by health personnel and at health facilities^{5,6}.

Pregnant women should have minimum of four antenatal care, one time in the first trimester, one time in the second trimester, and two times in the third trimester⁷. one time in the first trimester, one time in the second trimester, and two times in the third trimester (9). The Basic Health Research (Riskesdas) in 2013 showed that the antenatal care coverage was 95.2% (First visit or K1 was 81.3% and Four visits or K4 was 70.0%), and iron tablets consumption for more than 90 days during pregnancy was 33.2%. The proportion of antenatal staff was 81.4% by midwives; 17.8% by obstetricians; 0.3% by medical doctors; 0.2% by nurses. Meanwhile, a study in 9 priority provinces stated that places of antenatal care were 2.3% at government hospitals; 5.3% at private hospitals; 2.5% at maternity hospitals; 14.6% at health centers; 3.6% at auxiliary health centers; 8.9% at village health post; 2.9% at private clinics; 11.3% at integrated health post; 4.8% at doctor practices; 40.5% at private midwives clinics, 0.3% at other places, and 3.1% had no antenatal care (10). For delivery assisted by health personnel in 2012 was 88.64%, mostly by midwives, whereas the target for Indonesia in 2014 was 90%^{8,9}.

Antenatal care was 81.4% by midwives, whereas 40.5% by private practice midwives. The For birth attendants were the majority of midwives. Because the majority of antenatal care by private

midwives but the decline of MMR in Indonesia is relatively slow ^{8,10}, this study aims to determine maternal health services by private practice midwives in Surabaya city.

METHOD

It was an observational study. The design of study was mixed method of secondary data and qualitative data. The study was carried out in Surabaya, Indonesia, in September 2017.

Secondary data on maternal health services consisted of antenatal care, deliveries, postpartum visit, early detection and management of obstetric complications. They were collected from Surabaya City Health Office and Indonesian Midwives Association of Branch Surabaya City. The available of private practice midwives data were from report by 'Delima' private practice midwives' to the Indonesian Midwives Association of Branch Surabaya City ¹¹. 'Delima' private practice midwives' is a program by the Indonesian Midwives Association.

The domains of qualitative data were internal and external problems of private practice midwives. The informants were selected purposively. They were 10 informants of 1) the Head of the Family Health Department at the East Java Provincial Health Office, 2) the Head of the Family Health Department at the Surabaya City Health Office, 3) Programmer of Maternal Health Program at the Surabaya City Health Office, 4) Chairperson of the Indonesian Midwives Association of Branch Surabaya City, 5) A coordinator midwife of health center with higher private practice midwives, 6) A midwife of primary health clinics in Surabaya, 7) Private practice midwife who had many deliveries, 8) A nurse from a district health office, 9) Maternal Health expert from a university in Surabaya, 10) Health Policy Expert from a university in Surabaya.

The qualitative data were collected by round table discussion with informants.

The secondary data were analyzed univariately. The qualitative data was analyzed descriptively.

Ethical clearance was from the Ethics Committee of the National Institute of Health Research and Development No. LB. 02.01/2/KE.334/2017.

RESULTS AND DISCUSSION

The Maternal Mortality Rate (MMR) in East Java Province in 2016 was 91.00 per 100,000 Live Births (LB), and based on the Population Census in 2010 was 258 per 100,000 LB. The number of maternal deaths in Surabaya City, the capital of East Java Province in 2016, namely 37 maternal deaths is the highest in the province. In 2017, maternal deaths in Surabaya City were decreasing

Table 1. Maternal Mortality Determinants in Surabaya City until September 2017

Determinants		Details					Total
Age	<20 yrs	20-34 yrs	≥ 35 yrs	-	-	-	27 people
	1 people	15 people	11 people				

Time	Pregnancy 5 people	Childbirth 6 people	Postpartum 16 people	-	-	-	27 people
Gravida	Primi-grav 8 people	2 nd gravida 11 people	3 rd gravida 4 people	4 th gravida 3 people	5 th gravida 1 person	-	27 people
Causes	Pre- Eclampsia /Eclampsia 6 people	Bleeding 1 person	Infection 1 person	Heart diseases 6 people	Emboli 3 people	Others 10people	27 people
Places	Tertiary hospital 20 people	General hospitals 3 people	Private hospitals 4 people	-	-	-	27 people
Number of referral processes	1 time 14 people	2 times 12 people	3 times 1 person	-	-	-	27 people

Table 2 shows data on the number of pregnant women in the Surabaya City area spreading across 31 sub-districts in 2016 from the Maternal Health Section of the Surabaya City Health Office in 2016 was 47,480 pregnant women. More than 95% have carried out antenatal care, the first visit (K1) which is one time in the first trimester of pregnancy, and four visits of antenatal care (K4) which is a minimum of 4-time visit consisting of one time in the first trimester, one time in the second trimester, and two times in the third trimester of pregnancy. The trend for K4 in Surabaya city increased compared to K1, from K1 of 45,872 (96.61%) pregnant women to K4 of 46,760 (98.48%) pregnant women. The data showed differences from trends from other regions, and even nationally that K4 is relatively decreasing compared to K1.

The number of women who gave birth was 45,322 people. As for delivery assisted by health workers were 43,909 (96.88%) women, and those who had postpartum visits were 42,548 (93.88%) women. There were still deliveries (3.12%) not assisted by health personnel, and training higher (6.12%) who did not have postpartum visits.

Table 2. Coverage of Moternal Health Services in Surabaya City, 2016

Number of pregnant women	Number of ANC	Number of labor	Total post-partum visit	Note
47,480	K1: 45,872 (96.61%) K4: 46,760 (98.48%)	Total: 45,322 43,909 (96.88%) were assisted by health workers	42,548	Data from 31 subdistrict

Table 3 shows the obstetric management among pregnant women in Surabaya City year 2016.

Table 3. Managing of Obstetric Complications in Surabaya City, 2016

Number of pregnant women	Estimation of pregnant women with obstetric complications	Management of obstetric complications	Reported live births
47,480	9,496 (20%)	8,569 (90.24%)	43,1645

Table 4 shows the estimated number of pregnant women with obstetric complications, as many as 9,496 (20%) mothers. While the management of obstetric complications reached 8,569 pregnant women from the estimated of pregnant women with complications of 90 per cent.

The estimated of pregnant women with obstetric complications, as many as 9,496 (20%) women. Meanwhile, the management of obstetric complications reached 8,569 (90%) of the estimated pregnant women with complications.

Table 4. Management of Obstetric Complications in Surabaya City, 2016

Number of Pregnant Women	Estimation of Pregnant Women with Obstetric Complication	Management of Obstetric Complications
47,480	9,496 (20%)	8,569 (90.24%)

Table 5 shows that about a quarter, 12,123 pregnant women had the first trimester of antenatal care or K1. However, it was about 60% (7,188) of pregnant women's deliveries assisted by midwives. For the first postpartum visit (KF1), it slightly increased to 7,343 women, then decreased to 7,209 women for the second postpartum visit (KF2), and 6,933 women for the third postpartum visit (KF3).

Table 5. Data on ANC, Labor and Postpartum Visits of Indonesian Midwifery Association Branch Surabaya City, 2016

Total of antenatal care	Number of labors	Number of postpartum visits	Note
K1: 12,123	7,188 (59%)	KF1: 7,343 KF2: 7,209 KF3: 6,933	Report from the total of 133 'Delima' midwives

Table 6 shows the types of complications for women reported from 'Delima' private practice midwives in 2016. There were mainly 253 (19%) pre-eclampsia, 199 (15%) post-section caesarian, 187 (14%) prolonged rupture of membranes, and 170 (13%) other causes. The least was no icteric case, and one (0.8%) in each case, namely shock and umbilical cord prolapse, and 5 (0.4%) multiple presentations.

Table 6. Types of Pregnant Women Complications based on Indonesian Midwifery Association Branch Surabaya City, 2016

No	Types of complications	n	(%)	No	Types of complications	n	(%)
1	Section caesarea histories	199	(15%)	11	Fundus Uteri ≥ 40 cm	25	(2%)
2	Vaginal bleeding	109	(8%)	12	Fetal distress	40	(3%)
3	Preterm labor (< 37 weeks)	59	(4%)	13	Primipara's active phase of labor with head palpation is still 5/5	48	(4%)
4	Amniotic fluid with meconium	32	(2%)	14	Non head down presentation	85	(6%)

No	Types of complications	n	(%)	No	Types of complications	n	(%)
5	Prolonged Rupture Membranes	187	(14%)	15	Multiple presentations	5	(0.4%)
6	Ruptured membranes of labor<	59	(4%)	16	Gemelli's pregnancy	22	(1.8%)
7	Icterus	0	0	17	Umbilical cord prolaps	1	(0.8%)
8	Severe anemia	15	(1%)	18	Shock	1	(0.8%)
9	Infection signs	6	(0.6%)	19	Others	170	(13%)
10	Pre-Eclampsia	253	(19%)				

Private practice midwives are one of the spearheads of maternal and child health services, besides health centers. Access to maternal and child health services from these two health service institutions is relatively easy to reach, especially for private practice midwives. The existence of private practice midwives is adequate for access of health services by the community.

Increasing access to adequate maternal health services will reduce maternal and infant mortality rates. It is felt that the benefits of private practice midwives are providing essential maternal health services such as antenatal care (ANC), recording the first visit of antenatal care (K1), and a minimum of four visits of antenatal care (K4) in the Maternal and Child Health (MCH) handbooks, and early detection of obstetric complications. Especially when the midwives are geographically relatively close and easily accessible to the public. Private practice midwives make midwives the easiest place to have maternal and child health services for the community.

It seems that access to maternal and child health services is no longer a significant problem in Surabaya City, both from a geographical and economic standpoint. However, adequate access to maternal and child health services has not significantly reduced maternal mortality. The high number of maternal deaths is not only influenced by access to health services. The data show that maternal deaths have access to health services. The occurrence of maternal death has shown a new trend, namely in the hospital.

Changes in the place of maternal deaths in hospitals show that there is something less than optimal regarding maternal health services. This condition occurs because pregnant women have access to health facilities, even though most are at tertiary referral hospitals. It means that access to maternal health services is no longer a locus of problems in maternal health services.

The shift in the locus of problems from access to maternal health services, to being in the process of health services indicates that there are problems in delivering health services. Several possibilities have resulted in the relatively high occurrence of maternal deaths, even though they have been treated at referral health facilities. Firstly, the problem of managing delays. Second, the capacity

and capability of medical personnel. Third, the problem of ineffective referral patterns. Fourth, the availability of supporting facilities and infrastructure.

Some aspects underlying the problem of delays in treatment are early detection patterns that could be more optimal if adequate equipment is available and health workers' skills in managing obstetric complication cases. An indication of the lack of optimal early detection efforts can be seen in how the K1 and K4 data are high, and the time for early detection of complications in pregnant women. However, in practice, there are impure first visits (K1) and a minimum of four visits to antenatal care (K4).

The pattern of reporting antenatal care on K1 and K4 is good. Still, it turns out that the data quality is not optimal, making the early detection of complications in pregnant women encounter obstacles. Like the health workers at the health centers, private practice midwives do the same thing. Referring to this, the health workers at the health centers and private practice midwives who are the government's spearhead should be able to early detect for pregnant women complications.

The matter capacity and capability of a health worker, a midwife, to carry out midwifery examinations correlate with K1 and K4 optimization. It is undeniable that the number of graduate of health workers, especially midwives, is indeed very adequate and even tends to be excessive. The large number of tertiary institutions providing midwifery education contributed to the increased number of graduates. Nevertheless, the increase in the number of graduates is not directly proportional to the increase in graduates' quality. Instead of increasing the quality of graduates from year to year, the capacity and capability of the graduates in health services are being questioned.

Control over health worker graduates, especially in midwifery, is difficult because it is not the domain of those in charge of providing health services. The lack of control over the quality of graduates is due to the logical difference between higher education providers and health service providers. This difference makes vocational education, which should provide provisions for delivering health services, in the end, turn away from that goal. Another problem that becomes a barrier is an ineffective health referral system. Here, the meaning of ineffectiveness is the disorganization of each health facility in viewing the stages and referral process, especially for patients with the national health insurance scheme. For example, the referral scheme is always viewed differently when a private practice midwife has referred them because they think they can no longer manage the pregnant woman due to complications. Still, they are asked to wait or even refer back during referring to hospitals. The condition causes delays in managing obstetric complications that risks to maternal death.

The last factor that increases maternal and child mortality in referral health facilities is the availability of supporting facilities and infrastructure¹². There is a limitation of NICU or PICU rooms in health facilities, which sometimes are considered sufficient. Some cases show referral rejection because of a lack of facilities and infrastructure. The refusal causes patients to have to go around from one health facility to another, and in the end, it wastes time and narrows space for efforts to deal with

obstetric complications. This delay leads to more significant maternal mortality during labor and after childbirth. Availability of health facilities and infrastructure is the government's next challenge after providing access to maternal health services.

The four problems related to obstetric complications, namely, the problem of delays in treatment are the capacity and capability of medical staff, ineffective referral patterns, and the availability of supporting facilities and infrastructure, indicating that the locus of the main problems in the delivery of maternal health services has changed. The problem is more than just a matter of access to health services, private practice midwives have an essential role in minimizing maternal and child mortality. Still, the performance of maternal health services is influenced by both internal factors from the midwives concerned and the health service system.

The study highlights several problems faced by private practice midwives, both internal and external. Internally, midwives face challenges related to competence, facilities, infrastructure, and workload. Externally, they encounter issues with referral systems, education, and governance. To overcome these problems, collaboration between the government and related health workers is essential^{13,14}. Furthermore, private practice midwives' participation in professional organizations and networks can provide support, advocacy, and opportunities to share knowledge and experiences with colleagues.

The competence of private practice midwives should be supported by education on theoretical and practical curriculum with providing applied knowledge to address practical problems in maternal health services. A study in Africa developed midwifery education with theoretical and practical curriculum to improve midwifery skills¹⁵. There is not a significant improvement in midwifery academics to scale up graduates' competence recently. Some studies showed that the implementation and evaluation of the midwifery care curriculum are still stuck in methods and theory, rather than how to give students more practical schemes to practice and applied their knowledge in real condition¹⁶⁻¹⁸. The conditions result in a lack of applied knowledge before getting involved and being part of the actual health services.

Due to the large number of midwifery academies that affect the pattern of selection, for example, for midwifery academies, it becomes less stringent, so some students may not be suitable for health services. The selection of midwifery schools should include recruiting potential students, namely those who have an interest and talent in midwifery. Because if the student lacks interest and talent in midwifery services, it will affect their ability to absorb and understand midwifery and its application in health services. Considering that students' ability is not limited to theory, and in practice, it requires abilities, skills, and competencies in maternal health services^{19,20}. These affect the skills and competencies of private practice midwives in dealing with maternal and child health problems when they are in private practice.

Moreover, the regulation of the Minister of Health No. 28 of 2017 concerns on permits and implementation of private midwife practice, where midwives are required to be professional with service standards. Technical requirements, facilities, and infrastructure that are pretty detailed, such as facilities of private practice midwives at specific road widths, aim to increase the capacity and capability of practice for midwives. On the other hand, the efforts raise problems when most private practice midwives do not have the completeness required by the regulation, which is enforced with a grace period of 2 years after promulgation; that is burdensome for midwives, which the holding of private practice midwives is because it requires quite a hefty cost ²¹.

Standardizing facilities and infrastructure in the practice of private practice midwives aims to improve the quality of maternal and child health services (health system). Therefore, standardization by the government is relatively high and requires high costs; without government assistance, it can result in the closure of private practice midwives. So, access to maternal and child health services will reduce and indirectly impact to overcome maternal and child health services problems ^{22,23}.

Even for the standardization is the government's effort to boost capabilities and skills during field practice in private practice midwives because so far, prospective midwives in private practice midwives tend to lack competence, opportunities to practice are limited in some cases, and the infrastructure needs to be improved to develop skills during the apprenticeship period. In addition, private practice midwives often need to fully assist, control, and transfer adequate knowledge and experience. The workload of private practice midwives is very high. They must carry out their duties as midwives, manage their private practice, and care for administration duties as practice owners. Besides, they also have to report activities such as those carried out by midwives at health centers. These responsibilities require a significant amount of time, energy, and dedication from private practice midwives. This burden requires them to maintain optimal quality of health services and ensure patient safety remains a top priority ^{24,25}. In addition to being burdened with service duties, midwives at health centers are burdened with many administrative and management responsibilities. Apart from facilities and infrastructure, the workload of private practice midwives indirectly affects the quality of maternal and child health services ²⁶.

External problems include referral systems, education, and governance. The referral system for about 270 private practice midwives in Surabaya City is an essential factor in efforts to improve maternal and child health services. And especially, about 30% of pregnant women access midwife services, like in Surabaya city ²⁷.

The ratio of health workers to the population in Surabaya City is sufficient, but this is a lever for reducing maternal and child health problems. Although, access to maternal health services, as the first visit (K1) and a minimum of four visits of antenatal care (K4), and the availability of health workers and infrastructure is sufficient, the number of maternal deaths in Surabaya City in 2016 was the first rank in East Java Province ²⁸. The fact shows a further problem, such as how a health system runs

maternal health services. One of the concerns is the referral pattern in the era of the National Social Security Agency (BPJS Kesehatan) program.

The referral pattern is health screening at primary health facilities. It aims to prevent the accumulation of patients in hospitals with MOU to the National Social Security Agency (BPJS Kesehatan). Private practice midwives' readiness is for providing quality primary maternal health services. This helps to reduce the burden of hospitals with MOU to the National Social Security Agency (BPJS Kesehatan) focusing on patients with complex and serious conditions. Private practice midwives play critical roles in preventing bottlenecking in hospitals²⁶. This anticipation is because people tend to choose health services in hospitals compared to health centers and other first-level health facilities. Most people perceive hospitals and specialists as places to get more comprehensive health services²⁹

Referrals are an effort to improve the efficiency and effectiveness of health services from a health service system to reduce the burden of financing health services and the accumulation of patients²⁶. Over time, it turns out that in the case of managing maternal and child health services, especially when obstetric complications occur, it becomes a source of problems in itself. In practice, the referral process becomes a bit of a hindrance. This situation is because referrals for complications often do not go smoothly and are rejected by referral health facilities for lack of adequate treatment rooms or equipment. Thus, delays in managing complicated cases, especially obstetric emergencies, can lead to mothers or children³⁰.

Hospitals often make this refusal for patients with national health schemes. Maybe, because the claim process to the National Social Security Agency (BPJS Kesehatan) was rather complicated and burdened the operational costs of the hospital concerned. So, hospitals tend to minimize patients with national health schemes. The problem of paying hospital claims by the National Social Security Agency (BPJS Kesehatan) has resulted in delays in referral patterns to referral health facilities. In the case of Surabaya City, the sluggish referral pattern got support from the city health office in arranging referral constraints on the availability of treatment rooms. However, this is a temporary solution that only sometimes can be done^{30,31}.

In addition, to the referral problem regarding the availability of rooms and financing, the referral process is especially nuanced with emergency referrals, namely when the patient is already in an emergency. This pattern does not allow optimal treatment of referral health facilities because the patient's condition is often critical enough so that limited time for treatment. On the other hand, if the referral pattern is for complicated conditions, it will allow referral health facilities to manage complicated deliveries optimally. Early detection of obstetric complications is expected to reduce maternal and child mortality. However, women with obstetric complications about to give birth are often referred back because they have not shown signs of a significant emergency based on the national health scheme procedures³².

Differences in perceptions of this referral make the process of managing obstetric complications result in patients can not be treated immediately. Moreover, it makes private practice midwives confused about what steps to take because they have limited authority and competence in treating obstetric complications. The occurrence of maternal deaths, especially in hospitals, shows the limited time for treatment in which patients arrive in critical conditions so that the treatments do not provide maximum results ³³.

The Education system, as input for health workers. Midwifery educational institutions currently do not produce qualified graduates who can work directly in the community as spearheads. The round table discussions revealed that the quality of midwifery graduates could be more apprehensive. The provision of skills acquired during midwifery education is insufficient to meet the challenges of today's maternal and child health services

In fact, in some cases, the standards of capacity and capability have decreased in practice. Practitioners from midwifery professional organizations also expressed the same thing. Midwifery graduates in recent years cannot be directly deployed to provide maternal and child health services. The decline in the competence of midwifery graduates is due to several factors ³⁴.

The decline of midwifery graduates' competence indirectly affects the quality of maternal and child health services. Maternal and child health services cannot minimize obstacles to improving the quality of maternal and child health services optimally. The situation is because, firstly, the orientation of midwifery education in the theoretical aspect is different from practical abilities and skills, so they cannot be directly involved in maternal health services. Second, the problem with midwifery academy education, especially the private sector under the Ministry of Research and Technology and Higher Education, requires limited skills and practice skills. So, midwifery graduates can only be absorbed indirectly into maternal health services. Because the learning process that coincides with the role of a health worker will be precarious when faced with conditions that are not encountered in theory during the study due to a lack of practical lectures ³⁵.

Midwife education is expected to produce midwives who can provide quality midwifery services. However, with so much tertiary midwifery education, we need more space for prospective midwives to get internships in health services because there are too many students. So, this affects the capacity and capability of midwifery college or institute graduates' readiness for midwives in providing health services ²⁵. Possible ways to address the issue of limited internship opportunities for midwifery students are by establishing partnerships between midwifery colleges and various healthcare facilities ^{36,37}, and collaborating ³⁸, delivering maternal health services under the supervision of experienced health workers ^{39,40}. In addition, these are creating partnerships, and enhancing the capacity and capability of midwifery graduates to emphasize the importance of continuous professional development ^{41,42}. Professional organizations and regulatory bodies can be crucial in supporting and promoting ongoing professional development for midwives ^{43,44}, such as by offering regular training and

workshops⁴⁵. The programs can cover a wide range of topics, such as advanced clinical skills, evidence-based practices, and emerging trends in midwifery care so that midwives can enhance their knowledge and stay abreast of the latest advancements in their field^{46,47}. Moreover, professional organizations and regulatory bodies can collaborate with educational institutions and health facilities to provide training programs, and ensure that midwives have access to quality continuing education throughout their careers^{48,49}.

The promotion of continuous professional midwives' development through regular training and workshops^{50,51} is such in Swedish and New Zealand^{46,49,52}. By participating in these educational opportunities, midwives can acquire advanced clinical skills, learn evidence-based practices, familiarize themselves with emerging trends in their field⁵³, and be updated on new technologies, procedures, and guidelines that improve the overall quality of care they provide^{54,55}. It is essential to facilitate these training initiatives, and collaboration between professional organizations, regulatory bodies, educational institutions, and healthcare facilities^{56,57}. Professional organizations and regulatory bodies can work together with educational institutions to develop comprehensive training curricula that address the evolving needs of midwives. Meanwhile, healthcare facilities can also play a role by hosting training sessions and workshops and providing practical hands-on experiences to complement theoretical knowledge^{58,59}.

The limited facilities and infrastructure for field practice for midwifery students have become complex in Surabaya City because it is an urban area. There are an increasing number of midwifery educational institutions every year that require practice places. In contrast, the number of health services that can accommodate them remains relatively low. This fact shows that midwifery higher education is becoming less prominent, especially in terms of capacity and capability in practice. Professional organizations, regulatory bodies, educational institutions, and healthcare facilities should work together to facilitate training initiatives and ensure that midwives have access to high-quality continuing education^{60,61}. By pooling their resources and expertise, the stakeholders can develop comprehensive training curricula that meet the evolving needs of midwives. This collaborative effort aims to bridge the gap caused by limited infrastructure and facilities, ultimately enhancing the skills and knowledge of midwifery students in Surabaya⁶².

Surabaya City Government supports through the Surabaya City Health Office has made every effort to minimize the possibility of maternal and child deaths. The health centers carry out programs, and its network (including private practice midwives) such as early detection of obstetric complications. This effort is to improve K1 and K4 through health centers' networks to develop an early warning pattern in detecting the occurrence of obstetric complications³⁵.

Referral with the principle of early detection is recommended so that the treatment is appropriate to reduce the risk of complications that result in maternal or child deaths. The local

government support is quite strong, although, in terms of financing, it often collides with the referral to the national health scheme. The referral pattern based on emergencies still implemented by hospitals makes an effective referral pattern for early detection of complications likely not realized. The challenge of this pattern of referrals has been anticipated with communication between the health office, referral hospitals, health centers' doctors, and coordinating midwives. With this common communication pattern, the government, through the city health office, can detect every case that indicates complications and referral barriers that can be facilitated. However, communication is limited to hospitals that are under supervision or have cooperated with the municipality. Outside those hospitals, problems with refusing referrals, especially for patients with national health schemes, are still common.

The experience of Surabaya City shows that the problem in managing early detection of obstetric complications to reduce maternal and child mortality is not only by the city government. The problem of referrals from hospitals to health scheme financing is also an obstacle to improving maternal and child health services, especially in dealing with obstetric complications. The efforts of the city and provincial health offices will be successful if they have full authority in coordinating the health service system. It will be difficult for aspects of the health care system outside their authority to determine the necessary policies ^{27,63}.

CONCLUSION AND SUGGESTIONS

Maternal health services by private practice midwives, including 'Delima' private midwives in Surabaya, have increased access to services. The quality of maternal health services by 'Delima' private midwives is relatively better due to the competence of midwives, standard conditions of facilities and infrastructure, guidance by the Indonesian Midwifery Association of Branch Surabaya city, and training.

Weaknesses of private practice midwives, including 'Delima' private midwives in Surabaya city are not being able to present K4, failure to analyze the results of antenatal care in the Maternal and Child Health (MCH) handbooks, need time to have integrated antenatal care (ANC) at health centers, and the midwives' duties beyond competence during education. There is also a lack of assistance to field practicing midwives at their practice places due to their busy schedules, resulting in a relatively insufficient transfer of midwifery knowledge and skills. Besides, in the era of the National Social Security Agency (BPJS Kesehatan), there are partnership opportunities of primary health clinics that have MOU.

The Indonesian Midwifery Association of Branch Surabaya City, in collaboration with the Surabaya City Health Office, needs to undertake efforts such as training or workshop to enhance knowledge and skills as well as fostering collaboration between private practice midwives (including 'Delima' private midwives) on recording antenatal care (K4), motivating pregnant women for integrated ANC at health centers. The integrated ANC that optimizing the MCH handbook and analyzing the results of pregnant women's examinations are to enable early detection and effective referral of obstetric

complications. In addition, it is necessary to prioritize the transfer of midwifery knowledge and skills by directly assisting the field practicing midwives in their practice locations.

It suggests for City/District Health Offices, the Ministry of Health to improve maternal health services by midwives to accelerate the reduction of maternal mortality. For academics are to develop strategies to improve maternal health services by private practice midwives.

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BARRIERS TO STUNTING PRIMORDIAL PREVENTION THROUGH PROSPECTIVE BRIDE'S ADVISORY SERVICE: A QUALITATIVE STUDY USING SOCIAL ECOLOGICAL MODEL

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ABSTRACT

Since the Faculty of Medicine and Health Sciences, University of Warmadewa, launched community-oriented medical education (COME), the stunting prevalence in Gianyar Residence decreased from 12.1% (2018) to 11.1% (2019). In 2021, it decreased to 5.1% which was lower than Bali province (10.9% in 2021) and much less than the Republic of Indonesia (24.4%). The PentaCOME (Pentahelix Community-Based Medical Education) project, the modification of COME, was the collaboration of the Indonesian Ministry of Education, Culture, Research, and Higher Education, the Warmadewa University, as well as PT. Sido Muncul is implemented to further lower stunting prevalence via the "Stunting Primordial Prevention Through Prospective Brides Advisory Service" initiative in Payangan District. The present study was intended to figure out barriers to implementing such initiatives. This is a qualitative study using in-depth interviews and focus group discussions (FGDs) in obtaining data. Purposive sampling was used to select informants who represented academicians (3), businessmen (2), community (9), government (3), and media (3) (i.e., Penta helix components). Twenty in-depth interviews and two FGDs involving academicians, community, government, and media were conducted during the 1 September 2022 – 15 October 2022 period. Two coders transcribed and coded independently. The social-ecological model was used to categorize the codes. Informants described that they never heard about the ELSIMIL application (ELSIMIL stands for *Electronic Siap Nikah dan Hamil* which means 'prepared to get married and pregnant application') at the personal level. The "No pregnancy, no marriage" motto (i.e., social pressure to get pregnant before marriage among Balinese) was found a barrier at the interpersonal level. At the institutional level, key informants stated the prospective bride's advisory service and ELSIMIL application campaign were not adequate. At the community level, the family support team community has been established, however, they could not fulfill their function properly due to the "no pregnancy, no marriage" motto. At the policy level, the traditional village assembly (i.e., "*Majelis Desa Adat*") has not issued regulations regarding the prospective bride's advisory service. A lack of cross-sector collaboration was also reported as a barrier to this initiative. A well-planned promotion could socialize ELSIMIL application among prospective brides. Advocacy to the traditional village assembly might diminish the "no pregnancy, no marriage" motto. Pentahelix collaboration needs to be established to achieve the "zero stunting for golden generation" goal.

Keywords: *stunting, primordial prevention, ELSIMIL, PentaCOME, Bali*

ABSTRAK

Sejak Fakultas Kedokteran dan Ilmu Kesehatan Universitas Warmadewa meluncurkan pendidikan kedokteran berorientasi masyarakat (COME), prevalensi stunting di Gianyar Residence menurun dari 12,1% (2018) menjadi 11,1% (2019). Pada tahun 2021 menurun menjadi 5,1% yang lebih rendah dari provinsi Bali (10,9% pada tahun 2021) dan jauh lebih rendah dari Republik Indonesia (24,4%). Proyek

PentaCOME (Pentahelix Community-Based Medical Education), modifikasi dari COME, merupakan kolaborasi dari Kementerian Pendidikan, Kebudayaan, Riset, dan Pendidikan Tinggi RI, Universitas Warmadewa, serta PT. Sido Muncul dilaksanakan untuk lebih menurunkan prevalensi stunting melalui inisiatif "Pencegahan Stunting Primordial Melalui Layanan Konsultasi Calon Pengantin" di Kabupaten Payangan. Penelitian ini dimaksudkan untuk mengetahui hambatan untuk menerapkan inisiatif tersebut. Ini adalah studi kualitatif menggunakan wawancara mendalam dan diskusi kelompok terfokus (FGD) dalam memperoleh data. Purposive sampling digunakan untuk memilih informan yang mewakili akademisi (3), pengusaha (2), masyarakat (9), pemerintah (3), dan media (3) (yaitu, komponen Penta helix). Dua puluh wawancara mendalam dan dua FGD yang melibatkan akademisi, komunitas, pemerintah, dan media dilakukan selama periode 1 September 2022 – 15 Oktober 2022. Dua coders ditranskripsikan dan dikodekan secara independen. Model sosial-ekologis digunakan untuk mengkategorikan kode. Informan menjelaskan bahwa mereka tidak pernah mendengar tentang aplikasi ELSIMIL (ELSIMIL adalah singkatan dari Electronic Siap Nikah dan Hamil yang berarti 'siap menikah dan aplikasi hamil') di tingkat pribadi. Moto "Tidak ada kehamilan, tidak ada pernikahan" (yaitu, tekanan sosial untuk hamil sebelum menikah di kalangan orang Bali) ditemukan sebagai penghalang di tingkat interpersonal. Di tingkat institusi, informan kunci menyatakan layanan konsultasi calon pengantin wanita dan kampanye aplikasi ELSIMIL tidak memadai. Di tingkat komunitas, komunitas tim dukungan keluarga telah dibentuk, namun, mereka tidak dapat memenuhi fungsinya dengan baik karena moto "tidak ada kehamilan, tidak ada pernikahan". Pada tingkat kebijakan, majelis desa adat (yaitu, "Majelis Desa Adat") belum mengeluarkan peraturan mengenai layanan konsultasi calon pengantin wanita. Kurangnya kolaborasi lintas sektor juga dilaporkan sebagai penghalang untuk inisiatif ini. Promosi yang terencana dengan baik dapat mensosialisasikan aplikasi ELSIMIL di antara calon pengantin. Advokasi kepada majelis desa tradisional dapat mengurangi moto "tidak ada kehamilan, tidak ada pernikahan". Kolaborasi Pentahelix perlu dibangun untuk mencapai tujuan "zero stunting for golden generation".

Kata kunci: Stunting, pencegahan primordial, ELSIMIL, PentaCOME, Bali

INTRODUCTION

Stunting remains the most essential challenge to deal with in human growth and development, particularly among children under five years of age [1]–[4]. Stunting might result in decreased cognitive ability which further caused lower school performance, and when they reach productive age, decreased earnings. About 149.2 million children under five years of age suffered from stunting worldwide in 2021, of whom 92% live in Asia and Africa [1]–[4].

The stunting prevalence among children under five years old in Indonesia was 24.4%, based on the 2021 Indonesian Nutrition Status Study. It meant that nearly one-fourth of children under five years old were stunted [5]–[9]. The data was collected from 34 provinces (i.e., 514 districts or cities) encompassing 153,228 children under five years old with a total of 14,889 census blocks. A large discrepancy was found between the Community-Based Nutrition Recording and Reporting Electronic Application and the Indonesia Nutrition Status Study. In Klungkung District, for example, the 2022 Community-Based Nutrition Recording and Reporting Electronic Application merely reported 597 children under five years old who were stunted, while the 2021 Indonesia Nutrition Status Study reported 2,300. The report which is recognized officially is the data from the Indonesian Nutrition Status Study [5]–[7], [9], [10].

Indonesian government attempts to decrease the stunting prevalence below 14% by 2024. Therefore, the stunting prevalence should be lowered by at least 2.7% annually [10]–[12]. Following the World Health Organization (WHO) guidelines, the Ministry of Health implements nutrition-specific interventions to address the direct causes, such as providing nutrition supplementary and preventing as well treating infectious diseases through integrated management. The nutrition-sensitive interventions were carried out by the National Population and Family Planning Agency in collaboration with several other ministries. The nutrition-sensitive interventions are intended to address the stunting indirect causes, such as the provision of nutrition and health services, drinking water and sanitation, increasing access to food, and enhancing awareness of child care and nutrition. Stunting is defined as height according to age falls below two standard deviations. Stunting is a failure to thrive indicator due to chronic nutritional deficiency during the first 1,000 days of life [6], [8], [9], [13].

The poor nutritional status which was detected among pregnant women and children under two years old is a community health problem in certain areas of Indonesia [9]–[13]. West Kalimantan Province, for example, is found to have both chronic energy deficiency in pregnant women as well as a high stunting prevalence in children under five years old. Bali, whose wasting prevalence is 3% and stunting prevalence is 10.9%, is the only province categorized in good category (i.e., wasting prevalence and stunting prevalence both ≤ 20 percent). Yogyakarta, DKI Jakarta, the Islands of Riau, Bangka Belitung, and Lampung are provinces with high wasting prevalence but low stunting prevalence and hence categorized as chronic nutrition deficiency. Meanwhile, Bengkulu with low wasting prevalence but high stunting prevalence is categorized as acute nutrition deficiency [5], [6], [8], [13].

The government targeted to decrease stunting prevalence by 3% in 2022 through convergent specific and sensitive nutrition intervention, facilitated by more accurate and precise coverage data, stunting reduction acceleration team establishment, and stunting reduction program via family approach conducted at integrated health service post. For the next step, the government intends to further reduce stunting prevalence to 14% in 2024. This is quite aggressive target (i.e., a 10.4% decrease in less than 2.5 years). Following such a target, the government introduced the National Action Plan for Reducing Indonesia's Stunting Prevalence in 2022 as the guidance to further expedite stunting reduction [7], [14].

Without neglecting provinces whose stunting prevalence is low, the stunting reduction acceleration program is emphasized in the provinces whose stunting prevalence is high. Such provinces include West Nusa Tenggara, Central Sulawesi, South Kalimantan, West Kalimantan, Aceh, West Nusa Tenggara, and East Nusa Tenggara. Other provinces whose stunting absolute numbers are high, which include West Java, East Java, Central Java, Banten, and South Sumatra, should also be considered. Bali, whose stunting prevalence is 10.9% and wasting prevalence is 3%, is the only province in the good category with a low

stunting prevalence (≤ 20 percent) and low wasting prevalence (≤ 20 percent). Lampung, Bangka Belitung, the Islands of Riau, DKI Jakarta, and Yogyakarta are provinces with low stunting prevalence and high wasting prevalence (categorized as chronic nutrition malnutrition). Meanwhile, Bengkulu with high stunting prevalence and low wasting prevalence is categorized as acute nutrition malnutrition [7], [8], [11], [14].

Although Bali is considered the province with the lowest stunting prevalence in Indonesia, the government set a target of 6 percent in 2024. Achieving such a target requires cross-sectoral collaboration and the district-based family support teams enhancement. Inadequate sanitation, poverty, malnutrition, and improper parenting are the main determinants associated with stunting. Hence, it is imperative to unceasingly engage the community, especially teenagers, to prevent them from giving birth to stunted children in the future. Stunting primordial prevention needs to be done starting with teenagers. Therefore, the stunting primordial prevention through prospective brides' advisory service is imperative. The program is best initiated three months before marriage to give adequate time for preparation. This study is intended to explore the barriers to stunting primordial prevention through prospective brides' advisory service using the ELSIMIL application (*electronic siap nikah dan hamil* which means ready to marry and get pregnant application).

METHODS

Payangan District was selected as a PentaCOME location since the predecessor (COME) was conducted there. Payangan is located in Gianyar Regency, Bali province. It has nine villages with an area of 75.88 km². It is bordered by Banua Village, Kintamani District, Bangli Regency to the north; by Kedewatan Village, Ubud District, Gianyar Regency to the south; by Sebatu Village, Tegallalang District, Gianyar Regency to the east; and by Pangsang Village, Petang District, Badung Regency to the west.

In November 2020, Bukian Village had the highest number of hamlets (11 hamlets), while Bresela had the least (3 hamlets). Bukian Village had also the highest population (7,673 people), however, in terms of population density, Melinggih village had the highest. The total population was 46,621 with 10,418 families. The sex ratio was 99. On average, each family consisted of five people.

Key informants for interviews and participants for two focus group discussions (FGDs) were selected using purposive sampling based on the pentahelix model which consists of academicians, businessmen, the community, government, and media. Warmadewa University lecturers who have supervised COME in Payangan District were selected as academicians' representatives, two PT. Sido Muncul's employees as business representatives, the family support team members as the community representatives, Payangan Community Health Centre staff as government representatives, and Bali Post,

TVRI Bali, and Radio Thomson News FM 93.3 MHz staff as media representatives. All of them got an introduction to ELSIMIL before interviews and FGDs.

Four topics: stunting, existing COME, cross-sector collaboration, and primordial prevention through the prospective brides' advisory service were covered in the FGD Guidelines. The FGDs were conducted by three facilitators: the head of the COME unit (LGP, MPH), a social OBGYN subspecialist (GMB, social OBGYN subspecialist), and a public health scientist experienced in qualitative research (MIW, Ph.D. in public health). All facilitators were the PentaCOME champions. PentaCOME is the Matching Fund Kedaireka project; the modification of COME using the pentahelix model. It is a collaboration of the Ministry of Education, Culture, Research, and Higher Education, PT. Sido Muncul and Warmadewa University.

In-depth interviews were conducted to explore informants' knowledge and attitudes particularly related to stunting primordial prevention through the prospective brides' advisory service using the ELSIMIL application. Five interviewers (MDW – MSc in Biology, KTK – MPH, MP – OBGYN specialist, TS – M.Repro, and AGI – PhD in Biology) conducted such interviews. They are COME supervisors. Each interviewed four interviewees. All pentahelix model representatives were interviewed. Each interview last for about 60 minutes. Unfortunately, the businessmen representatives failed to attend both FGDs.

All interviews and FGDs were recorded and transcribed verbatim. Constant comparison was implemented: two research team members (GMB – social OBGYN subspecialist and MIW – Ph.D. in public health) grounded themselves in the transcript independently to explore the themes that would emerge without knowing what to expect. Codes were then developed based on the emerging themes. The coding was done by the same two research team members. Any discrepancies in the coding were discussed thoroughly until agreement was achieved to decide which codes were added to the model. An iterative analysis was conducted by recoding the coded transcript. The themes were then displayed using the social-ecological model.

RESULTS AND DISCUSSION

Informants Characteristics

Table 1 reveals key informants' characteristics. 20 key informants represented all components of the pentahelix model. The median age was 30 (min: 27 and max: 77). Most informants were female (70%). The community component of the pentahelix model was mostly represented (45%).

Table 1. Informant Characteristics

No	Initial	Gender	Age (years)	Pentahelix
1	I1	Female	32	Academician
2	I2	Female	30	Academician
3	I3	Male	77	Academician
4	I4	Male	54	Business
5	I5	Male	60	Business
6	I6	Female	29	Community (Melinggih Kelod Village)
7	I7	Female	29	Community (Melinggih Village)
8	I8	Female	27	Community (Kelusa Village)
9	I9	Female	28	Community (Bresela Village)
10	I10	Female	31	Community (Bukian Village)
11	I11	Female	28	Community (Buahan Village)
12	I12	Female	34	Community (Buahan Kaja Village)
13	I13	Female	27	Community (Puhu Village)
14	I14	Female	30	Community (Kerta Village)
15	I15	Female	52	Government
16	I16	Female	36	Government
17	I17	Male	49	Government
18	I18	Male	27	Media
19	I19	Female	28	Media
20	I20	Male	42	Media

Several barriers to (and facilitators of) stunting primordial prevention through the prospective brides' advisory services emerged as the themes. The stunting primordial prevention barriers and facilitators were categorized into the social-ecological model which encompasses five levels: the individual level, the interpersonal level, the institutional level, the community level, and the policy level. In this article, we defined the community level as the family support team from nine villages in Payangan District.

Ignorance of ELSIMIL application. Only the family support teams know about the ELSIMIL application: there were no leaflets provided in the community health center and no promotions on the frequently viewed social media platform either. Most of them knew about the ELSIMIL campaign only after the FGDs. Once they knew, they were not able to practice the application for it was developed only for prospective brides. Others overlooked it because they considered stunting as no longer a problem in Gianyar Regency. Finally, the family support teams stated that the prospective brides they approached could not use ELSIMIL because they were not eligible (i.e., they were pregnant before marriage).

Ignorance of premarital counseling. Some participants stated that they were unaware of premarital counseling. They did not know when, how often, and how many times prospective brides should have counseling. One participant mentioned she did not see the need to do so since she never had premarital counseling. Several asked whether the prospective brides of the second marriage still needed premarital counseling.

“Pregnancy precedes marriage” motto. Some prospective grooms expected that their future brides got pregnant before marriage because a child, in particular a son, was very essential in a family. The key informants FGD participants stated that many women married when they were pregnant in a few weeks gestational age and hence were not eligible for ELSIMIL. They got their first antenatal care in the second trimester which made the interventions a bit late.

“Pregnancy precedes marriage’ has become a norm for many Balinese. They only marry when the future brides get pregnant. ... they are not eligible to use ELSIMIL anymore.” (Academician, female, 32 years old)

Low perceived susceptibility. The low enthusiasm to participate in the prospective brides’ advisory service using the ELSIMIL application was because of low perceived susceptibility. One FGD participant realized that Gianyar Regency has the lowest stunting prevalence in Bali Province.

“It is merely about 5%. ...We have the lowest stunting prevalence in Bali. It’s no longer public health issue here” (Government, female, 52 years old)

Academician representatives considered the data presented by the government was quite unreliable. The significant reduction within the last four years did not make any sense.

“Listen. The 2018 prevalence was 12.1%. It decreased to 11.1% in 2019 and all of a sudden, within two years, 5.1% in 2021. It occurred without significant interventions other than the routine. It did not make any sense to me” (Academician, male, 77 years old)

Social Norms Allowed Premarital Pregnancy. When we discussed social norms related to premarital pregnancy, informants and FGD participants cited that it was a norm to get pregnant before marriage. It occurred because for most Balinese, having children, primarily sons, during married life is imperative. Hence, some prospective brides were, by such norms, encouraged to get pregnant before marriage to assure they satisfied such prerequisite conditions.

“Premarital pregnancy was considered as an achievement. These norms are quite annoying. ...to some extent, became bullying. ...They kept asking when you got pregnant in public” (Community, female, 34 years old)

Pressure to Use ELSIMIL soon. The family support team considered those who did not use ELSIMIL three months before marriage as selfish and did not care. They negatively contribute to stunting. They said that they actively seek prospective brides and encouraged them to use ELSIMIL. It was necessary for the prospective brides’ benefit.

Interviewer: *Have you ever coerced prospective brides to utilize ELSIMIL?*

Participant 1: *Yes. I obliged my relative to use ELSIMIL three months before marriage. Recently most of them were not eligible because they were pregnant already. I was unhappy.*
(Community, female, 29 years old)

Participant 2: *I warned my relative to use ELSIMIL ... It is government policy so we must endorse such policy.* (Community, female, 31 years old).

Inadequate Promotion of Prospective Brides' Advisory Service Program. The majority of FGD participants learned about prospective brides' advisory service program during the PentaCOME webinar or FGDs. They were not aware of it even though they were actively engaged in popular social media platforms. Therefore, they suggested using popular social media to promote this program. The family support teams suggested using "intimidating" messages to get prospective brides enrolled. For example, using sanctions or fines. Academicians disagreed with such an idea and suggested a more persuasive campaign. It will work much better in the long run.

"In the long run, I think we should focus more on the persuasive campaign rather than implementing sanctions or fines" (Academician, male, 77 years old).

The government and businessmen described *PeduliLindungi* Campaign as an analogy since it is very successful. They described *PeduliLindungi* as a mandatory, informative, meticulous, and up-to-date application.

"If the ELSIMIL campaign was implemented just the way PeduliLindungi was done, the success is inevitable" (government, female, 52 years old).

Lack of human resources to conduct the campaign. FGD participants and key informants suspected that the lack of human resources to conduct the campaign, particularly in the community health center, contributed to the ignorance of the campaign in society.

"They need more hands. ...our midwives are preoccupied with the family planning programs as well as the maternal and pediatric health....so little time, so much to do" (government, female, 36 years old).

On the contrary, other FGD participants described that the lack of human resources in the community health center should not be an obstacle because there are dozens of human development cadres in every village. They are trained to actively participate in human development, especially in monitoring stunting reduction programs.

Constraining social norms. The family support team reported constraining social norms as a barrier. The "Pregnancy precedes marriage" motto hindered their endeavor to recruit prospective brides. Fortunately, the National Population and Family Planning Agency has engaged the traditional village institution to deal with this hindrance.

Interviewer: *What should be done to overcome the “pregnancy precedes marriage” motto?*

FGD participant: *Perhaps we, Hindu, can follow examples from other religions, such as Christian and Muslim ... They oblige prospective brides and grooms to attend pre-marital counseling.* (Academician, female, 32 years old)

FGD participant: *The traditional village institution in Bali initiated regulation (known as Perarem) which coerce prospective brides and grooms to attend pre-marital counseling. Soon, we will do as they [other religions] do.* (Government, male, 49 years old)

Presidential Regulation No. 72 of 2021 regarding the stunting reduction acceleration. FGD participants and informants reported that the government was very serious about reducing stunting. They issued Presidential Regulation No. 72 of 2021. The National Population and Family Planning Agency was assigned as the stunting reduction acceleration team coordinator.

“We introduced the concept of reducing stunting via family approach” (Government, female, 52 years old)

The academician proposed an initiative to ensure that every bride is in her prime condition to get married and get pregnant. ELSIMIL application allows the prospective bride attains her prime condition through intervention initiated 3 months before the marriage. The intervention encompasses 3 phases: pre-conception, pregnancy, and post-delivery.

“...we developed PentaCOME program which was primarily intended to prevent stunting right from the gecko” (Academician, male, 77 years old)

The family support team was established to deal with this task. They got proper training to do so. They consisted of the National Population and Family Planning Agency cadres, the family empowerment and welfare support team, and midwives.

“...we provided a 3-day workshop on 17 May 2022 until 19 May 2022 in Sanur to empower the family support team” (Government, female, 36 years old).

Numerous studies have been conducted to measure stunting programs' effectiveness and explore barriers to implementing such programs [1]–[3], [15]–[19]. The primary aim of the current study is to explore deep dive the perceived barriers to (and facilitators of) stunting primordial prevention through prospective brides' advisory service utilizing the ELSIMIL application. We analyzed unique in-depth interviews and FGDs data. PentaCOME is the modification of our ongoing COME project which spreads out the intervention from the first 1000 days of life to prospective brides. The social-ecological model used to categorize themes that emerged from inductive analysis is an evidence-based model that admits the intricacy of how an individual makes decisions and changes behavior [20]–[24]. Our findings show

numerous obstacles to stunting primordial prevention through prospective brides' advisory service at the individual, interpersonal, institutional, community, and policy levels.

We identified individual-level barriers to stunting primordial prevention through prospective brides' advisory services. The important next step is to develop proposed solutions based on the barriers that emerged from the analysis. This can be done using a commonly used theory such as Lawrence Green's Theory [22], [25] or Health Belief Model [26]–[29]. These theories emphasize the importance of enabling factors (Lawrence Green Theory) and self-efficacy (Health Belief Model) as the main determinants of behavioral alteration. When dealing with a health risk (perceived susceptibility) with intense consequence (perceived severity), according to the Health Belief Model, people will do something to prevent it from happening, unless they perceive that the barrier is beyond their ability to overcome. In other words, people facing a health risk are encouraged by the balance between perceived susceptibility and self-efficacy. Risk communication which is only exercising perceived susceptibility without ensuring high self-efficacy will lead to unfavorable consequences. A well-planned risk communication should provide clear, correct, concise, and doable advice.

Stunting has extended detrimental consequences on the child. Some of those effects include poor cognition followed by educational performance and in the end, lost productivity and low adult wages. When later on children become obese, the risk of nutrition-related chronic diseases in adult life will increase [1]–[3]. The stunting incidence in Payangan Regency has not been controlled by primordial prevention which poses a risk for future generations. Stunting primordial prevention through prospective brides' advisory service is recognized as a simple but effective initiative. It merely requires prospective brides to register on the ELSIMIL application three months before their marriage. The risk communication should emphasize the perceived susceptibility, and at the same time, accompany them to increase their self-efficacy. The family support team should not only overcome the lack of knowledge but also inspire behavioral belief in the program. The ultimate goal is to attain zero stunting in the future.

A very salient theme that emerged on the individual level was ignorance of the ELSIMIL application. Prospective brides were unaware that they could only register for an ELSIMIL application three months before marriage and that they should not be pregnant. This barrier can be easily overcome by developing Google Form with contents similar to the questionnaire installed in ELSIMIL. This Google Form could be utilized by the family support team to provide advice for prospective brides who do not satisfy the ELSIMIL criteria. India has taken this kind of step to engage more prospective brides in stunting prevention from pre-conception [30]–[38]. The fact that stunting prevention should be initiated from pre-conception has led India to develop a stunting prevention initiative with prospective brides as the target population. They found that poverty cannot be claimed as the only culprit. They found stunted children

even among the richest households. Young children were not fed with a rich-nutrient diet even when they have access to nutritious food, and only half of mothers breastfed their children until six months of age. The sustained risk of stunting, which is often overlooked, needs to be made noticeable so that families (and communities) will do something to mitigate such risk. India initiated large-scale stunting prevention programs, in collaboration with UNICEF, which encompassed primarily dealing with prospective brides. This program has led to a significant reduction in stunting prevalence from 48% in 2006 to 35% in 2018. Even with this impressive reduction, there are still about 40.6 million stunted children in India in 2018. Hence the prospective brides' advisory service should become an ongoing initiative. Based on our funding, health promotion should engage prospective brides as early as three months before marriage.

Challenges expressed by informants at the interpersonal level were related to marriage culture: "pregnancy precedes marriage" motto. There is opposing social pressure both for and against pre-marital advisory service, even though the former was noticeably more common. Several informants in this study indicated that sooner or later, there will be social pressure for prospective brides to engage in the program since the traditional village assembly has issued a policy supporting such a program. Those who do not participate in the program will be considered uncaring for future generations although a few also predicted there will be the opposite social pressure. The diffusion of innovation theory, [39]–[41] the social learning theory, [42], [43] and the theory of planned behavior [44]–[46] point out social networks (i.e., the others' opinions) play a significant role in behavioral change. The stunting primordial prevention through prospective brides' advisory service should be implemented utilizing these theories. The government should attempt to modify local norms through influential traditional figures, such as local neighborhood authorities, local celebrities, teachers, respected elders, and well-connected cadres in communities.

Insufficient person in charge of the program, low frequency of ELSIMIL campaigns, health system weaknesses, insufficient promotion of ELSIMIL campaign, the inactivity of auxiliary community health center post COVID-19 pandemic, and poor selection of family support team members emerged as the barriers at the institutional level. Just as we proposed at the interpersonal level, engagement in the program can be improved by engaging well-connected cadres in communities to champion the pre-marital advisory service program. Program extension to include adolescent girls such as senior high school students, even though hypothetical, might lead to a faster stunting reduction. The community health center should reactivate the monthly mini-workshops and the quarterly mini-workshops to raise awareness among all stakeholders that stunting prevention is not merely the community health center domain. The interventions at the institutional level to enhance prospective brides' advisory service uptake can be modeled in the framework introduced by Obrist et al. Availability, accessibility, affordability, adequacy, and acceptability

are the five components of such a framework. The present study highlighted adequacy and acceptability composites.

At the community level, barriers were cited similar to what had been stated at the individual and interpersonal levels. Enabling factor (i.e., policy level) which supports contingency strategy, is necessary for the stunting primordial prevention; for example, in India, [30], [32], [34]–[38] South Africa, [15], [17], [17]–[19] North Korea, [47]–[50] and Brazil, [51]–[53] a large-scale stunting prevention program involving prospective brides successfully reduced the stunting prevalence by 16%-20%. The combination of pre-marital advisory service and adolescent girls/senior-high-school students stunting primordial prevention program has been demonstrated to be effective in both rural as well as urban areas. The stunting primordial prevention program involving adolescent girls is essential. This is commonly conducted in collaboration with the school health program. The prospective brides' advisory service in the urban areas of West Java achieved a huge coverage above 70%, while a similar program merely achieved 17% coverage in Tabanan [14]. In our study, despite having well-connected cadres to the villagers, the prospective brides' advisory service program in the rural areas was inaccessible. On the contrary, the pre-marital couples in urban and peri-urban areas, whose populations are diverse, were much more easily accessed.

Our study and others revealed that knowledge, social norms regarding marriage, and perception about health services were essential components to understanding the pre-marital advisory service program's outcome. Nevertheless, the policy level seems to play the most important role in the stunting primordial prevention program. Individual, interpersonal, institutional, and community levels barriers are easy to identify and break; policy-level barriers are much more difficult, but normally result in better improvement.

CONCLUSION AND SUGGESTION

Essential individual, interpersonal, institutional, community, and policy level factors constrain more widespread engagement in the stunting primordial prevention through prospective brides' advisory service in Payangan Sub-District. A well-managed risk communication campaign is needed to improve prospective brides' knowledge about stunting prevention. Introducing a contingency plan to help prospective brides who do not satisfy ELSIMIL requirements should be explored. Engaging enabling factors (i.e., the traditional village assembly and the government) will lead to program target achievement more rapidly. Diverse communities that have different socio-cultural backgrounds (i.e., urban and peri-urban communities) require flexible strategies. Finally, to achieve the ultimate goal of "zero stunting for the golden generation", cross-sector collaboration (known as pentahelix collaboration) is inevitable.

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ANALYSIS OF FACTORS INFLUENCING THE SELECTION OF BIRTH ATTENDANTS IN THE TALANG MAMAK TRIBE COMMUNITY OF INDRAGIRI HULU DISTRICT

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ABSTRACT

There was a decrease in the maternal mortality rate (MMR) at 390 to 305 out of 100,000 live births but still failed to reach the MDGs target to become SDGs, namely 70 deaths per 100,000 per live birth in 2023. Indonesian data for 2018 based on birth attendants by health workers was 93.1% and non-Nakes 6.7%, there were still 16% who gave birth at home, while in 2022 there were still 3.65% assisted deliveries by non-health workers. The purpose of the study was to analyze the factors that influence the selection of birth attendants in the Talang Mamak community of Indragiri Hulu regency. This type of research is quantitative with cross sectional design. The population in this study amounted to 45 respondents with the criteria for respondents, namely pregnant women and mothers who have infants. Data analysis using Chi Square and Logistic Regression. The results showed that of the 45 respondents, 60% of deliveries were assisted by health workers and 40% were assisted by traditional birth attendants. There was a relationship between knowledge (p-value = 0.000), attitude (p-value = 0.014), beliefs/practices (p-value = 0.005), cost of labor (p-value = 0.028), distance (p-value = 0.028), family support (p-value = 0.011). The factor that plays the most role in the selection of birth attendants is knowledge with a significant value of 0.025, maternal attitude 0.031 and trust / custom 0.043 and family support 0.054. It is recommended to increase the knowledge of the mother by continuing health promotion with cultural and social approaches, as well as instilling a positive attitude towards health workers as birth attendants, so that childbirth is free of complications.

Keywords: Birth Attendant, Factors, Talang Mamak

ABSTRAK

Terjadinya penurunan terhadap angka kematian ibu (AKI) di 390 menjadi 305 dari 100.000 kelahiran hidup namun masih belum berhasil meraih target MDGs menjadi SDGs yaitu 70 kematian per 100.000 per kelahiran hidup tahun 2023. Data Indonesia tahun 2018 berdasarkan penolong persalinan oleh tenaga kesehatan adalah 93,1% dan non Nakes 6.7%, masih ada 16% yang melahirkan di rumah, sedangkan tahun 2022 masih ada 3,65% pertolongan persalinan oleh non nakes. Di kabupaten Indragiri Hulu tahun 2021 cakupan persalinan di tolong dengan nakes 80,3%, non nakes 19.7%. Tujuan Penelitian untuk menganalisis faktor yang mempengaruhi pemilihan penolong persalinan di Komunitas Suku Talang Mamak Kabupaten Indragiri Hulu. Jenis penelitian ini adalah Kuantitatif dengan desain Cross Sectional. Populasi pada penelitian ini berjumlah 45 responden dengan kriteria responden yaitu ibu hamil dan ibu yang memiliki batita. Analisis data menggunakan Chi square dan Regresi Logistik. Hasil penelitian menunjukkan dari 45 responden, 60% persalinan ditolong tenaga kesehatan dan 40% ditolong oleh dukun bayi. Ada hubungan pengetahuan (p-value = 0,000), sikap (p-value = 0,014), kepercayaan/adat (p-value = 0,005), biaya persalinan (p-value = 0, 028), jarak (p-value = 0,028), dukungan keluarga (p-value = 0,011). Faktor yang paling berperan terhadap pemilihan penolong persalinan adalah pengetahuan dengan nilai signifikan 0,025, sikap ibu 0,031 dan kepercayaan/adat 0,043, dan dukungan keluarga 0,054. Disarankan meningkatkan pengetahuan ibu dengan tetap melakukan promosi kesehatan dengan pendekatan budaya dan sosial, serta menanamkan sikap yang

positif pada tenaga kesehatan sebagai penolong persalinan, sehingga persalinan terhindar dari komplikasi.

Kata Kunci: *Penolong Persalinan, Faktor, Talang Mamak*

INTRODUCTION

Maternal Mortality Rate (MMR) is all deaths in this area per 100,000 live births. Overall, there was a decline in maternal mortality in 390 to 305 per 100,000 live births. Despite the downward trend in maternal mortality, the MDG target of 102 deaths per 100,000 live births was not reached in 2015 ⁽¹⁾. The evolution of the MDG program into the SDGs resulted in a target to reduce MMR to 70 deaths per 100,000 live births by 2023 ⁽²⁾.

According to McCarthy and Maine's theory ⁽³⁾, the determinants of maternal mortality can be caused from different sides, namely contextual determinants (women's status), intermediate determinants (reproductive behavior), and proxy determinants (complications of pregnancy and childbirth). Based on data from the Ministry of Health, the causes of maternal mortality in Indonesia are known as "4 too" (too young, too old, too many children, too close) and "3 too late", namely late decision making, late treatment, and late referral.

In addition to the above theory, several studies related to pregnancy and childbirth as well as MMR are inseparable from the aspects that influence it, including maternal health status and pregnancy preparation, antenatal examinations, delivery assistance and postpartum care, as well as socio-cultural aspects ⁽⁴⁾.

In Indonesia, traditional birth attendants (TBAs) still perform births using traditional methods, which can pose a risk to the safety of mothers and babies. In some areas, the existence of TBAs as trusted, respected and experienced birth attendants is very important to the community ⁽⁵⁾. Many factors influence the choice of birth attendant, including distance, transportation, and cost. Another study in Bangladesh found that home delivery by TBAs remains the first choice for pregnant women. Poverty was the most commonly cited reason for choosing home delivery with TBAs. Other important reasons included: traditional beliefs, religious misconceptions, poor ⁽⁶⁾.

Indonesia's own data in 2018 for the coverage of childbirth at health facilities is still 79%, with data showing that based on delivery assistance by health workers is 93.1% and non-health workers 6.7%, and for data on the coverage of childbirth at home, there are still 16% who give birth at home ⁽⁷⁾. Meanwhile, the coverage of births assisted by health workers is 87.5% and non-health workers 12.5%, while the coverage of births in health facilities is 84.8%. This also shows that the coverage target is not yet in line with the national target of 85% for facility-based deliveries ⁽⁸⁾.

Some districts in Riau Province that still have a high MMR are Indragiri Hulu district, with 12 cases of maternal deaths in 2021. Judging from some of the coverage targets in Indragiri Hulu Regency,

there are still some that have not been achieved, such as the coverage of births assisted by health workers, which is 80.3%, 19.7% non-health workers and the coverage of births in health facilities, which is 73.3%, from here it shows that the coverage target is not in accordance with the required national standard of 80%.

Indragiri Hulu Regency has an indigenous population, namely the Talang Mamak community. Based on the data from 2018 (2 cases), 2019 (1 cases), 2020 (1 case), 2021 (1 case). Out of all these maternal deaths, the history of delivery assistance was assisted by a traditional birth attendant. (Puskesmas Rakit Kulim, 2021)

Based on the above phenomenon, the research objective is to analyze the factors that influence the selection of birth attendants in the Talang Mamak community of Indragiri Hulu Regency.

METHOD

This research is a quantitative research with cross sectional approach. Sampling was done by total sampling with 45 respondents with the criteria of respondents, namely pregnant women and mothers who have toddlers. Data analysis was done using univariate, bivariate analysis with chi-square and logistic regression tests. The research was conducted in the working area of Rakit Kulim Health Center, Indragiri Hulu Regency. Namely in three villages; Limau river village, Ekok river village and Talang Perigi village, with each village represented by 15 respondents. The reason for choosing this location is that there are still many Talang Mamak people who give birth with traditional birth attendants. The research was conducted from September to November 2022. The data collection method is through a questionnaire, which previously tested the validity and reliability of the questionnaire.

RESULTS AND DISCUSSION

Based on the table below, it is found that of the 45 respondents studied, seen from the age of majority, 27 people (60%) were at risk, seen from the mother's work, most of them worked as many as 31 people (68.9), seen from parity, most of them were at low risk as many as 31 people (51.1%), seen from the knowledge and attitudes of mothers, most of them were low knowledge as many as 25 people (55. 6%), seen from the cost of childbirth, most of them were affordable as many as 24 people (53.3%), seen from accessibility / affordability, most of them were not affordable as many as 21 people (46.7%), seen from beliefs / customs, most of them existed as many as 26 people (57.8), seen from family support, most of them had support as many as 23 people (51.1%) and based on the choice of delivery assistants, the majority were health workers as many as 27 people (60%).

Table 1. Characteristics Respondent

Number	Variable	Frequency (f)	Percentage
1	Age		
	At risk	27	60
	Not at Risk	18	40
2	Mother's Occupation		
	Not Working	14	31.1
	Working	31	68.9
3	Parity		
	High risk	22	48.9
	Low risk	23	51.1
4	Knowledge		
	Low	25	55.6
	High	20	44.4
5	Attitude		
	Negative	25	55.6
	Positive	20	44.4
6	Cost of Delivery		
	Not Affordable	21	46.7
	Affordable	24	53.3
7	Ekseabilitas/ affordability		
	Not affordable	21	46.7
	Affordable	24	53.3
8	Trust/custom		
	Influential	26	57.8
	Not influential	19	42.2
9	Family Support		
	No	22	48.9
	Yes	23	51.1
10	Birth attendant		
	Non-health worker (TBA)	18	40
	Health worker	27	60

Source: Primary Data 2022

Judging from the knowledge variable with 45 respondents studied, the odds ratio (OR) value of 16 means that mothers with low knowledge have a tendency to choose birth attendants using TBAs 16 times greater than those with high knowledge. Thus, there is a significant relationship between maternal knowledge and selection of birth attendants because the p- value is 0.000 or less than 0.05.

Judging from the attitude variable, the odds ratio (OR) value of 5.091 means that mothers with negative attitude have a tendency to choose traditional birth attendants which is 5.091 times greater than mothers with positive attitude. So there is a significant relationship between attitude and choice of birth attendants because the p-value is 0.014 or less than 0.05.

Table 2. Bivariate Analysis of Factors Influencing The Selection Of Birth Attendants In the Talang Mamak Tribe Community

Number	Variable	Birth attendant				Total		p-value	OR
		Non-health worker (TBA)		Health worker					
		F	%	F	%	F	%		
1	Knowledge								
	Low	16	88.9	9	33.3	25	55.6	0,000	16,000
	High	2	11.1	18	66.7	20	44.4		
2	Attitude								
	Negative	14	77.8	11	40.7	25	55.6	0.014	5.091
	Positive	4	22.2	16	59.3	20	44.4		
3	Cost of Delivery								
	Not Affordable	12	66.7	9	33.3	21	46.7	0.028	4.000
	Affordable	6	33.3	18	66.7	24	53.3		
4	Ekseabilitas/affordability								
	Not affordable	12	66.7	9	33.3	21	46.7	0.028	4.000
	Affordable	6	33.3	18	66.7	24	53.3		
5	Trust/custom								
	Influential	15	83.3	11	40.7	26	57.8	0.005	7.273
	Not influential	3	16.7	16	59.3	19	42.2		
6	Family Support								
	No	13	72.2	9	33.3	22	48.9	0.011	5.200
	Yes	5	27.8	18	66.7	23	51.1		

Source: Primary Data 2022

Judging from the variable cost of delivery, the odds ratio (OR) value of 4 means that the cost of labor is not affordable has a tendency to choose delivery assistance using a traditional birth attendant by 4 times greater than the cost of affordable labor. Thus, there is a significant relationship between the cost of delivery and the choice of birth attendant because the p-value is 0.028 or less than 0.05.

The Odds Ratio (OR) value of 4 means that accessibility/affordability with a negative category has a tendency to select a birth attendant using a TBA four times greater than accessibility/affordability with a positive category. Thus, there is a significant relationship between accessibility/affordability and the choice of birth attendant because the p-value is 0.028 or less than 0.05.

Judging from the variable trust / custom, the odds ratio (OR) value of 7.273 means that mothers with the category of trust / custom exists have a tendency to choose birth attendants with traditional birth attendants 7.273 times greater than mothers with the category of trust / custom does not exist. Thus, there is a significant relationship between beliefs / customs and the selection of birth attendants because the p-value is 0.005 or less than 0.05.

Judging from the family support variable, the odds ratio (OR) value of 5.200 means that respondents who do not have family support have a tendency to select birth attendants using TBAs 5.200 times greater than respondents who have family support. Thus, there is a significant relationship between family support and selection of birth attendants because the p-value is 0.011 or less than 0.05.

Table 3. Multivariat Analysis of Factors Influencing the Selection of Birth Attendants in the Talang Mamak Tribe Community

No	Variabel	B	S.E.	Wald	Sig.	Exp(B)
1	Age	2.750	1.804	2.323	.128	15.635
2	Knowledge	3.790	1.690	5.031	.025	44.274
3	Attitude	3.805	1.761	4.671/	.031	44.927
4	Belief/Custom	4.569	2.257	4.098	.043	96.406
5	Cost of delivery	2.047	1.492	1.882	.170	7.747
6	Excessibility/distance	2.701	1.725	2.453	.117	14.900
7	Family Support	3.106	1.613	3.708	.054	22.332

Source: Primary Data 2022

From the logistic regression analysis to determine the factors influencing the selection of birth attendants, it was found that out of 7 variables, only 4 variables influenced the selection of birth attendants with a p-value <0.05. The factors include maternal knowledge with a significant value of 0.025, followed by maternal attitude 0.031, traditional beliefs 0.043 and family support 0.054.

Judging from the knowledge factor that the higher the knowledge will affect 44 times in the selection of birth attendants in health workers. Judging from the attitude factor that the more positive attitude of the mother will affect 44 times in the selection of birth attendants in health workers. For the trust factor, the more influential the mother's trust will affect 96 times in the selection of birth attendants in health workers, for the family support factor, the more support from the family will affect 22 times in the selection of birth attendants in health workers.

Relationship Between Knowledge Factors and Selection of Birth Attendants in The Talang Mamak Community, Indragiri Hulu Regency

Based on knowledge with 45 respondents studied, the odds ratio (OR) value of 16 means that mothers with low knowledge have a tendency to choose birth attendants using TBAs 16 times greater than those with high knowledge. Thus, there is a significant relationship between maternal knowledge and choice of birth attendants because the P value is 0.000 or less than 0.05.

The basic characteristic in the level of knowledge is the memory of something that is known either through experience, learning or information received from others. Both knowledge and belief are a person's mental response to certain objects that are recognized as existing or occurring. Knowledge can be wrong or mistaken, because when knowledge is found to be wrong or mistaken, it cannot be considered as knowledge, so that what is considered as knowledge changes its status to belief ⁽⁹⁾.

Another study in Bangladesh showed that home delivery by traditional birth attendants remains the first choice for pregnant women. In addition, people prefer home delivery because of lack of knowledge and awareness of service facilities, fear of increased likelihood of caesarean section in hospitals, and lack of female doctors in health facilities ⁽⁶⁾.

Relationship Between Attitudinal Factors and Selection of Birth Attendants in The Talang Mamak Community, Indragiri Hulu Regency

Judging from the attitude variable, the odds ratio (OR) value of 5.091 means that mothers with a negative attitude have a tendency to choose birth attendants using TBAs 5.091 times greater than mothers with a positive attitude. There is a significant relationship between attitude and choice of birth attendants because the P value is 0.014 or less than 0.05.

Mothers who have unpleasant experiences with health workers and lack of trust in health workers are more likely to choose delivery by TBAs. They felt that TBAs were more patient in waiting for delivery. In addition, the attitude of health workers also influences the behavior of pregnant women in choosing a birth attendant.⁽¹⁰⁾ This research data also shows that respondents with low knowledge and negative attitudes are at risk of having negative behavior regarding the need for reproductive health services. Lack of information, knowledge and good access to reproductive health services and health facilities increases risky attitudes and behavior, namely unplanned pregnancies, abortions, and infectious disease infections and other reproductive health disorders ⁽¹¹⁾.

The Relationship Between Childbirth Costs and Choice of Birth Attendant in The Talang Mamak Community, Indragiri Hulu Regency

Judging from the variable cost of delivery, the odds ratio (OR) value of 4 means that unaffordable labor cost has a tendency to select birth attendants with traditional birth attendants 4 times greater than affordable labor cost. Thus, there is a significant relationship between the cost of labor and the choice of birth attendants because the P value is 0.028 or less than 0.05.

The Talang Mamak population with a low economy will switch to using TBAs in their delivery assistance, this is because the prices made by TBAs tend to be much cheaper than the prices of midwives or other medical personnel,

According to research by Sufiati ⁽¹²⁾, pregnant women who do not have money are 1.7 times more likely to be assisted by non-health workers. One of the major barriers for pregnant women to access delivery by health workers in health facilities is limited and unavailable funding.

The Relationship Between Accessibility/Affordability and Birth Attendant Choice in The Talang Mamak Community of Indragiri Hulu Regency

Judging from the accessibility/affordability variable, the odds ratio (OR) value of 4 means that accessibility/affordability in the negative category has a tendency to select birth attendants using TBAs 4 times greater than accessibility/affordability in the positive category. There is a significant relationship between accessibility/affordability and choice of birth attendant because the P value is 0.028 or less than 0.05.

In choosing a TBA, there is access to distance that affects, distance or affordability with facilities and health workers affect mothers to choose birth attendants. In this case, the Talang Mamak population whose home location is far away and not affordable access to midwives will appoint TBAs in their delivery assistance.

Research conducted by Girma⁽¹³⁾ said that other related elements to the use of health services include transportation funds, the location of the nearest health center or hospital, and the perceived cost of treatment. Affordability influences the choice of birth attendant. If unaffordable, the likelihood of choosing a TBA is 15 times higher than if affordable.

The Relationship Between Beliefs / Customs and The Selection Of Birth Attendants in The Talang Mamak Tribal Community, Indragiri Hulu Regency

Judging from the beliefs/customs variable, the odds ratio (OR) value of 7.273 means that mothers with the category of beliefs/customs have a tendency to choose birth attendants with traditional birth attendants by 7.273 times greater than mothers with the category of beliefs / customs does not exist. So there is a significant relationship between beliefs/customs and the choice of birth attendants because the P value is 0.005 or less than 0.05.

The concept of culture is also influenced by beliefs, values and customs, including in the perspective of health and how individual health is practiced. Indonesia, which stretches from Sabang to Merauke, has thousands of tribes with different customs. Some of these customs are still considered "primitive and not concerned with health"⁽¹⁴⁾.

People believe that TBAs have magical abilities that support their expertise in assisting with work. This ability is generally accepted from generation to generation due to the assumption or belief that something magical cannot be passed on to just anyone or to others except to descendants who are considered capable of continuing their career as shamans or who are trusted to carry the knowledge⁽¹⁵⁾.

On the other hand, cultural factors come from values and traditions that are rooted in a community to guide people to understand how their role, their actions, should be when dealing with others⁽¹⁶⁾.

The Relationship between Family Support and Birth Attendant Selection in the Talang Mamak Community, Indragiri Hulu Regency

Judging from the family support variable, the odds ratio (OR) value of 5.200 means that respondents who do not have family support have a tendency to select birth attendants using TBAs 5.200 times greater than respondents who have family support. Thus, there is a significant relationship between family support and the selection of birth attendants because the P value is 0.011 or less than 0.05.

The results of Astuti's 2014 research (17) found that husband or family support is quite influential in the selection of birth attendants. This finding is consistent with Kabaknyenga's research (18), which states that spouses/family make 56% of the decisions regarding the place/helper of labor.

This means that family support is more dominant than the mother's own decision to choose a birth attendant, so that the mother's decision is not taken into account, and it is feared that if the mother cannot make a decision about her delivery, she will always depend on the family to choose a traditional birth attendant for every delivery.

CONCLUSION AND SUGGESTIONS

There was a relationship between knowledge ($p = 0.000$), attitude ($p = 0.014$), trust/custom ($p = 0.005$), labor cost ($p = 0.028$), distance ($p = 0.028$), family support ($p = 0.011$). The factor that plays the most role in the selection of birth attendants is knowledge with a significant value of 0.025, maternal attitude 0.031 and trust/custom 0.043 and family support 0.054. It is recommended to increase the knowledge of mothers by continuing health promotion with cultural and social approaches, as well as to instill a positive attitude towards health workers as birth attendants, so that childbirth is free of complications.

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ISLAMIC RELIGIOSITY GUIDANCE APPROACHES ON MENTAL HEALTH DISORDER

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ABSTRACT

The productive age population in Indonesia in 2022 will reach 69%, with great potential for increasing economic growth. However, there is an increasing threat of mental disorders, which results in low productivity and hinders economic growth. Mental health disorders have psychologically weak conditions that need strengthening through religious guidance. Muslims believe that a religious guidance approach can help solve problems of mental health disorders. Unfortunately, they do not understand practical Islamic guidance as an effort to prevent and promote mental health disorders. This study aims to analyse the Islamic religious guidance approach for mental health disorders. This research uses qualitative methods with a literature study approach. The data collection strategy was sourced from seven published Scopus-indexed journal literature in 2018-2023 using the keywords "Islamic religion and mental health". The study found practical variations of Islamic religious guidance for mental health disorders, including religious lectures, Al-Quran therapy, prayer therapy, psycho-spiritual therapy, therapy for majelis taklim activities, zikir and shalawat therapy, tawba and istighfar therapy. The practical implications of research with Islamic religious guidance can help treat mental health disorders gradually and sustainably.

Keywords: Approach, Disorder, Guidance, Islamic Religiosity, Mental Health

ABSTRAK

Populasi usia produktif di Indonesia tahun 2022 mencapai 69% berpotensi besar terhadap peningkatan pertumbuhan ekonomi. Namun dibalik itu terdapat ancaman peningkatan gangguan jiwa yang berakibat pada rendahnya produktivitas dan menghambat pertumbuhan ekonomi. Gangguan kesehatan mental memiliki kondisi yang lemah secara psikologi perlu penguatan melalui bimbingan keagamaan. Muslim memiliki pandangan bahwa pendekatan bimbingan keagamaan dapat membantu menyelesaikan masalah gangguan kesehatan mental, sayangnya belum memahami bimbingan Islam secara praktis sebagai upaya pencegahan dan promosi terhadap gangguan kesehatan mental. Penelitian bertujuan menganalisis pendekatan bimbingan keagamaan Islam bagi gangguan kesehatan mental. Penelitian menggunakan metode kualitatif dengan pendekatan studi literatur. Strategi pengumpulan data bersumber dari tujuh literatur jurnal terindeks Scopus terpublikasi tahun 2018-2023 menggunakan kata kunci "keagamaan Islam dan kesehatan mental". Penelitian menemukan adanya variasi bimbingan keagamaan Islam bagi gangguan kesehatan mental secara praktis antara lain melalui ceramah agama, terapi Al-Quran, terapi doa, terapi psiko-spiritual, terapi sholat, terapi kegiatan *majelis taklim*, terapi *zikir* dan *shalawat*, terapi taubat dan *istighfar*. Implikasi penelitian dengan bimbingan keagamaan Islam secara praktis dapat membantu terapi penyembuhan gangguan kesehatan mental secara bertahap dan berkelanjutan.

Kata Kunci: Bimbingan, Gangguan, Keagamaan Islam, Kesehatan Mental, Pendekatan

INTRODUCTION

As social beings, humans are always in touch with other humans in social life. The modern life of human life, which presents increasingly complex life arrangements that humans must face, has the potential to shake humans, ultimately making them live out of harmony with life in general.

Mental health disorders have a psychologically weak condition. Humans carry out activities with

responsibility and awareness, so mental health is of particular concern because it can affect their hearts, thoughts, and actions. These conditions indicate that some individuals are ignorant of the genuine meaning of mental health disorders [1]. Because it is something that can happen to anyone at any time, it is vital to establish a decent education. Mental health disorders are recognised as a phenomenon that requires clinical evaluation and treatment as a rational observation classification, then some belief in supernatural consequences [2]. Mental health is a person's emotional, psychological, and social state characterised by positive interpersonal interactions, behaviour and effective treatment [3].

Religious guidance for clients with mental health disorders is a powerful weapon for fostering religion which will be embedded and grow within oneself to control destructive impulses and desires [4]. The socialisation of religious value guidance for spiritual and mental health is crucial because religious guidance aims to direct so that it can change attitudes for the better in social life [5]. These components indicate the importance of Islamic religious guidance for mental health disorders.

Religious guidance is an effort to form a dynamic unanimity of movements by the values of Islamic teachings [6]. Meanwhile, in a broad sense, religious guidance is part of da'wah, which is an effort to realise Islamic teachings in all aspects of human life [7]. In Islam, the role of religious guidance starts from faith education to physical and mental education to moral education [8]. Islamic spiritual attention therapy can be used as a psychotherapeutic intervention by mental health nurses [9].

Prevention and Islamic religious attitudes are applied in promoting mental health and preventing mental health disorders [10]. Islamic religious teachings in various forms can help individuals and communities implement mental health plans. These religiously inspired and human-centred teachings can help individuals, communities, and families [11]. As a result, the role of Islam can assist humans in caring for their souls, preventing mental health disorders, and fostering their mental health conditions [12].

Efforts to develop a religious dimension can be made through religious teaching and stages of worship that instil faith and monotheism [13]. A strong personality will be formed if this stage is carried out effectively. Ultimately it will bring individuals happiness and mental health, as well as the ability to realise their potential to the fullest [14]. The obstacle faced in religious guidance is the character of mental health disorders for some people who live on the streets, so sometimes they only hear lectures. However, in social interactions, they often clash with other people [15]. Emotional factors that are difficult to control become an obstacle to applying Islamic religious guidance that is taught, in addition to psychological conditions [16]. The inconsistency of Islamic-based mental health services and the absence of systematic management of mental health guidance with Islamic principles while Islam is concerned with human mentality [17].

The difference between this study and previous research is that the word approach used in the search is Islamic religion and mental health disorders. In contrast, the subject of literature uses Scopus-indexed journals. The main problem with mental health disorders is that people are weak, so they need to be strengthened with religious guidance with a practical Islamic approach that is easy to implement—the

purpose of a literature review with an Islamic religious guidance approach to mental health disorders.

METHOD

The research method used in this study uses the type of literature review method. The research article search strategy is to use the articles. The journals obtained have gone through various ways of selecting the keywords, namely Islamic mental health, guidance, religiosity, mental disorder, and have collected articles used for the literature review. The inclusion criteria used to search for literature review sources are the research articles used within the last five years (2018-2023). Moreover, the contents of the journal are complete without any missing parts, consisting of title, name authors, research methods, results and discussion, and research implications. This is done to ensure that the existing data is not too old or insufficient.

RESULTS AND DISCUSSION

This study summarised the seven articles analysed, then summarised to discuss how practical Islamic religious approaches are carried out to help overcome mental health disorders. The author explains and describes the research results of seven reputable international journals indexed by Scopus which are in the paragraph and table below.

Most Muslims believe that a religious approach is a principled solution in life. The problems and difficulties humans face are required to follow the instructions of the Creator, namely Allah, who knows all of His creation. For this reason, faith is the basic foundation of a Muslim living life to the best of his ability. The potential for mental health disorders can be anyone, for those with low self-motivation and an environment that does not support them.

Religious lectures demonstrate a practical Islamic religious approach by inviting ustad or clerics interactively through invitations to follow what is ordered, including saying a prayer or two sentences of *syahadah*. Practically giving strengthening of memory to Allah will support sufferers of mental health disorders regarding their true nature as human beings and servants of Allah. The impact of religious lecture activities carried out regularly gradually gives them self-confidence and belief in the religion they profess.

The practical approach to Al-Qur'an therapy is to repeatedly read letters or verses of the Al-Qur'an to give an emotional feeling to return to one's true values. Most of these methods are called *ruqyah*, namely by reading verses from the holy Al-Qur'an, which are interpreted to influence self-calm and peace, thus creating a more mystical atmosphere. People frequently hold this view with mental health disorders. The impact that Al-Qur'an therapy emotionally produces is power or an attitude that is not aggressive and listens carefully, even though some refuse or rebel. Generally, it gives better results.

For most Muslims, prayer therapy is a power to defeat all distractions within. The practice of prayer is carried out with a concentration approach so that the prayer guide, namely an ustad or cleric, directs sufferers of mental health disorders to questions about good expectations about themselves and

the future. This will encourage sufferers of mental health disorders to be motivated not to follow their excessive desires or vice versa to lack self-confidence. The impact of this prayer therapy is that sufferers of mental health disorders continue to pray and mention their wishes and hopes for themselves.

The psycho-spiritual therapy approach integrates psychology with spirituality in understanding, predicting and controlling human behaviour to improve physical and psychological well-being. Psychospiritual is a theory that combines psychology and spirituality, where the psychological dimension affects spiritual experience and vice versa; the spiritual dimension can influence psychology.

The psychology of religion seems to have begun to realise the potential and human psychic powers related to spiritual life. Then place the potential and psychic power as something important in human life. In addition, a new awareness grows regarding the relationship between potential and psychic power with attitudes and patterns of human behaviour. Psychospiritual is also related to psychology. A healthy soul is generally sourced from commendable morals. Otherwise, a sick soul comes from despicable morals. Practically, the psycho-spiritual approach with commendable morals is the main character and charity of the apostles and *al-Siddiqi*. Conversely, despicable morals are the nature and work of Satan and keep people away from Allah SWT. Height and good morals, as well as the health of the soul, among other things, can also be maintained by maintaining the power of reason, the perfection of wisdom, the strength of anger and passions, and the obedience of these two powers to reason and religion.

The therapeutic approach to *shalawat* and *zikir*, where remembrance is a way to remember Allah, should be done at any time, both orally and silently. This means that any activity carried out by a Muslim should always remember Allah. The definition of remembrance is mentioning, remembering, paying attention to, reminiscing, telling, guarding, taking lessons, knowing, and understanding.

Then *shalawat* is part of remembrance, where *shalawat* is also a form of gratitude to Allah and respect for the Prophet SAW. Forms of obedience to God's command to pray, imitate Allah SWT and the angels in prayer, get blessings from Allah for one prayer recited to Rasulullah SAW, elevate degrees, make it easier for prayers to be answered, become a guarantee of intercession, become a factor causing forgiveness of sins and closure disgrace, being the glue of closeness to the Prophet SAW, became the cause of the outpouring of Allah's grace.

The impact of *shalawat* and *zikir* has a positive impact, one of which can provide peace of mind and a means to get closer to Allah through His Messenger. That way, anxiety and fearful behaviour can be reduced to make the heart calmer—*Tawba* and *istighfar* therapy approach with a decrease in anxiety after *istighfar* and repentance therapy. Based on training and trainer evaluations, they were judged from the implementation results during the therapy of *istighfar* and repentance. In the trainer evaluation results, one person rated it very well for the whole category; five said it was good, and three said it was enough.

For the results of the research evaluation, several participants stated that they had better

understood the meaning of *istighfar*, were better able to identify the problems they faced and handled them using *istighfar* as a trigger for *tawba* and *istighfar*, especially *istighfar* [18].

In practice, this *istighfar* and repentance therapy is carried out in two meetings, different from what is planned in the module, which is carried out in three meetings. This is due to time constraints on the therapy provider. However, in practice, all sessions were given according to what was previously directed.

The explanations above link the relationship between the medical role and the religious approach so that mental health disorders arise from various perspectives, and there is pressure on oneself, creating instability in society. The table below describes in detail a strong literature approach regarding the perspective of handling mental health disorders according to Islamic religious practices.

Table 1. The Journal Articles Scopus Indexed

No	Title	Authors	Method & Sample/Population	Results	Implication
1	How do Muslim service users, caregivers, and community members in Malappuram, Kerala, use their faith to address the challenges associated with mental ill health? [19]	Raghu Raghavan, Brian Brown, Saliah Hussain, Sanjana Kumar, Amanda Wilson, Nadia Svirydenka, Manoj Kumar, Ameer Ali, Anagha Chandrasekharan, Asha Banu Soletti, Monica Lakhanpaul, Meena Iyer, Chitra Venkateswaran, Chandra Dasan, Muthusamy Sivakami, Sam Manickam, Andy Barrett, and Mike Wilson	Qualitative research with interview approach. The 23 interviews were conducted with patients of the Islamic faith diagnosed with a mental health condition.	Four key themes were derived: attribution to intangible factors, relying on “God’s will,” prayer, and traditional healing.	More pious participants disapproved of the reliance on local traditional healers and belief systems.
2	Repentance and seeking forgiveness: The effects of spiritual therapy based on Islamic tenets to improve mental health [20]	Qurotul Uyun, Irwan Nuryana, Kurniawan and Nahdhata Jaufalaily	The quantitative method with experiment approach. The participants consisted of 32 Muslim college students. Their age ranged from 18–23. Participants were asked to rate each item on a five-point Likert scale	The practising <i>tawba</i> and reciting <i>istighfar</i> helped them find solutions to various issues, from academia to relationships to psychological problems. They could handle family and social conflicts with understanding, acceptance, and patience. Some experienced better emotional connections	The program was successful in improving the overall mental and even physical health of our select group of Islam practising and integration of religion into mental health treatment

No	Title	Authors	Method & Sample/Population	Results	Implication
				with God, happiness, and acceptance, while others reported becoming more diligent and excited at prayer.	
3	Prediction of hope, physical health, and mental health by the mediating variable of religious and spiritual well-being in the elderly [21]	Neda Abdollahrezaee, Arsalan Khanmohammadi, Mahboubeh Dadfar, Vahid Rashedi & Liela Behnam	The quantitative method with survey approach. All participants completed a demographic and clinical questionnaire are 100 participants. Analysed using descriptive statistics, Pearson correlation coefficient, and multivariate regression analysis	The hope immanent, the immanent component (including forgiveness, hope immanent, and experiences of sense and meaning dimensions), and religious-spiritual well-being influenced mental health. A higher religious, spiritual, and well-being score reported lower mental symptoms, indicating better mental health.	Promoting religious and spiritual well-being could help increase hope, physical health, and mental health through integrating spirituality into healthcare plans by healthcare professionals with psycho-educational courses that develop intellectual and behavioural patterns focused on spirituality and mental health.
4	Effect of Islamic psycho-spiritual Therapy in managing craving, withdrawal symptoms, and mental health problems among Cannabis users [22]	Irfan Ahmad Wani and Bhupinder Singh	The quantitative method with experiment approach A single group of 40 Muslim male cannabis user patients were taken as a sample whose ages ranged between 14 and 37 years. T	Islamic psycho-spiritual therapy is effective in reducing craving withdrawal symptoms and mental health with significant changes in compulsivity, emotionality, expectancy, purposefulness, withdrawal intensity, the negative impact of withdrawal symptoms, anxiety, depression, loss of behavioural/emotional control, emotional ties, life satisfaction, psychological distress, psychological well-being, and Mental Health Index in the respective scales. There is a significant impact on patients using Islamic religion and spirituality within the psychiatric clinical practice.	Mental health professionals should take advantage of their respective religious beliefs in treating mental and behavioural problems when providing therapy to cannabis users.

No	Title	Authors	Method & Sample/Population	Results	Implication
5	Quranic Mental Health amidst pandemic: a cultural hermeneutic reading to the Salawat Community in Indonesia [23]	D. I. Ansusa Putra, Umma Farida, Dani Sartika, Abdurrohman Kasdi & Silvia Handayani	The qualitative research with a phenomenology approach. Data was collected from the Salawat communities through in-depth interviews and observations.	The members of Salawat understood the concept of Quranic Mental Health in three levels: mystical prophecy, prophetic symbolisation, and religious rhetoric. The tradition of reading Salawat has a good impact on health and disease-healing therapy.	The Quranic Mental Health concept produces spiritual and cognitive power to produce calm, peaceful and harmonious behaviour.
6	Religiosity and mental health outcomes among Indonesian Moslems: evidence for different age groups. [24]	Ahmad Amir Aziz, Muh Salahuddin, and Muhammad Syifaul Muntafi	The quantitative method with survey approach. Data from the Indonesian Family Life Survey (IFLS) Wave 5, with a sample of 27,246 individuals.	Perceived religiosity has a more significant effect on positive affect, negative affect, happiness, and life satisfaction in young than in adults and older Moslems. Meanwhile, the frequency of attending <i>Majelis taklim</i> influences happiness and life satisfaction more strongly in the older Moslems than in the young and adult Moslems. Perceived religiosity and frequency of attending Moslem forums only have a significant negative association with depression in all the age groups, and surprisingly frequency of attending <i>majelis taklim</i> is positively associated with depression in younger and older Muslims.	The role of the <i>Majelis taklim</i> as an active stimulant reduces the burden on mental health and increases happiness and satisfaction
7	The relationships between religiosity, stress, and mental health for Muslim immigrant youth [25]	Jaimee Stuart and Colleen Ward	The quantitative method with a survey approach. Participants were recruited for the survey by snowballing. In total, 155 participants (aged 16–27 years).	The relationships between religiosity and mental health finding that greater religiosity is generally positive for Muslim youth outcomes, but it also carries the risk of lowering levels of mental health through its interactions with acculturative stress.	Islam can sustain mental health and adaptive behaviours for Muslim youth and support emotional health.

In all categories of prerequisites, it is necessary to carry out medical professionals. It is important that medically, the treatment of mental health disorders is an integrated approach that cannot stand alone. Religious leaders argue that the medical approach is important in subsequent therapies. Medical advice and therapy are absolute things to do besides a religious approach.

Thus, the Islamic religious approach and mental health disorders become a guide for how all Muslims provide practical guidelines to be carried out according to the abilities that are appropriate to the sufferer. The medical approach is of the same concern as an integrated effort to prevent and cure it more quickly.

CONCLUSION AND SUGGESTIONS

The author concludes that the Islamic religious approach for Muslims is the main guide in efforts to prevent and treat mental health disorders. The findings of practical variations of Islamic religious guidance for mental health disorders include religious lectures, Al-Quran therapy, psycho-spiritual therapy, prayer therapy, therapy for *majelis taklim* activities, therapy of *shalawat* and *zikir*, *tawba* and *istighfar* therapy. Most Muslims demand a professional medical approach because medical and non-medical or Islamic religious healing are inseparable. Research has implications that the greater the practical approach to the Islamic religion, the greater the need for a professional medical approach. Research suggestions require practical guidelines or guidelines that can be disseminated to the public regarding Islamic religious approaches that provide prevention and healing for sufferers of mental health disorders Muslims.

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THE EFFECT OF NUTRITION EDUCATION TO PROSPECTIVE BRIDE IN PREGNANCY NUTRITION PREPARATION TO PREVENT THE RISK OF STUNTING: STUDY LITERATURE REVIEW

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ABSTRACT

The National Strategy Program in Indonesia for the Acceleration of Stunting Prevention targets specific nutrition interventions for Women of Reproductive Age. The government implemented a health examination program for prospective brides to prevent the risk of stunting. This study aims to describe the implementation of nutrition education for brides in Indonesia, and its effect on knowledge, attitudes, and consumption behavior of nutritious food as a preparation for a healthy pregnancy. The method of this research is Systematic Literature Review by screening articles using the PRISMA chart. The article sources used were Google Scholar and Garuda with article years 2020 to 2022, 333 articles were found, and 16 articles were required to be reviewed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses method. Description of research results is the locations used to provide education include the Office of Religious Affairs (Kantor Urusan Agama), Puskesmas, and local area halls. The educational media used are booklets, leaflets, digital applications, social media, and PowerPoint presentations. The nutrition materials given were 1000 HPK, preconception nutrition, and anemia prevention. The results of the study provided nutrition education had a significant impact on knowledge and attitudes, but education would have an impact on behavior if it was given at least 3 times. This study concludes that the nutrition education strategy needs to include factors that affect education acceptance such as educational background and social economy, and the impact assessment of education must also include the behavior of consuming nutritious food and changes in the body's nutritional status.

Keywords: Nutrition education, bride, stunting.

ABSTRAK

Program Strategi Nasional Percepatan Pencegahan Stunting di Indonesia menargetkan intervensi gizi khusus untuk Perempuan Usia Subur. Pemerintah menerapkan program pemeriksaan kesehatan bagi calon pengantin untuk mencegah risiko stunting. Penelitian ini bertujuan untuk mendeskripsikan implementasi pendidikan gizi pada calon pengantin di Indonesia, dan pengaruhnya terhadap pengetahuan, sikap, dan perilaku konsumsi makanan bergizi sebagai persiapan kehamilan yang sehat. Metode penelitian yang digunakan adalah Systematic Literature Review dengan menyaring artikel menggunakan grafik PRISMA. Sumber artikel yang digunakan adalah Google Scholar dan Garuda dengan tahun artikel 2020 hingga 2022, ditemukan 333 artikel, dan 16 artikel syarat untuk direview menggunakan metode analisis *Preferred Reporting Items for Systematic Reviews and Meta-Analyses*(PRISMA). Deskripsi hasil penelitian adalah lokasi yang digunakan untuk penyelenggaraan pendidikan antara lain Kantor Urusan Agama, Puskesmas, dan balai daerah setempat. Media edukasi yang digunakan adalah booklet, leaflet, aplikasi digital, media sosial, dan presentasi PowerPoint. Materi nutrisi yang diberikan yaitu 1000 HPK, nutrisi prakonsepsi, dan pencegahan anemia. Hasil penelitian memberikan pendidikan gizi mempunyai pengaruh yang signifikan terhadap pengetahuan dan sikap, namun pendidikan akan berdampak terhadap perilaku jika diberikan minimal 3 kali. Penelitian ini menyimpulkan bahwa strategi pendidikan gizi perlu mencakup faktor-faktor yang mempengaruhi penerimaan pendidikan seperti latar belakang pendidikan dan sosial ekonomi, dan penilaian dampak pendidikan juga harus mencakup perilaku mengonsumsi makanan bergizi dan perubahan status gizi tubuh.

Kata Kunci: Pendidikan gizi, calon pengantin, stunting.

INTRODUCTION

The 2018-2024 National Strategy Program for the Acceleration of Stunting Prevention has begun to be implemented in Indonesia. Among the obstacles in preventing stunting are the ineffectiveness of stunting prevention programs, not optimal specific nutrition interventions and nutrition-sensitive interventions at all levels, and the lack of advocacy, campaigns, and dissemination related to stunting, and various prevention efforts (1). Since it was proclaimed as one of the national strategic programs, there have been various promotion and intervention efforts for both priority targets, namely pregnant women, nursing mothers, and children aged 0-23 months, as well as important targets, namely adolescents, women of childbearing age and children aged 24- 59 months. The prevalence of anemia in pregnant women is 48.9%. The prevalence of anemia in pregnant women aged 15-24 years is 84.6%, while the prevalence of anemia in pregnant women aged 25-34 years is 33.7%. The incidence of anemia in women of childbearing age as the group closest to pregnancy, the highest incidence rate is at the age of 15-24 years with a prevalence of 32% (2). While it is known that every pregnant woman's need for iron and nutrients will increase, so she is at risk of anemia and chronic lack of energy, for this reason, education during the pre-pregnancy period about nutrition is something that can be done to prepare for a better pregnancy and reduce the risk of anemia and chronic lack energy during pregnancy. Prevention of nutritional problems from the upstream is intended to prevent various early symptoms from appearing so that intervention can be given early on, just as prevention of stunting from before pregnancy is intended to prepare for healthy pregnancies so that mothers give birth with pins and babies who are born healthy and avoid various complications. due to malnutrition which can be at risk of stunting. In general, the baby is independent of the mother's diet during pregnancy, the baby takes nutrients from the mother's stores, and the turnover of protein and fat in the tissues, which is related to the composition of the mother's body. The state of nutritional status during life before pregnancy becomes very important to ensure the availability of nutrient stores that will be utilized by the baby. A baby will be born with all the ovums it will have in its lifetime. Therefore, the quality of the eggs reflects the nutritional status of the mother. The quality of the egg (ovum) that will become a grandchild is determined by the nutritional status of the grandmother. This is what underlies the flow of 100 years of nutrition because it involves 3 generations of the risk of non-communicable diseases (3).

One of the breakthroughs made is the existence of a Marriage Guidance Program for Bride-to-be in collaboration between the Ministry of Health, the Ministry of Religion, and cooperation with the National Population and Family Planning Agency where apart from being given religious guidance each prospective bride and groom are also asked to carry out a health examination and be given health counseling as one of a condition of marriage (4-6). Counseling regarding nutrition to the bride and groom is very important as a preparation for nutritional information before pregnancy. Since the premarital medical check-up program, many couples have had health checks. Based on the Indonesian

Statistics Report, there were 1.74 million weddings throughout 2021 and 1.79 million weddings in 2020. In 2021 West Java province is the province with the most weddings, namely 346,484 weddings or 19.88% of the total national marriages. (7). Based on a preliminary survey that was conducted in one of the cities of West Java, namely Depok City, the Ministry of Religion of Depok City, it is known that the number of pairs of prospective brides who are married in 2021 is 11,030 couples, with an average of 900 couples getting married every month at the KUA in Depok City. It is also known from data from the Depok City Health Office, the number of Catins carrying out examinations in the period from January to August 2022 was 1,282 Catins who were served reproductive health checks by the Depok City Community Health Centers, or an average of 160 Catins every month (8). This number shows that of the number of prospective brides who are married, only 17% of them have pre-marital health checks. The counseling medium for prospective brides that is currently being provided as a standard information media is the Healthy Bride and Groom Card. The education provided through the Catin Health Card includes general information about an ideal pregnancy and its impact if pregnant is not in ideal conditions, therapy for Fe consumption, how to consume it, and the schedule, as well as general information related to psychological preparation for marriage (9). Among the various education given to prospective brides and grooms, education related to nutrition is very important, because it is also one of the national strategies to prevent stunting before pregnancy so that the mother's nutritional preparations are adequate before pregnancy. Bride-to-be can be a strategic target in providing nutrition education because indirectly the bride-to-be is a pre-conception group. For this reason, researchers want to research know the description of how Nutrition Education is Implemented for Bride-to-be in Indonesia through a Systematic Literature Review.

METHOD

This research method uses a Systematic Literature Review, i.e. a summary of all previous research on the topic of interest, with a systematic research protocol approach (10). Conduct systematic reviews of multiple sources to identify knowledge gaps, scope literature, clarify concepts, investigate research conduct, or inform systems reviews (11). Analysis of article data using the format Preferred Reporting Items for Systematic Reviews and Meta-Analyses or commonly called PRISMA (11).

The topic of this research is the Implementation of Nutrition Education for Bride-to-be in Indonesia to Prevent the Risk of Stunting Children. Based on this topic, several things can be identified, including the implementation of nutrition education for prospective children and the risk of stunting.

Education for the bride and groom is interpreted as providing education when the bride and groom carry out health checks at the Possesses by the pre-marital screening program according to directions from the Ministry of Health, BKKBN, and Ministry of Religion (12). The material provided in education according to the Healthy Bride and Groom Card is education related to the prevention of Anemia by examining hemoglobin and preventing Chronic Energy Deficiency through examination of

Body Mass Index and Upper Arm Circumference (9). So that the education provided can be about the prevention of anemia and chronic lack of energy. While the understanding of the risk of child stunting is that one of the conditions of malnutrition in the pre-pregnancy period can be a cause for the emergence of various nutritional disorders during pregnancy and childbirth, such as the risk of bleeding in pregnant women with anemia, pregnant women with chronic energy deficiency in babies born at risk of having low birth weight, which can increase the risk of stunting children.

The language used in the source article can come from Indonesian and English. The types of source articles used come from primary research from scintia-indexed scientific journals. The journals are from Garuda website: <https://garuda.kemdikbud.go.id/> and Google Scholar website: <https://scholar.google.com/>. The articles were obtained in the form of primary research with full text.

Articles will be searched based on the PICO format. The population in this study were prospective brides and grooms who had premarital examinations at health centers in Indonesia by the start of the pre-marital counseling program in Indonesia, so the articles used for the last 3 years were 2020, 2021, and 2022. The intervention provided is nutrition education or nutritional counseling. There is no comparison with other interventions.

The outcome that is expected is the behavior of preparing for pregnancy nutrition to prevent the risk of stunting which can be measured as prevention of Anemia and Chronic Energy Deficiency. Based on this, the following keywords are used in searching journal articles:

Table 1. Article Search Keywords

Indonesian	English
Keywords: 'Calon Pengantin' 'Edukasi Gizi atau Konseling Gizi' 'Perilaku Kesehatan' 'Gizi Prakonsepsi' 'Resiko Stunting'	Keywords: 'Bride or Groom' 'Nutrition Education' or 'Nutritional Counseling' 'Health Behaviour' 'Preconception Nutrition' 'Stunting Risk'
Query: 'Edukasi Gizi' ATAU 'Konseling Gizi' DAN 'Calon Pengantin' 'Edukasi Gizi' ATAU 'Konseling Gizi' DAN 'Perilaku Persiapan Gizi Kehamilan' 'Edukasi Gizi Prakonsepsi' ATAU 'Konseling Gizi' DAN 'Resiko Stunting'	Query: 'Nutrition Education' OR 'Nutrition Counseling' AND 'Bride' OR 'Groom' 'Nutrition Education' OR 'Nutrition Counseling' AND 'Preparation for Pregnancy Nutrition' 'Preconception Nutrition Education' OR 'Nutrition Counseling' AND 'Stunting Risk'

The time to search for articles is April 13-15th 2023. Then, in the process of searching for articles, there are several criteria, including:

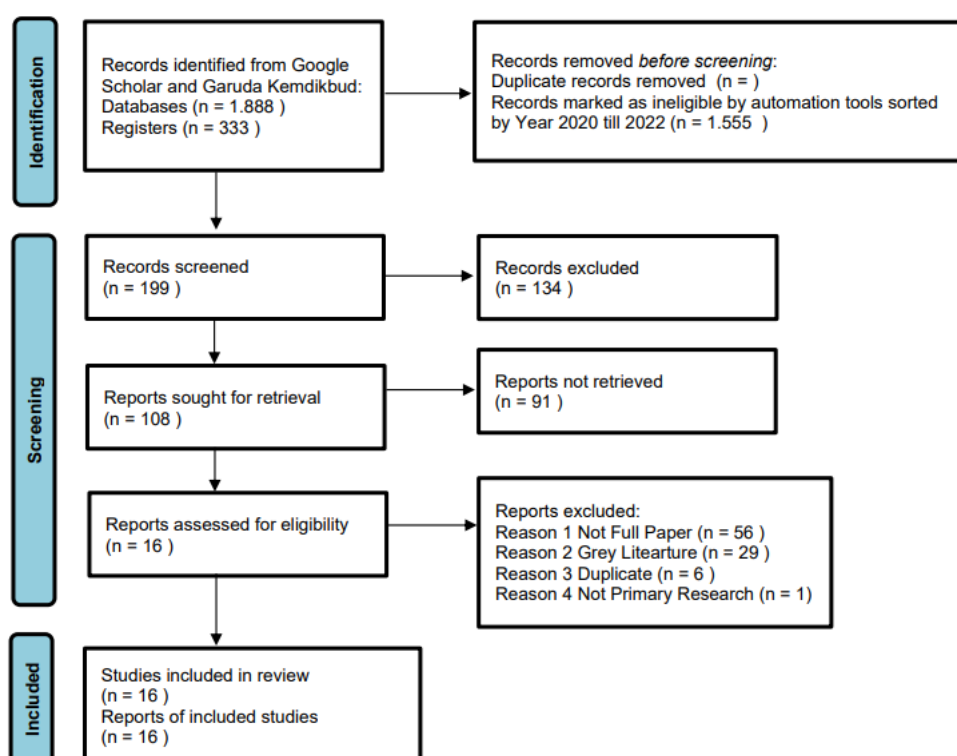
There are Inclusion Criteria in this research. The topic is Implementation of Nutrition Education for Bride-to-be in Indonesia in Efforts to Prevent the Risk of Stunting Children. The text availability used is full text. The type article is Scientific Journal of primary research (primary research

studies). Publication period last 3 years (2020, 2021, 2022) and language of article Indonesian and English. The exclusion criteria is articles that are not included are other than primary research.

Then in the article selection process carried out by Researcher 2. The article search process starts by searching for articles with keywords according to the table above and then sorting articles according to the title, research question, and type of article. Then download the appropriate article (free full text) / sort available articles full text. Check for duplication of article files using the Mendeley App and check again when the article is published. Read the title and abstract, if it does not meet the inclusion and exclusion criteria, it will be excluded. Read the article thoroughly, if there is an article that is not suitable, it is removed. Extracting article data according to format and summarizing the results of article analysis. The data extraction process uses a data extraction format that is filled in for each selected article using Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) Checklist (13,14).

RESULTS AND DISCUSSION

PRISMA Chart



Picture 1. PRISMA Chart

Table 2. Research Article Data

No.	Year	Authors	Title	Objective	Method	City	Sample	Result	Conclusion
1	2020	Esti Yunitasari, Wiwik Hidayatun Nadhifah, Retnayu Pradanie (13)	The effects of health education on increasing knowledge, attitudes, and stunting prevention in premarrriage couples in Bangkalan Madura	This study aimed to explain the influence of modules and peer group discussions on stunting prevention at pre-marital couples.	Experiment al Quasy Design	Bangkalan, Madura	Samples were taken from as many as 40 respondents for two groups to be studied.	The dependent variable in this research was knowledge, attitude, and action to prevent stunting. Data were collected using a questionnaire and analyzed using the Wilcoxon test, Mann Whitney-U, and delta tests with significance levels $\alpha < 0.05$. From the results of the bivariate analysis, there is an effect of health education on knowledge ($p = 0.000$), but on attitudes (1.000) and actions $p > 0.05$, there is no effect of the intervention.	There is no influence on the two groups because good attitudes and knowledge do not always reflect conflicting actions.
2	2020	Erni Rosmida Marbun, Fajar Meirani (14)	Acceptance and Knowledge of the Prospective Bride (Catin) Women Before and After Nutrition Education Using 1000 HPK Application Based on Android	This study aims to know the acceptability and the change of knowledge about 1000 HPK of brides at KUA Pesanggrahan District, South Jakarta by using the "My1000Days" application.	The method used in this study is Research and Developme nt (R&D).	Pesanggraha n, Jakarta Selatan	The research samples were 40 bride	The results show that the acceptability of application by experts is 83% and the acceptability of application by brides is 95.7% which is categorized very well. Media feasible test gets an n-gain value of 0.77 which is categorized as high and the results of the Paired t-test obtained a p-value of 0.000 ($p < 0.5$) which indicates knowledge difference before and after using the application.	Necessary to further develop existing features to increase the knowledge regarding 1000 HPK of brides registered in KUA
3	2020	Ria Gusmaniar, Siti Helmyati, Yhona Paramanitya (15)	Effects of Nutrition Education on Energy and Protein Intake in Premarital Women of Fertility in Bantul Regency, Yogyakarta	To determine the effect of nutrition education on changes in energy and protein intake in women of childbearing age in Sedayu District, Pleret District, and Pajangan District, Bantul	Quasi experiment al non-equivalent pretest-posttest with the control group.	Bantul, Daerah Istimewa Yogyakarta	The sample in this study amounted to 58 people, consisting of 29 samples of the experimental group and 29 control groups.	Energy intake of the intervention group was 1370.8 kcal pretest, posttest 1,412.2 kcal and protein intake pretest 47.8 gr, posttest 48.0 gr. The energy intake of the pretest control group was 1,482.3 kcal, the posttest was 1,346.5 kcal and the pretest protein intake was 50,2 gr, posttest 42,2 gr. Statistical test results showed there were no differences in energy and protein intake before and after treatment between the intervention group and the control group ($p > 0.05$)	There is no effect of nutrition education on energy and protein intake in women of premarital fertility
4	2021	Arindah Nur Sartika, Tri Marta Fadhillah (16)	Diet Diversity to Assess Diet Quality of Pre-Conception Women in Bekasi, West Java	To assess the diet quality of pre-conception women	Observatio nal study design, specifically using a cross-sectional approach	Kota Bekasi, West Java	About 105 "bride to be" from 8 Religious Affairs Office	The result showed out of 10 food groups, the median consumption of food groups consumed by respondents was 4 food groups, also the highest proportion of total food group (36.19%), followed by 5 food groups (25.71%), and 3 food groups (21.90%). The maximum score of dietary diversity is 8 (0.95%), and the minimum score is 2 (3.81%). Meanwhile, most consumed food group was staple foods (99.05%). Nuts and seeds were the least proportion of food group (3.81%) consumed by respondents. There was around one-third (38.10%) of the respondents	Diet diversity of pre-conception women should be improved. To prevent malnutrition, pre-conception women are suggested varying their diet. Nutrition education during

No.	Year	Authors	Title	Objective	Method	City	Sample	Result	Conclusion
								consumed total food group below the recommended score (<5)	premarital class/consultation is recommended.
5	2021	Nur Pratiwi Patata, Haniarti, Usman (17)	Effect of Nutrition Education on Knowledge and Attitudes of Prospective Bride and Groom in Preventing Stunting at KUA Tana Toraja Regency	To see the effect of nutrition education on the knowledge and attitudes of the bride and groom in preventing stunting	The method used in this study is quasi-experimental, with a One-group pre-post-test design	Tana Toraja, Sulawesi Selatan	About 28 brides in KUA Tana Toraja	The results of the Pre-test there were 2 respondents with a percentage (7.1%) who had attitude answers that fit the very good category, respondents with a good category there were 8 respondents with a percentage (28.6%), respondents with a less category there were 18 respondents with a percentage (64.3%). In the results of the Post-test I there were 24 respondents with a percentage (85.7%) who were in the very good attitude category, in the good category there were 4 respondents with a percentage (14.3%), but there were no respondents with a poor attitude category. And in the results of the Post-test II there were 26 respondents with a percentage (92.9%) with a very good attitude category, in the good attitude category there was 1 respondent with a percentage (3.6%), and respondents who had a less category there was 1 respondent with a percentage (3.6%)	There is a change in knowledge and attitude of the prospective bride and groom after being given nutrition education, where the average respondent has started to improve their diet to prepare for pregnancy from nutrition education that has been given before.
6	2021	Methania Nanda Augustine, Siti Sulandjari (18)	Improving Preconception Nutrition Knowledge with an Android-Based Pocketbook Used in Pre-Marriage Guidance at KUA Gresik	to determine the effect of using pocketbook media based on Android on preconception nutritional knowledge mastery of prospective brides	quasi-experimental design with a non-equivalent control group	Gresik, Jawa Timur	60 prospective brides	The sampling technique was purposive sampling. The paired sample t-test showed a significant difference ($p = <0.001$) between the pretest and post-test scores in the group that used the Android-based pocketbook media and the ordinary pocketbook. Meanwhile, the independent sample t-test showed a significant difference ($p = 0.006$) between the use of Android-based pocketbook media and ordinary pocketbooks.	The use of an Android-based nutritional pocketbook can improve the mastery of preconception nutritional knowledge in prospective brides in Gresik and is better than the use of regular pocketbooks
7	2022	Sarman, Moh. Rizki Fauzan (19)	Social Media-Based Nutrition Education for Bride in Prevention Stunting in Kotamobagu	To see the effect of social media-based nutrition interventions in increasing knowledge and attitudes toward stunting prevention among brides.	A quasi-experimental study pre-post-test control group design.	Kotamobagu, Sulawesi Utara	The sample in this study were prospective brides who were already registered at KUA in Kotamobagu totaling 60 brides and grooms, 30	The results of Wilcoxon analysis in the intervention group showed that in knowledge and attitude variables before and after the intervention, with knowledge variable 0,000, and attitude variable 0,000, there was a significant difference. In the control group, with a knowledge of 0,660 and an attitude of 0,080, there is no significant difference. The results of Mann Whitney test analysis in the intervention group before and after treatment of knowledge and attitude variables	Social media-based nutrition education was proven to increase the knowledge and attitudes of brides-to-be in preventing stunting.

No.	Year	Authors	Title	Objective	Method	City	Sample	Result	Conclusion
							respondents intervention group, and 30 respondents control group who were selected by purposive sampling.	showed knowledge 0,000 and attitude 0,000, there was a significant difference, in the control group knowledge 0,131, attitude 0,132, there is no significant difference.	
8	2022	Tria Ningsih, Arfah Husna (20)	The Effectiveness of Nutrition Education on Increasing Knowledge of The Prospective Bride	To examine the effectiveness of nutrition education interventions to increase knowledge of prospective brides and grooms	Quasi- Experiment al with one grub pretest and posttest	Kawai XVI, Aceh	10 prospective brides	Nutrition education was effective in increasing knowledge (p-value= 0.005)	The provision of nutritional knowledge education to prospective brides or people in the preconception period have very optimal results.
9	2022	Jihan Fadhilah Arsyad, Yuli Setiawaty , Yusnidar (21)	The Effect of Knowledge of the Bride and Groom Before and After Giving 1000 HPK Nutrition Education Through Media Presentations and Booklets.	To find out whether there is an effect of knowledge of the prospective bride and groom before and after being given 1000 HPK nutrition education through presentation media and booklets	Pre- Experiment design where there is no control variable.	Palopo, Sulawesi Selatan	This study used a non-randomized one-group pre- post-test design, with 26 respondents with various educational backgrounds	Statistical tests showed that there was a significant effect (p-value 0.000) of giving 1000 HPK nutrition education with presentation media and booklets to prospective brides before and after being given treatment.	That after being given health education, the average knowledge of the prospective bride and groom increased by more than 50% compared to the average before being given 1000 HPK nutrition education
10	2022	Rutdamayanti, Megayana Yessy Mareta, Yunia Renny Andhikantias, Rahajeng Putriningrum (22)	The Effect of Pre conceptive Nutrition Counseling Onattitude And Behavior of Prospective Food Selectionbride In Balong Panggang District	To determine the effect of preconception nutrition counseling on the attitudes and behavior of prospective brides in fulfilling preconception nutrition in the Balongpanggang sub- district.	This study used a quasi- experiment al design with a randomized pretest- posttest control group design.	Balongpang ang, Jawa Timur	The number of samples in this study was 78 prospective brides	Data analysis used the Wilcoxon test and T - independent test. The results showed that there was a significant effect on changes in attitudes (p=0.001) and behavior of the bride and groom (p=0.001) before and after the intervention.	Counseling is done with three repetitions in one time the week has that effect significant to changes in the behavior and attitude of the candidate the bride about the election preconception nutritional intake

No.	Year	Authors	Title	Objective	Method	City	Sample	Result	Conclusion
11	2022	Endah Wilarsih, Anik Kurniawati, Suroso (23)	The Effect of Nutrition Counseling on The Prospective Brides' Knowledge In The Anemia Prevention At UPTD Puskesmas Wonogiri 1	Determine the effect of nutritional Counseling on the prospective brides' knowledge in preventing anemia	quasi-experimental with a one-group pretest-posttest design	Wonogiri, Jawa Tengah	25 prospective brides who had their premarital health checked	There was an increase in the average knowledge of 19.20. The results of the analysis with the Wilcoxon signed rank test statistical test obtained a p-value of 0.000 ($p < 0.05$)	There was an effect of nutritional counseling on the prospective brides' knowledge in preventing anemia at the UPTD Puskesmas Wonogiri 1
12	2022	Arfah Husna, Marniati, Enda Silvia Putri, Siti Maisyaroh Fitri Siregar, & Siti Arafah Carolina (24)	The Effect of Leaflet as Educational Media on the Pre-Conception Nutrition for Prospective Bride and Groom	To examine the effect of the intervention of leaflet media education methods on increasing knowledge about pre conceptional nutrition of the bride and groom	Quasi-Experimental design with one group before and after intervention design	Johan Pahlawan, Aceh	20 prospective brides at KUA	Based on the results of the bivariate test, it is known that there is a significant effect of the leaflet media education method on increasing knowledge about preconception nutrition of the bride and groom.	The intervention of the leaflet media education method has an effect on increasing knowledge, about preconception nutrition of the bride and groom.
13	2022	Dominikus Raditya Atmaka, Nila Reswari Haryana, Qonita Rachmah, Stefania Widya Setyaningtyas, Anisa Lailatul Fitria, Azizah Ajeng Pratiwi, Aliff ah Nurria Nastiti1, Asri Meidyah Agustin, Rian Diana, Mahmud Aditya Rifqi (25)	Comparison of Online and Offline Methods in Increasing Awareness of Future Bride and Groom to Preconception Nutrition as an Effort to Prevent Stunting in Marriage Preparation Courses	The research was conducted by developing educational media based on hybrid learning (a combination of online and offline). This research is in the form of nutrition education based on the construction of the Health Belief Model for adolescents and prospective brides, especially to improve intentions, attitudes, subjective norms, and perceived behavioral control towards the application of preconception nutrition.	A quasi experiment ally design using pre and post-tests	Medan, Sumatera Utara	Total peserta yang mengikuti materi gizi prakonsepsi dalam kursus persiapan nikah offline sejumlah 86 orang dan online sebanyak 119 orang.	Total participants who followed the nutrition material preconception in an offline marriage preparation course 86 people and online as many as 119 people.	It's recommended to provide preconception nutrition education to wedding preparation courses that can be given offline.
14	2022	Anisa Maharael Subu, Siti	The Effect of Nutrition Education on Knowledge and	This study aims to determine the effect of nutritional	This research is a type of	Abeli, Sulawesi Tenggara	The sample in this study was 39 female catin in	The results of the research show that the p-value of the knowledge and attitude variables is $0.000 < \alpha$ (0.05). ($\alpha = < 0.05$).	there is an effect of nutritional education in the first

No.	Year	Authors	Title	Objective	Method	City	Sample	Result	Conclusion
		Hadrayanti Ananda H, Jenny Qlifianti Demmalewa (26)	Attitudes about the First 1000 Days of Life in Catin Women in the Work Area of KUA, Abeli District	education on knowledge and attitudes about the First 1000 Days of Life in future brides in Abeli's religious affairs office.	pre- experiment al, with a One Group Pre-Post Test design.		the KUA working area of Abeli District which were obtained by sampling technique using the Slovin formula		1000 days of life on the knowledge and attitudes of future brides in Abeli's religious affairs office
15	2022	Titih Huriah, Rovi Apriani Eka Suci, Dewi Puspita (27)	Pre-Marital Education (PME) Program Through Online Media to Improve Behavior on Stunting Prevention	To determine the effectiveness of the Pre-Marital Education program for increasing stunting prevention behavior	Quantitativ e method (Quasy Experiment).	Gunung Kidul, Daerah Istimewa Yogyakarta	19 pairs in the intervention group and the control group.	Pre-Marital Education uses Instagram's online media. The data analysis in this study used the Wilcoxon Signed Rank Test and Mann-Whitney Test. The results showed that the behavior in the intervention group had signed with a p-value = 0,000, while the control group was not significant with a p-value > 0,05. The Mann- Whitney U test analysis results in both groups after the intervention were 0,002 with a p-value of < 0,05, which means that Pre-Marital Education affects the the behaviour of pre-marital couples in preventing stunting	Pre-Marital Education effectively increases stunting prevention behavior in premarital couples.
16	2022	Megayana Y. Maretta, Dedi Rachmadi, Farid Husin, Yunia Renny Andhikantias, Aris Prastyoningsih , Deny Eka Widyastuti (28)	The Pregnancy Preparation Knowledge Increase of The Risky Bride Candidates Through Preconception Health Education	This the research analyzed the effects of preconception health education with a booklet on knowledge of pregnancy bride candidates at risk	The quasi- experiment research of pre-posttest design with control groups was conducted in 4 Offices of Religious Affairs in Surakarta	Kota Surakarta, Jawa Tengah	60 bride candidates were divided into control and intervention groups comprising 30 subjects/groups selected by consecutive sampling	The comparison of increased knowledge between the two groups was tested with the Mann-Whitney test. The booklet effect on the knowledge of bride candidates at the pregnancy risk was calculated from the value of the Risk Ratio (95% CI). Result: There is an increase in knowledge of 80.9% for bride candidates who get preconception health education with booklets. Subjects who get preconception health education with a the booklet had 1.14 times the opportunity to experience an increase in knowledge compared to the control group	Preconception health education with a booklet can increase pregnancy preparation knowledge of bride candidates at risk.

Based on the sources of information from the 16 articles above, several points were found about education is given to prospective brides in various provinces in Indonesia in a variety of different ways, as some are located at the local Religious Affairs Office (15–19), at the puskesmas (20), in the hall (21), both online or offline (22,23). Most of the locations used are at the Office of Religious Affairs (Kantor Urusan Agama).

The media used include modules (24), applications (15,17), lists of daily food consumption (16,25), online social media (23,26), presentations (27), booklets (18,19,27), pocket books and leaflets (21,28). Of the various educational media used, booklets are the most widely used. Currently the procedure for providing education is minimal by giving and using the Healthy Bride Candidate Card leaflet (9), but researchers have not found studies on the effectiveness of the card or leaflet that has been issued in 2021.

Some of the nutritional education materials provided included 1000 HPK (15,18,27), Preconception Nutrition (25), Preconception Diet (16,28), and Anemia Prevention (20). One of the indicators are nutrition education has an effect on increasing knowledge (15,17–20,24,27), increasing attitudes (18,26,29) , but not always increasing actions or behavior in preparing and fulfilling preconception nutrition (24), using online media increases behavior (23), and there is no difference in food consumption before and after being given education (25). For this reason, repeated education is needed, and monitoring to assess the impact of providing education. The data collection method used, such as cross sectional, makes it difficult to assess changes in behavior.

Based on the 16 sources of articles that have been reviewed, several follow-ups are needed, including it is necessary to analyze the background factors that influence the provision of education, such as education, socio-economic and so on. The majority of research uses quasi-experimental methods with pretest and posttest on the same day, but for variables such as attitudes and behavior it takes longer time and more detailed instruments to assess the phases of change that occur. The media used needs to be developed to suit current technological developments, online media or in the form of applications that contain education and monitoring can be an option, so that it can be accessed flexibly Providing education not only once, but needs to be repeated at least 3 times to change behavior, due to the limitations of pre-marital examinations only once, it is necessary to make a strategy of providing education 2 times which does not always have to come to a health facility.

Government programs, namely medical examinations for the bride and groom and health education, need to be studied and evaluated, especially for areas that have fully implemented the program, to see the impact on health during pregnancy. Nutrition education information provided needs to target the nearest indicators of research subjects, such as prospective brides, nutrition education focusing on preventing anemia and chronic energy deficiency is important as an indicator of the risk of stunting in pregnancies with anemia and CED. Collaboration with nutritionists and the health promotion

team as well as cadres and the local PKK Team can be an option apart from being an educator as well as being a monitoring team.

CONCLUSION AND SUGGESTIONS

Based on the 16 scientific articles that have been analyzed, it is known that some things, including providing preconception nutrition education, are proven to affect knowledge and attitudes, but there is not always a change in food consumption behavior. The most widely used nutritional education media are booklets and leaflets. The most widely used educational material was about 1,000 HPK, and the place where education was provided the most was at the Office of Religious Affairs (Kantor Urusan Agama), in addition to that education was also provided at the local community health center and hall.

Education providers need to focus on material that is 'important' to be known by the bride and groom, as information on preparing preconception nutrition. Materials on the prevention of Anemia, prevention of KEK, and information on food variants that contain important nutrients in preparing for pregnancy need to be emphasized more. Repetition of education at least 2-3 times needs to be considered. The provision of education can be followed up in collaboration with local stakeholders such as Cadres or the PKK Team so that they can monitor prospective brides who are at risk.

The next researcher can examine the factors that influence education acceptance as a research variable. The research time needs to be extended to see the effectiveness of the length of time education is practiced and the impact on changes in nutritional consumption behavior. Development of existing educational media, by adding monitoring facilities needs to be considered. Research on the evaluation of pre-marital examination and education programs that have been running needs to be done.

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THE EFFECT OF PERCEPTION ON OBESITY AND ALCOHOL DRINKING PREDIABETES CAUSES TYPE 2 DIABETES MELLITUS IN TORAJA ETHNIC IN SOUTH SULAWESI PROVINCE

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ABSTRACT

The prevalence of Diabetes Mellitus (DM) has been increasing in the world for several decades. The International Diabetes Federation predicts the global prevalence of DM to be 382 million in 2013 and 529 million in 2035 and will continue to increase until 22 next year. Indonesia ranks fourth after India, China, and America. Before becoming T2DM, most sufferers experienced prediabetes. Prediabetes to T2DM is influenced by socio-cultural factors including perceptions about obesity and consuming alcohol. This study aims to determine the effect of perceptions of obesity and prediabetes alcohol drinking as a cause of T2DM in the Toraja ethnic in South Sulawesi Province. Qualitative research design with the Rapid Assessment Procedure method. The population is prediabetic from biomedical samples in Tana Toraja and North Toraja Regencies, South Sulawesi Province Riskesdas 2013. The samples are residents with prediabetes and T2DM of the Toraja ethnic group who live in Tana Toraja and North Toraja regency. Information gathering was carried out in 2018 through focus group discussions on two groups (prediabetes and T2DM). In-depth interviews with health service program managers, health center staff, health cadres, and community leaders. Research explains that there is an influence on perceptions of obesity and alcohol drinking in pre-diabetic Toraja people who cause T2DM. Obesity is perceived as a sign that a person has prospered in life, while an alcoholic drink called *tuak* is the drink consumed daily by the Toraja people.

Keywords: T2DM, obesity, alcohol (*tuak*), Toraja Ethnic

ABSTRAK

Prevalensi Diabetes Melitus (DM) telah meningkat di dunia selama beberapa dekade. Federasi Diabetes Internasional memprediksi prevalensi DM secara global menjadi 382 juta di tahun 2013 dan 529 juta di tahun 2035 dan akan terus meningkat hingga 22 tahun mendatang. Indonesia berada di urutan keempat setelah India, Cina, dan Amerika. Sebelum menjadi DM Type 2 sebagian besar penderita mengalami prediabetes. Prediabetes menjadi DM Type 2 dipengaruhi oleh faktor sosial budaya termasuk persepsi tentang obesitas dan konsumsi alkohol. Penelitian ini bertujuan untuk mengetahui pengaruh persepsi obesitas dan kebiasaan minum alkohol prediabetes sebagai penyebab DM Type 2 pada suku Toraja di Provinsi Sulawesi Selatan. Desain penelitian kualitatif dengan metode Rapid Assessment Procedure. Populasi adalah prediabetes dari sampel biomedis di Kabupaten Tana Toraja dan Toraja Utara, Provinsi Sulawesi Selatan Riskesdas 2013. Sampel adalah penduduk dengan prediabetes dan DM Type 2 dari suku Toraja yang berdomisili di Kabupaten Tana Toraja dan Toraja Utara. Pengumpulan informasi dilakukan pada tahun 2018 melalui diskusi kelompok terarah pada dua kelompok (prediabetes dan DM Type 2). Wawancara mendalam dengan manajer program layanan kesehatan, staf puskesmas, kader kesehatan, dan tokoh Masyarakat. Penelitian menjelaskan bahwa terdapat pengaruh persepsi terhadap obesitas dan kebiasaan minum alkohol pada masyarakat Toraja pra-diabetes yang menyebabkan DM Type 2. Obesitas dipersepsikan sebagai tanda bahwa seseorang telah sejahtera dalam hidupnya, sedangkan minuman beralkohol yang disebut *tuak* merupakan minuman yang dikonsumsi sehari-hari oleh masyarakat Toraja.

Kata kunci: DM Type 2, obesitas, alkohol (*tuak*), Etnis Toraja

INTRODUCTION

Diabetes Mellitus (DM) is a group of metabolic diseases characterized by hyperglycemia which occurs due to abnormalities in insulin secretion, insulin action, or both (WHO (1999) ⁽¹⁾⁽²⁾ with most cases being type 2 DM (T2DM). The prevalence of DM for several decades in the world has been increasing. 30 million sufferers in 1964 increased to 171 million in 2020. The International Diabetes Federation predicts a global prevalence of 382 million in 2013 and 529 million in 2035 and will continue to increase for the next 22 years ⁽³⁾. Most sufferers are in low-middle-income countries ⁽⁴⁾. DM cases in Indonesia are in fourth place after India (79,400,000 people), China (42,300,000 people), America (30,300,000 people), and Indonesia (21,300,000) ⁽⁵⁾. One of the provinces with a high increase in DM prevalence from 2013-2018 is South Sulawesi (1.8%) with the largest contributor to the prevalence of the Toraja ethnic in Tanah Toraja (2.3%) and North Toraja (2.3%) districts ⁽⁶⁾.

The highest risk for someone suffering from T2DM is prediabetes which will occur between 4-10 years later. This is because prediabetes already experiences insulin resistance ⁽²⁾⁽⁷⁾⁽⁸⁾ which causes blood glucose levels to be higher than normal. Prediabetes or glucose intolerance, a condition in which a person's blood glucose level is higher than normal but not yet high enough is categorized as T2DM due to TGT (impaired glucose tolerance, IGT) and/or impaired fasting blood glucose, GDPT (impaired fasting glucose, IFG) ⁽⁹⁾. The change from prediabetes to T2DM is caused by obesity ⁽¹⁰⁾. The high prevalence of obesity is caused by the perception of society that considers obesity as a social status proof of prosperity so people will tend to want to be obese. Perceptions of obesity and drinking alcohol are influential socio-cultural aspects in shaping lifestyle. The incidence of obesity is also caused by a lack of physical activity, 79% of the Toraja people lack physical activity (6). Excessive alcohol consumption will worsen glucose tolerance and insulin resistance ⁽¹¹⁾.

The population in this study is prediabetes. Prediabetes is the most appropriate group for the prevention of T2DM because it is still possible to recover if sufferers can improve their lifestyle to be healthier ⁽²⁾. One prevention that can be done is a socio-cultural approach by correcting wrong perceptions in society that think that obesity is a sign of prosperity and health, even though obesity increases the risk of suffering from T2DM and limits consuming alcoholic beverages ⁽¹¹⁾.

The study aimed to determine the effect of perceptions of obesity and prediabetes alcohol drinking as a cause of T2DM in the Toraja ethnic group in South Sulawesi Province.

METHOD

The research design is qualitative with the "Rapid Assessment Procedure" method. The study population was the Toraja ethnic group with prediabetes in Tanah Toraja and North Toraja Regencies, South Sulawesi Province, who were selected as biomedical samples at the 2013 Riskesdas. The samples were residents who remained prediabetes and suffered from T2DM. Information was collected in 2018

through focus group discussions (FGD) on two groups: prediabetes and T2DM. In-depth interviews with Health Office program managers, Puskesmas officers, health cadres, and community leaders. FGD and In-depth materials are perception variables about obesity and drinking alcohol. Discussions and in-depth interviews were carried out by researchers who were assisted by research assistants using discussion and interview guidelines. The stages of the research are carried out as follows:

1. Primary data

The population is prediabetes in the Toraja ethnic community in Tanah Toraja and North Toraja Regencies aged > 15 years. The data were obtained from the 2013 Riskesdas biomedical samples which came from urban and rural areas in 2 sub-districts and 2 regencies. Prediabetes if the biomedical sample has fasting blood glucose levels: of 110-125 mg/dL and/or plasma glucose levels 2 hours after loading 140-199 mg/dL² at the time of Riskesdas 2013 and resides in Tanah Toraja or Toraja districts North. The sample is a population with prediabetes or T2DM that was selected to represent the Toraja ethnic group and reside in Tanah Toraja and North Toraja Regencies, South Sulawesi Province.

2. Blood glucose level check

The people of Tana Toraja and North Toraja districts who had prediabetes in the 2013 Riskesdas were used as the study population. The population was re-examined for blood glucose levels in 2018. The examination aims to determine whether the sample status suffers from T2DM or does not suffer from T2DM. If fasting blood glucose ≥ 126 mg/dL and/or, Impaired Glucose Tolerance with a glucose load of 75 grams ≥ 200 mg/dL and/or taking anti-diabetic drugs or insulin, then you are declared to have T2DM, the rest of the sample group with T2DM is included in the group not suffering from T2DM².

The mechanism for checking blood glucose levels begins with clarification and tracing on behalf of the population at the Tanah Toraja and North Toraja District Health Offices and community health centers. The population being tracked is carried out in the following steps: 1) Given information the day before the blood glucose test is carried out to fast for at least 8 hours (you can drink water) from the evening until the next day before capillary blood is taken for examination. 2) After taking the first blood sample, the respondent is given a drink of 200 cc of water that has been dissolved with 75 grams of un-hydrated glucose. 3) After 2 hours, the blood glucose level is checked again. The results of two examinations of blood glucose levels determine the status of the population suffering from T2DM or not.

3. Focus Group Discussion (FGD) and In-Depth Interviews

Information was obtained by doing FGD and In-Depth Interviews. The FGD was conducted on the Toraja people in each district, followed by 2 sample groups of respondents, namely those with T2DM vs. those without T2DM. Each group consisted of 6 respondents, so there were 12 respondents in each district for a total of 24 respondents in the FGD in this study. In-depth interviews are conducted with key informants. In-Depth Interviews uses an interview guide with material on people's perceptions of obesity. Apart from being recorded in daily field notes, In-Depth Interviews were also recorded with a tape

recorder. The technique of finding key informants by snowball sampling. The number of key informants is not determined, it is said to be sufficient (adequacy) if no variation of information (new information) is found that is needed. Key informants were district/city Health Service officers 1 person, health center staff 1 person, health cadres 2 persons, and community leaders 3 persons. The In-Depth interview material is about perceptions of obesity. The information collection description matrix is shown in the Table below:

Table 1. Information Gathering Description Matrix

Respondent	Type of Information	Method	Instrument
Informant: T2DM vs non T2DM	Perceptions of obesity Consuming habit <i>tuak</i>	FGD	Question guide
Key informants: District/city health office staff, health center staff, health cadres, and community leaders.	Perceptions of obesity Consuming habit <i>tuak</i>	In-Depth Interviews	In-depth interview guide

The validity of the information is maintained through data triangulation by reviewing all available data from the results of interviews, observations, field notes, and other supporting documents which are then compiled in the form of transcripts. Triangulation was also carried out by grouping respondents based on informants and variables and analyzing themes by reducing data through abstraction, classification, interpretation, and conclusions. Data triangulation matrix as in, the matrix below:

Table 2. Data Triangulation Matrix

Information	Triangulation	Sources of informants
Variables: Perceptions of obesity Habit of drinking alcohol	Source	Informants (T2DM vs. non T2DM) Key informants (District/City Health Office staff, health center staff, health cadres, and community leaders).
Variables: Perceptions of obesity Habit of drinking alcohol	Method	FGD and In-Depth Interviews

4. Data Analysis

Data analysis was carried out on the findings by the process of a) triangulation process by examining all available data from interviews, observations, daily field notes/recordings, and other supporting documents. b) All files are compiled in the form of transcripts. c) grouping information based on informants and variables. d) perform theme analysis by reducing data by abstracting, classifying, interpreting, and concluding. e) display data by arranging data in units by creating a matrix to find data that has the same characteristics or pattern. f) Interpretation of data and conclusions.

5. Ethical Clearance and Informed Consent

Research approval from the Health Research Ethics Committee of the Indonesian Ministry of Health's National Institute of Health Research and Development (LB.02.01/5.2/KE.433/2016). The informants involved in this study gave their consent by signing an informed consent.

RESULTS AND DISCUSSION

The Toraja ethnic respondents in each district totaled 12 people consisting of 6 T2DM and 6 non-T2DM. Respondents of the Toraja ethnic group, Toraja Regency, with T2DM, are mostly male. aged 43 - 66 years, the lowest education did not finish elementary school, and the highest high school, most of them work. Most of the respondents did not suffer from T2DM. aged 33 - 80 years, the lowest education did not finish elementary school, and the highest high school, most of them work.

Respondents of the Toraja ethnic group, North Toraja Regency, with T2DM, are mostly male. age 45-58 years, the lowest education is an elementary school, and the highest is a diploma, most of them work. Most of the respondents did not suffer from T2DM. age 21 - 58 years, the lowest education did not finish elementary school and the highest was junior high school, most of them did not work.

Key informants of the Toraja tribe, North Toraja Regency; (1) Manager of the nutrition program at the District Health Office, female, 50 years old, bachelor's degree in public health, head of the nutrition section of the North Toaraja District Health Office. (2) Nutrition manager at the women's health center, 43 years old, bachelor's degree in public health nutrition, nutritionist at the Rantepao Health Center. (3) Female health cadre, 39 years old, junior high school education, Posyandu cadre, Kesu Rantepao sub-district, North Toraja Regency. (4) Female community leader, 74 years old, elementary school education, a community leader in Pasele Village, Rantepao District, North Toraja Regency.

Key Toraja ethnic informants; (1) District/city health service nutrition program manager, female, 28 years old, education D III in nutrition, executor of the nutrition section of the Tana Toraja district health office. (2) Nutrition manager at the women's health center, 48 years old, bachelor's degree in public health, nutrition officer at the Makale Tana Toraja Health Center. (3) Women's health cadres, 34 years old, high school education, Posyandu Bofang Makale Toraja cadres. (4) Male community leader, 60 years old, Doctoral degree, a community leader in Lembang Sanggala', Tana Toraja Regency.

The results of the FGD on perceptions about obesity provide information that there is a difference between having T2DM and non-T2DM. Most respondents with T2DM perceive that maloppo (fat) is a good sign because it means a prosperous life, lots of money and always eating delicious food. In-depth interviews explained that people who are thin in society are not rich and have a lot of burdens, those who are rich are generally "maloppo".

"Toraja people, if their children have succeeded overseas, their parents are considered prosperous because they already have someone who guarantees their life every day, their children are obliged to send money to their parents so that their parents no longer need to work in the fields and generally have become maloppo" (Sanggala community leader, Toraja Ethnic).

The results of the FGD on the variable alcohol consumption habits provide information that there is no difference between the two groups of respondents in Toraja. In-depth interviews explained that the Toraja area is mountainous, so it is cold. People who are active outside the home, especially at night, must drink palm wine to relieve the cold. Moreover, *tuak* and smoking are symbols of friendship in society and must be served at parties.

“Tuak in Toraja is the usual drink we drink every day, If there are guests, guests must give wine, especially if there is a death party that makes us stay up all night, drinking palm wine or coffee and smoking must always be present at the party. But the wine in Toraja doesn't make us drunk. No one has ever drunk palm wine until they're drunk because wine is drunk to chase away the cold. In Toraja, it is very cold. After drinking our palm wine, we eat more rice until we are full” (Mr. AK, non-T2DM respondent, Toraja ethnic)

The word Toraja (people from the mountain) is the name given by the Bugis who live in Luwu around Palopo, derived from the word to which means 'people' and 'riaja' means 'from the mountain'. The Toraja people live in the northern part of South Sulawesi and Central Sulawesi. (Lake Poso), Palu River, Sa River). The origin of Toraja tribe is thought to be from Dongson (North Vietnam) who immigrated to Sulawesi at the same time as the Dayak tribe in Kalimantan and the Batak tribe in North Sumatra. The Toraja Sa' tribe is considered a Young Malay nation that gave birth to kings in Toraja, Luwu, and Gowa.

The definition of obesity for the Toraja tribe is that a person is considered *maloppo* (fat) and drinking *tuak* (alcohol) is the Toraja people's habit of consuming alcoholic beverages. Disease with the perception that is believed by the Toraja people makes this community a group at risk of suffering from T2DM.

Obesity is one of the symptoms of MetS, becoming a public health problem in the world. It is estimated that 34% of the adult population is obese plus 34% are overweight ⁽¹²⁾. Being overweight and obese are biological factors that cause an increased risk of developing T2DM because they are responsible for increasing body weight ⁽¹⁰⁾, including central obesity which is caused by the accumulation of fat in the visceral area ⁽¹²⁾.

Perceptions of obesity influence shaping lifestyles. People who perceive obesity as a good thing tend to be obese, so it has an impact on the occurrence of T2DM. Obesity with prediabetes is an early event in the occurrence of T2DM because obesity already has a metabolic syndrome that results in insulin resistance or glucose intolerance ⁽¹³⁾. The pathogenesis of T2DM is caused by impaired pancreatic islet cells accompanied by insulin resistance that occurs due to weight gain and body mass. Obesity causes insulin resistance and pancreatic cell dysfunction so controlling body weight so that you are not obese is a preventive measure so that prediabetes does not develop into type 2 DM ⁽¹⁴⁾.

The stigma surrounding the obese society in North America is that individuals who are lazy, weak-willed, unsuccessful, lack intelligence, and lack self-discipline but eat too many high-calorie foods

out of balance with calorie burning ⁽¹⁵⁾. With this stigma, those who are obese are discriminated against in their workplaces, health facilities, educational institutions, and the mass media, and become closed individuals ⁽¹⁵⁾⁽¹⁶⁾. This condition is also experienced by the people of the Toraja tribe, who say that the people's favorite foods are rice and meat, known as *pa'piong* and *pamarrasang*. *Papiong* is the food of the Toraja people by putting pork or chicken in bamboo and then burning it. *Pammarasang* is a kind of tree whose leaves are pounded and then mixed with vegetables as a spice, the skin is sliced thin and dried to make vegetables. The most important thing for the Toraja people is rice, no need for fish and vegetables.

The effect of alcohol on protection against T2DM is not fully explained, most studies show a "U" shape relationship between alcohol consumption and the risk of T2DM and its complications ⁽¹⁷⁾. Moderate alcohol consumption can reduce the risk of developing T2DM and is also associated with improving the metabolic system and complications such as microvascular complications (retinopathy and nephropathy) and a decrease in macrovascular events and the risk of death ⁽¹⁸⁾, but in large quantities, it will worsen glucose tolerance and insulin resistance ⁽¹¹⁾.

Toraja people generally live in cold mountainous areas, so the culture of consuming *tuak* (alcohol) and smoking is a tradition to fight the cold, especially when holding a death feast culture (*rambu solo*) every year. People never consume *tuak* excessively, but only to warm the body so consuming alcohol at low doses can prevent the occurrence of T2DM ⁽¹⁷⁾. The benefits of consuming alcohol cannot be generalized to each individual but depend on the amount of moderate alcohol consumption, age, sex, body mass index, ethnicity, and type of alcoholic drink ⁽¹⁷⁾.

CONCLUSION AND SUGGESTION

The results of the study show that there is an influence on perceptions of prediabetic obesity in the Toraja people in South Sulawesi Province causing T2DM, but the habit of consuming alcohol does not show a consistent effect. Society perceives obesity as something good that increases the risk of developing T2DM. The cultural approach that people who perceive obesity as a sign of prosperity is wrong.

The habit of consuming alcohol in moderation has a positive effect on preventing the occurrence of type 2 DM in the Toraja ethnic, but in excess amounts, it triggers the occurrence of type 2 DM. A scientific explanation is needed for Toraja people about the benefits of consuming alcohol in moderation.

The habit of consuming alcohol in moderation has a positive effect on preventing the occurrence of T2DM in the Toraja tribe, but in excessive amounts, it triggers the occurrence of T2DM. A scientific explanation is needed for the Toraja people about the benefits of consuming alcohol in moderation.

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CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

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FACTOR INFLUENCING COMMUNITY PARTICIPATION IN WASTE BANKS DURING COVID-19 IN CILEGON CITY, BANTEN INDONESIA

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ABSTRACT

In Indonesia, achieving community participation in waste management continues to be quite difficult. In Cilegon City, Banten, the management of solid waste at the local level requires the use of a waste bank. In Cilegon City, Banten, during COVID-19, this study sought to identify the contributing elements to community engagement in waste banks. Cross-sectional research is the method used in this study. The findings indicated that 60% of respondents struggled to participate in garbage banks. Female respondents made up 54% of the sample, and 64% of them were over 30 years old. Gender had a very strong impact on community involvement in waste banks (OR = 4.500; 95% CI: 1.862-10.877). Additionally, other variables such as attitude level (OR = 3.444; 95% CI: 1.403-8.457) and family influence this community participation. Female gender, attitude, and family support were the primary factors that significantly influenced community engagement in waste banks in Cilegon City. Therefore, a policy change that emphasizes female empowerment is required to enhance the current method of managing solid waste at the community level.

Keywords: Community participation, COVID-19, waste banks

ABSTRAK

Di Indonesia, mewujudkan partisipasi masyarakat dalam pengelolaan sampah masih sulit dilakukan. Di Kota Cilegon, Banten, selama masa COVID-19, membutuhkan penanganan pengelolaan sampah di tingkat komunitas melalui pemanfaatan bank sampah. Penelitian ini berupaya mengidentifikasi elemen-elemen yang berkontribusi terhadap keterlibatan masyarakat dalam bank sampah. Penelitian *cross-sectional* merupakan metode yang digunakan dalam penelitian ini. Temuan menunjukkan bahwa 60% responden kesulitan berpartisipasi di bank sampah. Responden perempuan berjumlah 54% dari sampel, dan 64% di antaranya berusia di atas 30 tahun. Gender mempunyai pengaruh yang sangat kuat terhadap keterlibatan masyarakat dalam bank sampah (OR = 4.500; 95% CI: 1.862-10.877). Selain itu, variabel lain seperti sikap (OR = 3,444; CI 95%: 1,403-8,457) dan dukungan keluarga juga mempengaruhi partisipasi masyarakat. Jenis kelamin perempuan, sikap, dan dukungan keluarga merupakan faktor utama yang secara signifikan mempengaruhi keterlibatan masyarakat pada bank sampah di Kota Cilegon. Oleh karena itu, perubahan kebijakan yang menekankan pada pemberdayaan perempuan diperlukan untuk menyempurnakan metode pengelolaan sampah padat di tingkat masyarakat.

Kata Kunci: Partisipasi masyarakat, COVID-19, bank sampah

INTRODUCTION

The COVID-19 pandemic issue has changed the dynamics of waste generation globally, necessitating urgent care (1). The amount of garbage produced in Indonesia changes dramatically during the COVID-19 outbreak. The trash produced from medical equipment, such as masks, Personal Protective Equipment (PPE), and hand sanitizers, has become a significant burden on waste treatment systems (2). The lockdown has an impact on trash generation as well, and working from home has greatly increased household garbage. During lockdowns in Indonesia, it was predicted that food waste

will increase by 43% and plastic packaging by 53% (3). According to (4), Cilegon City had a population of 434.900 people and generated 136.456 tons of solid trash in 2020. To preserve hygienic surroundings in residential areas, local authorities must employ solid waste management in urban systems (2). According to the Minister of Environment and Forestry's regulations, a waste bank is a facility for managing waste in accordance with the 3R principle (reduce, reuse, and recycle), as a tool for education, for altering waste management behavior, and for implementing the circular economy. It is created and run by local governments, businesses, and communities (5). Waste reuse is used in the waste bank to carry out reduction operations, whilst waste sorting, transportation, and processing are used to carry out handling activities. The sort of trash that the waste bank manages determines how waste reduction and management activities are structured. There was relatively little community involvement in the waste banks during COVID-19 in Cilegon City. There are still a lot of people in the community who are ignorant about the Waste Bank since there is a lack of socialization. Therefore, the waste problem has not been fully understood.

The key to effective waste bank management is community involvement in sorting and processing waste at the source. The level of community participation in garbage banks can be affected by a number of variables. According to studies, the majority of community involvement in waste banks occurred in urban areas because of factors such as family support (6), knowledge (7), attitude (8), female empowerment (9), the presence of infrastructure (10), and local government support (11).

It has been shown that interventions to increase community involvement in garbage banks are effective in improving the economic and environmental health. In Cilegon City, Banten Province, Indonesia, this study sought to ascertain the relationship of age, gender, educational attainment, attitudes, and family support with involvement in waste banks.

METHOD

The design study using descriptive statistical methods with a cross-sectional study approach. The research was carried out in Kubangsari, Cilegon City, Banten. Data for this study were gathered between July and December of 2022. In Kubangsari, 2.036 complete families made up the population of this research. Purposive sampling was used to collect the samples. The Lemeshow formula was used to compute the number of participants, which came to 100 families residing in Kubangsari village who meet the recorded inclusion criteria. (12).

Age, gender, educational attainment, familiarity with topics, attitudes, and family support all serve as independent variables in this study. Participation in waste banks by the community is the dependent variable in this study. Primary data collected through questionnaire-structured interviews with complete families. Testing for reliability and validity has been done. Using the chi square test, univariate and bivariate data analysis was carried out.

RESULTS AND DISCUSSION

Based on Table 1, the study's findings revealed that 64% of respondents were over 30 years old and 54% were women. According to schooling, 53% of all respondents had at least a high school diploma. The majority of respondents (56%) have strong knowledge, and the majority (61%) have a favorable outlook. 61% of respondents said their families were supportive. In general, people participate in their communities only 60% of the time.

Table 1. Characteristics of Respondents

No	Characteristics	n	(%)
1	Age (year)		
	≤30 years	36	36.0
	>30 years	64	64.0
2	Gender		
	Male	46	46.0
	Female	54	54.0
3	Level of education		
	Low (Junior High School & below)	47	47.0
	High (Senior High School & University)	53	53.0
4	Level of knowledge		
	Poor	44	44.0
	Good	56	56.0
5	Level of attitude		
	Negative	39	39.0
	Positive	61	61.0
6	Family support		
	No	41	41.0
	Yes	59	59.0
7	Community participation		
	Poor	60	60.0
	Good	40	40.0

Based on Table 2, It may be inferred from the findings of the association between gender and community partisipation, with a p-value of 0,001, that there is a substantial relationship between the two. The analysis's findings yielded an OR value of 4.500, indicating that women have a 4.500-times higher risk of contributing positively to their communities than men do.

According to the findings of the association between level of attitude and community participation, which had a p-value of 0,011, it can be said that there is a substantial relationship between the two. The analysis's findings yielded an OR value of 3.444, indicating that positive attitudes are associated with a 3.444-times higher risk of contributing to a healthy community than negative attitudes.

According to the examination of the association between family support and community participation, which yielded a p-value of 0,012, there is a strong connection between the two. The analysis's findings yielded an OR value of 3.207, indicating that strong family support increases the likelihood of positive community participation by 3.207 times compared to weak family support.

Table 2. Association Between Each Independent Variable and Community Participation

No	Variable	Community Participation				OR (CI 95%) P-value	
		Poor		Good			
		n	%	n	%		
1	Age (year)						
	≤30 years	22	61.1	14	38.9	1.075 (0.466-2.479)	1.000
	>30 years	38	59.4	26	40.6		
2	Gender					4.500 (1.862-10.877)	0.001
	Male	36	78.3	10	21.7		
	Female	24	44.4	30	55.6		
3	Level of education						
	Low	32	68.1	15	31.9	1.905 (0.842-4.311)	0.153
	High	28	52.8	25	47.2		
4	Level of knowledge						
	Poor	25	56.8	19	43.2	0.789 (0.353-1.766)	0.711
	Good	35	62.5	21	37.5		
5	Level of attitude						
	Negative	30	76.9	9	23.1	3.444 (1.403-8.457)	0.011
	Positive	30	49.2	31	50.8		
6	Family support						
	No	31	75.6	10	24.4	3.207 (1.335-7.706)	0.012
	Yes	29	49.2	30	50.8		

Gender and community involvement are related

Women have potential in terms of household duties and personal hygiene (abilities and talents). Women typically do most domestic tasks, including rubbish disposal (13). In 46 people with good engagement, the results showed that 10 people (21.7%) were of the male gender. While 30 (55.6%) of the 54 participants were women, a good participation rate. This suggests that women's participation in the community is influenced by their gender. The level of community participation is also influenced by gender. Women make up the majority of those who participate in garbage bank activities. Men typically delegate control of their households to the women who live there.

Gender and community involvement are significantly correlated ($p\text{-value} = 0.001, <0.05$). This study is consistent with (14) research that demonstrates a link between gender and community engagement in waste banks. According to a different study, empowering initiatives that make use of easy access to education and technology may be significantly correlated with women's participation in waste management training. This is the cornerstone for creating awareness to implement more environmentally friendly methods of managing home garbage and to effect change for a better quality of life (15).

Women are more involved in trash management than males because, as housewives, they spend more time in the kitchen, one of the major sources of household waste (16). More women took an active role in management and involvement, similar to what occurred at the waste bank in Cilegon City.

Relationship between attitude and community involvement

Attitude considerations are among the factors influencing behavior. Recycling and garbage classification practices among residents were substantially correlated with internal variables (such as attitude) (17). The findings revealed that 30 respondents (76.9%), out of the 39 with poor involvement, had negative sentiments. While those who responded with favorable sentiments were among the 61 people who participated poorly (49.2%). Based on the study's findings and the researcher's hypotheses, it is clear that the respondents believe they do not need to sort waste before disposal and believe that doing so is a waste of time.

The degree of attitude and community involvement are significantly correlated ($p\text{-value} = 0.011, <0.05$). This study is consistent with (18) research that demonstrates how attitude is associated to community involvement. Another study found that in Muntol Village, Bolaang Mongondow Regency, community attitude are related to home trash management ($p = 0.037$) (19). The attitude identified in this study has an impact on community engagement since it takes a positive attitude about people's behavior for waste banks to operate effectively for someone who already has a variety of insights.

Support from the family and involvement in the community

Family support consists of the family's attitudes, deeds, and acceptance of the relatives who are constantly there to lend a helping hand when required. Family assistance might take the shape of opportunities or encouragement for members who desire to engage in waste management activities through the waste bank program (20). According to the findings, 10 respondents (24.4%) out of the 41 with high involvement levels did not receive any support from their families. While among the 59 respondents with high participation, 30 people (50.8%) reported having family support. This suggests that family support affects community involvement. Husbands who encourage their wives to participate in family activities will use the garbage bank more frequently. Husbands will be more enthusiastic and willing to take advantage of the opportunity to join in waste bank activities.

Family support and community involvement are significantly correlated ($p\text{-value} = 0.011, <0.05$). This study supports (6) studies that demonstrates a connection between family support and community involvement. According to a different study, there is an influence between family support ($p=0.000$) and community behavior towards the use of waste banks in Kapasa Raya Village, Makassar City (8). Due to a lack of family support, some waste separation-influencing elements are not put into practice (21). By permitting the family to take part in trash management operations in garbage banks, the family is said to be providing assistance. The percentage of family support (50.8%) is considered strong because it is believed that the trash bank will be beneficial to both the family and the individual's personal growth.

Association between (age, education, and knowledge) with community participation

Age and community involvement in waste banks do not significantly correlate ($p\text{-value} = 1.000, > 0.05$). This study supports (6) research that demonstrates that age level has no influence on community participation. However, age can play a role in how well someone learns and works, including how they react to something novel and can participate in activities. The study's findings, however, did not indicate any connection between participants' involvement in trash management through the waste bank and their age. Young, adults, and older respondents cannot participate more directly in waste management activities at the waste bank due to age differences, it is indicated.

Education and community involvement in garbage banks are not significantly correlated ($p\text{-value} = 0.153, > 0.05$). The degree of formal education also supports the notion that actual determination cannot be found in formal education. Through garbage banks, participants are involved in waste management operations. This study supports research by Solihin et al. (2019), which demonstrates that educational attainment is unrelated to involvement levels. Therefore, neither a high nor a low level of formal education may predict how actively respondents will participate in trash management.

In waste banks, there is no statistically significant correlation between knowledge and community involvement ($p\text{-value} = 0.771, > 0.05$). This study supports (22) research that demonstrates that knowledge is unrelated to community engagement in garbage banks. Researchers claim that a person's behavior is not always influenced by their level of knowledge. The community engagement in Cilegon City was affected by this; the majority of residents knew waste management but chose not to participate in garbage banks.

CONCLUSION AND SUGGESTIONS

Female gender, attitude, and family support were the key determinants of community involvement in waste banks. Women's participation in waste bank activities to raise awareness of the need for better household waste management practices and to effect change for a better living environment. Women can encourage environmentally friendly behavior to aid in sustainable development. Therefore, a change in policy is required to incorporate family assistance and female empowerment in order to enhance the current method of managing solid trash at the community level in Cilegon City, Banten.

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EFFECT OF RED BEANS AND BLACK BEANS WITH A DIABETES MELLITUS: A SYSTEMATIC REVIEW

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ABSTRACT

Diabetes mellitus is a chronic metabolic disease that requires dietary management. One of the diet strategies is a high consumption of antioxidants and fiber contained in red beans and black beans. The purpose of this article is to prove that red beans and black beans can treat diabetes mellitus. The method is a systematic review using the PRISMA protocol and JBI's Critical Appraisal Tools. The source of the article is experimental studies published in the last 10 years (2013-2023) in Google Scholar, Pubmed, and Science Direct databases. The results showed that red beans and black beans are rich in antioxidants and fiber. Antioxidants and fiber are known to reduce blood glucose levels and increase insulin levels. The conclusion of this article is red beans and black beans can treat diabetes mellitus. The suggestion of this review is that better to increase the daily dose of red beans and black beans consumption to treat diabetes.

Keywords: *Blood glucose, Diabetes, Beans, Insulin*

ABSTRAK

Diabetes melitus merupakan penyakit metabolik kronis yang membutuhkan pengaturan pola makan. Salah satu strategi pola makannya dengan konsumsi tinggi antioksidan dan serat yang terkandung pada kacang merah dan kacang hitam. Artikel ini bertujuan untuk membuktikan bahwa kacang merah dan kacang hitam dapat digunakan untuk mengobati diabetes melitus. Metode penelitian ini adalah *systematic review* menggunakan protokol PRISMA dan JBI's *Critical Appraisal Tools*. Sumber jurnal yang digunakan adalah penelitian eksperimental yang terbit dalam 10 tahun terakhir (2013-2023) pada database Google Scholar, Pubmed, dan Science Direct. Hasil menunjukkan kacang merah dan kacang hitam tinggi antioksidan. Kandungan antioksidan dan serat tersebut diketahui dapat menurunkan kadar glukosa darah dan meningkatkan kadar insulin. Kesimpulan artikel ini adalah kacang merah dan kacang hitam dapat digunakan untuk mengobati diabetes mellitus. Sebaiknya meningkatkan asupan harian kacang merah dan kacang hitam untuk pengobatan diabetes.

Kata Kunci: *Glukosa darah, Diabetes, Kacang-kacangan, Insulin*

INTRODUCTION

Diabetes mellitus (T2DM) is the most common type of metabolic disorder in the world. T2DM is caused by two main mechanisms: a defective secretion of insulin by pancreatic beta-cells and a failure of insulin sensitive tissues to respond appropriately to insulin.¹ T2DM is a complex disease characterized by high plasma glucose levels. It involves different cellular pathways such as insulin secretion and insulin resistance.² The International Federation of Diabetes estimates that 537 million adults (20-79 years) are diagnosed with T2DM worldwide. This number is predicted to increase to 643 million in 2030 and 783 million in 2045.³ Based on national research, the prevalence rate of diabetes in Indonesia has reached 10.9 percent which is predicted to continue to increase.⁴

Bad eating habits and a sedentary lifestyle have increased the prevalence of chronic degenerative diseases, such as type 2 diabetes mellitus (T2DM).⁵ Adherence to a healthy lifestyle that

includes a high-quality diet, regular exercise, and adequate weight maintenance, is strongly associated with the best T2DM management.⁶ Administration of a diet high in antioxidants and fiber, which can be used to maintain blood glucose and insulin levels, can be sourced from legumes.⁷ Local food ingredients, such as legumes, that have high antioxidant content are red beans and black beans.^{7,8} Red beans and black beans are small, sweet-tasted, soft-textured, oval in shape, and have an anti-inflammatory response.⁹ Red and black beans have antidiabetic potential and are also excellent sources of anthocyanins.¹⁰ The color of red and black bean varieties is due to anthocyanins. Dark-colored beans usually have the highest anthocyanin content.⁷

The antioxidant properties of polyphenols such as anthocyanin can neutralize free radicals.⁷ Anthocyanins from black beans have strong antioxidant abilities to scavenge free radicals along with anti-inflammatory activity.¹¹ Anthocyanins play an important role in T2DM prevention.¹² Previous studies have shown that the anthocyanins found in black beans can modulate the activity of proteins involved in different T2DM pathway mechanisms.¹¹ Other research has shown that anthocyanin consumption can positively modulate GLUT4 and its phytochemicals to affect the gastrointestinal microbiota.¹³

Beans especially red beans also have high fiber content.⁶ This fiber consists of soluble and insoluble fiber.¹⁴ Soluble fiber can reduce postprandial blood sugar and increase insulin levels.^{14,15}

Beans Based on research other by it is suggested that regular consumption of beans is beneficial in the prevention and management of diabetes.¹⁶ Clinical studies show that consumption of three or more servings of beans in a week reduces the risk of diabetes by almost 35%, compared to less or no consumption of beans. Beans were found to have anti-hyperglycemic activity due to their phenolic compounds, such as flavonoids, in in vitro anti-diabetic studies.¹⁷ In vivo studies have also shown that bean-containing phenolic compounds reduce blood glucose and increase insulin levels in animals.¹⁸ Other studies have shown that red beans are digested slowly in the digestive system and remain stable in the digestive tract for a longer time, which exerts a slight stimulatory effect on postprandial insulin secretion, thereby maintaining insulin function and sensitivity. Based on these studies, kidney beans can prevent metabolic syndromes such as hyperinsulinemia and insulin resistance in T2DM.¹⁹

Various studies have proven the effect of giving red and black beans on reducing blood glucose and increasing insulin levels. The goal of this study was to examine the effect of giving red beans and black beans on blood glucose levels and insulin levels using a systematic review approach.

METHOD

This study is a systematic review of studies using the PRISMA protocol and the JBI Critical Appraisal Tools to evaluate the risk of bias. The four stages of searching for articles using the PRISMA method are 1. Identification, namely entering four keywords in the database; 2. Screening,

namely filtering articles using inclusion and exclusion criteria; 3. Eligibility, namely the feasibility test of articles using JBI Critical Appraisal Tools to exclude low-quality studies (score 50%);

4. Included are articles that are relevant and meet the requirements. The articles searched for were found using electronic databases such as Google Scholar, PubMed/Medline, and Science Direct on February 2, 2023.

The selected types of articles were published in the last ten years, from 2013 to 2023. The articles used were searched using four keywords, namely "beans", "blood glucose," "insulin," and "diabetes," which can be searched in national and international journals that are accessible. The inclusion and exclusion criteria follow the PICOS framework guidelines, which consist of five question indicators, namely: 1. Population or problem; 2. Interventions or indicators; 3. Comparison; 4. Outcomes; and 5. Design studies.

Based on these indicators, the inclusion criteria used to select research articles were:

1. Patients with type 2 diabetes mellitus, adults, or type 2 diabetes mellitus rats models; Rats has many similarities to humans in terms of anatomy, physiology and genetics. The genome is very similar to our own, making rats genetic research particularly useful for the study of human diseases one of them T2DM. The rats models the best indicator of how humans will react to a new diabetes drug or medical treatment.
2. Empowerment interventions;
3. Comparison with other interventions or control groups;
4. The outcome explaining the effect of the empowerment intervention;
5. The study design was a randomized controlled trial, cohort study, or quasi-experimental study;
6. Abstract; full text;
7. Scholarly journals.

The exclusion criteria in this study were:

1. Subjects with obesity, other metabolic syndrome, and cardiovascular disease;
2. No intervention with subjects;
3. No compassion;
4. The results of the study showed no effect or change after the intervention was given;
5. The systematic review, meta-analysis, scoping review, and literature review;
6. No full text. The following is a detailed article selection process (Figure 1).

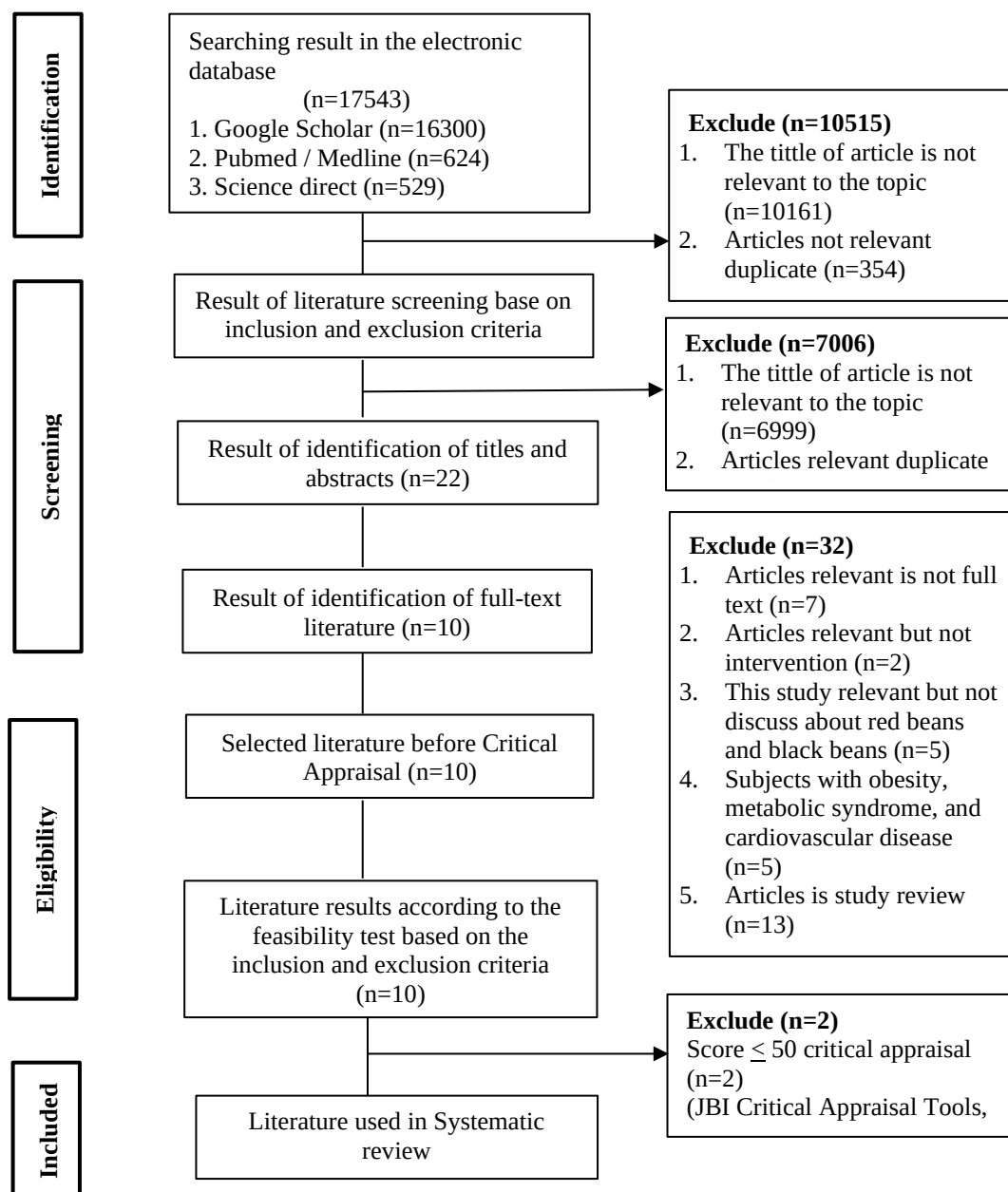


Figure 1. Diagram of Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA)

RESULTS AND DISCUSSION

Based on searches of three electronic databases, using 4 keywords namely "beans", "blood glucose," "insulin," and "diabetes," 17543 were found, the results were then eliminated based on exclusion criteria using PICO guidelines and criteria resulting in 8 articles were selected to report on the results of the systematic review. The selected articles can be seen in (Table 1).

Table 1. Systematic Review Study Results

Number	Year	Author	Research Title	Research Methods	Results
1	2020	Bai, Z., Meng, J., Huang, X., Wu, G., Zuo, S., & Nie, S. ²⁰	Comparative study on the antidiabetic function of six legume crude polysaccharides	Desain: Experimental study Subject: Type II diabetic mice with streptozotocin-induced Variable: Chemical composition with Polysaccharides from legumes Instruments: GSP and insulin levels were determined by the ELISA kit Data analysis: One-way ANOVA	Red kidney bean polysaccharides (RK) decreased the levels of Fasting Blood Glucose (FBG), Total Cholesterol (TC), low-density lipoprotein cholesterol (LDL-c) and increased the concentration of serum insulin levels (HOMA-IR) ($p < 0.05$). Red kidney exhibited greater antidiabetic potential in type II diabetic mice, compared with other legume polysaccharides.
2	2021	Utama, L. J., Suryana, S., & Sembiring, A. C. ²¹	Effects of mixture powder of black rice (<i>Oryza sativa</i> L indica), red beans (<i>Phaseolus vulgaris</i> L), and moringa leaves (<i>Moringa oleifera</i> L) on blood glucose concentration in hyperglycemic Rats	Desain: Experimental research with pre and post-control group design. Subject: Sprague Dawley female rats with hyperglycemic Variable: Mixture powder of red beans with Fasting Blood Glucose (FBG) Instruments: Blood serum glucose analysis was executed according to the Glukosa Oksidase Para Amino Phenazone (GOD-PAP) method Data analysis: One-way ANOVA	The results showed that after 28 days of intervention, the mixture powder decreased the serum glucose concentration from 122.69 mg/dL to 97.70 mg/dL (20.37%) in the 80% mixture powder (PB8) and from 123.91 mg/dL to 113.28 mg/dL (8.58%) in the 50 % mixture powder PB5 group. The average value of fasting blood glucose levels in the intervention of a mixture of powder PB8 and PB5 experienced a significant decrease ($p < 0.05$).
3	2022	Khatija, A., & Marikkar, N. ²²	Biochemical Study on the Anti-Hyperglycemic Effects of Coconut Testa (<i>Cocos nucifera</i> L.) and Red Kidney Bean (<i>Phaseolus vulgaris</i>) Seed	Desain: Experimental study Subject: Reptozotocin-induced diabetic Sprague-Dawley rats Variable: Anti-hyperglycemic from red kidney bean	The results showed the blood glucose level of the group treated with RKB (Red Kidney Beans) 400 mg/kg b.wt was found to be significantly ($p < 0.05$) lower than that of the negative control group. This study suggested that the improvements in

Number	Year	Author	Research Title	Research Methods	Results
			Coat in Streptozotocin-Induced Diabetic Rats	Instruments: The glucose concentration in the serum samples was analyzed immediately by the glucose oxidase method using a Randox assay kit and a spectrophotometer Data analysis: ANOVA and Tukey's test	glucose tolerance would be the result of increased secretion of insulin due to the presence of hypoglycemic components in the extracts.
4	2022	Damián-Medina, K., Milenkovic, D., Salinas-Moreno, Y., Corral-Jara, K. F., Figueroa-Yáñez, L., Marino-Marmolejo, E., & Lugo-Cervantes, E. ¹¹	Anthocyanin-rich extract from black beans exerts anti-diabetic effects in rats through a multi-genomic mode of action in adipose tissue.	Desain: Experimental study Subject: Male Wistar diabetic rats Variable: Anthocyanin from black beans with Type 2 Diabetes Mellitus Instruments: Insulin levels were quantified using the Rat Insulin ELISA kit RayBio Data analysis: Two-Way Repeated Measures ANOVA and Tukey's test	The results showed, that at the end of the treatment period, rats in BB (black beans) group showed significant ($p < 0.05$) decreases in fasting blood glucose levels. Further, TNF- α levels in the BB group exhibited a significant decrease ($p < 0.05$) when compared with the DB (without treatment) group.
5	2017	Winham, D. M., Florian, T. L. A., & Thompson, S. V. ²³	Glycemic Response to Black Beans and Chickpeas as Part of a Rice Meal: A Randomized Cross-Over Trial	Desain: Randomized cross-over study Subject: Adult women, aged 18–65 years, were currently not taking medications known to affect glucose or insulin concentrations. Variable: Glycemic response from black beans and combination of white rice for blood glucose Instruments: Plasma glucose concentrations were assessed using the	In the present study, whole black bean combination with white rice, a high glycemic index food, significantly reduced glycemic response in comparison to white rice control among healthy adult women. Timepoint differences in glucose concentrations were significantly lower at 60 and 90 min postprandial for black beans and white rice ($p = 0.026$ and $p = 0.001$, respectively). A significant reduction in postprandial glucose concentrations was also observed for the black bean and rice meal at the

Number	Year	Author	Research Title	Research Methods	Results
				colorimetric glucose oxidase method and insulin concentrations in serum were determined utilizing the Immulite 1000 Data analysis: Multivariate Analysis of Variance (MANOVA)	120 min postprandial ($p = 0.024$) and time point differences in insulin concentrations were significantly higher at 30 minutes postprandial for black beans and rice ($p=0.037$)
6	2016	Kim, M., Kim, D. K., & Cha, Y. S. ²⁴	Black Adzuki Bean (Vigna angularis) Extract Protects Pancreatic β Cells and Improves Glucose Tolerance in C57BL/6J Mice Fed a High-Fat Diet	Desain: Experimental study Subject: Male C57BL/6J mice Variable: Black Adzuki Bean extract improves glucose tolerance Instruments: Levels of insulin in the culture medium were quantified using a rat high-range insulin ELISA kit Data analysis: One-way ANOVA. After ANOVA, differences between means were assessed using Duncan's multiple-range test.	The animals fed an HD control group along with Black Adzuki Bean (BAB) extract had a significantly lower fasting blood glucose level throughout the experimental period than animals in the HD group. Black Adzuki Bean improves high glucose-impaired insulin secretion with stated significant differences among groups ($p<0.05$). In summary, in vitro and in vivo, data indicate that BAB extract improves glucose tolerance by protecting pancreatic cells from damage from chronic hyperglycemia and improving insulin response.
7	2017	Mojica, L., Berhow, M., & Gonzalez de Mejia, E. ²⁵	Evaluation of the hypoglycemic potential of a black bean hydrolyzed protein isolate and its pure peptides using in silico, in vitro, and in vivo approaches	Desain: Experimental study Subject: Hyperglycemic rat model Variable: Hypoglycemic potential of black beans with glucose absorption Instruments: Insulin and GLP-1 levels were determined by ultra-sensitive insulin Rat ELISA assay	The result showed, that the hyperglycemic rat model (HPI) caused a reduction in blood glucose. Black bean HPI was capable of significantly reducing glucose absorption and uptake in vitro, The lowest fasting glucose was found in rats receiving 150 and 200 mg/kg BW/day HPI, ($p < 0.05$). The black bean HPI is an inexpensive food source of bioactive compounds that could be

Number	Year	Author	Research Title	Research Methods	Results
				Data analysis: One-way ANOVA, Comparisons among groups were performed by Tukey	used in the management of blood glucose
8	2020	Sánchez-Tapia, M., Hernández-Velázquez, I., Pichardo-Ontiveros, E., Granados-Portillo, O., Gálvez, A., Tovar, A. R., & Torres, N. ²⁶	Consumption of Cooked Black Beans Stimulates a Cluster of Some Clostridia Class Bacteria Decreasing Inflammatory Response and Improving Insulin Sensitivity	Desain: Experimental study Subject: Male Wistar rats were given 2 g/kg glucose weight Variable: Cooked black beans stimulated insulin sensitivity Instruments: Serum insulin was determined using commercial ELISA kits. Data analysis: Two-way ANOVA followed by Bonferroni's posthoc test	Consumption of black beans (BB) decreased the glucose curve, glucose and increased insulin sensitivity to insulin concentration with a significant difference (p<0.05). Consumption of black beans can be recommended to prevent insulin. Black bean consumption maintains gut integrity and insulin signaling after acute metabolism with glucose.

The results of the literature review found that giving red beans and black beans had an impact on reducing blood glucose and increasing insulin levels. One important criterion for the diagnosis of diabetes is an abnormal increase in postprandial or fasting blood glucose. Therefore, lowering the blood glucose of diabetic patients is the main goal of diabetes treatment.²⁷ Studies on the effect of red beans are proven by the results of a study conducted which stated that red bean polysaccharides (RK) can reduce fasting blood glucose (FBG) and increase serum insulin concentrations (HOMA-IR).²⁰ Red beans showed greater antidiabetic potential in type II diabetic rats, compared to other legume polysaccharides in this study (soybean, white kidney bean, small black soybean, field bean, and lentil). As an effective indicator, glycosylated serum protein (GSP) levels can reflect the average blood glucose level of all diabetic patients in the last 2-3 weeks. T2DM is characterized by lower serum insulin concentrations and insulin resistance in STZ-induced diabetic rats.²⁸ Insulin concentration can reflect the function of β cells, stating that the anti-diabetic properties of polysaccharides from natural sources are mediated by increased insulin action.²⁷ HOMA-IR is an important indicator of insulin resistance.²⁹ As shown in the results of the red beans intervention study, significant in HOMA-IR, which showed that the two polysaccharides increase insulin levels.

The results of another study conducted by another study showed that after 28 days of intervention, the mixed powder reduced blood glucose levels in male Wistar rats that were given a glucose load.²¹ This is due to the administration of mixed flour in the group containing a high fiber

composition, causing satiety quickly compared to the standard feed group. In this study, the mixed powder was used as a flour mixture in the intervention feed, one of the compositions of which was red bean, so that a decrease in fasting blood sugar levels in animal models could be associated with red bean. Kidney beans are a good source of fiber, every 100 grams of dry kidney beans provides about 4 grams of fiber consisting of soluble and insoluble fiber.¹⁴ Soluble fiber significantly lowers blood sugar, because soluble fiber can substantially lower blood sugar and reduce the glycemic response. Starch hydrolysis in the small intestine is relatively slow and causes a delayed postprandial glycemic response, which can reduce postprandial blood sugar and increase insulin levels.^{14,15} The results of another study regarding red beans conducted by another study showed that the blood glucose level of the group that was given red kidney beans (RKB) resulted in lower blood glucose levels than the negative control group.²² This is because RKB extract is rich in polyphenols and flavonoids which are known to reduce the risk of diabetes and improve glycemic control, thereby helping to lower blood glucose levels in diabetic animals.³⁰

Black beans (BB) are a source of a variety of plant-based bioactive compounds, such as polyphenols and, in particular, anthocyanin. Several studies support that eating BB has health benefits, including the prevention of T2DM.¹¹ Plants are an important source of bioactive compounds with many valuable health effects. Functional foods contain bioactive compounds that can provide health benefits beyond their natural properties when consumed regularly and consistently through a diet.³¹ Anthocyanins are an important class of polyphenols featured by their promising effect on T2DM acting on (a) suppression of carbohydrate metabolizing enzymes; (b) decreased transporter expression or glucose activity; (c) inhibition of glycogenolysis and (d) modifying the gut microbiota with anthocyanin breakdown products.³² In this study it was found that anthocyanin-rich black beans extract increased glucose levels in diabetic rats. One of the effects of anthocyanins on T2DM is to suppress postprandial glycemia through inhibition of α -amylase and α -glucosidase enzymes.³¹ In other studies of the effects of black beans, based on research results a combination of whole black beans with white rice, a high glycemic index food, significantly reduced the glycemic response in comparison to a white rice control among healthy adult women.²³

Black beans originate in South America and are most frequently eaten in Latin American and Caribbean cuisine.³³ Legume consumption within traditional diets improves short-term glycemia and insulinemia and reduces the risk of chronic conditions such as T2DM.³⁴ Findings indicate that even a 1/2 cup of beans can produce reductions in postprandial glycemia. A half cup of beans was provided to study participants during treatment days. This quantity is likely more representative of actual per-meal consumption and beneficial effects for reducing the glycemic response. This result is also in line with study other which showed black bean extract type Black Adzuki Bean had significantly lower

fasting blood glucose levels during the experimental period. Rats that were given Black Adzuki Bean extract had improved insulin response.²⁴

The other research results by other study showed in the hyperglycemic rat model black beans caused a reduction in blood glucose. Black bean hydrolyzed protein isolate (HPI) was capable of significantly reducing glucose absorption and uptake in vitro. The black bean HPI is a food source with bioactive compounds that could be used in the management of blood glucose. The effective dose in the in vivo study was 200 mg HPI/kg BW in rats.²⁵ The HPI generated from black bean protein could be used as a preventive approach to decrease glucose levels in patients with type 2 diabetes.¹⁶ The results of the research also show the consumption of black beans can reduce the curve of glucose and increase insulin sensitivity.²⁶ Black bean consumption maintains intestinal integrity and insulin signaling after an acute metabolic with glucose, because of modification in gut microbiota.¹⁶ Based on this literature use black beans can be recommended as a part of the dietary strategy to treat subjects with insulin resistance.

CONCLUSION AND SUGGESTIONS

The benefits of beans for health are that they have a high nutritional content, which can be added to the daily menu. Beans are rich in antioxidants, especially dark-colored beans such as red beans and black beans. These beans are rich in polyphenols and other bioactive compounds that can improve therapeutic T2DM by lowering blood glucose levels and increasing insulin levels. Red beans also have a high fiber content which can decrease blood glucose levels. This suggests that it is better to increase the daily dose of red beans and black beans consumption to treat diabetes.

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EFFECT OF THIAMINE, BMI, SLEEP DURATION, AND ANXIETY IN NEUROTIC, STRESS, AND SOMATOFORM DISORDER

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ABSTRACT

Neurotic, stress, and somatoform disorders are one of the diagnosis group characterized by anxiety symptoms. Thiamine or vitamin B1 levels, Body Mass Index (BMI), and sleep duration have been associated partially with anxiety disorders in the health population. The aim of this study is to examined the relationship between thiamine levels, BMI, and sleep duration with anxiety symptoms among people with neurotic, stress, and somatoform disorders. This study is observational with cross-sectional design and engage patients with neurotic, stress, and somatoform disorders as participant. The data gathered comprised thimine levels measured using the liquid chromatography-mass spectrometry (LC-MS/MS), BMI measured based on data of the patient's weight and height, and sleep duration obtained through a questionnaire. Anxiety levels were evaluated using the Zung Self-Rating Questionnaire (SAS). Linear regression was performed for data analysis. The findings indicated that there was no significant relationship between vitamin B1 levels and anxiety levels. However, this study suggested that an increase of 1 hour in sleep duration (coefficient = -2.784, $p = 0.007$) and an increase of 1 unit in BMI (coefficient = -0.824, $p = 0.022$) were associated with a statistically significant decrease in anxiety index. This study demonstrated significant relationship between BMI and sleep duration with anxiety symptoms in patients with neurotic, stress, and somatoform disorders. Further study is required to understand the mechanisms of this relationship and its implications for the treatment of patients with neurotic, stress, and somatoform disorders.

Keywords: vitamin B1, thiamine, BMI, sleep duration, anxiety symptoms

ABSTRAK

Gangguan neurosis, stres, dan somatoform biasanya ditandai dengan gejala kecemasan yang dapat memperburuk kesejahteraan psikologis pasien. Kadar tiamin atau vitamin B1, Indeks Massa Tubuh (IMT), dan durasi tidur secara parsial berkaitan dengan gangguan kecemasan pada populasi orang tanpa gangguan kesehatan. Penelitian ini bertujuan untuk menyelidiki hubungan antara kadar tiamin, IMT, dan durasi tidur dengan gejala kecemasan pada pasien gangguan neurosis, stres, dan somatoform. Penelitian ini menggunakan metode obsevasi dengan rancangan potong lintang yang melibatkan pasien gangguan neurosis, stres, dan somatoform. Data yang dikumpulkan adalah kadar tiamin yang diukur menggunakan metode kromatografi cair-spektrometri massa (LC-MS/MS), data IMT yang diukur berdasarkan berat dan tinggi pasien, dan data durasi tidur melalui kuesioner. Tingkat kecemasan pasien dinilai menggunakan kuesioner Self-Rating Hasilnya terdapat hubungan yang tidak signifikan antara kadar tiamin dengan tingkat kecemasan. Penelitian ini juga menunjukkan bahwa peningkatan 1 jam durasi tidur (koefisien = -2.784, $p = 0,007$) dan peningkatan 1 unit IMT (koefisien = -0.824, $p = 0,022$) berhubungan signifikan secara statistik dengan penurunan indeks kecemasan. Penelitian ini menunjukkan adanya hubungan antara IMT dan durasi tidur dengan gejala kecemasan pada pasien dengan gangguan neurosis, stres, dan somatoform. Penelitian lebih lanjut diperlukan untuk memahami mekanisme yang mendasari hubungan ini serta implikasinya terhadap pengobatan dan perawatan pasien dengan gangguan neurosis, stres, dan somatoform.

Kata kunci: vitamin B1, tiamin, durasi tidur, gejala kecemasan

INTRODUCTION

Mental health disorders are symptoms characterized by impaired cognitive function, emotion regulation, or behavior that reflects psychological, biological dysfunction, or developmental process errors that regulate mental health function (1). Mental health disorders in the neurotic, stress, and somatoform diagnosis groups are often accompanied by anxiety disorders (2). Anxiety disorders are a type of mental health disorder commonly found in society, characterized by excessive fear and anxiety or avoidance of perceived threats. Physiologically, anxiety disorders involve the amygdala, the part of the brain that responds to danger (3). One study stated that the prevalence of anxiety disorders in a population reached 34.8% (4), while another study reported that the prevalence of anxiety disorders reached 25% of the world's population in 2021 (5). Additionally, the Disability Adjusted Life Year (DALY) revealed that 28.68 years already lost due to anxiety disorders (6). In Indonesia, the prevalence of anxiety disorders has reached 20.2% since the COVID-19 pandemic (7).

Earlier research have indicated a significant relationship between insomnia, short sleep duration, and anxiety symptoms (8–10). This relationship is moderated by several biological pathways, such as circadian rhythms, dopamine, and serotonin (11). In addition, another study also indicated that changes in sleep duration can lead to mortality (12).

Moreover, another research revealed that mental and physical health can directly or indirectly affect each other, moderated by lifestyle, social interactions, and past physical activity (13). Body Mass Index (BMI) is a one of the method for evaluating human physical health based on weight and height measurements, which categorizes individuals as underweight, normal weight, overweight, or obese. BMI could be a predictor of future health issues and a factor in determining public health policies (14). A study performed on university students exhibited that a decrease in BMI is associated with an increase anxiety levels, and vice versa (15). Another research carried out on a population in the Minnesota region found that individuals with underweight and obese are at a higher risk of being diagnosed with an anxiety disorder compared to normal group (16). Additionally, a study administered in Germany showed that individuals with an obese BMI have a higher risk of experiencing depression, anxiety, and overall decreased health status. Physiological and psychological stress are allegedly mediate the relationship between BMI and anxiety symptoms (17).

Vitamin B1 (thiamine) is a crucial nutrient that plays a significant role in brain health. Neurotransmitter imbalances are among the factors contributing to anxiety disorders (18,19). Neurotransmitters are chemical substances in the brain act as transmitting signals from neurons to target cells (20). Previous research has indicated that vitamin B1 indirectly supports brain function by aiding energy production, nucleic acid synthesis, neurotransmitter synthesis, and myelin formation (21). A study involving rats revealed that thiamine (vitamin B1) deficiency lead to decreased levels of acetylcholinesterase, butyrylcholinesterase enzymes, and the neurotransmitter GABA. Additionally, thiamine deficiency could disrupt serotonin levels in the rat brain (22). Other animal studies have shown

that thiamine deficiency resulted in reduced locomotor activity and the development of anxiety symptoms (23). Furthermore, research conducted on humans indicated that oral administration of vitamin B1 could improve anxiety symptoms in patients with preoperative anxiety disorders (24).

Central Java is the province with the highest increased prevalence of mental and emotional disorders on Java island. RSJD Dr. Arif Zainuddin Surakarta is one of the regional mental hospitals in Central Java that has experienced a significant increased prevalence in visits during the COVID-19 pandemic. This mental hospital also has highest number of patients with neurotic, stress, and somatoform disorders compared to other hospitals in the Solo Raya area. Furthermore, preliminary study data showed that 6 out of 12 patients with neurotic, stress, and somatoform disorders experience severe anxiety symptoms.

Based on the provided explanation, it appears that there is a research gap regarding the impact of vitamin B1 levels, BMI, and sleep duration on anxiety symptoms in individuals with neurotic, stress, and somatoform disorders. Therefore, the aim of this study is to investigate the association between vitamin B1 levels, BMI, and sleep duration with anxiety symptoms in patients with mental health disorders. This research endeavors to offer fresh insights into the biological and lifestyle factors associated with anxiety disorders, potentially serving as a foundation for developing interventions for individuals with anxiety disorders.

METHOD

This research is a quantitative observational study with a cross-sectional design. It was conducted at RSJD Dr. Arif Zainuddin Surakarta, specifically in the Outpatient Department and Psychology Building, from December 2022 to January 2023. The study involved 42 patients aged 18-59 years. The target population is outpatients at RSJD Surakarta. Accidental sampling and purposive sampling techniques were used to collect participant. The inclusion criteria for this study were outpatient psychiatrists or psychologists attending RSJD Surakarta and belonging to the neurotic, stress, and somatoform diagnosis group. Another inclusion criteria included patients residing in the Greater Solo area, good communication skills, willingness to participate in the research activities, and willingness to provide informed consent.

The independent variables in this study were vitamin B1 levels, body mass index (BMI), and sleep duration. The dependent variable was anxiety symptoms. Vitamin B1 levels were collected by taking a blood sample and analyzing it using the Liquid Chromatography tandem-mass spectrometry (LC-MS-MS) method. Basically, normal levels of thiamine is 11 ± 3 nmol/L in plasma or 4 ± 3 nmol/L in whole blood, though there is no recent research that revealed value for thiamine deficiency (25). BMI data, including weight and height, were collected by RSJD Dr. Arif Zainuddin Surakarta. Sleep duration data were obtained by asking patients about their sleep duration over the past week. Anxiety symptoms assessed using the Zung Self-Rating Anxiety Scale (SAS) questionnaire, which

consists of 19 questions. The questionnaire's validity and reliability have been tested, with a Cronbach's Alpha value of 0.892, indicating high reliability (25,26).

The collected data underwent univariate, bivariate, and multivariate analysis. Univariate analysis described the distribution of respondent characteristics, while bivariate and multivariate analyses examined the relationship and influence of independent variables on the dependent variable. Simple regression and multiple regression analyses conducted for the bivariate and multivariate analyses. The results presented in tabular form.

RESULTS AND DISCUSSIONS

The total respondents in this study were 42 patients, consisting of 28 male patients and 14 female patients, with an age range of 18-59 years. This study results that the majority of the study sample were classified as adults, unmarried, high school graduates, and students with incomes in the range of 0 - <Rp 1,000,000. The study's also revealed that there were 42 respondents with an average vitamin B1 or thiamine level of 62,3 ng/mL among patients with neurotic, stress, and somatoform disorders. The average BMI was 25,3 kg/m², and the average sleep duration for these patients was 6.3 hours. The average anxiety index was recorded as 50,6. The characteristics of the respondents presented in Table 1.

Table 1. Participant's characteristics

Characteristics	Category	Frequencies	
		n = 42	%
Sex	Male	14	33.3
	Female	29	66.7
Age	Adolscence (18-19 years old)	6	14.3
	Adult (20-44 years old)	29	69.0
	Pre elderly (45-59 years old)	7	16.7
Marital status	Married	14	33.3
	Unmarried	27	64.3
	Widow/widower	1	2.4
	Separated/divorced	0	0.0
Education	Primary school	4	9.5
	Junior high school	1	2.4
	Senior high school	28	66.7
	University	9	21.4
Occupation	Housewives	5	11.9
	College student	18	42.9
	Entrepreneur	6	14.3
	Private sector employee	12	28.6
Income	Civil servant	1	2.4
	0 - <Rp1000.000	19	45.2
	Rp1000.000 - < Rp2000.000	14	33.3
	Rp2000.000 - < Rp5000.000	8	19.0
	Rp5000.000 - < Rp10.000.000	2	4.8
	≥ Rp10.000.000	0	0.0

Characteristics	Category	Frequencies		
		n = 42	%	
How long have you been on medication?	< 1 year	24	57.1	
	≥ 1 year	18	42.9	
Do you experience sleep disturbances?	Yes	28	66.7	
	No	14	33.3	
How often do you experience sleep disturbances?	1 - 2 days/week	10	23.8	
	3 - 4 days/week	7	16.7	
	5 - 6 days/week	3	7.1	
	Everyday	8	19.0	
Characteristics	Mean	SD	Min	Max
Vitamin B1 level/thiamine (ng/mL)	62.3	22.3	25.6	119
Body Mass Index/BMI (kg/m²)	25.3	4.9	16.3	35.3
Sleep duration (hour)	6.3	1.75	3	10
Anxiety index	50.6	14	25	79

Bivariate analysis was conducted to examine the partial effects of vitamin B1 levels, BMI, and sleep duration on anxiety symptoms. The results of the bivariate analysis are presented in Table 2.

Table 2. Relationship between participant's characteristics and the independent variables with anxiety symptoms

Respondent characteristics	Unstandarized B	p-value
Sex		
- Male (reference category)	0	
- Male	-1.295	0.783
Age		
- < 20 years old (reference category)	0	
- 20-44 years old	7.871	0.078
- 45-59 years old	21.483	0.001*
Marital status		
- Married (reference category)	0	
- Unmarried	12.054	0.008*
- Separated/divorced	-	-
- Widow/widower	-5.446	0.688
Education		
- Primary school (reference category)	0	
- Junior high school	-0.625	0.968
- Senior high school	12.569	0.101
- University	7.875	0.346
Occupation		
- Housewives (reference category)	0	
- College student	7.815	0.246
- Entrepreneur	-4.75	0.556
- Civil servant	-0.886	0.902
- Private sector employee	-23.5	0.113
Income		

Respondent characteristics	Unstandarized B	p-value
- < Rp1.000.000 (reference category)	0	
- Rp1.000.000- <Rp2.000.000	8.588	0.09
- Rp2.000.000- <Rp5.000.000	-3.660	0.531
- Rp5.000.000- <Rp10.000.000	-4.441	0.666
Length of medication		
- < 1 tahun (reference category)	0	
- ≥ 1 tahun	-5.000	0.260
Vitamin B1 (ng/mL)	-0.005	0.959
BMI (kg/m ²)	-0.922	0.038*
Sleep duration (hour)	-3.398	0.005*

The research findings presented in Table 2 indicated that several variables, including age (p-value = 0.001), marital status (p-value = 0.008), BMI (p-value = 0.038), and sleep duration (p-value = 0.006), had a significant impact on anxiety symptoms, as indicated by the significance level of <0.05. Moreover, based on the beta coefficients, it can be observed that marital status exhibited a positive relationship with anxiety symptoms, whereas age, BMI, and sleep duration showed a negative association with anxiety symptoms.

Multivariate analysis was conducted with the aim of assessing the simultaneous effect of the independent variables on the dependent variable, which in this study were symptoms of anxiety. The results of the multivariate analysis will be presented in Table 3.

Tabel 3. Multivariate analysis between participant's characteristic and independent variables on the dependent variable

Participant's characteristic and independent variables	Model 1		Model 2		Model 3	
	Coefficients	p-value	Coefficients	p-value	Coefficients	p-value
Usia						
- <20 years old (adolescence)	0		0		0	
- 20-44 years old (adult)	-4.450	0.323	-4.585	0.290	-5.532	0.158
- 45-59 years old (pre-elderly)	-15.804	0.026*	-15.892	0.023*	-19.159	0.001*
Marital status						
- Married	0		0			
- Unmarried	2.283	0.648	2.032	0.659		
- Widow/widower	-9.618	0.466	-9.599	0.461		
Sleep duration (hours)	-3.004	0.011*	-3.036	0.008*	-2.784	0.007*
BMI (kg/m ²)	-0.751	0.050*	-0.758	0.043*	-0.824	0.022*
Vitamin B1 level (ng/mL)	-0.012	0.890				
Constanta	93.448	<0.001	93.320	<0.001	95.481	<0.001
Adjusted R ²	0.3747		0.3922		0.4116	

Based on Table 3, model 3 was chosen as it has the highest adjusted R² value compared to models 1 and 2. This indicates that three variables (age, sleep duration, and BMI) have a significant effect on the anxiety index, explaining 41.16% of the variance, while 58.84% is influenced by other unexamined variables. Model 3 also revealed a significant decrease in the anxiety index of -19.16 ($p = 0.001$) in the 45-59-year-old patient group compared to the <20-year-old group. Furthermore, an additional hour of sleep duration was associated with a significant decrease in the anxiety index of -2.78 ($p = 0.007$) and an increase of 1 unit in BMI (1 kg/m²) was associated with a significant decrease in the anxiety index of -0.82 ($p = 0.022$).

Multivariate analysis revealed that age, BMI, and sleep duration were the most influential variables in anxiety symptoms. Previously, there are limited studies analyzing the impact of vitamin B1/thiamine levels on anxiety symptoms, particularly among individuals with mental health disorders. This study reveals that vitamin B1 levels partially show no significant effect on anxiety symptoms, contradicting previous research (23,24,27). Previous research has indicated that vitamin B1 deficiency can decrease GABA levels and disrupt serotonin levels in the brain, leading to anxiety symptoms in experimental animals (22,23). The disparity between previous research and this study lies in the research subject, where previous studies used rats as experimental animals, whereas this study involved humans as research subjects. Translating the results of experimental animal studies to humans can introduce biases, especially in the selection process of appropriate experimental animals. Model rats or mice, genetically engineered to simulate the target population, are commonly utilized for behavioral neuroscience research. However, modeling mental health disorders in rats is challenging due to the complex spectrum of such disorders. Therefore, the translation of anthropomorphic terminology to experimental animals with empirical parameters that are measurable and easily translatable becomes crucial in establishing reliable experimental animal models for research (28). Furthermore, prior research has also indicated an association between thiamine deficiency and anxiety symptoms in the preoperative group (24) (Nasution et al., 2019). This study involved individuals with anxiety disorders who had varying durations of treatment. Individuals with anxiety disorders often experience fluctuations in symptoms between relapse and remission phases, emphasizing the importance of continued treatment for 6-12 months following the remission phase (29).

This study demonstrated that BMI has a negative impact on anxiety symptoms, indicating that an increase of 1 unit in BMI is significantly associated with a decrease in anxiety symptoms. These findings are believed to an increase in energy expenditure triggered by exposure to stress (30,31). When individuals are exposed to stress, the activity of the hypothalamus-pituitary-adrenocortical (HPA) axis and the sympathetic nervous system are heightened, leading to elevated lipolysis, glycogenolysis, and glyconeogenesis to meet the increased energy demands. Furthermore, increased levels of cortisol or adrenaline can also raise resting energy expenditure (31). Another study suggests that an increase in corticotropin-releasing hormone (CRH) in the hypothalamus can reduce appetite (32).

However, several previous studies have reported different findings. One study found that the highest prevalence of anxiety disorders was observed in the underweight and obese groups, with immune-inflammatory processes, oxidative stress, neurotransmitter balance, and neuro-progression acting as mediators between obesity and anxiety symptoms. Among the underweight group, the mediators were the desire to be thin, body image distortion, low self-esteem, and exposure to thin self-image in the media (16). Another study indicates that BMI has a significant and negative association with anxiety status (15). Research conducted in Germany also revealed that obesity can increase the risk of depression, anxiety, and overall lower levels of health (17). Emotional eating behavior can also mediate the relationship between anxiety and BMI. When individuals are exposed to negative emotions, it can lead to stress-induced eating behavior, resulting in an increased BMI (33).

It concluded that BMI is associated with mental health disorders. Individuals in the obese category are at risk of experiencing mental health disorders characterized by behaviors such as self-isolation, anxiety, depression, emotional instability, aggression, impulsiveness, and hyperactivity. Mental health disorders in the overweight and obese groups are often linked to eating disorder behaviors such as binge eating and compensatory activities, including regurgitating consumed food. On the other hand, the underweight group is at risk of increased self-isolation, anxiety, depression, and difficulties in regulating emotions (34).

In addition, the results of this study indicate that sleep duration has a significant and negative effect on anxiety symptoms, meaning that shorter sleep duration increases the risk of experiencing anxiety symptoms. This finding is consistent with previous research that has reported an association between short sleep duration and anxiety symptoms (8,9,35,36). Circadian rhythm is one of the factors that mediate the relationship between sleep duration and anxiety symptoms. It is an internal timing mechanism in the human brain that regulates the sleep-wake cycles based on light response and the 24-hour rotation of the Earth (37). An experimental animal study that manipulated damage to the suprachiasmatic nucleus (SCN) in the hypothalamus, which serves as the body's biological clock, showed an increase in anxiety symptoms in experimental animals (38).

Serotonin and dopamine are neurotransmitters that act as mediators between sleep duration and anxiety symptoms (11). Serotonin serves as a precursor to melatonin, which promotes sleepiness in humans (39), while dopamine works in the opposite direction by reducing melatonin levels in the body to promote wakefulness.

Participants' age is the only characteristic that significantly influences anxiety symptoms in individuals with neurotic, stress, and somatoform disorders. The age range in this study was 18-59 years, with the majority of the population falling into the adult age category (20-44 years), which aligns with previous research indicating that the average onset of anxiety symptoms occurs around 21.3 years of age (De Lijster et al., 2017). Other studies have highlighted that the age group of 18-29 years exhibited significant symptoms of anxiety and depression during the COVID-19 pandemic, as individuals in this

age range typically engage in socialization and develop extensive social networks (40–42). Furthermore, research explains that early adulthood (20–40 years) is a transitional period from late adolescence to adulthood, during which individuals assume roles and responsibilities within the community. This phase can sometimes present challenges and pressures leading to stress (43). Additionally, previous research has indicated that mental health disorders typically onset before the ages of 14, 18, and 25, suggesting that changes in brain structure occur during early neurodevelopment and young adulthood. These changes involve gray matter density, cerebral metabolic rate, synapse density, brain white matter growth, and subsequent myelination, all of which can contribute to the manifestation of mental health disorder symptoms during mid-adolescence, late adolescence, and adulthood (44).

The limitation of this study is that it did not investigate the levels of neurotransmitters in the body. Consequently, it cannot analyze whether the levels of neurotransmitters can serve as mediating variables between vitamin B1 levels and anxiety disorders. Anxiety symptoms are influenced not only by vitamins or dietary intake but also by neurotransmitters, brain structure, and brain function. The lack of a significant effect of vitamin B1 levels on anxiety symptoms may be attributed to the fact that vitamin B1 can be adequately obtained through dietary intake or supplements.

CONCLUSION AND SUGGESTIONS

This study employed univariate, bivariate, and multivariate analyses. The results of the univariate analysis revealed that the anxiety symptom index ranged from 25 to 79. The bivariate analysis found that age, marital status, sleep duration, and BMI have a significant impact on anxiety symptoms. Furthermore, the multivariate analysis indicated that age, sleep duration, and BMI were the most influential variables in relation to anxiety symptoms. The association between age and anxiety symptoms is believed to be mediated by physiological and psychological developmental factors. Similarly, the relationship between BMI and anxiety symptoms is thought to be mediated by the HPA axis that increased energy expenditure and corticotropin-releasing hormone (CRH) that suppresses appetite. Additionally, the connection between sleep duration and anxiety symptoms is believed to be mediated by circadian rhythms and neurotransmitters. The results of the multivariate analysis also demonstrated that age, sleep duration, and BMI collectively had a significant influence on anxiety symptoms. It was found that vitamin B1 levels, BMI, and sleep duration together accounted for 41,16% of the variability in anxiety symptoms among patients with stress and somatoform neurotic disorders at RSJD Dr. Arif Zainuddin Surakarta.

Further research is warranted to elucidate the underlying mechanisms that contribute to the relationship between thiamine levels, BMI, sleep duration, and anxiety symptoms in individuals with neurotic, stress, and somatoform disorders. By this suggestion hopefully we can deepen our understanding of the complex interplay between thiamine, BMI, sleep duration, and anxiety symptoms in individuals with neurotic, stress, and somatoform disorders. This knowledge can guide the

development of personalized and effective treatment strategies for improving mental health outcomes in these populations.

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FACTORS ASSOCIATED WITH THE OCCURENCE OF STUNTING IN CHILDREN AGED 12-35 MONTH IN THE DIY PROVINCE

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ABSTRAK

Stunting merupakan kondisi gagal tumbuh pada balita akibat kekurangan gizi kronis sehingga anak terlalu pendek untuk usianya. *Stunting* terjadi karena asupan gizi yang kurang dan tidak seimbang, serta dapat dipengaruhi oleh faktor lain seperti penyakit, sanitasi yang buruk, akses air bersih yang terbatas, dan lingkungan yang tidak mendukung tumbuh kembang anak yang optimal. Tujuan dari penelitian adalah untuk mengetahui faktor-faktor yang berhubungan dengan kejadian *stunting* pada anak usia 12-35 bulan di Provinsi DIY. Penelitian ini merupakan analisis lanjut data Survei Status Gizi Indonesia 2021 di Provinsi DIY. Desain penelitian adalah *stratified two stage sampling*. Pelaksanaan pengumpulan data *stunting* dilakukan melalui wawancara pada orangtua anak dengan menggunakan kuesioner dan melakukan pengukuran antropometri tinggi badan anak oleh enumerator setempat. Analisis bivariat dilakukan untuk melihat hubungan antara variabel independen dengan variabel dependen. Sedangkan untuk mengetahui faktor-faktor yang berhubungan dengan kejadian *stunting* pada anak dilakukan analisis multivariat. Hasil penelitian menunjukkan bahwa terdapat hubungan yang signifikan antara *stunting* dengan usia ibu, transportasi sulit ke fasilitas pelayanan kesehatan, pemantauan dan perkembangan anak, dan ibu yang mendapat penyuluhan tentang gizi, dengan $p\text{-value} \leq 0,05$. Usia anak, jenis kelamin anak, tempat tinggal, pendidikan ibu, dan pekerjaan ibu, tidak memiliki hubungan yang bermakna dengan kejadian *stunting*, dengan $p\text{-value} > 0,05$. Faktor-faktor yang berhubungan dengan kejadian *stunting* pada anak yaitu usia ibu, transportasi sulit ke fasilitas pelayanan kesehatan, pemantauan dan perkembangan anak, dan ibu yang mendapat penyuluhan tentang gizi. Perlu meningkatkan peran posyandu sebagai wadah yang membantu pemerintah untuk meningkatkan kesehatan masyarakat dalam hal penurunan angka *stunting* pada balita.

Kata kunci: *stunting, akses ke fasyankes, pemantauan dan perkembangan*

ASBTRACT

Stunting is a condition of failed growth in children characterized by significantly short stature relative to their age. *Stunting* occurs due to inadequate and unbalanced nutrient intake, and it can be influenced by other factors such as illness, poor sanitation, limited access to clean water, and an environment that does not support optimal child growth. The purpose of this study was to know the factors associated with the occurrence of *stunting* for children aged 12-35 months in the DIY Province. This study is a further analysis of the 2021 Indonesian Nutritional Status Study data for the Province of DIY. The design of the research was *stratified two-stage sampling*. *Stunting* data collection was carried out through interviews with parents of children using a questionnaire and measuring the height of the children by local enumerators. Bivariate analysis to know the relationship between the independent variable and the dependent variable. Meanwhile, to know the factors associated with the occurrence of *stunting* in children, a multivariate analysis was carried out. The result showed that there was a significant relationship between *stunting* with the age of mothers, difficulty transportation to healthcare, monitoring and development of children, and the mother receiving nutritional counseling, $p\text{-value} \leq 0.05$. Age of children, gender of children, place of residence, education of mothers, and occupation of mothers, had no significant association with the occurrence of *stunting*, $p\text{-value} > 0.05$. The factors associated with the occurrence of *stunting* for the children were the age of mothers, difficulty transportation to healthcare, monitoring, and development of children, and the mother receiving

nutritional counseling. It is necessary to increase the role of posyandu as a forum that helps the government to improve public health, in this case reducing stunting rates in toddler.

Keywords: *stunting, access to health care facilities, monitoring and development*

INTRODUCTION

Indonesia is a country with a high prevalence of stunting compared to other middle-income countries. When compared to ASEAN countries, the prevalence of stunting in Indonesia is still better than in Myanmar (35%), but still higher than in Vietnam (23%), Malaysia (17%) Thailand (16%), and Singapore (4%)(1).

According to Bloem et al. (2013), stunting is a form of growth faltering resulting from the accumulation of long-term nutrient inadequacy, starting from pregnancy until the age of 24 months.(1)

The risks caused by malnutrition in the short term include increased morbidity and mortality rates, developmental disorders (cognitive, motoric, language), and increased economic burden for the cost of caring for and treating sick children. In the long term, it causes a decline in reproductive health, concentration in learning, and low work productivity. Several studies have shown the risks caused by stunting, namely decreased academic achievement (2), increased risk of obesity (3), more susceptibility to non-communicable diseases (4) and increased risk of degenerative diseases (2).

The results of the 2018 Basic Health Research (Riskesdas), the prevalence of stunting in toddlers in Indonesia is 30.8%, a decrease from the previous prevalence of the 2013 Riskesdas results of 37.2%. Based on the results of the 2021 Indonesian Nutritional Status Study (SSGI), the prevalence of stunting in Indonesia shows a decrease from 27.7% in 2019 to 24.4%. For the DIY Province, the prevalence of stunting from the 2019 Indonesian Nutrition Status Study (SSGI) was 21.0, still below the national average of 27.7. SSGI 2021 results, the prevalence of stunting in DIY Province decreased to 17.0%, while the national average was 24.4%. DI Yogyakarta Province is one of the provinces with the acute category (stunting <20%, and Wasted $\geq$ 5%), the same as the other four provinces, which are Lampung, Bangka Belitung, Riau Archipelago, and DKI Jakarta(5).

In the SSGI 2021 data, stunting data and other variables are available, such as data on the age of children, gender of children, child monitoring and development, place of residence, access to healthcare facilities, age of the mothers, education level of the mothers, occupation of the mother, and nutritional counseling/consultation for the mother, this allows for further analysis on factors associated with stunting among children aged 12-35 months in the DIY Province, Indonesia.

The age range of 12-35 months is a highly sensitive period in a child's development. It's a time when physical growth and cognitive development occur rapidly. During this period, children require adequate nutrition to support optimal growth and development. If there is a nutritional disturbance during this period, the impact can be more significant and challenging to rectify later on.

There was a relationship between mother's education and mother's nutrition knowledge with stunting among children under five aged 12-59 months(6). The purpose of this study was to determine the factors associated with stunting in children aged 12-35 months in the DIY Province, Indonesia.

METHOD

This research is a further analysis of the 2021 Indonesian Nutrition Status Study (SSGI) data. The research design is stratified two-stage sampling. Data collection was carried out by the National Institute of Health Development Policy, Ministry of Health of the Republic of Indonesia in 5 districts/cities in the Province of DIY. The study population was all households under five in the DIY Province. As a research sample for stunting were all children under five aged 12-35 months in a household totaling 1,202 people who were the SSGI 2021 sample. The research was carried out from January to December 2021. The dependent variable was stunting in children, and the independent variables were the child's sex, child's age, location of residence, monitoring and child development, mother's age, mother's education, mother's occupation, difficult transportation to health facilities, and mother who received nutrition education/counseling/consultation.

Posyandu is a very precise place to monitor the nutritional status and growth of children so that when they come to the posyandu they will measure the rate of weight gain and height regularly every month. The high attendance rate at the posyandu has a major influence on monitoring the nutritional status of children, and mothers who come to the posyandu will get the latest health information that is useful in determining a healthy lifestyle every day. Toddlers who come to posyandu and weigh regularly will be monitored for their nutritional and health status(7).

Stunting data collection was carried out through interviews with mothers using a questionnaire and taking anthropometric measurements of the child's weight and height. Data collection was carried out by enumerators who had previously received training under the supervision of the technical person in charge in each district/city in the Province of DIY.

Children's nutritional status is measured based on age, weight (BB), and height (TB). The child's weight was measured using a digital scale with a precision of 0.1 kg, while the height was measured using a height-measuring device with a precision of 0.1 cm. Variables for children's weight and height are presented in the form of three anthropometric indices, namely weight/age, height/age, and weight/height. To assess the nutritional status of children, the weight and height figures for each child are converted into standardized values (Z-scores) using the 2005 WHO anthropometric standard. limitations as follows:

Classification of nutritional status for stunting based on PB/U indicators (length or height divided by age):

Stunting: Z-score < -2.0

Normal: Z-score $\geq$ -2.0

Further analysis of this data was carried out using bivariate and multivariate methods. Bivariate analysis to determine the relationship between the dependent variable and the independent variable, this test is to analyze the relationship between categorical variables and categorical variables. This analysis aims to examine differences in the proportions of two or more sample groups. Meanwhile, to determine the effect of the independent variables on the incidence of stunting, a multivariate analysis was carried out using a complex sample approach. Multivariate logistic regression analysis aims to determine the relationship of one dependent variable with several independent variables at the same time. From this multivariate analysis, it can be seen which independent variables have the greatest influence on the dependent variable(8).

This research has received ethical approval from the Health Research Ethics Committee National Institute of Health Research and Development, Ministry of Health, Republic of Indonesia (No. LB.02.01/2/KE.677/2021 on November 4, 2021).

RESULTS AND DISCUSSION

Stunting is a chronic nutritional problem caused by inadequate nutrient intake over a long period, failing to meet nutritional needs. Stunting is a condition of impaired growth in toddlers due to chronic malnutrition, leading to a height that is too short for their age.

Out of a total of 1,202 respondents of children aged 12-35 months, there were 612 male children and 590 female children. Meanwhile, the number of male children was higher (51.4%), compared to female children (48.6%).

Table 1. Frequency Distribution of Respondents by Characteristics (N=1,202)

Characteristics	N	%	95% CI
Child's age group (months)			
12 – 23	592	49.3	46.2 – 52.3
24 – 35	610	50.7	47.7 – 53.8
Child's sex			
Male	612	51.4	48.2 – 54.7
Female	590	48.6	45.3 – 51.8
Place of residence			
Urban	822	74.4	71.8 – 76.9
Rural	380	25.6	23.1 – 28.2
Stunting			
Yes	208	17.0	15.4 – 18.6
No	994	83.0	81.4 – 84.6
Mother's age			
< 20 years	12	1.1	0.6 – 2.1
≥ 20 years	1190	98.9	97.9 – 99.4
Mother's education			
Higher (>SHS)*	861	70.0	66.4 – 73.4
Lower (≤JHS)**	341	30.0	26.6 – 33.6
Mother's occupation			
Work	650	54.6	51.1 – 58.1
No	552	45.4	41.9 – 48.9

*SHS: Senior High School

**JHS: Junior High School

Table 1 shows that the age group with the most children is in the age group 24-35 months (50.7%), with more boys than girls (51.4%). More children are living in urban areas than in rural areas (74.4%), the number of children who are stunting is 17.0%. As for the age of the mother, most of them were aged ≥ 20 years, with the most higher education (70.0%), and the most working (54.6%).

Table 2. Relationships between Stunting for Children with Characteristics Respondent

Characteristics	Stunting				P-value	OR (95% CI)
	Yes		No			
	n	% (95% CI)	n	% (95% CI)		
Child's age group (months)						
12 – 23	102	17.0 (13.8 – 20.6)	490	83.0 (79.4 – 86.2)	0.979	0.996 (0.726 – 1.365).
24 – 35	106	17.0 (14.0 – 20.5)	504	83.0 (79.5 – 86.0)		Ref
Child's sex						
Male	112	18.4 (15.0 – 22.3)	500	81.6 (77.7 – 85.0)	0.294	1.222 (0.839 – 1.781)
Female	96	15.5 (12.3 – 19.4)	494	84.5 (80.6 – 87.7)		Ref.
Place of residence						
Urban	145	16.9 (14.1 - 20.2)	677	83.1 (79.8 – 85.9)	0.934	Ref
Rural	63	17.1 (13.6 – 21.3)	317	82.9 (78.7 – 86.4)		1.015 (0.718 – 1.435)
Mother's age						
≥ 20 years	208	17.2 (14.8 – 19.8)	982	82.8 (80.2 – 85.2)	0.0001	Ref
< 20 years	0	6.4 (1.4 – 24.5)	12	100 (0.0 – 100)		2.04×10^{-10} ($1.04 \times 10^{-10} - 4 \times 10^{-10}$).
Mother's education						
Higher (>SHS)*	143	16.2 (13.5 – 19.2)	718	83.8 (80.8 – 86.5)	0.315	Ref.
Lower (≤JHS)**	65	18.9 (14.6 – 24.2)	276	81.1 (75.8 – 85.4)		1.211 (0.833 – 1.761)
Mother's occupation						
Work	111	16.2 (13.3 – 19.5)	539	83.8 (80.5 – 86.7)	0.460	Ref.
No	97	18.0 (14.4 – 22.2)	455	82.0 (77.8 – 85.6)		1.137 (0.808 – 1.601)
Difficult transportation to healthcare facilities						
Yes	0	0	6	100 (0 – 10.0)	0.0001	5.589×10^{-10} ($2.24 \times 10^{-10} - 1.39 \times 10^{-9}$)
No	208	17.1 (14.7 – 19.7)	988	82.9 (80.3 – 85.3)		Ref
Child's monitoring and development						
Yes	102	14.7 (11.8 – 18.2)	563	85.3 (81.8 – 88.2)	0.050	Ref.
No	106	19.7 (16.2 – 23.8)	431	80.3 (76.2 – 83.8)		1.422 (0.998 – 2.027)
Mothers get nutritional counseling						
Yes	69	19.0 (14.8 – 24.2)	296	81.0 (75.8 – 85.2)	0.287	Ref.
No	139	16.2 (13.5 – 19.2)	698	83.8 (80.8 – 86.5)		0.822 (0.572 – 1.18)

*SHS: Senior High School

**JHS: Junior High School

Table 2. shows that the characteristic variables in children are significantly related to the occurrence of stunting in children, that are child monitoring and development, and difficult transportation to health care facilities with a p-value ≤ 0.05 , while for the mother's characteristic variable, the age variable mothers who are significantly related to the occurrence of stunting in children, with a

p-value ≤ 0.05 . In other variables, the characteristics of the child and the mother are not significantly related to the occurrence of stunting in children, where the p-value is > 0.05 .

Table 3. Multivariate Analysis, the Factors Associated with the Occurrence of Stunting in Children in the DIY Province

Variable	B	SE	P-value	OR (95% CI)
Child's age group (months)				
12 – 23	-0.471	0.333	0.158	0.624 (0.324 – 1.202)
24 – 35				Ref.
Child's sex				
Male	0.218	0.193	0.260	1.234 (0.850 – 1.818)
Female				Ref.
Place of residence				
Urban				Ref.
Rural	0.079	0.197	0.687	0.924 (0.627 – 1.362)
Mother's age				
≥ 20 years				Ref.
< 20 years	-21.419	0.408	0.0001	4.987×10^{-10} (2.23×10^{-10} – 1.11×10^{-9})
Mother's occupation				
Higher ($\geq$ SHS)				Ref.
Lower ($<$ JHS)	0.181	0.206	0.381	1.198 (0.799 – 1.798)
Mother's occupation				
Work				Ref.
No	0.121	0.179	0.50	1.129 (0.793 – 1.606)
Difficult transportation to healthcare facilities				
Yes	-21.479	-0.683	0.0001	4.698×10^{-10} (1.23×10^{-10} – 1.80×10^{-9})
No				Ref.
Child's monitoring and development				
Yes				Ref.
No	0.494	0.195	0.012	1.639 (1.116 – 2.407)
Mothers get nutritional counseling				
Yes				Ref.
No	-0.383	0.193	0.048	0.682 (0.466 – 0.996)

*SHS: Senior High School

**JHS: Junior High School

The results of the multivariate test in table 3, show that of the nine variable factors associated with the occurrence of stunting in children included in the logistic regression model, only four variables are significantly related to the occurrence of stunting in children, that are mother's age, difficult transportation to health care facilities, child's monitoring and development, and mothers who receiving nutrition, with a p-value ≤ 0.05 . Children who do not receive monitoring and development will experience stunting 1.6 times compared to children who do monitoring and development. Mothers who do not receive nutritional counseling are at risk of reducing stunting in children by 0.7 times compared to mothers who receive nutritional counseling.

Table 4. Factors Associated with the Occurrence of Stunting for Children Aged 12-35 Months in the DIY Province

Variable	B	SE	P value	OR (95% CI)
Mother's age				Ref
≥ 20 years				
<20 years	-21.354	0.380	0.0001	5.322 x 10 ⁻¹⁰ (2.52 x 10 ⁻¹⁰ – 1.13 x 10 ⁻⁹)
Difficult transportation to healthcare facilities				
Yes	-21.577	0.712	0.0001	4.259 x 10 ⁻¹⁰ (1.05 x 10 ⁻¹⁰ – 1.73 x 10 ⁻⁹)
No				Ref.
Child's monitoring and development				
Yes				Ref.
No	0.484	0.197	0.015	1.622 (1.100 – 2.392)
Mothers get nutritional counseling				
Yes				Ref.
No	-0.371	0.192	0.050	0.690 (0.472 – 1.007)

Table 4. shows the results of multivariate analysis in the logistic regression final model that the variable factors associated with the occurrence of stunting in children that are mother's age, difficult transportation to health care facilities, child's monitoring and development, and mothers who receiving nutrition, with a p-value ≤0.05.

The World Health Organization (WHO) has declared global nutrition targets for maternal and child health as a priority. The main target aims to reduce stunting in children globally by 40% or a yearly decrease of 3.9% between 2012 and 2025 (9).

To reduce and deal with the problem of malnutrition, especially stunting, the Indonesian government has issued several policies and regulations that are expected to contribute to the handling of stunting through monitoring and evaluation activities, have a very strategic and important role in efforts to determine the impact of interventions on prevention and tackling stunting contributes to reducing the problem of stunting in Indonesia.

These policies emphasize monitoring and evaluation activities and recognize the crucial and strategic role they play in understanding the impact of interventions on stunting prevention and control. These efforts aim to contribute to the reduction of stunting issues in Indonesia (10).

Stunting and malnutrition are two related problems, where stunting in children is the impact of nutrient deficiencies during the first thousand days of life. Stunting in children needs special attention because it can cause delays in physical growth, mental development, and health status in children. The prevalence of stunting in the DIY Province has decreased from 21.0% in 2019 to 17.0% in 2021. This means that one out of every five children under five is stunting in the DIY Province.

The results showed that the prevalence of stunting in children aged 12-35 months (17.0%), p-value = 0.979 (OR=0.996; 95% CI: 0.726-1.365), whereas for children aged 12-35 months was not

related with stunting. Different from that reported by Nshimiyiryo A. et al. (2019), increasing age in children was related to the occurrence of stunting(11).

The prevalence of stunting in male children (18.40%) is higher than in female children (15.50%). In this study, the sex of the child was not related to the occurrence of stunting, $p\text{-value} = 0.294$ (OR = 1.222; 95% CI: 0.839-1.781). In line with the results of research from Bork KA et al. (2017), girls tend to have a lower risk of stunting than boys in low-income countries(12). Likewise, the results of research from Utami RA et al. (2019) reported that the prevalence of stunting in girls (37.8%) was lower than in boys (48.8%).(12) While the results of Zhang et al. (2016) found no significant difference between gender and the occurrence of stunting(13).

For the place of residence factor, the prevalence of children living in rural areas (17.1%) was higher than those living in urban areas (16.9%), and the child's residence factor was not related to the occurrence of stunting $p > 0.05$ ($P\text{-value} = 0.934$). Research from Gebru, KF., et al., 2019, shows that children with parents who live in rural areas have a higher chance of experiencing stunting in childhood than those who live in urban areas, possibly because urban areas have a more complete way of health care and greater access to health care facilities(14).

The dominant factors associated with the occurrence of stunting in children are the age of the mother, difficult transportation to health care facilities, mothers who receive nutritional counseling, and monitoring and development of children at Posyandu. One important factor in the growth and development of children is the education of parents, especially mothers. Mother's education influences parenting styles including feeding and maintaining children's health. Educated mothers can receive various information from outside, and increase their understanding and knowledge, including about child care.

The results showed that the prevalence of mothers with low education (18.9%) was higher than those with higher education (16.2%). The mother's education level was not significantly related to the occurrence of stunting, with $p\text{-value} > 0.05$ ($p = 0.315$), OR=1.211; 95% CI: 0.833-1.761. In line with what was reported by Sulastri D, (2012), said that there was no relationship between the level of a mother's knowledge about nutrition and the incidence of stunting(15) and research from Ni'mah C, et al, (2015), that level of education, knowledge, and mother's upbringing does not contribute to the occurrence of wasting and stunting problems in children under five from poor families in Balen, Bojonegoro(16).

In contrast to the findings of several studies which state that there is a relationship between the education level of the mother and the prevalence of stunting(17),(18). According to research conducted by Hagos et al. (2017), maternal education reduces the risk of stunting and makes stunting worse(19), as well as the results of research from Wicaksono, F., et al. (2020) that parental education is an important risk factor for malnutrition in children(20). Stunting in children under 5 years is multifactorial. Several

risk factors affect children who are stunted. such as feeding infants and young children (FIYC), maternal education, maternal health, infection, sanitation, and socio-economic (21).

From the results of the study, it was known that all respondents did not experience difficulties with transportation to healthcare facilities. The results of the multivariate analysis, that difficult transportation to healthcare facilities is significantly related to the occurrence of stunting, with a $p\text{-value} \leq 0.0001$. Results of the study from M. Shaid et al.(2022), showed that the lower socioeconomic status in the marginalized region and higher distances to healthcare facilities increased the chances of malnutrition(22).

The prevalence of children who received monitoring and development (14.7%) was smaller than children who did not receive monitoring and development (19.7%). The results of the multivariate analysis, that monitoring and development are significantly related to the occurrence of stunting, with $p\text{-value} = 0.015$ (OR = 1.622; 95% CI: 1.100-2.239). This means that children who do not receive monitoring and development will experience stunting 1.6 times compared to children who receive monitoring and development.

The utilization of Posyandu through weighing activities and providing additional food is one of the health efforts to monitor the growth and development of infants and children so that they can prevent and overcome malnutrition as early as possible.

As reported by Anwar F et al. (2010), activities at Posyandu have a positive impact on the nutritional status of children as measured by weight for age (W/A) and weight for height (W/H). The more frequent visits to Posyandu, the better the nutritional status(23). This is also by research conducted by Destiadi (2015), which shows that the most dominant factor in the incidence of stunting is the frequency of integrated service posts (Posyandu) visits. Children with low attendance at the posyandu have a 3.1 times risk of developing stunting when compared to children who attend the posyandu regularly(24).

The results showed that the prevalence of mothers who received nutrition counseling (19.0%) was higher than those who did not receive nutrition counseling (16.2%). The results of the multivariate analysis showed that there was a significant relationship between obtaining nutritional counseling and reducing stunting rates in children, with $p\text{-value}=0.050$ ($p \leq 0.05$), OR=0.690; 95% CI: 0.472-1.007). Research from Ni'mah et al. (2015) that a mother's nutritional knowledge is a factor related to the incidence of stunting in children ($p=0.015$)(16).

In line with this, research from Fauziah and Muna (2019) states that there is a relationship between mother's knowledge and toddler's nutritional status as evidenced by ($p=0.001$) where the better the mother's knowledge, the better the toddler's nutritional status(25). This is not in line with the results of research from Setiawan E et al. (2018), that there is no significant relationship between the level of knowledge of mothers about nutrition and the incidence of stunting(26).

Likewise, according to the research results of Permatasari et al. (2020), there is no relationship between maternal nutritional knowledge and toddler nutritional status ($p=0.109$). Good knowledge possessed by mothers is not necessarily synergistic with practices in caring for and feeding children(27). Supporting the results of previous research, Warisanti D et al. (2022), reported that there was no significant relationship between a mother's nutritional knowledge and a toddler's nutritional status ($p>0.05$)(28).

The mother's age can influence the risk of stunting in toddlers, but it is not the only determining factor. There are many factors that can influence the occurrence of stunting in toddlers, including: maternal nutrition during pregnancy, child nutrition during infancy, non-exclusive breastfeeding, limited access to health services, including growth monitoring, poor sanitary conditions and lack of access to clean water, a family's economic situation can affect access to nutritious food and adequate health services. Genetic factors can also influence a child's growth, although overall, environmental factors play a greater role in stunting.

CONCLUSION AND SUGGESTIONS

The age factor of the child's mother, difficult transportation to health service facilities, children who receive monitoring and development, and mothers who receive nutrition counseling are factors that influence the occurrence of stunting in children in the DIY Province. Children who do not receive monitoring and development at integrated service posts (posyandu) can be at risk of stunting 1.6 times compared to children who receive monitoring and development.

It is necessary to increase the role of integrated service posts (posyandu) as a forum that helps the government to improve public health, in this case reducing stunting rates in children.

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DIFFERENCES IN FOOD INTAKE (ENERGY, PROTEIN, FAT AND CARBOHYDRATES) IN CHILD WASTING BY GIVING COOKIES OF PURPLE SWEET POTATO AND TEMPEH FLOUR

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ABSTRACT

Wasting is a malnutrition condition attributable to insufficient food intake and/or disease. Poor quality and quantity nutrition in food intake is particular concern, especially for child wasting. One of the efforts to deal of child wasting is by providing nutrient-rich supplementary foods such as cookies. Cookies of purple sweet potato and tempeh flour have nutritional value of protein (8.06-22.31%) and carbohydrates (63.85-82.42%). The aim of study was to analyze differences in food intake (energy, protein, fat and carbohydrates) in child wasting by giving cookies of purple sweet potato and tempeh flour. The design of this study was quasi-experiment used a pre-posttest design with a controlled group. The study consisted of a control group (100% purple sweet potato cookies), K1 (90% purple sweet potato: 10% tempeh flour) and K2 (80% purple sweet potato: 20% tempeh flour). The intervention for 30 days. The analyze of data used were paired t-test and One-Way Anova. The results found that there was an increase in food intake (energy, protein, fat and carbohydrates) before and after giving cookies of purple sweet potato and tempeh flour and it was statistically significant. There was a significant difference food intake in each group after intervention by cookies ($p < 0.05$). Intervention with cookies of purple sweet potato and tempeh flour could be the alternative to increase food intake in child wasting.

Keywords: Cookies, Food intake, Purple sweet potato, Tempeh flour, Wasting

ABSTRAK

Gizi kurang adalah kondisi malnutrisi yang disebabkan oleh kurangnya asupan makanan dan/atau penyakit. Buruknya kualitas dan kuantitas nutrisi dalam asupan makanan menjadi perhatian khusus, terutama pada anak gizi kurang. Salah satu upaya untuk mengatasi anak wasting adalah dengan memberikan makanan tambahan yang kaya nutrisi seperti cookies. Cookies ubi ungu dan tepung tempe mempunyai nilai gizi protein (8,06-22,31%) dan karbohidrat (63,85-82,42%). Penelitian ini bertujuan untuk menganalisis perbedaan asupan makanan (energi, protein, lemak dan karbohidrat) pada anak gizi kurang dengan pemberian cookies ubi ungu dan tepung tempe. Desain penelitian ini adalah quasi eksperimen dengan menggunakan desain pre-posttest with controlled group. Penelitian ini terdiri dari kelompok kontrol (kue ubi ungu 100%), K1 (90% ubi ungu: 10% tepung tempe) dan K2 (80% ubi ungu: 20% tepung tempe). Intervensinya selama 30 hari. Analisis data menggunakan uji t berpasangan dan One-Way ANOVA. Hasil penelitian menunjukkan bahwa terdapat peningkatan asupan makanan (energi, protein, lemak, dan karbohidrat) sebelum dan sesudah pemberian cookies ubi ungu dan tepung tempe dan signifikan secara statistik. Terdapat perbedaan yang bermakna pada asupan makanan pada masing-masing kelompok setelah diberikan intervensi cookies ($p < 0,05$). Intervensi cookies ubi ungu dan tepung tempe dapat menjadi alternatif untuk meningkatkan asupan makanan pada anak gizi kurang.

Keyword: Kukis, Asupan makanan, Ubi jalar ungu, Tepung tempe, gizi kurang

INTRODUCTION

Malnutrition is one of the nutritional issues that is still become a global problem. Malnutrition is a condition in which children are underweight for their height, caused by disease and insufficient food

intake (1). Malnutrition can lead to a high risk of morbidity and death. Moreover, children with malnutrition (wasted only) have a 2.3 times greater risk of death compared to children who are not malnourished. In addition, malnutrition can also cause physical and mental disorders (2,3). Malnutrition, also known as wasting, has become a particular concern, especially in Asia's developing countries such as Indonesia. In 2020, more than two-thirds of children aged <5 years who suffer from wasting live in Asia (4).

In Indonesia, the study results of the Indonesian nutritional status (SSGI) show that wasting prevalence has decreased from 7.4% in 2019 to 7.1% in 2021. However, wasting rate has increased to 7.7% in 2022. Specifically in Jambi Province, prevalence of wasting is 9.1% in 2021 and will decrease to 6.6% in 2022. The opposite is true for wasting rate in Kerinci Regency, namely the prevalence of wasting has increased from 3.8% in 2021 to 5.4% in 2022 (5,6).

Wasting occurs due to the lack of nutrient-dense food intake (7). Childrens with wasting have lower levels of energy, protein, and fat intake compared to childrens with good nutritional status (8). Children aged 6-59 months with wasting are known to have a deficiency of macronutrients intake (<80% AKG) which shows that there is a significant relationship between intake of energy, protein, fat, and carbohydrates towards wasting in children aged 6-59 months (9).

One of the targets of the Sustainable Development Goals (SDGs) in 2030 for the health sector is to end all forms of malnutrition; to reduce wasting rates. One of the nutritional intervention programs to deal with malnutrition issues is supplementary feeding (*Pemberian Makanan Tambahan* - PMT) (10). PMT is a supplementary food from the main food that can be processed by utilizing local food ingredients to meet the nutritional needs of children and improve their nutritional status (11).

The researcher is using preliminary research at the *Kerinci* District Health Office area. Children with wasting were given 3 packs (120 g/day) of biscuits for 90 days as the government's PMT program. The PMT distribution for child wasting had been going well. However, interviews with several mothers regarding PMT consumption, show that not all children under five who get PMT had consumed it. This is because some children feel tired of consuming the same PMT every day and some children do not like the taste of milk in biscuits.

Kerinci Regency is one of the regencies with the most sweet potato food products in Jambi Province, including purple sweet potato (12). Purple sweet potato is a vegetable food which is rich in carbohydrates, energy, vitamins, minerals and antioxidants such as anthocyanins. The high carbohydrate content makes it an important source of calories. The nutritional content of fresh purple sweet potato per 100 g is that it contains energy of 123 kcal; protein 1.8 g; fat 0.7 g; carbohydrates 27.9 g; calcium 30 mg; iron 0.7 mg; vitamin C 20.1 mg and anthocyanins 150.7 mg (13,14).

Purple sweet potato has a low protein nutrient content. Therefore, it is necessary to add other ingredients to complement the lack of protein nutrients, namely tempeh flour. Tempeh flour in 100 g

dry weight (bk) contains 50.18% protein, 25.02% fat, 22.88% carbohydrates and 53.08 mg total isoflavones (15). Research by Ibrahim et al. (2018) related to giving purple sweet potato biscuits for 30 days as much as 50 g showed an effect on energy intake, iron, and body weight before and after the intervention (16). From this description, the researchers were interested in analyzing differences in food intake (energy, protein, fat and carbohydrates) in child wasting by giving cookies of purple sweet potato and tempeh flour.

METHOD

This research is a quasi-experimental with pretest-posttest control group design. This study included three groups of subjects, namely the control group (given purple sweet potato cookies), treatment group 1 (given purple sweet potato cookies 90%: tempe flour 10%) and treatment group 3 (given purple sweet potato cookies 80%: tempeh flour 20%). The research was carried out at selected Community Health Centers in the working area of the Kerinci District Health Office from March to May 2022, while the research intervention lasted 30 days.

The study population is 24-59 months of child wasting in *Kerinci* Regency. The selection of the research sample was carried out using a multistage sampling technique. The inclusion criteria are malnourished toddlers (weight/height) of age 24-59 months, having a *KIA* book, attending *Posyandu* for the last 2 months, parents' income below <Rp. 2,500,000, and parents or family willing to take part in the study. The exclusion criteria were having a history of congenital diseases, and taking supplements. In addition, there is also a loss of follow-up criteria that includes children with fever or diarrhea for 3 consecutive days during the study, children who stop or do not wish to continue the research, have moved outside of the *Kerinci* Regency and passed away.

The study consisted of 51 respondents, namely each research group consisted of 17 subjects. Prior to the intervention, the research subjects underwent a 24-hour recall interview to determine their food intake. After that, each subject was given purple sweet potato and tempeh cookies for 30 days. However, during the study, 4 subjects were excluded from the study. The reasons why these four subjects were excluded from the research were that two subjects had a fever for three days in a row, one subject had not been at home for several days without informing the researcher or enumerator and another subject had not finished the cookies that had been given. Then another 24-hour recall interview was conducted to see food intake after giving purple sweet potato cookies. This research has passed the ethical test and received ethical approval with Number: 20/UN27.06.11/KEP/EC/2022.

The research data were analyzed using the SPSS Software application version 25. The results of the research were statistical tests using paired t-test and One-way ANOVA test. Paired t-test to see the difference before and after the intervention, while the One-way ANOVA test to see the effect between treatment groups.

RESULTS AND DISCUSSION

Univariate analysis in this study includes the frequency distribution of the characteristics of research subjects. The research subjects were grouped into three groups based on the treatment given in the study.

Table 1. The Characteristics of Research Subjects

Group	Gender		Age	
	Boys	Girls	24-36 months	>36-59 months
Control	7 (46,67%)	8 (53.33%)	8 (53.33%)	7 (46,67%)
KP1	10 (62.5%)	6 (37.5%)	5 (31.25%)	11 (68.75%)
KP2	7 (43.75%)	9 (56.25%)	5 (31.25%)	11 (68.75%)
Total	24 (51.06%)	23 (48.94%)	18 (38.3%)	29 (61.7%)

Control= group given 100% cookies of purple sweet potato

KP1= group given cookies of 90% purple sweet potato + 10% tempeh flour

KP2= group given cookies of 80% purple sweet potato + 20% tempeh flour

From Table 1 it can be seen the characteristics of research subjects who experienced wasting, namely gender and age group. The number of children under five experiencing wasting based on sex between boys and girls is not much different, but boys (51.06%) are slightly more than girls (48.94%). Research by Kevin et al. (2017) also found that the percentage of malnutrition occurred slightly more in boys than girls (11). A study conducted by Ahmadi et al. (2018) states that the incidence of wasting has a statistical correlation with gender, in other words, there is a significant difference between gender and the occurrence of wasting. The prevalence of wasting in Ahmadi studies was found more in boys than girls (3).

Age characteristics were grouped into 2, namely age 24-36 months and age > 36-59 months. The age group that experienced the most wasting was in the age group >36-59 months (61.7%). This results are relevant to research by Diniyyah and Nindya (2017) that the majority of wasted toddlers are aged 24-36 months. In this age group, children are vulnerable to experiencing nutritional problems such as wasting. At the age of 2 years, toddlers have also entered the weaning period and adopt a diet like their parents, so food intake is very important to support the toddler's growth process (8). After the first two years of life, children's growth begins to slow down and their appetites tend to decline. This is because kids start to exhibit their own eating habits, such as choosing their own food, being fussy about what they eat, avoiding certain foods, and eating on their own (17). The different of result was found that children with wasting are more young than old. According with study conducted by Odei Obeng et al. (2023) was found that wasted children ages 6-23 month (65.69%) had a higher than wasted children aged 24-59 month (34.31%) (18). There was age of transition from exclusive breastfeeding and complementary breastfeeding to family feeding is a contributing factor to the high incidence of undernutrition globally (19). In addition, during toddlerhood there is a very rapid growth and development phase, if nutritional needs are not met properly it will vulnerable to malnutrition (11).

Septiani et al. (2017) in their research stated that the proportion of children with poor nutritional status was more in the age group >18 months (20).

Table 2. Food Intake Before and After Giving Cookies of Purple Sweet Potato and Tempeh Flour

Group	Food Intake $\pm$ SD		Δ Mean	P value
	Before	After		
Energy				
Control	893.83 $\pm$ 113.53	1155.03 $\pm$ 77.46	261.2	0.000 ^(*)
KP1	862.03 $\pm$ 93.94	1210.82 $\pm$ 65.05	348.78	0.000 ^(*)
KP2	788.47 $\pm$ 109.48	1213.28 $\pm$ 88.24	424.80	0.000 ^(*)
p ^a	0.024 ^b	0.074	0.000 ^b	
Protein				
Control	24.69 $\pm$ 3.36	29.99 $\pm$ 3.07	5.30	0.000 ^(*)
KP1	26.438 $\pm$ 16.32	32.96 $\pm$ 3.07	6.52	0.007 ^(**)
KP2	22.15 $\pm$ 5.99	32.76 $\pm$ 4.31	10.60	0.000 ^(*)
p ^a	0.189	0.044 ^b	0.003 ^b	
Fat				
Control	24.76 $\pm$	32.00 $\pm$ 2.06	7.24	0.001 ^(**)
KP1	19.90 $\pm$ 2.57	34.10 $\pm$ 2.41	14.2	0.000 ^(*)
KP2	21.65 $\pm$ 5.21	37.20 $\pm$ 3.84	15.55	0.000 ^(**)
p ^{kw}	0.075	0.000 ^b	0.001 ^b	
Carbohydrate				
Control	140.45 $\pm$ 20.31	186.22 $\pm$ 15.87	45.76	0.000 ^(*)
KP1	147.31 $\pm$ 21.71	193.93 $\pm$ 14.74	46.61	0.000 ^(*)
KP2	124.80 $\pm$ 20.47	189.26 $\pm$ 17.21	64.46	0.000 ^(*)
p ^a	0.012 ^b	0.406	0.032 ^b	

Ket: (*): paired t-test

(**): Wilcoxon test

b: significant ($p < 0.05$)

p^a: one-way anova test

p^{kw}: kuskal wallis test

Δ : difference in value before and after intervention

Table 2 presents the difference in the average value of food intake (energy, protein, fat and carbohydrate) before and after the intervention of giving cookies of purple sweet potato and tempeh flour. It shows a significant increase in energy intake in the three study groups (control, KP1 and KP2). The results of the paired t-test showed a statistically significant difference in energy intake before and after the intervention ($p < 0.05$). The highest increase in energy intake occurred in group 2 treatment with an average difference in energy intake of 424.80 cal, while the increase in energy intake in the control group and treatment group 1 were 261.2 cal and 348.78 cal respectively. The difference in average energy intake between study groups also showed significant differences ($p = 0.000$).

According to the 2019 nutritional adequacy figures (RDA), the average energy intake requirement for toddlers aged 1-3 years is 1350 kcal and ages 4-6 years is 1400 kcal (21). Giving 100 g of cookies of purple sweet potato and tempeh flour for 30 days in the study This increases energy intake in child wasting. The average energy intake before the intervention in each group was less than 80%. The same study showed a significant effect on energy intake by giving purple sweet potato biscuits to toddlers aged 12-36 months who were experiencing malnutrition in the working area of the Somba Opu Health Center (14).

The average protein intake before the intervention was almost the same between groups but it increased slightly in the KP2 group after the intervention. The results showed that giving purple sweet

potato cookies and tempeh flour increased protein intake before and after the intervention in each study group and was statistically significant. The highest increase in protein intake occurred in the KP2 group at 10.6 g, while the increase in protein intake in the control and KP1 groups was 5.3 g and 6.52 g. The difference in average protein intake between study groups showed a significant difference.

The increase in protein intake in the KP2 group occurred because the cookies given contained a higher protein nutritional value than the control and KP1 groups. The higher the tempeh flour formulation added, the higher the protein content (22). Based on proximate test carried out on cookies of purple sweet potato and tempeh flour, the nutritional value of cookie's formula on KP2 (80% purple sweet potato flour + 20% tempeh flour) had a protein content of 22.31%, while the cookies on control and KP1 were 8.06% and 14.43%, respectively. A similar study showed an increase in protein intake in the group given 100 g of tempeh biscuits for 4 weeks in toddlers aged 12-59 months with poor nutritional status (23). Research by Herawati et al. (2020) in the form of giving eel biscuits showed a significant effect on increasing intake of energy, protein, fat, carbohydrates, zinc and vitamin A in children who are sick. This is because the nutritional content of eel biscuits is higher than standard RS snacks. Eel biscuit/100g is 516.79 kcal of energy, 11.4 g of protein, 27.55% fat and 55.67 g of carbohydrates. The results of this study, eel biscuits increase the intake of protein, fat and zinc in hospitalized patients (24).

The mean fat intake before the intervention in each group ranged from 19.9-24.6 g. There was an increase in fat intake in all study groups and showed a statistically significant difference between before and after the intervention ($p < 0.05$). The highest increase in fat intake occurred in the KP2 group from 21.65 g to 37.2 g. Giving cookies of purple sweet potato and tempeh flour showed a significant effect on the difference in average fat intake between study groups ($p = 0.000$).

The increase in fat intake after giving cookies of purple sweet potato and tempeh flour occurs because the nutritional content of fat in the cookies was quite high. The nutritional content of fat in cookies comes from the ingredients used to make cookies. Tempe flour is not only high in protein but also high in fat. Tempe flour in 100 g dry weight contains fat as much as 25.02% (15). In addition, sources of fat are also obtained from other cookie ingredients such as eggs and margarine.

The average carbohydrate intake between study groups was similar at the start and end of the study. However, carbohydrate intake in the KP2 group was slightly less than the other two groups. However, after the intervention each group had almost the same carbohydrate intake. The highest increase in carbohydrate intake was in the KP2 group of 64.46 g. Whereas in the control group and KP1 the increase in carbohydrate intake was not much different, namely 45.76 g and 46.61 g. The results of the paired t-test on carbohydrate intake showed a statistically significant difference ($p < 0.05$).

Giving cookies of purple sweet potato and tempeh flour for 30 days as nutrient-dense additional food shows an increase in food intake (energy, protein, fat and carbohydrate) in wasting toddlers.

Additional food or snacks play an important role in providing additional contributions to meet nutritional adequacy, especially energy and protein (25). Cookies are given as much as 100 g for 30 days. The results of the proximate test showed that the nutritional value of the cookies included 406.5-417 cal of energy, 8-22.3% protein, 4-7.6% fat and 63.8-82.4% carbohydrate.

The increase of food intake in this study was not only from the cookies of purple sweet potato and tempeh flour consumed. But also sourced from the main food and snacks or outside snacks that are purchased. Septiani explained that children's consumption levels increased after being given 100 g/day of corn, green bean and tempeh cookies for 14 days. The food intake that has not reached normal is due to daily consumption not meeting children's needs due to some being lazy to eat and prefer to consume snacks. The appetite of children aged 1-3 years decreases because generally at this age children have difficulty eating or only like snack foods that are classified as empty of calories and nutrition, beliefs, and food selection. Ignorance of the mother can lead to food selection errors, especially for children under five and it can cause nutrients quality and quantity are not sufficient to meet the body's needs (26).

CONCLUSION AND SUGGESTIONS

Giving cookies of purple sweet potato and tempeh flour increases food intake (energy, protein, fat and carbohydrate) in child wasting. Statistically, there were significant differences in energy, protein, fat, and carbohydrate intake before and after giving cookies of purple sweet potato and tempeh flour. And there were also significant differences in energy, protein, fat, and carbohydrate intake between treatment groups.

Further research is suggested to be able to provide new innovative interventions in food processing, especially purple sweet potato, and tempeh flour. It is necessary to provide nutritional assistance and education to families who have under-fives with undernourished status to help achieve good nutritional status.

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CLIMATIC RELATIONSHIP (TEMPERATURE, HUMIDITY, AND RAINFALL) WITH DENGUE HEMORRHAGIC FEVER (DHF) INCIDENCE IN SOUTH TANGERANG CITY 2016-2020

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ABSTRACT

Climate change is one of the hot issues discussed recently, given its serious impact on various aspects of life, especially health. Climate change can increase the risk of disease occurrence due to increases in air temperature, air humidity, and extreme rainfall incidence. Climate change is one of the factors contributing to the increase in dengue cases. The purpose of this study is to determine the relationship between climate and DHF in South Tangerang City in 2016-2020. This research is a descriptive research using time series analysis of ecological study design. This research is included in the observational study that uses secondary data by looking at climatic factors, such as air temperature, humidity, and rainfall as independent variables and the incidence of DHF as a dependent variable. revealed that there was no very weak significant relationship in a negative direction ($p = 0.346 / r = -0.124$) between temperature and the incidence of DHF, there was a moderate relationship in a positive direction ($p = 0.0005 / r = 0.470$) between humidity and the incidence of DHF, and there is a moderately significant relationship in a positive direction ($p = 0.016 / r = 0.309$) between rainfall and the incidence of DHF. Humidity and rainfall have a significant relationship with the incidence of DHF in South Tangerang City in 2016-2020.

Keywords: DHF, Climate, Temperature, Humidity, Rainfall

ABSTRAK

Perubahan iklim adalah salah satu isu hangat dibahas belakangan ini, mengingat dampaknya yang serius pada berbagai aspek kehidupan terutama kesehatan. Perubahan Iklim dapat meningkatkan risiko kejadian suatu penyakit akibat peningkatan suhu udara, kelembaban udara, dan kejadian curah hujan ekstrem. Perubahan iklim adalah salah satu faktor yang berkontribusi terhadap peningkatan kasus DBD. Tujuan dari penelitian ini yaitu untuk mengetahui hubungan iklim dengan DBD di Kota Tangerang Selatan Tahun 2016-2020. Penelitian ini merupakan penelitian yang bersifat deskriptif dengan menggunakan desain studi ekologi analisis seri waktu. Penelitian ini termasuk kedalam penelitian observasional yang menggunakan data sekunder dengan melihat faktor iklim, seperti suhu udara, kelembaban, dan curah hujan sebagai variabel independen serta kejadian DBD sebagai variabel dependen. Menunjukkan tidak adanya hubungan yang bermakna sangat lemah dengan arah negatif ($p = 0,346 / r = -0,124$) antara suhu dengan kejadian DBD, terdapat hubungan sedang dengan arah positif ($p = 0,0005 / r = 0,470$) antara kelembaban dengan kejadian DBD, dan adanya hubungan yang bermakna sedang dengan arah positif ($p = 0,016 / r = 0,309$) antara curah hujan dengan kejadian DBD. Kelembaban dan curah hujan memiliki hubungan yang bermakna dengan kejadian DBD di Kota Tangerang Selatan tahun 2016-2020.

Kata Kunci: DBD, Iklim, Suhu, Kelembaban, Curah Hujan

INTRODUCTION

Climate change is one of the hotly discussed issues lately, considering its serious impact on various aspects of life, especially on health. Climate change can increase the risk of disease incidence due to increased air temperature, air humidity, extreme rainfall incidence, sea level rise, and increased pollutant concentrations.¹ Climate change is one of the factors contributing to the increase in dengue

cases. One of the effects of climate change is the potential for an increase in the incidence of diseases transmitted by mosquito vectors.²

Dengue Hemorrhagic Fever (DHF) is an infectious disease caused by the Dengue virus which is transmitted through the bite of the *Aedes aegypti* mosquito.³

The discovery of the first case of dengue fever in Indonesia was reported in Surabaya in 1968. Since the discovery of the first case, dengue cases have continued to show an increase every year.¹ According to dengue case data at the Banten Provincial Health Office, the number of dengue cases in Banten in 2016 was 5,087 cases with a death rate of 65, in 2017 the number of cases was 1,384 with a death rate of 11, in 2018 the number of cases was 1,388 cases with a death rate of 12, In 2019 the number of cases was 1,980 cases with a death rate of 14, in 2020 the number of cases reached 2,183 cases with 23 deaths due to dengue hemorrhagic fever.⁴

The influence of climate change has the potential to increase the incidence of dengue disease transmitted by mosquito vectors. Where the occurrence of a decrease in temperature, high rainfall, and increased humidity can cause an increase in dengue incidence. This is because dengue shows patterns that are interrelated with climate.⁵

Based on data from the Banten Provincial Health Office, it is stated that dengue disease is still a serious problem in Banten Province, as seen from 8 regencies/cities that have been infected with dengue disease. The highest contribution of cases was in Tangerang Regency and South Tangerang City with the highest number of dengue cases in Banten Province, namely 338 cases and 517 cases.⁶

This makes the author interested in researching the Relationship between Climate and Dengue Incidence in South Tangerang City using secondary data obtained from the South Tangerang City Health Office and BMKG Region II in 2016-2020.

METHOD

This research is descriptive research using a time series analysis ecological study design. These ecological studies are carried out based on different periods with the same population.⁷ The population in this study is data on all residents with dengue cases recorded at the South Tangerang City Health Office during 2016-2020 and climate-related data (temperature, humidity, and rainfall data) recorded by the Center for Meteorology, Climatology, and Geophysics Region II-South Tangerang during 2016-2020. The sample in this study is *total sampling*, which is taking the entire sample based on recording data on the number of dengue and climate cases per month from January 2016 to December 2020. The data collection technique in this study is to collect secondary data from related agencies.

RESULTS AND DISCUSSION

Based on table 1. It can be seen that the average incidence of dengue fever in 2016-2020 was 39 incidences and a median of 27 incidences with a standard deviation of 29 incidences. The highest number of monthly incidence was 148 and the lowest was 6 incidence. In addition, it can be seen that

the incidence pattern in 2016, 2017, 2019, and 2020 tends to be high at the beginning of the year while in 2018 it tends to be high at the end of the year.

Table 1. Distribution of Dengue Incidence in South Tangerang City in 2016-2020

Year	Mean	Median	Standard Deviation	Min-Max
2016-2020	38.65	27	29.41	6-148

Based on table 2. It can be seen that the temperature distribution in South Tangerang City in 2016-2020 obtained an average temperature of 28.08°C a median of 28°C and a standard deviation of 1.2°C. The lowest temperature in South Tangerang City throughout 2016-2020 was 26.5°C and the highest peak temperature was 36.1°C. While humidity has an average value of 78.94% with a median of 80.45% and a standard deviation of 5.53%. The lowest humidity throughout 2016-2020 was 66.4% and the highest humidity was 86.9%. Rainfall has an average value of 195.3 mm with a median of 182.6 mm and a standard deviation of 122.8 mm. The lowest rainfall throughout 2016-2020 was 0 mm and the highest rainfall was 475.5 mm.

Table 2. Climate Distribution (Temperature, Humidity, and Rainfall) in South Tangerang City in 2016-2020

Variable	Mean	Median	Standard Deviation	Min-Max
Temperature	28.08	28	1.2	26.5-36.1
Humidity	78.94	80.45	5.53	66.4-86.9
Rainfall	195.33	182.6	122.79	0-475.5

Based on table 3. the results of the correlation analysis between temperature and dengue incidence state that the value of $r = -0.124$ with a value of $p = 0.346$ which means that it shows that temperature has a very weak relationship strength with a negative correlation and a p-value greater than 0.05, so it can be concluded that there is no significant relationship between temperature and dengue incidence. While the results of the correlation analysis of humidity with dengue incidence are known the value of $r = 0.470$ indicates that the relationship is moderate with a positive correlation direction which means that the number of dengue incidence will increase if the air humidity rises. The results of the statistical test showed a value of $p = 0.0005$ which means that there is a significant relationship between humidity and dengue incidence in South Tangerang City in 2016-2020. The results of the correlation analysis of rainfall with dengue incidence show that the value of $r = 0.309$ which means that it has a moderate relationship strength with a positive correlation direction which means that the number of dengue incidence will increase if the level of rainfall is high. The results of the statistical test $p = 0.016$ which means the p-value is smaller than 0.05, so it can be concluded that there is a significant relationship between rainfall and dengue incidence in South Tangerang City in 2016-2020.

Table 3. Climate Relationship (Temperature, Humidity, and Rainfall) with Dengue Disease Incidence in South Tangerang City in 2016-2020

DHF Incidence			
Variable	r	p-value	Information
Temperature	-0.124	0.346	The direction of correlation is negative, relationships are significance
Humidity	0.470	0.0005	The direction of correlation is positive, relationships are significance
Rainfall	0.309	0.016	The direction of correlation is positive, relationship are not significance

Relationship of Temperature with Dengue Incidence

Increased temperatures ($> 24^{\circ}\text{C}$) can cause an increase in the number of dengue incidences, but when temperatures are more than 28°C it will cause a decrease in dengue incidence. This is in line with research conducted in Talaud Islands Regency in 2018-June 2020 with an $r = -0.125$ value obtained which means that it has a very weak relationship strength with a negative correlation direction, where the increase in temperature does not coincide with an increase in dengue incidence. With a value of $p = 0.512$, it can be concluded that there is no relationship between temperature and dengue incidence ($p > 0.05$).⁸ Another study that is in line is from the research of Djati, (2012) which states that there is no significant relationship ($p = 0.606$) between temperature and dengue incidence in Gunung Kidul Regency in 2010.⁹

The results of another study conducted by Irma et al., (2021) showed that temperature did not have a significant relationship ($p = 0.61$) with the incidence of dengue fever in Bau-Bau City, Southeast Sulawesi in 2015-2019. However, there is a correlation ($r = 0.44$) which shows that an increase in temperature does not always cause dengue incidence to increase. This is because the pattern of the two variables is always changing so it is very out of tune.¹⁰ According to another study conducted by Zambrano et al., (2012) in Honduras, Central America states that the relationship between minimum and maximum temperatures has no meaningful relationship ($p = 0.260$ and $p = 0.542$).¹¹

Conditions that are suspected of causing temperature with unrelated dengue incidence are patterns that are not fixed and always change between dengue incidence and temperature changes during 2016-2020. This is because dengue mosquito vectors can only live at temperatures between $24-28^{\circ}\text{C}$., the average temperature in South Tangerang City in 2016-2020 is 28°C with the lowest temperature of 26.5°C and the highest temperature of 36.1°C . So it can be concluded that temperature will not always have an impact on the increase in dengue incidence.

The Relationship of Humidity with the Incidence of DHF

Based on research conducted in Bandar Lampung City in 2015-2019, it can be seen that humidity is associated with dengue incidence which significantly shows a positive correlation and moderate closeness ($r = 0.390$ and $p = 0.002$).¹² According to another study conducted by Zambrano et

al., (2012) in Honduras, Central America states that the relative humidity relationship has a meaningful relationship ($p = 0,029$).¹¹

Another study that is in line with the one conducted in Manado City in 2017-2019 shows the same thing, where there is a significant relationship between humidity and dengue incidence with a p -value = 0.160 which means that 16% of humidity can affect the incidence of DHF, and the remaining 84% is influenced by other factors.¹³ This condition shows that humidity is related to rainfall, high rainfall can increase air humidity also increases.

Based on other studies conducted in West Java from 2010-2019, it can be seen that there is a meaningful relationship with a positive correlation and a strong relationship. High humidity levels will affect the increase in the number of dengue dengue incidences, and vice versa.⁵ Low humidity can shorten the life of mosquitoes, while high humidity can extend the life of mosquitoes. At low humidity (<60%) the life of mosquitoes is not long so they cannot act as vectors, because the time of transfer of the virus from the stomach to the mosquito's salivary glands is not enough, besides that low humidity causes evaporation of water in the mosquito's body which is one of the mosquito's enemies.⁵

The Relationship of Rainfall with Dengue Incidence

Based on research conducted in Bandar Lampung City in 2015-2019, $p = 0.004$ and $r = 0.370$ were obtained which showed that there was a significant relationship between rainfall and dengue incidence and had a positive correlation with the strength of the moderate relationship.¹²

Rainfall can affect vector life by creating new brooding sites and triggering a rise in air humidity that can extend the life of vectors.¹⁴ The incidence of dengue fever can increase higher during the transition period from the rainy season to the dry season than during the transition period from the dry season to the rain because, during the first transition, there is still a lot of rain or residual water on the surface.¹⁵ Rainfall is one of the most important factors in the dengue event cycle, caused by high rainfall intensity followed by high-temperature increases that also play a role in the survival of mosquito vectors, besides that it can also affect the way of feeding, and how to reproduce mosquito vectors so that it has the potential to increase mosquito population density.⁸

This research is in line with research conducted in Manado City in 2017-2019 which showed that there was a significant relationship between rainfall and dengue incidence ($p = 0.40$) with moderate relationship strength and positive relationship direction ($r = 0.348$).¹³ Then, another study conducted in Bau-Bau City in 2015-2019 stated that there was a significant relationship between rainfall and dengue incidence ($p = 0.0006$) with weak relationship strength ($r = 0.35$) and positive correlation direction.¹⁰

CONCLUSION AND SUGGESTIONS

Based on the results of the study, it can be concluded that the relationship between climate and dengue incidence in South Tangerang City in 2016-2017, there was no significant between temperature and DHF (p -value= 0.346) and very weak strength of the relationship with the negative correlation

direction ($r = -0.124$). There is a significant relationship between humidity and DHF ($p\text{-value} = 0.0005$), with moderate relationship strength and positive correlation direction ($r = 0.470$) indicating the number of dengue incidence will rise if air humidity is high. There is a significant relationship between rainfall and DHF ($p\text{-value} = 0.016$), with moderate relationship strength and positive correlation direction ($r = 0.309$) which means that the number of dengue incidence will increase if the rainfall rate is high.

It is necessary to increase the role of larvae monitoring to be able to help measure the density of larvae periodically, replant by creating urban parks to reduce global warming, collaboration between the South Tangerang City Health Office and the Meteorology, Climatology, and Geophysics Agency Region II in utilizing climate factor data as consideration to determine strategies for preventing and controlling dengue incidence, increase socialization about environment-based diseases as an effort to control dengue vectors, and always increase awareness of dengue disease attacks by eradicating mosquito vector breeding sites, such as with the 3M program (Draining, Closing and Burying), PSN (Mosquito Nest Eradication) activities.

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THE RELATIONSHIP OF KNOWLEDGE, ATTITUDES, AND COMPLIANCE WITH THE USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE) WITH SAFETY BEHAVIOR AMONG SPBE EMPLOYEES IN PANDEGLANG DISTRICT

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ABSTRAK

Perilaku Selamat (*Safety Behavior*) adalah suatu perilaku yang dilakukan dengan ketertarikan individu dalam usaha untuk memperkecil atau mencegah suatu bencana yang ditakutkan. *Safety behavior* ini lebih di fokuskan dalam aspek perilaku manusia terhadap terjadinya kecelakaan di tempat kerja. Tujuan dari penelitian ini yaitu untuk mengetahui hubungan pengetahuan, sikap dan kepatuhan penggunaan APD dengan perilaku selamat (*safety behavior*) pada karyawan SPBE Pertamina Kabupaten Pandeglang. Penelitian ini menggunakan metode kuantitatif dengan desain studi cross sectional dan pendekatan observasional. Sampel pada penelitian ini yaitu seluruh karyawan SPBE sebanyak 40 orang yang bekerja di bagian pengisian elpiji. Teknik pengambilan sampel ini yaitu menggunakan teknik total sampling. Hasil penelitian ini diketahui bahwa terdapat hubungan antara pengetahuan dengan perilaku selamat karyawan SPBE (p-value 0,034) dan terdapat hubungan antara sikap dengan perilaku selamat karyawan (p-value 0,011). Penelitian ini menyimpulkan terdapat hubungan antara pengetahuan dan sikap dengan perilaku selamat pada karyawan SPBE Pertamina Kabupaten Pandeglang. Oleh karena itu disarankan pihak pimpinan SPBE melakukan edukasi kepada karyawan agar pengetahuan dan sikap karyawan meningkat sehingga bisa meningkatkan perilaku selamat yang baik (*safety behavior*) pada karyawan.

Kata Kunci: Pengetahuan; Sikap; APD; Perilaku Selamat

ABSTRACT

Safety Behavior is a way of behaving that is carried out by individual interest to minimize or prevent potential disasters. Safety behavior in this research focuses on the human behavior aspect in workplace accidents. The purpose of this study is to determine the relationship between knowledge, attitudes, and compliance with the use of Personal Protective Equipment (PPE) with safety behavior among SPBE Pertamina employees in Pandeglang District. This research uses quantitative methods by cross-sectional and observation approach to the study. The sample of this research is all of the 40 employees in SPBE working in charge of Liquefied Petroleum Gas (LPG) filling. Total sampling is used as a sample retrieval technique, and the data retrieval technique used is a questionnaire. The data analysis method used is univariate and bivariate analysis with Chi-Square test analysis. The result of this study shows a significant relationship between knowledge of the safety behavior of SPBE employees (p-value 0.034) and there is a significant relationship between attitude with SPBE employees' safety behavior (p-value 0.011). This study concludes that there is a relationship between knowledge and attitude toward safety behavior among SPBE Pertamina employees in the Pandeglang District. Therefore, it is suggested that SPBE leadership conduct education for employees so that employee knowledge and attitudes increase so that they can increase good safety behavior for employees.

Keywords: Knowledge, Attitude, PPE, Safety Behavior

INTRODUCTION

Industry in Indonesia is currently experiencing very rapid development in line with advances in technology. This rapid industrial development is accompanied by an increase in the risk of danger due to the use of increasingly complex machines and work equipment to support the production process.

This can cause health and safety problems in the workplace.¹ LPG Bulk Filling Station (SPBE) is a privately owned filling plant that transports LPG in bulk form from Pertamina and fills LPG cylinders for agents filling LPG cylinders of 3 kg. One of the hazards that can be caused by SPBE activities is an explosion hazard. This is because LPG is included in the category of gases that are volatile and flammable at ambient temperatures.²

Occupational Safety and Health (OSH) is an effort to prevent accidents and protect workers from machines and other sources of danger and work equipment that can cause traumatic injury. Labor which is the the most important component in the implementation of project is a decisive asset for the company. Therefore, in running a safe business then implementation of the safety management system and health management system (SMK3) must be implemented consistently, in accordance with Occupational Safety Law No.1 of 1970 and Labor Law No. 13 of 2003 states that employers are obliged to protect workers and the potential hazards they.³ Work accidents are generally caused by 2 main factors, namely unsafe behavior (Unsafe Action) and unsafe work environment. Safety behavior is an approach designed to directly improve work safety phenomena so as to prevent accidents.⁴ Face According to data from the International Labor Organization (ILO), every year there are more than 250 million accidents in the workplace and 1.2 million of them die as a result of work accidents and workplace illnesses.⁵ Based on BPJS Employment data quoted by DataIndonesia.id, there has been a trend of increasing work accident rates over the last 5 years. Since 2017 the number of work accidents had been recorded at 123,040 then increased by 40.94% to 173,415 cases in 2018. Then it increased by 5.43% to 182,835 cases in 2019.

The main cause of work accidents is the lack of knowledge and awareness of the importance of implementing OSH among industry and society.⁶ Based on data from Manpower and Transmigration Office, Banten Province there were 6,819 work accident cases recorded in 2021, but as of mid-October 2022 there were 5,980 work accident cases.⁷

Research conducted by Siagalan in Suriani (2013) on PT EGS Indonesia workers in November 2009 found that 94% of respondents were included in the good safe behavior category. In addition, a significant relationship was found between knowledge, motivation, perceptions, the role of colleagues, and safe behavior.⁸ In Pandeglang Regency there are two SPBE Pertamina and until now the safety behavior of employees has not been known. In addition, the education level of Pandeglang's human resources is still low. Based on BPS data in 2021, the average length of schooling in this area only reached 7.11 years, which means that it only graduated from elementary school (SD).⁹ So that this affects the behavior of the community, especially safety behavior. Therefore, researchers are interested in knowing the relationship between knowledge, attitudes, and compliance with the use of Personal Protective Equipment (PPE) with safety behavior on SPBE Pertamina employees.

METHOD

The type of research used is a quantitative approach using the observational method and a cross-sectional study design.¹⁰ The population in this study were all employees of the LPG filling section of 40 employees at two locations of SPBE Pertamina in Pandeglang Regency. The population in this study are all employees of the LPG filling section (SPBE) because LPG is included in the category of gas which at ambient temperature is volatile and flammable so that a total population of 40 employees was obtained at two Pertamina SPBE locations in Pandeglang Regency.

Data was collected in December 2021 using a questionnaire that had been used in previous studies and had been tested for validity and reliability. The research data obtained was then processed using univariate and bivariate analysis using the Chi-Square test.

RESULTS AND DISCUSSION

Univariate Analysis

Based on the *mean* value (17) of the respondent's safety behavior, the safe behavior was categorized into good safe behavior and poor safe behavior. Based on Table 1, it is known that out of 40 respondents, the majority of employees have good safety behavior, namely 33 people (82.5%) and 7 employees (17.5%) have poor safety behavior.

Based on the *mean* value (5) of the respondent's knowledge, knowledge is categorized into low knowledge. Based on Table 1, it is known that out of 40 respondents, obtained majority of employees have high knowledge namely 31 people (77.5%), and 9 employees (22.5%) have low knowledge.

Based on the *mean* value (18) of the attitude of the respondents, the attitude is categorized into Based on Table 1, it is known that out of 40 respondents, the results obtained were that 22 employees had positive attitudes (55.0%) and 18 employees had negative attitudes (45.0%).

Table 1. Frequency Distribution of Safety Behavior on SPBE Pertamina employees, Pandeglang Regency

		N	%
Safety Behavior	Poor	7	17.5
	Good	33	82.5
Knowledge	Low	9	22.5
	High	31	77.5
Attitude	Negative	18	45.0
	Positive	22	55.0
Compliance with the use of PPE	Disobedient	17	42.5
	Obedient	23	57.5

Compliance with the use of PPE is categorized into two, namely, it is said to be obedient if it uses PPE completely and it is said to be disobedient if it does not use PPE completely. Based on Table 1, it is known that out of 40 respondents, 23 people (57.5%) are obedient to the use of PPE and 17 people (42.5%) are disobedient to the use of PPE.

Bivariate Analysis

Relationship of Knowledge, Attitudes, and Compliance with the Use of PPE on Safety Behavior of SPBE Employees in Pandeglang District.

Table 2. Bivariate Analysis of Knowledge, Attitude, and PPE Compliance on Safety Behavior of SPBE Employees in Pandeglang Regency

		Behavior				Total		OR (95%C)	P-value
		Poor		Good					
		N	%	N	%	N	%		
Knowledge	Low	4	57.1	5	15.2	9	100	7.467	0,034
	High	3	42.9	28	84.8	31	100		
Attitude	Negative	0	0	18	54.5	26	100	1.467	0.011
	Positive	7	100	15	45.5	38	100		
Compliance with the use of PPE	Disobedient	2	28.6	15	45.5	17	100	-	0,677
	Obedient	5	71.4	18	54.5	23	100		

Based on the results obtained from Table 2, it is known that respondents who had good safety behavior were more likely to be found at a high knowledge level of 28 people (84.8%), compared to respondents who had a low knowledge level of 5 people (15.2%). Respondents who had poor safety behavior were more likely to be found at a low knowledge level of 4 people (57.1%), compared to respondents who had a high level of knowledge of 3 people (42.9%). From the results of bivariate analysis using the chi-square test, the p-value = 0.034 is less than the value α (<0.05), which means that there is a significant relationship between knowledge and safety behavior. With a value of OR = 7,467 (CI = 1,267-44,002) which means that respondents with a low level of knowledge have a 7.4 times greater risk of negative behavior compared to respondents who have a high level of knowledge. This shows that the higher a person's knowledge, the higher the safety behavior carried out by a worker and the lower a person's knowledge, the less likely it is to behave K3 (Aeni, 2015).¹¹ Safety behavior according to Heirinch in Ariyana (2019) is the action or actions of a person or several employees that reduce the possibility of accidents to employees.¹²

Knowledge is the result of knowing and this occurs after someone senses a certain object. Without knowledge, a person has no basis for making decisions and taking action on the problems at hand. Based on the results of this study, it is known that there is a relationship between knowledge and safety behavior among SPBE employees in Pandeglang Regency. This research is in line with research conducted by Dzulfikar (2016) regarding factors related to Safety Behavior showing that the results of the study between knowledge and Safety Behavior obtained a p-value of 0.008 which means that there is a significant relationship between knowledge and Safety Behavior.¹³ A person's behavior can be realized if it is supported by a positive attitude about the behavior he must do Notoatmodjo, S., 2014.¹⁴

Most of a person's knowledge is obtained through the sense of hearing (ears) and the sense of sight (eyes). A person's knowledge of objects has different intensities or levels. Knowledge of safety behavior is an antecedent or internal trigger for behavior change. Internal triggers are things that can

trigger someone to behave that come from within that person. Knowledge is the main thing needed to adopt a behavior because to adopt a behavior one must know the behavior first. From high knowledge, workers understand the purpose of implementing OSH policies, workers also understand when to behave safely, so that can reduce accident rates and improve productivity.¹⁵ In this study, it was found that respondents who had high knowledge, namely 28 people (84.8%) had good safety behavior compared to respondents who had low knowledge, namely as many as 5 people were prone to poor safety behavior (15.2%). This shows that the higher the knowledge of SPBE employees, the better the safety behavior will be, and vice versa, the lower the low knowledge, the poor safety behavior will be.

Then, from Table 2 it is also known that respondents who have good safety behavior are found more in respondents who have a negative attitude, namely 18 people (54.5%), compared to respondents who have a positive attitude, namely 15 people (45.5%). The researcher assumed this happened because workers obeyed existing regulations regarding safety behavior at work despite having negative attitudes. Respondents who had poor Safety Behavior were found more in respondents who had a positive attitude, namely 7 people (100%), compared to respondents who had a negative attitude, namely 0 people (0.0%). To realize an attitude into a real action requires a factor that refers more to readiness and willingness to act, and not the executor of certain motives. This is because there are many factors that influence supporters or enabling conditions, including facilities. In addition, support from other parties is also needed, for example from family, friends, or other fellow workers.¹⁶ From the results of bivariate analysis using the chi-square test, it was obtained that $p\text{-value} = 0.011$ is smaller than the value $\alpha (<0.05)$, which means that there is a significant relationship between attitudes and safety behavior. With $OR = 1.467 (1.102-1.951)$ which means that respondents with a negative attitude level have a 0.6 times greater risk of behaving negatively compared to respondents who have a positive attitude.

Attitude is an important determinant of human behavior because the formation of attitude does not happen by itself. The formation of attitude always takes place in human interaction, namely whether they are happy or not happy, support, stay away from, or approach.¹⁷ In this study, the results of bivariate analysis using the chi-square test obtained $p\text{-value} = 0.011$ which is less than the value of $\alpha (<0.05)$, which means that there is a significant relationship between attitudes and safety behavior. This research is in line with the research conducted by Septiani regarding the factors related to Safety Behavior, the results show that there is a strong relationship between attitudes and Safety Behavior.¹ Research that is in line with Maulidhasari, et al (2014) based on the results of the correlation analysis obtained a $p\text{-value}$ of 0.001 which means that there is a relationship between attitude and dangerous behavior (unsafe action).¹⁸

Attitude is a person's response to a certain stimulus or object, then applied through action. So if the attitude is good then the behavior will also be good, and vice versa if a person's attitude is bad then the behavior will be bad too. According to Notoatmodjo, attitude is a reaction or response of someone

who is still close to a stimulus or object. Attitudes can be formed in individuals because they believe in the consequences of a behavior. The attitude that is formed can be positive and negative depending on the amount of knowledge, so the higher the level of knowledge possessed, the more it will affect the formation of attitudes and will be manifested in the form of action.¹⁴

In addition, based on Table 2 it is also known that respondents who had good safety behavior were found more in the group that complied with the use of PPE, namely 18 people (54.5%), compared to respondents who had a level of disobedience to the use of PPE of 15 people (45, 5%). However, respondents who had poor safety behavior were found more in the group that complied with the use of PPE, namely 5 people (71.4%), compared to respondents who did not comply with the use of PPE, which were 2 people (28.6%). The results of bivariate analysis using the chi-square test obtained a p-value = 0.677 greater than the value of a (> 0.05) which means there is no significant relationship between compliance with the use of PPE and safety behavior.

In this study, the results showed that there was no significant relationship between compliance with the use of PPE and safety behavior. This research is in line with research conducted by Dzulfikar in 2016. The results of Bivariate analysis between the use of PPE and safety behavior obtained a p-value of 0.096, which means that there is no significant relationship between the use of PPE and safety behavior.¹³ The results of this study are also in line with research conducted by Isnaeni (2014). which shows that there is no significant relationship between the use of PPE and safety behavior. The use of PPE (Personal Protective Equipment) is an extension of other accident prevention measures or when no other methods or practices are possible.¹⁹ Compliance with the use of PPE as a response to a recommended order or recommendation through a concrete activity. Compliance is also a form of obedience to rules or discipline in carrying out established procedures.²⁰

In this study, it was found that 18 respondents (54.5%) who complied with the use of PPE had safety behavior compared to 15 respondents (45.5%) who did not comply with the use of PPE. However, most workers obedient with wearing PPE because there are regulations that require wearing PPE and are supervised in its use, but the safe behavior of workers during work is not fully supervised. Researchers assume that there is no relationship between compliance with the use of PPE and safety behavior. This is because even though PPE is available, there are still many workers who do not use PPE. After all, it makes them uncomfortable and interferes with work activities. In addition, some use complete and good PPE if there are only safety members. This is in line with Roughton's opinion in NVMFKD (2010), some workers refuse to use PPE because the PPE causes discomfort and adds stress to the body, this stress may cause discomfort or difficulty at work. In line with Halimah's research (2010), there was no significant difference between availability of PPE with safe behavior. This is because even though wearing PPE make them uncomfortable, interfere with work activities, and there

are some who use PPE completely and well if there is only supervision. use PPE completely and well if there is only supervision.²¹

CONCLUSION AND SUGGESTIONS

This study concludes that there is a relationship between knowledge and safety behavior among SPBE employees in the Pandeglang Regency. In addition, it is also known that there is a relationship between attitude and safety behavior among SPBE employees in Pandeglang Regency. Therefore, it is suggested that SPBE leadership conduct education for employees so that employee's knowledge and attitudes increase and it can improve good safety behavior for employees.

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THE RELATIONSHIP BETWEEN WORK STRESS AND NURSE PERFORMANCE IN THE NURSING CARE PROCESS IN THE INPATIENT UNIT OF KHIDMAT SEHAT AFIAT HOSPITAL DEPOK CITY IN 2022

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ABSTRACT

Work Stress is a condition in which a person feels obstacles or demands related to what is expected and considered to be successful but not as expected. Increased work stress causes nurse must role in a manner maximum in serves patients, some symptom consequence stress includes laziness, experiencing change lust eating, and often sick head. So that could affect the performance of nurses. This research uses a *cross-sectional* research design. The sample used the *total sampling method* with a total sample of 69 respondents. The analysis was performed using the *chi-square test*. From 69 respondents work stress with the performance of nurses in the inpatient unit of Khidmat Sehat Afiat Hospital, Depok City, in the moderate stress level category there were 44 nurses with a percentage of 63.8% with poor nurse performance as many as 25 nurses with a percentage of 56.8% and nurses with good performance as many as 19 nurses with a percentage of 43.2%. The results of the *Chi-square* statistical test with *Crostabulation* using $\alpha = 0.05$ found a *p-value* of 0.026, so it can be concluded that the *p-value* $< \alpha = 0.05$, which means that there is a significant relationship between work stress and nurse performance. There is a Connection Between stress Work with Nurse Performance, listening indicator psychology, physical, and behavior as indicator measurement of work stress. Home it hurts more to notice condition stress nurse with given a chance to develop a career and education, as well as analyze the burden work nurse.

Keywords: Nurse, Stress, Performance

ABSTRAK

Stres Kerja adalah suatu kondisi dimana seseorang merasakan hambatan atau tuntutan terkait dengan apa yang diharapkan dan dianggap berhasil namun tidak sesuai harapan. Meningkatnya stres kerja menyebabkan perawat harus berperan maksimal dalam melayani pasien, beberapa gejala akibat stres antara lain kemalasan, mengalami perubahan nafsu makan, dan sering sakit kepala, sehingga dapat mempengaruhi kinerja perawat. Penelitian ini menggunakan desain penelitian *cross-sectional*. Sampel menggunakan metode total sampling dengan total sampel 69 responden. Analisis dilakukan dengan menggunakan uji chi-square. Dari 69 responden stres kerja dengan kinerja perawat di unit rawat inap RS Khidmat Sehat Afiat Kota Depok, pada kategori tingkat stres sedang terdapat 44 perawat dengan persentase 63,8% dengan kinerja perawat buruk sebanyak 25 perawat dengan persentase 56,8% dan perawat dengan kinerja baik sebanyak 19 perawat dengan persentase 43,2%. Hasil uji statistik Chi-square dengan *Crostabulation* menggunakan $\alpha = 0,05$ ditemukan *p-value* sebesar 0,026, sehingga dapat disimpulkan bahwa *p-value* $< \alpha = 0,05$, yang berarti terdapat hubungan yang signifikan antara stres kerja dengan kinerja perawat. Terdapat Hubungan Antara Kerja Stres dengan Kinerja Perawat, indikator mendengarkan psikologi, fisik, dan perilaku sebagai indikator pengukuran stres kerja. Beranda Lebih menyakitkan kondisi stres perawat dengan diberi kesempatan untuk mengembangkan karir dan pendidikan, serta menganalisa beban kerja perawat.

Kata Kunci: Perawat, Stress, Kinerja

INTRODUCTION

Health is a condition in which the physical, mental, and social conditions are in a stable and prosperous condition which enables a person to carry out daily activities productively. If a person's physical, mental, and social conditions experience instability and lack of well-being, it can lead to health problems. So it is necessary to control our health physical health, mental, and social. Nurses are one of the professions that have an important role in providing health services in hospitals (1).

The nursing profession has a high risk of being exposed to stress because nurses have more duties and responsibilities compared to other health workers. Increased work stress because it requires nurses to perform their role optimally in serving patients (2). Nurses have a role in providing health services in the hospital 24 hours a day and have a responsibility or contract with the patient until the patient is discharged from the hospital. In providing services it is carried out consistently and continuously and the role of nurses can influence the assessment of hospital quality.

Nurse performance is an inseparable part of the quality of service to patients in the hospital. The best performance of the nurse is to do the job as well as possible according to existing operational standards. The quality of care provided to patients is the biggest determinant of the impact on the patient's recovery and health physically and psychologically. So poor nurse performance can lead to a decrease in the quality of health services (3).

Work stress is a condition in which a person is confronted with opportunities, obstacles, or demands related to what is expected and is considered to be successful but turns out to be not as expected. Handoko (2012) states that stress is a condition of dependence that affects a person's emotions and thought processes toward his condition (4). Work stress can be caused by many factors such as role conflict, perceived excessive workload, relationships with workers (relationships with co-workers, superiors, and subordinates), career development, and others (5).

The World Health Organization Maydinar (2020) *et al.* state that stress is an epidemic that is spreading throughout the world, then in America stress-related illnesses can cause economic losses of more than \$100 billion per year. A survey of nurses in the United States found that 46% felt their job was stressful and 34% had thoughts of leaving and ending their job 12 months earlier because of stress at work. According to Ahsan *et al* (2013), the work stress of nurses in Indonesia is divided into two categories, namely moderate stress 65% and 70% not good, while according to Sani (2014) states that 50% of nurses in Indonesia experience work stress, such as frequent headaches, fatigue, lack of rest due to the workload that is too high and income that is not appropriate and results in decreased work performance (2).

Work stress can cause many problems that will affect patients or their caregivers, stress can cause several symptoms such as dizziness, anxiety disorders, and feeling tired and exhausted. In hospitals in the Yangon region, Myanmar, as many as 50.2% of nurses experienced high levels of work

stress, in Indonesia, research conducted by Shilawati (2018) at Tangerang City Hospital showed that 55.1% of nurses experienced high levels of stress, and research results at RSUD Banten shows 80.3% of nurses have a high level of stress (6).

The hospital in Depok City is a hospital that is often used as a patient referral and is a source of referrals in Depok City. The buildup of patients can be a factor in the occurrence of work stress that is experienced by all employees in the hospital without exception for nurses. Nurses must carry out checks, treatments, and others to the maximum and professionally so that patients get excellent service. Often nurses experience stress due to work fatigue they have to remain friendly and provide the best service so they force nurses to always do their best it has the potential to be stressful and affect nurse performance. Some of the complaints due to the stress experienced include being easily emotional, frequent headaches, and experiencing sleep disturbances.

METHOD

The type of research used as a research design is descriptive-analytic research with a quantitative approach. with a *cross-sectional* design approach, where this type of research emphasizes measurement or observation time between related variable data and has a relationship between the dependent variable and the independent variable only once at a time which is carried out simultaneously. The researcher uses a *cross-sectional design* because it can analyze the relationship between variables. The sample size in this study was calculated using the sample size to estimate the average. To determine the sample size using the *total sampling formula*, namely making all nurses in the inpatient unit of Khidmat Sehat Afiat Hospital, Depok City, as respondents. The inpatient units are on floors 6,7 and 8 with a total of 69 nurses. The following are the inclusion criteria of this study: Nurses with a working period of more than 3 to 4 months or have gone through *training*, nurses with a history of education in nursing, at least graduated with a D3 degree in nursing, these nurses are willing to become respondents, nurses in the inpatient unit. This research has received ethical clearance from the Health Research Ethics Committee of the Faculty of Public Health, University of Muhammadiyah Jakarta with No.10.712.B/KEPK FKMUMJ/XII/2022.

RESULTS AND DISCUSSION

The characteristics of the respondents in this study consisted of age, gender, and length of service of the respondents. The general average of respondents is 28 years with a *standard deviation of 7.277*. The youngest respondent is 20 years old and the oldest respondent is 40 years old.

Table 1. Distribution of Respondents by Age

Variable	Mean	SD	Min-Max
Umur	28.55	7.277	20-40

Based on table 2, shows that the sex of most respondents was female, namely 56 respondents with a percentage of 81.2%, while only 13 respondents were male with a percentage of 18.8%. The education of the most respondents was D3 Nursing, namely 40 respondents with a percentage of 58%, then S1 Nursing 15 respondents with a percentage of 21.7%, and the other 14 respondents with a percentage of 20.3%. The length of service at <1 year was 14 respondents with a percentage of 20.3%, then at 1-4 years there were 23 respondents with a percentage of 33.3%, and ≥ 4 years were 32 with a percentage of 46.4%.

Nurses with moderate stress levels 44 respondents with a percentage of 63.8%, then nurses who showed low stress levels 13 respondents with a percentage of 17.4, and nurses who experienced high stress levels 12 respondents with a percentage of 17.4%. The frequency distribution of work stress based on measurement indicators on psychological symptoms is that 1 nurse experiences high stress with a percentage of 1.4%, then 61 nurses experience moderate levels of stress with a percentage of 88.4 and 7 of them experience high-stress levels low stress with a percentage of 10.1. The frequency distribution of work stress based on measurement indicators on physical symptoms, there is 1 nurse who experiences a high-stress level with a percentage of 1.4%, then 56 nurses experience moderate stress levels with a percentage of 81.2% and 12 of them experience low-stress levels with a percentage of than 17.4%. Based on measurement indicators on behavioral symptoms, 5 nurses experience high levels of stress with a percentage of 7.2% and 64 of them experience moderate levels of stress with a percentage of 92.8%. Nurses with poor performance 37 respondents with a percentage of 53.6%, and nurses who had good performance 32 respondents with a percentage of 46.4%.

Table 2. Univariate Analysis

Variable	Amount (n)	Percentage (%)
Gender		
Man	13	18.8
Woman	56	81.2
Total	69	100.0
Education		
D3 Nursing	40	58
S1 Nursing	15	21.7
Other	14	20.3
Total	69	100
Length of Service		
<1 year	14	20.3
1-4 years	23	33.3
≥ 4 years	32	46.4
Total	69	100
Stress Level		
High	12	17.4
Moderate	44	63.8

Variable	Amount (n)	Percentage (%)
Low	13	17.4
Total	69	100
Stress based on Psychological Symptoms		
High	1	1.4
Moderate	56	81.2
Low	12	17.4
Total	69	100
Stress based on Behavioral Symptoms		
High	5	7.2
Moderate	64	92.8
Total	69	100
Nurse Performance		
Not good	37	53.6
Well	32	46.4
Total	69	100

The results of the analysis of the relationship between work stress and nurse performance in the inpatient unit of Khidmat Sehat Afiat Hospital, Depok City in the category of moderate stress level were 44 nurses with a percentage of 63.8% with poor nurse performance of 25 nurses with percentage of 56.8% and nurses with good performance as many as 19 nurses with a percentage of 43.2%.

A *chi-square* statistical test with *Crostabulation* using $\alpha = 0.05$ found a *p-value* of 0.026. so it can be concluded that the *p-value* $< \alpha = 0.05$. which means that there is a significant relationship between work stress and nurse performance.

Table 3. The Relationship between Work Stress and Nurse Performance in the Inpatient Unit of Khidmat Sehat Afiat Hospital, Depok City

Stress Level	Performance				Total		P- Value
	Not good		Well		n	%	
	n	%	n	%			
High	9	75.0	3	25.0	12	100	0.026
Moderate	25	56.8	19	43.2	44	100	
Low	3	23.1	10	76.9	13	100	
Total	37	53.6	32	46.4	69	100	

From 69 nurses in the inpatient unit, 12 nurses experienced high stress levels with a percentage of 17.4% and there were 44 nurses in the inpatient unit who experienced low stress with a percentage of 63.8%. then 13 nurses experienced low-stress levels with a percentage of 18.8%. So it can be concluded that nurses in the inpatient unit of Khidmat Sehat Afiat Hospital, Depok City, experienced a moderate level of work stress as many as 44 nurses with a percentage of 63.8%.

Based on stress measurements with indicators of physical symptoms, nurses in the inpatient unit of Khidmat Sehat Afiat Hospital, Depok City, experienced moderate stress levels in as many as 56 nurses with a percentage of 81.2%. This measurement is based on 5 questions that can measure stress levels with physical symptoms experienced in nurses such as stiff muscles in the neck, shoulders,

palpitations. experiencing shortness of breath. frequent headaches heartburn and pain in the pit of the stomach.

Indicators of measuring work stress are reviewed based on indicators of physical symptoms. this is in line with research conducted by Sari (2017). stating that nurses in the inpatient installation at RSUD dr. Sayidiman Magetan. out of 64 respondents. 37 of them experienced stress with disturbances or physical symptoms such as stiff muscles during or after carrying out examinations and an increased pulse. Physical disturbances due to stress greatly affect the performance and concentration of nurses. One of the possible consequences of the physical symptoms experienced is due to the ineffective and efficient division of work shifts which triggers fatigue and uneven workload between each shift (7).

Based on stress measurements with indicators of psychological symptoms. nurses in the inpatient unit of Khidmat Sehat Afiat Hospital. Depok City. experienced moderate stress levels in as many as 61 nurses with a percentage of 88.4%. this measurement is based on 7 questions that can measure stress levels with psychological symptoms such as feeling easily tense when dealing with critical patients. feel anxious. easily emotional and like to postpone work that should be done at a certain time.

In research conducted by Nurcahyani (2016) in the inpatient room of Panti Waluya Sawahan Malang Hospital. there were 19 nurses experiencing stress symptoms based on psychological indicators. Nurses often experience boredom or boredom because they carry out routines during their time of service at the hospital. Stress with psychological symptoms can have a negative impact on nurses' work attitudes which have the potential to become less professional to patients. UnsTable nurse emotions can cause unhealthy emotions and affect motivation. enthusiasm. and perseverance at work (9).

Based on stress measurements with indicators of behavioral symptoms. nurses in the inpatient unit of Khidmat Sehat Afiat Hospital. Depok City. experienced a moderate stress level of 67 nurses with a percentage of 97.1%. this measurement is based on 4 questions that can measure stress levels with changes in behavior such as experiencing anxiety in sleep. loss of appetite. been injured while performing medical procedures on patients such as being pricked with needles and losing enthusiasm for doing work.

Work stress based on symptom indicators Behavior is characterized by nurses often facing demands at work. Some of the symptoms can be seen from the decreasing work productivity. and often feeling bored at work. which can lead to decreased psychological conditions and affect the productivity and performance of nurses (10).

The results of this study indicate that nurses at Khidmat Sehat Afiat Hospital in Depok City in 2022 experienced moderate levels of stress as many as 44 nurses with poor work performance as many as 25 nurses (56.8%) and nurses with moderate levels of work stress but still good performance as many as 19 nurses (34.2%). Work stress at Khidmat Sehat Afiat Hospital in Depok City is in the moderate

category with 44 nurse respondents as measured by several indicators such as psychological indicators. physical symptom indicators. behavioral symptoms indicators. and organizational relationship indicators.

Work Stress is a physical and emotional response that is dangerous if left unchecked. work stress occurs when there are demands on workers that exceed the capabilities of workers. If nurses experience stress that is not managed properly it will cause a loss of concern for patients. which can lead to errors in patient care and endanger patient safety (3) . This research is in line with the relationship between stress and nurse performance by Maydinar at RSUD Dr. M. Yunus Bengkulu shows that $p\text{-value} = 0.013 < 0.05$ means the result is significant. then H_0 is rejected and H_a is accepted. So there is a relationship between work stress and the performance of nurses in the Melati and Serui inpatient rooms at RSUD Dr.M. Yunus Bengkulu (2) .

Study this in line with research conducted by Ahmad and Vera (2019) on nurses in the Tangerang District General Hospital Emergency Room shows that as many as 15 nurses (71.4%) experienced stress with less performance. Chi-Square results in research obtained $P = \text{Value } 0.028 < 0.05$ which means there is a connection Between level stress work with performance nurse research. The more tall level of stress the more it will decrease the quality of performance of nurses (11).

CONCLUSION AND SUGGESTION

There is a relationship between Work Stress and Nurse Performance at the Inpatient Unit of Khidmat Sehat Afiat Hospital. Depok City in 2022 with the results of the *Chi-square statistical test* using *Crostabulation* using $\alpha = 0.05$ found a $p\text{-value}$ of 0.026. so it can be concluded that the $p\text{-value} < \alpha = 0.05$. A total of 69 nurses. 12 of whom experienced high stress levels with a percentage of 17.4%. and as many as 44 nurses experienced moderate stress levels with a percentage of 63.8%. then there were 13 nurses with a percentage of 18.8 experienced low stress levels. Stress measurement is based on 4 indicators. physical symptoms. behavioral symptoms. psychological symptoms. and organizational relationships.

It is hoped that this research can be used as evaluation material for the future. and it is hoped that more attention will be paid to the psychological health of para nurses. Given the chance to develop a career and education as well as analyze the burden of work. nurses can make an effort *to prevent* nurses no experiencing dangerous psychology as stress; more attention can be paid to the condition of their mental health so that it cannot affect their performance at work; Avoid things that will cause stress and make it easier to accept all the decisions of superiors and be more open with fellow nurses so that there is no feeling of hurting or being offended. This research is expected to be used as basic data for further research. Future research is expected to conduct similar research and be able to develop research by adding other variables.

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THE RELATIONSHIP BETWEEN MATERNAL KNOWLEDGE AND FOOD INTAKE ON THE NUTRITIONAL STATUS OF CHILDREN PARTICIPATING IN THE NUTRITION POST AT PUSKESMAS BAJA TANGERANG CITY

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ABSTRACT

The toddler period is commonly known as the golden age or the golden age because the success of growth and progress in the future is determined at this time. The nutritional status of toddlers is an important thing that every parent should know. The purpose of this study was to determine the relationship between a mother's knowledge and a toddler's food intake with a toddler's nutritional status (weight/age, height/age, and weight/height). This research is an analytic observational study with a cross-sectional design. This research was conducted in June 2023 in the working area of the Jalan Baja Health Center, Tangerang City. The sample in this study used Saturated Sampling with as many as 63 respondents. The statistical analysis used was univariate analysis and bivariate analysis with chi-square. The results showed that 23.8% of respondents had wasting nutritional status, 71.4% of respondents had good knowledge and 50.8% had frequent food intake. There is a significant relationship between knowledge ($p=0.031$) and food intake ($p=0.021$) with the nutritional status of toddlers. From this study it can be concluded that there is a relationship between the mother's knowledge of nutritional status, and food intake and nutritional status with 3 indices, namely (BB/A), (TB/A), and (BB/TB). Suggestion: To improve the nutritional status of toddlers, it is best to increase mothers' knowledge about nutrition by counseling mothers of toddlers about selecting and processing food that is diverse, nutritionally balanced, and high in animal protein.

Keywords: Nutritional Status, Mother's Knowledge, Food Intake

ABSTRAK

Masa Balita biasa di kenal sebagai masa golden age ataupun masa keemasan dikarenakan keberhasilan pertumbuhan serta kemajuan di masa selanjutnya di tentukan pada saat masa tersebut. Status gizi balita ialah hal penting yang harus diketahui pada setiap orang tua. Tujuan dari penelitian ini ialah untuk mengetahui hubungan pengetahuan ibu serta asupan makan balita dengan status gizi balita (BB/U, TB/U dan BB/TB). Penelitian ini ialah penelitian observasional analitik dengan desain crosssectional. Penelitian ini dilakukan pada Bulan Juni 2023 di wilayah kerja Puskesmas Jalan Baja Kota Tangerang. Sampel didalam penelitian ini menggunakan Sampling Jenuh sebanyak 63 responden. Analisis statistik yang digunakan adalah analisis univariat dan analisis bivariat dengan *chi square*. Hasil penelitian menunjukkan, 23,8% responden memiliki status gizi wasting, 71,4% responden memiliki pengetahuan baik dan 50,8% memiliki asupan makanan yang sering. Terdapat hubungan yang signifikan pengetahuan ($p=0,031$) dan asupan makanan ($p=0,021$) dengan status gizi balita. Dari penelitian ini dapatlah disimpulkan ada hubungan pengetahuan ibu terhadap status gizi, dan dan asupan makan terhadap status gizi dengan 3 indeks, yaitu (BB/U), (TB/U), dan (BB/TB). Saran: upaya untuk meningkatkan status gizi balita, sebaiknya meningkatkan pengetahuan ibu tentang gizi melalui penyuluhan pada ibu balita tentang pemilihan serta pengolahan makanan yang beragam, bergizi seimbang dan tinggi protein hewani.

Kata Kunci: Status Gizi, Pengetahuan Ibu, Asupan Makan

INTRODUCTION

Childhood is often referred to as the Golden Age because this is when the success of future growth and progress is determined. The nutritional status of toddlers is an important issue that all parents should know¹. This is based on the fact that malnutrition in children is irreversible (cannot be corrected) and malnutrition in children can hinder the progress of the child's brain. Problems with malnutrition include protein energy deficiency (PED), iron deficiency anemia (AGB), iodine deficiency disorder (GAKY), and vitamin A deficiency (KVA)².

Mother's knowledge about the nutritional status of toddlers is very influential on the nutritional status of toddlers because mothers are the closest and closest people to children. Mothers have a better understanding of the needs of all children compared to other family members. The effects of malnutrition can cause reduced stamina, reduced physical growth, reduced brain growth, and reduced motor skills³. Effects on young children can lead to mistakes when children are offered large amounts of food without considering the nutritional content of the food. Good progress of a child requires good support from parents⁴. Parents also need to understand the different aspects of progress experienced by children of different ages. Parents must also know and understand how to monitor and foster their children's early growth and development so that all delays in children can be immediately known and fostered. The knowledge of parents, especially mothers, also affects the growth and development of children. The better the mother's knowledge, the better the child's nutritional status⁵.

Nutritional status is the condition of the human body due to the use of food and nutrients consumed by the person⁶. Nutritional status can be broken down into several indicators, including weight indicators and age view (BB / U) so it can be broken down into four categories namely malnutrition, malnutrition, good nutrition, and more nutrition⁵.

Therefore, early childhood must receive more attention from parents because early childhood is included in the high-risk age group. Nutritional problems that may be experienced in early childhood are imbalances between food or nutrients from food with the recommended nutritional needs of early childhood, such as lack of protein energy (KEP). This can affect the nutritional status of toddlers and prove poor or poor nutritional status in toddlers⁷.

One factor that can affect a person's food intake is nutritional information that affects a person's nutritional status. Nutritional information is information related to food and nutrition. A variety of factors influence mothers' attitudes and behaviors about toddlers' food choices, including their level of nutritional awareness, which can affect a person's nutritional status. The lack of nutritional knowledge of a mother can be one of the determining factors of the nutritional status of toddlers because it determines the attitude or behavior of mothers in choosing the food eaten by their toddlers, as well as eating habits in terms of quantity, type, and frequency. affects the nutrition of toddlers⁸.

Age, education, knowledge, occupation, and income can affect maternal nutritional information. In addition, children's nutritional intake is also influenced by local culture which can also affect mothers' eating habits⁹. Therefore, if the mother does not have enough nutritional information then the food given to toddlers will also be inappropriate and can affect the condition of toddlers. The purpose of this study was to analyze the relationship between mother-toddler characteristics (age, occupation, education, and family income), knowledge of maternal and child nutritional intake (energy, carbohydrates, protein, and fat), and nutritional status of toddlers (weight/weight).

METHOD

This study is an analytical observational study with a cross-sectional design. The research location is the Cibodas sub-district located on Jalan Baja, Tangerang City in June 2023. The population in this study is 63 toddlers participating in the nutrition post who are domiciled in the Cibodas sub-district located in Jalan Baja, Tangerang City. The sampling technique in this study used the Saturated Sampling Technique, where all populations in this study were sampled.

The statistical analysis was used in univariate analysis and bivariate analysis with chi-square. The processing technique and data analysis in this study used the chi-square test which aims to determine the relationship between maternal knowledge about nutrition and toddler food intake with the nutritional status of toddlers.

RESULTS AND DISCUSSION

Nutrition is a process of organisms using food consumed normally through the process of digestion, absorption, transportation, storage, metabolism, and removal of substances that are not used to maintain life, growth, and normal function of organs and produce energy⁹. Nutritional status is the state of the body as a result of food consumption and the use of nutrients.

Table 1. Univariate Analysis

Category	n	%
Knowledge		
Poor	18	28.6
Good	45	71.4
Feeding intake		
Infrequently	23	36.5
Often	32	50.8
Very often	8	12.7
Nutritional Status		
Malnutrition	15	23.8
Good nutrition	48	76.2

Source: Primary data, 2023

The results of the data obtained based on univariate analysis have different interpretations as follows:

1. Table 1 shows that out of 63 respondents, it is knew that mothers with good knowledge are 45 people (71.4%). While mothers with poor knowledge as many as 18 people (28.6%).
2. Table 1 shows that from 63 respondents, it is known that food intake in the rare category is as many as 23 people (36.5%), food intake in the frequent category is as many as 32 people (50.8%), and food intake with the very frequent category is as many as 8 people (12.7%).
3. Table 1 shows that from 63 respondents, it is known that the nutritional status in the wasting category is 15 people (23.8%), and the nutritional status in the good nutrition category is 48 people (76.2%).

Table 2. Bivariate Analysis

Category	Nutritional Status				Total	%	p-Value
	Malnutrition		Good Nutrition				
	N	(%)	N	(%)			
Knowledge							
Poor	1	5.6	17	94.4	18	100.0	0.03
Good	14	31.1	31	68.9	45	100.0	
Totak	15	23.8	48	76.2	63	100.0	
Feeding intake							
Infrequently	10	43.5	13	56.5	23	100.0	0.02
Often	4	12.5	28	87.5	32	100.0	
Very often	1	12.5	7	87.5	8	100.0	
Total	15	23.8	48	76.2	63	100.0	

Source: Primary data, 2023

The results of the data obtained based on bivariate analysis have different interpretations as follows:

1. Table 2 shows that with the Chi-square test, statistical tests of the relationship between maternal knowledge and nutritional status obtained p value = $0.031 < \alpha (0.05)$, this means that there is a relationship between maternal knowledge and toddler nutritional status, and maternal knowledge in related to the incidence of undernourished & malnourished toddlers (wasting) and vice versa maternal knowledge is good, the nutritional status of toddlers will be good.
2. Table 2 shows that with the Chi-square test, statistical tests of the relationship between food intake and nutritional status obtained p value = $0.021 < \alpha (0.05)$, this means that there is a relationship between food intake and toddler nutritional status, and food intake associated with the incidence of undernourished & malnourished toddlers (wasting) and vice versa good food intake then the nutritional status of toddlers will be good.

Knowledge is very important because it affects health behavior. This is to the theory put forward by Notoatmodjo (2012) that education is an effort to provide knowledge so that there is an increased positive behavior, in this case regarding the mother's efforts in fulfilling nutrition for her child which has an impact on fulfilling the nutrition of a child. Based on the results of this study, researchers assume that mothers who have good knowledge of the nutritional status of toddlers are caused by someone who has good nutrition knowledge.

Children's food consumption needs important attention because that age is an important growth period. During this time the growth of teeth, bones, and other vital organs develops rapidly. Therefore, the food consumed by children should not only meet their energy needs, but also meet the needs of growth and development, maintain body resistance from various infections, and build a supply of nutrients needed for future growth and good nutritional status. Nutritional status is a measure of a person's body condition which can be seen from the food consumed and the use of nutrients in the body⁵.

CONCLUSION AND SUGGESTIONS

From this study, it can be concluded that maternal knowledge affects nutritional status with $p\text{-value} = 0.031 < \alpha (0.05)$ and Meal Intake affects nutritional status with $p\text{-value} = 0.021 < \alpha (0.05)$. From 63 respondents, it is known that nutritional status in the wasting category is as many as 15 respondents (23.8%), and nutritional status in the good nutrition category is as many as 48 respondents (76.2%). We recommend that health workers, develop a nutrition post for toddlers. Then health workers increase public health knowledge, especially parents through health promotion related to maternal knowledge and food intake which will have an impact on nutritional status. Mothers and families who have toddlers must always give more incentive attention to toddlers, for example diligently going to the nearest posyandu and puskesmas to monitor the condition of toddlers. And for further research, it is expected to add other variables that can affect the nutritional status of toddlers.

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LITERATURE REVIEW: OVERVIEW OF PARENTING IN STUNTING PREVENTION IN TODDLERS IN KUPANG CITY, EAST NUSA TENGGARA PROVINCE

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ABSTRACT

Stunting is one of the serious public health problems in Indonesia, including in Kupang City, East Nusa Tenggara Province. Stunting prevention requires an active role from parents or caregivers in providing proper parenting. This study aims to provide an overview of parenting styles that play an important role in stunting prevention in Kupang City, based on a literature review of the latest studies that have been conducted in the Kupang City area. This research uses the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) method through four stages, namely identification, screening, feasibility, and results received. The literature search is done by accessing an online electronic database from Google Scholar. Literature searches have been carried out online in Indonesian-language journals on the Google Scholar database in the last three years (2020-2023). The results showed that the incidence of stunting toddlers in Kupang City was influenced by improper feeding practices due to the low level of knowledge and economy. In addition, various community empowerment activities influence reducing stunting. It is hoped that community empowerment activities will continue to reduce the incidence of stunting in Kupang City.

Keywords: *Stunting, Toddlers, Parenting*

ABSTRAK

Stunting merupakan salah satu masalah kesehatan masyarakat yang serius di Indonesia, termasuk di Kota Kupang, Provinsi Nusa Tenggara Timur. Pencegahan stunting membutuhkan peran aktif dari orang tua atau pengasuh dalam memberikan pola asuh yang tepat. Penelitian ini bertujuan untuk memberikan gambaran pola asuh yang berperan penting dalam pencegahan stunting di Kota Kupang, berdasarkan kajian literatur dari studi terbaru yang telah dilakukan di wilayah Kota Kupang. Penelitian ini menggunakan metode PRISMA (Preferred Reporting Items for Systematic Review and Meta-analyses) melalui empat tahap, yaitu identifikasi, screening, kelayakan, dan hasil yang diterima. Pencarian literatur dilakukan dengan mengakses database elektronik online dari Google Scholar. Pencarian literatur telah dilakukan secara online di jurnal berbahasa Indonesia pada database Google Scholar dalam tiga tahun terakhir (2020-2023). Hasil penelitian menunjukkan bahwa kejadian balita stunting di Kota Kupang dipengaruhi oleh praktik pemberian makan yang tidak tepat karena rendahnya tingkat pengetahuan dan ekonomi. Selain itu, berbagai kegiatan pemberdayaan masyarakat berpengaruh dalam penurunan stunting. Diharapkan kegiatan pemberdayaan masyarakat akan terus menekan angka kejadian stunting di Kota Kupang.

Kata Kunci: Stunting, Balita, Parenting

INTRODUCTION

The incidence of short toddlers commonly referred to as stunting is one of the nutritional problems experienced by toddlers in the world today. In 2017, 22.2% or around 150.8 million children under five in the world were stunted. However, this figure has decreased when compared to the stunting rate in 2000, which was 32.6%¹. There have been many efforts made by the government to reduce the incidence of stunting. This can be seen from the decrease in the prevalence of stunting toddlers

according to Basic Health Research (Riskesdas) data from 37.2% in 2013 to 30.8% in 2018². The prevalence of Baduta stunting also decreased from 32.8% in 2013 to 29.9% in 2018. However, the prevalence of stunting cases in Indonesia is still relatively high because it is still above the threshold of the World Health Organization (WHO), which is 20%.

So to reduce stunting cases below the threshold, various efforts, strategies, and consistency are needed in carrying out various stunting prevention programs. Efforts to reduce stunting, both globally and nationally, are not without reason. This is because the problem of stunting is closely related to the quality of human resources in the future³. Accelerating stunting reduction is a national priority activity that has been implemented since 2018 in 100 regencies/cities. Furthermore, it was expanded to 160 districts/cities in 2019, 260 districts/cities in 2020, and 360 districts/cities in 2021. Furthermore, to accelerate the achievement of the stunting reduction target in the National Medium-Term Development Plan (RPJMN) for 2020-2024, the districts/cities where the integrated stunting reduction intervention focus is expanded from 360 districts/cities to 514 districts/cities in 2022 (Decree of the Minister of National Development Planning/To the National Development Planning Agency Number KEP. 10/M.PPN/HK/02/2021 concerning the Determination of the Expansion of Districts/Cities Focus Location of Reduction Interventions Integrated Stunting in 2022, 2021)⁴.

According to the², NTT Province is one of the provinces in Indonesia with the highest stunting percentage of 42.7 percent above the national stunting percentage of toddlers which is 30.8 percent¹. The results of Riskesdas (2018) show that of 2,437 toddlers in NTT, there are 16.0 percent of very short toddlers and short toddlers of 26.7 percent¹. Low access to nutritious food at the household level is one of the main problems causing the high prevalence of stunting toddlers in NTT. Therefore, education and socialization of child nutrition for families is important, in addition to improving welfare and access to food.

The cause of stunting is malnutrition from the time a mother is declared pregnant until the child is two years old. Stunting is defined as a condition of failure to thrive in children under five years old due to chronic malnutrition and recurrent infections, especially in the First 1000 Days of Life (HPK) period it deserves special attention because it determines the level of physical growth, intelligence, and productivity of a person in the future⁵. Nutritional problems, especially stunting in toddlers, have a negative impact that will continue on the child's future life. The short-term impact of stunting can cause mortality, morbidity, and disability in children. Long-term impacts can cause impaired growth in adulthood, low development of cognitive abilities, economic productivity, reproductive appearance, and metabolic and cardiovascular diseases.

The reduction in stunting is focused on addressing the causes of nutritional problems, namely easy access to nutritious food (food) at affordable prices, parenting patterns for infants and toddlers to provide nutritious food, access to health services, and the availability of clean water and sanitation

facilities. These four factors can affect the nutritional intake and health status of mothers and children so that intervention in these four factors is expected to prevent stunting⁵.

Based on the background description above, the researcher felt the need to conduct this study to collect and analyze the latest scientific evidence on effective parenting in preventing stunting in the Kupang City area.

METHOD

This study uses a systematic literature review using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) method through four stages, namely identification, screening, feasibility, and results received. The literature search is carried out by accessing an online electronic database from Google Scholar using the keywords "causes of stunting" and "foster care in preventing stunting in Kupang City" in Indonesian. Eight articles were selected based on inclusion criteria: publication dates for the last three years from 2020 to 2023, discussing foster care in preventing the incidence of stunting toddlers in children in the Kupang City area, speaking Indonesian, full text, open access, and are academic journals and community service.

Relevant data, including research results, findings, and statistics related to stunting in the region, were extracted and analyzed. Content analysis was carried out using a matrix table by comparing research methods, research subjects, and places, as well as the variables studied included maternal knowledge, parenting, nutritional status, birth weight, and family economic status and their relationship with the incidence of stunting.

RESULTS AND DISCUSSION

Literature Search

From the results of the literature search with systematic literature review, 67,100 journals and articles with keywords stunting, children, cognitive, cognitive development. Then using exclusion criteria by looking at the time of publication and suitability of the study, 649 literatures were obtained. In the final stage, an assessment is carried out by deleting journals that have the same title and author, and incomplete texts, and verifying research results such as sample adequacy, anticipation of bias, comparison groups, and the suitability of statistical tests from the literature list. The author obtained 8 literatures with full text and according to the established criteria.

Review Articles

Table 1. Results of Article Synthesis Analysis

No	Author and Year	Title and Purpose of Research	Research Methods	Research Results
1	Batbual et al., (2023) ⁶	-Title: Handling and Prevention of Stunting with Additional Feeding for 25 Foster Parents (25 OTA) in Liliba Village -Purpose: Assistance as foster parents of 25 stunted children	The methods provided were assistance in nutritious feeding for 25 stunted children and conducting health counseling on nutrition for stunting prevention.	The results after three months of nutritious feeding intervention in 20 children showed an improvement in children's nutritional status, increased parental knowledge of stunting prevention, and severe malnutrition. Conclusion. Foster parent assistance for 25 stunted children under five can prevent stunting in Liliba's family
2	Bosko & Sembiring (2023) ⁷	-Title: Assistance for Stunting Parents and Toddlers in Naioni Village, Kupang City - Objective: To make Naioni Health Center a model puskesmas in handling stunting, Increase knowledge, attitudes, and behavior of stunted toddler mothers in overcoming stunting and Improve the nutritional status of stunted toddlers	The scheme of this service activity is the Community Partnership Program (PKM) with the objectives of 1) Applying science and technology to the community to improve science and skills in the health sector 2) Forming/developing independent community groups in the health sector 3) Applying research results to improve public health to realize community welfare.	The incidence of stunting is not only due to ignorance of society but also because mothers under five pay less attention to food patterns when pregnant until the baby is born. Thus resulting in the risk of birth weight of children and height of children experiencing problems
3	Simbolon et al., (2021) ⁸	-Title: Specific Nutrition Assistance for Pregnant Women Efforts Towards a Stunting-Free KB Village -Purpose: Assistance to	- Prospective Analysis Study Sample: 80 pregnant women Instrument: Assistance was carried out	There was a significant increase in the average knowledge and attitude of health cadres after the 3-day training in

No	Author and Year	Title and Purpose of Research	Research Methods	Research Results
		pregnant women in KB Village is expected to prevent and overcome a stunting period of 1000 HPK.	from August to December 2020 by applying educational media in the form of booklets, and cards to monitor the consumption of Fe Tablets and PMT for SEZ pregnant women.	both KB Villages. Training and coaching of pregnant women's health cadres can improve the knowledge and attitudes of 10 cadres. The assistance of 80 pregnant women can significantly improve knowledge, attitudes, and actions in prevention and stunting. Efforts to prevent stunting need sustainable activities by empowering cadres to accompany pregnant women to give birth and children aged 5 years to a stunting-free family planning village.
4	Zogara et al., (2020) ⁹	-Judul: Differences in Nutritional Intake at Breakfast in Stunting and Non-Stunting Elementary School Students in Kupang City - Purpose: This study was conducted to analyze the difference in macro and micronutrient intake at breakfast in stunted and non-stunted elementary school students in Kupang City.	Retrospective study - Sample: 116 students - Instruments: interview sheet, food recall, and nutrisurvey	Results: More female respondents were stunted (58.6%). There were differences in carbohydrate intake ($p = 0.022$), protein ($p = 0.044$), fat ($p = 0.046$), iron ($p = 0.035$), and zinc ($p = 0.043$) at breakfast in stunted and non-stunted students. Conclusion: There are differences in macro and micro nutrient intake at breakfast in stunted and non-stunted elementary school students in Kupang City.

No	Author and Year	Title and Purpose of Research	Research Methods	Research Results
5	Manalor et al., (2022) ¹⁰	- Title: Promotion of Infant Nutrition for Parents of Children with Stunting at Alak Health Center in Kupang City in 2022 -Purpose: To improve the ability of parents to promote nutrition for infants under five parents with stunting at the Alak Health Center in Kupang City in 2022	-Prospective Study - Sample: 466 mothers of toddlers - Instrument: questionnaire one group pretest-posttest design	Based on the results of the study, it can be concluded that there is already a family/mother understanding of infant nutrition in preventing stunting at the Alak Health Center in Kupang City in 2022. There has been an increase in the ability of families to prevent malnutrition and stunting in infants under five at the Alak Health Center in Kupang City in 2022.
6	Setia et al., (2022) ¹¹	Title: Family Assistance as an Effort to Prevent Stunting in the 1000 HPK Period in Naioni Village, Kupang City - Objective: The purpose of the activity is to make the Naioni puskesmas a model puskesmas in handling stunting, increase maternal nutrition knowledge in overcoming stunting and improve the nutritional status of toddlers in the 1000 HPK period	-Multicenter prospective observational study - Sample: 10 toddlers - Instruments: Training, counseling and direct health assistance	The results obtained were toddlers involved in this activity aged 13 months as many as 7 toddlers (70%). 5 men (50%) and 5 girls (50%). Based on the results of mentoring, it was found that direct nutritional assistance to mothers under five can improve the nutritional status of toddlers' indicators BB / U, TB / U, BB / TB, and BMI / you and can increase maternal nutritional knowledge.
7	Kedang et al., (2023) ¹²	Community Empowerment in Local Food Processing (Moringa Leaves) for Stunting Handling and	-Multicenter prospective observational study - Sample: 29 people - Instruments: Training, counseling and	The results obtained in this community service activity include an increase in community

No	Author and Year	Title and Purpose of Research	Research Methods	Research Results
8	Huru et al., (2023) ¹³	Prevention - Purpose: implementation of community empowerment activities in local food processing (Moringa Leaves) for stunting handling and prevention in Naioni Village, Alak District, Kupang City -Title: Pregnancy Check-up and Health Counseling to Prevent Stunting in the First 1000 Days of Life -Objective: Increase the knowledge of pregnant women about the importance of regular prenatal check-ups and stunting prevention in the first 1000 days of life.	direct health assistance Implementation of activities through counseling and pregnancy checks with the target of activities, namely pregnant women. Participants who participated in the activity were 10 pregnant women, 6 PKM teams, 3 students, and 1 village midwife	knowledge after being given health education about stunting and the use of local food for stunting prevention. Moringa leaves for prevention are processed in the form of moringa pudding, Moringa tofu cake making, Moringa leaf soup making, and moringa noodle pizza making. This community service activity went well and smoothly. At the end of the activity, pregnant women understand the importance of pregnancy checks and stunting prevention. Based on the results of the implementation of service activities, it was concluded that there was a difference in the average pre-test score was 35.0 ± 3.33 and the average post-test score was 95.0 ± 2.33. The results of statistical tests showed a significant increase in knowledge of pregnant women after counseling ($p = 0.000$; $\alpha < 0.05$) and the results of pregnancy checks obtained by mothers and babies in good

No	Author and Year	Title and Purpose of Research	Research Methods	Research Results
				health. Need to conduct scheduled education related to stunting prevention.

Parenting practices carried out by parents of toddlers are very influential in the occurrence of stunting toddlers. Parenting such as Feeding practices in toddlers is an important basis for growth⁹. Feeding practices are associated with the incidence of stunting because poor feeding practices such as breastfeeding not until the age of 24 months, toddlers not getting exclusive breastfeeding, improper breastfeeding age, lack of eating frequency, and not diverse in food consumption can cause toddlers not to get a balanced intake in the quality and quantity of food to support growth so that cumulatively it can cause problems in the growth of toddlers, namely the occurrence of stunting¹⁴.

Children must be given food that suits their body's needs and food diversity that aims to prevent nutritional problems¹⁵. The toddler period is a period of growth and development, at this time it is necessary to have better food intake such as breastfeeding and proper complementary foods and providing nutritious food to determine their nutritional status. Maternal parenting practices based on feeding practices for toddlers include exclusive breastfeeding, complementary foods, and providing food that has sufficient nutrition to avoid stunting in toddlers¹⁴.

Personal hygiene practices are associated with the incidence of stunting in toddlers because poor personal hygiene practices such as not washing hands before eating, defecating out of place, not washing hands after defecation, cutting nails < 1 time a week, and not wearing footwear when outside the home can cause toddler hygiene to also be less good which affects the nutritional status of toddlers¹⁴. In addition, it also makes it easier for toddlers to contract infectious diseases such as gastrointestinal infections (diarrhea). Toddlers are an age group that is very susceptible to infectious diseases. Personal hygiene practices have a very important role in maintaining the health of toddlers to avoid these infectious diseases that will cause stunting in toddlers¹⁶.

Properly applied personal hygiene practices will prevent toddlers from contracting infectious disease-causing bacteria. These bacteria can enter the toddler's body through food and environmental conditions that are not clean, causing infectious diseases such as diarrhea, this can cause toddlers to lose fluids and lose important nutrients needed by the body. Diarrhea that occurs continuously will cause toddlers to experience malabsorption of nutrients that will make toddlers lose more nutrients. This if not treated immediately will cause failure to thrive in toddlers¹⁷.

In community service activities through assistance to families at risk of stunting have been carried out through the stages of socialization, implementation of activities, and monitoring and evaluation¹⁸. At

the socialization stage, it gives results that families accompanying children at risk of stunting understand, have a mindset, and have a commitment to their role in preventing their children at risk of stunting. This socialization activity is a very important stage to provide an understanding of the importance of preventing baduta who are at risk of stunting in the community. At the implementation stage, previously families accompanying children at risk of stunting were given pre-tests on various knowledge related to stunting, such as how to conduct screening or early detection of baduta at risk of stunting, how to make complementary foods, and others.

The activity continued with the provision of material with examples of direct intervention to the ambassadors. After giving the material, this activity ends with a post-test. The implementation of the pre-test is expected to be used as a benchmark to see the risk of stunting baduta, the ability of accompanying families with children at risk of stunting to screen for stunting risk, and their understanding of the various nursing interventions that have been given. Monitoring evaluation activities show the results of data analysis that there are differences in nutritional status and level of nutritional knowledge of mothers under five before and after participating in community service programs through family assistance.

CONCLUSION AND SUGGESTIONS

Based on the results of research that has been conducted, it can be concluded that stunting is a health problem that is influenced by various factors. Low maternal knowledge, improper parenting, poor nutritional status, low birth weight, and low family economic status have a significant relationship with the incidence of stunting in children. Efforts to prevent and reduce stunting are a shared responsibility involving all parties, namely parents, health workers, and the government. Maternal knowledge, parenting, and nutritional status are modifiable factors, while low weight is a preventable factor. Programs designed to increase parents' knowledge and prevent low birth weight such as antenatal care, maternal nutritional intake during pregnancy, and child nutritional intake are highly recommended. In addition, improving parenting styles including processing and feeding practices, personal and environmental hygiene practices, and the use of health facilities are also recommended to be socialized to the community, especially families with toddlers.

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LITERATURE REVIEW: HUSBAND'S ROLE IN REDUCE THE INCIDENCE OF POSTPARTUM DEPRESSION IN WORKING WOMEN IN INDONESIA

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ABSTRACT

Postpartum stress conditions are experienced by most women. Mothers who are actively working tend to have a greater risk of Postpartum Depression than mothers who do not work. This is due to the dual roles of raising children, managing the household, and completing work matters. This study aimed to determine husbands' support for the incidence of Postpartum Depression in working women in Indonesia. This study used a literature review strategy that was reviewed from several sources such as PubMed, ScienceDirect, and Google Scholar with a selection of articles published from 2017 to 2023. Searches in the database were carried out using keywords such as "Postpartum Depression", "Working Women and Postpartum Depression", and "Husband's Role and Postpartum Depression". The literature review results show that the main factor influencing the incidence of Postpartum Depression in Working Women is the lack of a husband's role. Based on the literature review, it can be concluded that family support, especially husbands, is needed to minimize Postpartum Depression in Working Women. It is hoped that husbands will support and help working women in taking care of their children so that Postpartum Depression does not occur.

Keywords: *Husband's Role, Postpartum Depression, Postpartum Blues, Working Women*

ABSTRAK

Kondisi stres pasca melahirkan dialami sebagian besar wanita. Ibu yang aktif bekerja cenderung memiliki risiko lebih besar terkena Depresi Pasca Persalinan dibandingkan ibu yang tidak bekerja. Hal ini disebabkan adanya peran ganda membesarkan anak, mengurus rumah tangga, dan menyelesaikan urusan pekerjaan. Penelitian ini bertujuan untuk mengetahui dukungan suami terhadap kejadian Depresi Postpartum pada wanita bekerja di Indonesia. Penelitian ini menggunakan strategi literatur review yang direview dari beberapa sumber seperti PubMed, ScienceDirect, dan Google Scholar dengan pilihan artikel yang diterbitkan pada tahun 2017 hingga 2023. Pencarian pada database dilakukan menggunakan kata kunci seperti "Postpartum Depression", "Wanita Bekerja dan Postpartum Depression", dan "Peran Suami dan Postpartum Depression". Hasil kajian literatur menunjukkan bahwa faktor utama yang mempengaruhi kejadian Depresi Postpartum pada Wanita Bekerja adalah kurangnya peran suami. Berdasarkan tinjauan literatur dapat disimpulkan bahwa dukungan keluarga khususnya suami diperlukan untuk meminimalisir Postpartum Depression pada Wanita Bekerja. Diharapkan para suami mendukung dan membantu wanita bekerja dalam mengasuh anaknya agar tidak terjadi Postpartum Depression.

Kata Kunci: *Peran Suami, Postpartum Depression, Postpartum Blues, Wanita Bekerja*

INTRODUCTION

Postpartum stress is experienced by most women. The feeling of sadness that engulfs the mother appears within two days to two weeks after giving birth. Postpartum Blues greatly affects a woman's mental abilities, and bodily functions, and can affect the mother-child relationship. There are three degrees of mental health disorders in postpartum women: Postpartum Blues, Postpartum

Depression (PPD), and Postpartum Psychosis. Postpartum Blues commonly known as Baby Blues Syndrome (BBS) is a short-term mental and emotional change that occurs in mothers 2 - 3 days and a maximum of 14 days after giving birth. PPD occurs if the baby blues condition increases and persists for more than a few weeks even up to 1 year after giving birth. The most severe situation, Postpartum Psychosis, can cause mothers to be reluctant to breastfeed so that the baby will be malnourished [1], [2].

Postpartum maternal health is a global health priority. Postpartum Depression (PPD) is defined as depressive symptoms such as reduced mood, loss of pleasure, reduced energy and activity, functional impairment, low self-esteem, and suicidal thoughts or actions that occur within the first year after childbirth. Psychosocial conditions of Postpartum Mothers can be influenced by several factors such as education level, parity, pregnancy planning, pregnancy discomfort, postpartum discomfort, and level of social support [3].

Government Regulation of the Republic of Indonesia Number 61 of 2014 regulates the role of husbands towards their wives states that husbands play a role in improving optimal maternal health by paying attention to maternal health during pregnancy including planning before delivery safely by health workers. The Suami Siap Antar dan Jaga (SIAGA) program is a program initiated by the government, which aims to increase the participation of husbands in providing assistance, planning, and dealing with pregnancy, childbirth, and postpartum for their wives.

The role of the husband during pregnancy will have a positive influence on pregnant women. Mothers who receive maximum support will experience increased affection for the fetus during pregnancy, resulting in lower levels of postpartum depression and anxiety compared to women who lack support from their husbands or families. Husbands' involvement in perinatal care will help affirm women's autonomy and support women's capacity to care for themselves and their babies [4].

According to Wahyuntari E., (2018) in her research stated that the prevalence of Postpartum Depression in Yogyakarta was 24.6%. The Edinburgh Postnatal Depression Scale (EPDS) used in measuring the stress level of postpartum mothers shows that in developed countries such as Canada, PPD is reported as high as 29%. Meanwhile, the prevalence of PPD in developing countries such as Qatar is 18% to 36%. The prevalence of postpartum depression in Asian countries ranges from 3.5%-63.3% which is categorized into five risk factors physical/biological, psychological, obstetric, sociodemographic, and cultural.

World Health Organization (WHO) found that the incidence of Postpartum Depression is three times greater than at any other period in a woman's life. PPD is a combination of emotional, environmental, biological, and hormonal factors. The causes of PPD are influenced by internal and external factors. Internal factors such as hormonal fluctuations, psychological and personality factors, previous history of depression, history of pregnancy and childbirth with complications, cesarean delivery, unplanned pregnancy, low birth weight (LBW) babies, mothers who breastfeed and

experience difficulties in breastfeeding, previous experience of caring for babies, age, and parity. External factors such as culture related to maternal roles and duties, economics, and social support can increase the perceived difficulty of motherhood [3].

Women who experience PPD also experience more disruption in their partner relationships which can increase absenteeism and affect the work performance of both the woman and her partner or husband. Inflexible and stressful work environments, the stress of working while pregnant or with young children at home and exacerbated by low social support from partners further increase the risk of developing PPD. Mothers who experience PPD experience increased absenteeism, prolonged medical disability after a normal delivery, difficulty adjusting to returning to work after childbirth, and often experience relationship conflict or even divorce [5].

A heavy work culture during pregnancy and up to the time of delivery can be harmful to both mother and fetus. Mothers who work hard during pregnancy tend to give birth to babies with low birth weight (LBW). LBW babies need intensive care until they reach a stable condition and there is a stress response in the mother both psychologically and physiologically which can cause the mother to experience Baby Blues if it lasts for a long time it can lead to Postpartum Depression [3].

Mothers who are actively working tend to have a greater risk of experiencing PPD. This is due to the significant changes experienced by mothers such as multiple roles in taking care of children, managing households, and completing work affairs. Mothers who return to work after maternity leave are usually sleep deprived due to newborn babies who are often awake at night until the age of 3 months. Surrounding support such as a partner who contributes to household chores, reducing workload at work, and maternity leave will certainly make mothers feel helped so that the risk of PPD can be avoided (Masih and Masih, 2023). Therefore, this study aims to determine the husband's support for the incidence of Postpartum Depression in working women in Indonesia.

METHOD

This research used the Literature Review method from National and International Journals. Literature sources were evaluated using electronic searches in the PubMed, ScienceDirect, and Google Scholar databases with the selection of articles published from 2017 to 2023. Database searches were conducted using keywords such as "Postpartum Depression", "Working Women and Postpartum Depression", and "Husband's Role and Postpartum Depression". The inclusion criteria in this study were studies on Postpartum Depression focusing on the prevalence of Postpartum Depression in Working Women and factors associated with the incidence of PPD. Exclusion criteria include theses, dissertations, literature studies, systematic reviews, studies on treatment or intervention methods, and studies on biological and genetic risk factors.

RESULTS AND DISCUSSION

Postpartum depression is a mood disorder that occurs after giving birth. This disorder reflects psychological dysregulation which is a sign of major depressive symptoms. Postpartum depression is usually experienced by mothers after 4 weeks of giving birth. The accompanying signs are feelings of sadness, decreased mood, loss of interest in daily activities, significant weight gain or loss, feelings of uselessness or guilt, fatigue, decreased concentration and even the desire to harm herself. Finally, mothers who experience postpartum depression are unable to care for their babies optimally, including being lazy about providing breast milk directly which can endanger the health of the mother and baby [6].

The results of the analysis of 10 research articles regarding the role of husbands in reducing the incidence of postnatal depression in working mothers can be seen in the table below:

Table 1. Literature Review

Researchers	Design	Sample	Instruments	Results
Handini & Puspitasari, (2021)	Cross-sectional	Sample 70 postpartum women at Puskesmas Gading and Puskesmas Simomulyo, Surabaya, Indonesia	<i>Edinburgh Postnatal Depression Scale</i> (EPDS) to measure the level of depression.	Approximately 88.1% of women with high husband support were not at risk of depression; mothers with low husband support (63.6%) had a moderate risk of depression; while mothers with moderate husband support (82.4%) were at risk of major depression. Therefore, based on statistical tests, it can be said that there is a significant difference in the level of postpartum depression with husband support ($p = 0.000$).
Qi et al., (2022)	Cross-sectional	Samples of 887 postpartum women were recruited from Shijiazhuang Obstetrics and Gynecology Hospital, China.	<i>The Social Support Rating Scale</i> (SSRS) used to assess participants' social support	Pregnant women with higher marital satisfaction had a lower risk of developing PPD. Marital satisfaction had a greater effect on the incidence of PPD than other variables. Support from husbands, especially emotional support, is needed for Chinese women after childbirth and symptoms of postpartum depression are determined by marital dissatisfaction. Marital satisfaction ($\beta = -0.282$, bootstrap 95% CI = -0.350, -0.216, $p = 0.000$) had a direct effect on PPD.
Kebede et al., (2022)	Cross-sectional	Samples of 794 postpartum women in Gondar City, Ethiopia	PHQ-9 depression scale with cut-off point 10	Husband/partner involvement in Maternal, Neonatal, and Child Health services was significantly associated with PPD. Women whose partners were not actively involved in MCH services were 2.34 times more likely to experience PPD compared to women whose partners were involved in MCH services. Husband involvement in MCH care services can build higher support for women.
Aynur et al., (2021)	descriptive and correlation	Samples of 181 postpartum women in	<i>Edinburgh Postnatal Depression Scale</i> (EPDS)	The correlation between perceived spousal support and PPD has shown that the higher the spousal support to postpartum mothers, the lower the risk of

Researchers	Design	Sample	Instruments	Results
		public hospitals in Anatolia, Turkey	and <i>Perceived Spousal Support among Women in Early Postpartum Period Scale (PSSAWEPP)</i>	PPD ($p < 0.01$) so it can be concluded that providing support to spouses will reduce the risk of PPD.
Pebryatie et al., (2022)	Cross-sectional	Samples were 336 postpartum women who received midwifery care at 27 independent midwifery clinics in 7 regions of West Java Province, Indonesia.	<i>Quality of Marriage Index (QMI)</i> and <i>Edinburgh Postnatal Depression Scale (EPDS)</i> were used to measure the relationship between spouse and postpartum depressive symptoms.	This study reinforces the assumption that the quality of the husband-wife relationship can determine the husband's involvement during pregnancy, labor, and postpartum ($\gamma = 0.60$, $P < .001$), which ultimately leads to better maternal health behaviors ($\gamma = 0.015$, $P < .001$) and decreased postpartum depressive symptoms in mothers ($\gamma = -.21$, $P < .001$).
Alsayed et al., (2021)	Cross-sectional	Samples of 172 postpartum women at infant vaccination clinics in primary health centers (PHCs) of the Ministry of Health (MOH) and Ministry of National Guard (MNGHA) in Jeddah, western Saudi Arabia.	Arabic version of <i>Edinburgh Postnatal Depression Scale (EPDS)</i>	Women who had lower scores on husband and family support were significantly associated with PPD ($P=0.039$ and $P=0.036$).
Wahyuntari E, (2018)	Cross-sectional	Samples of 108 postpartum women at Sadewa Hospital, Yogyakarta, Indonesia	EPDS and SSQ	The relationship between social support and postpartum depression with p-value = 0.001 and $r = -0.59$. The prevalence of postpartum depression at RSUD Sadewa was 35.4%. Postpartum depressions in each region vary depending on culture, sample size, time of diagnosis, and cut-off point. The prevalence of postpartum depression in Asia ranges from 3.5% to 63.3%.
Cho et al., (2022)	Cross-sectional	Samples of 1654 postpartum women based on the 2016	EPDS (cut off ≥ 10).	Low levels of social support (including husband support) were more likely to have PPD compared to women with high levels of social support. In multivariate logistic regression analysis, women with

Researchers	Design	Sample	Instruments	Results
		Study on Women's Health-Related Issues (K-Stori), Korea		moderate and low levels of social support were 1.78 (95% CI = 1.25-2.52) and 2.73 (95% CI = 1.54-4.83) times more likely to experience PPD, compared to women with high levels of social support.
Syarif, (2022)	Cross-sectional	Samples of 40 postpartum women in Wajo Health Center Baubau City, Southeast Sulawesi, Indonesia	EPDS	There is a relationship between family support (pValue 0.000) on the occurrence of Postpartum Depression. The R-square value of 65.90 indicates that the equation obtained can explain that the variables of income / economic status and family support affect the risk of postpartum depression in primiparous mothers.
Setiawati et al. (2019)	Cross-sectional	Sample of 311 women in Bogor Regency, Indonesia	Questionnaires	The most dominant variable affecting postpartum depression was husband support (p-value 0.000; OR: 5.873; 95% CI 3.202 - 10.775)

Based on the 10 articles reviewed, 3 articles show the low role of spouses in postpartum mothers, which affects the increase in PPD rates. Low husband support can be caused by a lack of understanding of the importance of providing both physical and emotional support which can have an impact on the physical and mental health of postpartum women. The husband's failure to provide support to the mother can cause the mother's mood to become bad.

The author argues that mothers play a role not only as wives, daughters-in-law, and members of society but also as protectors of their children. She takes care of her children, husband, and household chores. The role of a working mother adds to the duties and responsibilities of postpartum mothers. Therefore, the role of the husband is needed so that the mother is not physically and mentally exhausted and stressed due to the many demands of work both at home and in the office that cause the mother to lose sleep, economic difficulties due to increased dependents (children), depressed due to negative comments from family/neighbors regarding how to raise children and others. Helping each other with household chores and being involved in the care of the postpartum mother will go a long way in helping the mother adapt to her new role.

This was consistent with the research of Aynur et al., (2021) which states that spouses as the main source of support for postpartum mothers correlate with perceived partner support and the incidence of PPD. The higher the partner support felt by postpartum mothers, the lower the risk of PPD ($p < 0.01$). A husband's love and attention can be a good support for postpartum mothers. Husbands and other family members are expected to understand and work together to support mothers who suffer from postpartum depression because they cannot cure themselves.

CONCLUSION AND SUGGESTIONS

The results of the literature review show that generally the level of depression of postpartum mothers is measured by the Edinburgh Postnatal Depression Scale (EPDS). Husband's attention, appreciation, and assistance both physically and emotionally can support postpartum mothers so that they are motivated to maintain their health during the perinatal period. The incidence of PPD in working mothers has a worse impact due to low husband support plus work stress and the burden of taking care of children and completing homework. It is recommended that husbands who have working wives are expected to always support their wife's physical and mental health so that postpartum depression does not occur.

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FOOD CONSUMPTION BEHAVIOR AND HOME SANITATION AS PREDICTORS IN THE INITIAL APPLICATION OF STUNTING DETECTION

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ABSTRACT

Food consumption behavior and home sanitation can be important predictors in the early implementation of stunting detection in toddlers. Stunting is a condition in which a child's physical growth and development are chronically stunted due to malnutrition and inadequate care. This study aims to determine food consumption behavior and home sanitation as predictors in the initial application of stunting detection. This study used a cross-sectional study on 245 children aged 0-59 months who lived in Bogor Regency who were selected using a proportional random sampling technique. Stunting is measured using an anthropometric index (length/height for age). Measuring food consumption using quantitative food intake (food frequency questionnaire) and home sanitation includes indicators of a healthy home, namely cleanliness of floors, walls, ceilings, roof height, function of living rooms, and kitchen space. Sociodemographic characteristics were measured using a structured questionnaire. The prevalence of stunting children under five is 20.4% and the dominant factor for stunting is age (p-value <0.001; AOR=0.254; 95% CI=0.120-0.541). Food consumption and home sanitation are not related to stunting (p-value >0.05). Through a comprehensive approach to food consumption behavior and home sanitation, it is hoped that early prevention and effective interventions for stunting in toddlers can be carried out. Children aged <24 months are more prevented from experiencing stunting 0.254 times than those aged ≥ 24 months.

Keywords: Stunting, food consumption, home sanitation, predictor

ABSTRAK

Perilaku konsumsi makanan dan sanitasi rumah dapat menjadi prediktor penting dalam pelaksanaan awal deteksi stunting pada balita. Stunting adalah kondisi di mana pertumbuhan fisik dan perkembangan seorang anak terhambat secara kronis akibat kurang gizi dan perawatan yang tidak memadai. Penelitian ini bertujuan untuk menentukan perilaku konsumsi makanan dan sanitasi rumah sebagai prediktor dalam penerapan awal deteksi stunting. Penelitian ini menggunakan studi potong lintang pada 245 anak usia 0-59 bulan yang tinggal di Kabupaten Bogor yang dipilih dengan teknik pengambilan sampel acak proporsional. Stunting diukur menggunakan indeks antropometri (panjang/tinggi untuk usia). Pengukuran konsumsi makanan menggunakan asupan makanan kuantitatif (kuesioner frekuensi makanan) dan sanitasi rumah mencakup indikator rumah sehat, yaitu kebersihan lantai, dinding, langit-langit, tinggi atap, fungsi ruang tamu, dan ruang dapur. Karakteristik sosiodemografi diukur menggunakan kuesioner terstruktur. Prevalensi balita stunting adalah 20,4% dan faktor dominan yang berkontribusi terhadap stunting adalah usia (nilai p <0,001; AOR = 0,254; 95% CI = 0,120-0,541). Konsumsi makanan dan sanitasi rumah tidak berhubungan dengan stunting (nilai p >0,05). Melalui pendekatan komprehensif terhadap perilaku konsumsi makanan dan sanitasi rumah, diharapkan pencegahan awal dan intervensi efektif terhadap stunting pada balita dapat dilaksanakan. Balita berusia <24 bulan memiliki peluang 0,254 kali lebih rendah untuk mengalami stunting dibandingkan dengan yang berusia ≥ 24 bulan.

Kata kunci: Stunting, konsumsi makanan, sanitasi rumah, prediktor

INTRODUCTION

Based on data from the World Health Organization (WHO) in 2020, there are around 21.3% or 144 million children under the age of five who are stunted globally. More than half of stunted children under the age of 5 live in Asia and two out of five children live in Africa.¹ The prevalence of stunted children in Indonesia has decreased by 2.8% from 2021 of 24.4% to 21.6% in 2022.²

Stunting refers to children who are too short for their age. These children can suffer severe irreversible physical and cognitive damage that stunts their growth. Children who are stunted have a greater risk of experiencing delays in motor development, both gross and fine motor. The adverse effects of stunting can last a lifetime and even affect the next generation.^{1,3,4}

The global effort to reduce stunting aims to improve the quality of life for children, ensure optimal growth and development, and achieve sustainable development goals in terms of the health and well-being of children worldwide. Interventions are carried out to prevent stunting through the integration of specific nutrition interventions and sensitive nutrition interventions.⁵⁻⁷ Sensitive nutrition interventions include access to proper sanitation, health insurance, early childhood education, family planning, social assistance, healthy homes, family food security, and food diversity for toddlers.²

Lack of adequate nutritional intake, especially during the first 1,000 days of life (from pregnancy to 2 years of age), can cause stunting. Lack of essential nutrients such as protein, iron, vitamin A, and other micronutrients can hinder children's growth.⁸ An unbalanced diet and feeding that does not suit children's needs such as a lack of variety in the consumption of nutritious foods such as vegetables, fruits, grains, and dairy products can also contribute to this problem.^{9,10} Previous studies have shown that there is a relationship between feeding patterns and stunting. A good feeding pattern must be done early on by providing a variety of foods.¹¹

Inadequate food intake is exacerbated by unhealthy environmental conditions, children will be more susceptible to infection, causing poor nutrient absorption and eventually causing poor growth.¹² This study aims to determine food consumption behavior and home sanitation as predictors in the early implementation of stunting detection.

METHOD

The research design used is a cross-sectional study design. This design measures the variables studied at one time in the population. This research was conducted in Bogor District in June-July 2023. The target population of the study was toddlers aged 0-59 months with a sample of 245 toddlers who were selected by proportional random sampling technique. Stunting was measured using an anthropometric index (body length/height according to age). Measuring food consumption behavior uses a qualitative food intake (food frequency questionnaire), home sanitation uses the second healthy house indicator, namely by looking at the cleanliness of floors and walls that are watertight and easy to clean, ceilings that are easy to clean and do not collapse, high roofs about 10 meters, the function of

the house room (full function room: bedroom, kitchen, bathroom, living room), and kitchen room with smoke exhaust/ventilation facilities. Sociodemographic characteristics were measured using a structured questionnaire.

This research has been carried out following the research ethics of the Faculty of Medicine and Health Universitas Muhammadiyah Jakarta with letter number 90/PE/KE/FKK-UMJ/VI/2023. Data collection was carried out by the main researcher and assisted by enumerators (students of the Faculty of Medicine and Health Universitas Muhammadiyah Jakarta). In this study, the author confirms that all methods are carried out following the relevant guidelines and regulations (Helsinki Declaration). This research is not experimental or intervention research.

All data in the questionnaire were checked and then coded and inputted using SPSS version 22.0. Descriptive statistics consisting of percentages and categories were analyzed by univariate analysis. 95% confidence level and P-value <0.05 were used to assess statistical significance. Relationship between food consumption habits and home sanitation on the incidence of stunting using the chi-square test and binary logistic regression analysis to see the dominant factors associated with stunting.

RESULTS AND DISCUSSION

Table 1 shows that 20.4% of children suffer from stunting. This prevalence is slightly lower than the results of the 2022 Indonesian Nutrition Status Survey (SSGI) of 21.6%.² Research conducted in the Special Capital Region of Jakarta previously showed a stunting prevalence of 41.5%.¹³ Consumption of carbohydrates in children, Almost all children consume carbohydrate sources 3 times per day as much as 89.4%. Likewise, with protein consumption, almost all children consume protein sources 3 times per day as much as 87.8%. Previous research showed that children's energy intake was in a good category at 76.6%.¹⁴ Home sanitation showed that almost all respondents had floors that were watertight and easy to clean 86.5%, walls that were watertight and easy to clean 79.6%, and homeroom functions 82.0%. Most of the respondents have a ceiling that is easy to clean and does not collapse 67.3% and a kitchen room that is accompanied by a means of exhausting smoke/vent 56.7%. Only 5.7% of respondents have roofs with a height of about 10 meters.

Table 1. Characteristics of Respondent

Variable	N	%
Mothers Characteristic		
Age Mothers		
< 35 years	192	78.4
≥ 35 years	53	21.6
Mothers Education		
Uneducated	6	2.4

Variable	N	%
Uncompleted Elementary	31	12.7
Elementary	54	22.0
Junior high school	79	32.2
Senior high school	70	28.6
College	5	2.0
Mothers Occupation		
Housewife	202	82.4
Private sector employee	11	4.5
Self-employed	10	4.1
Laborer	17	6.9
Other	5	2.0
Family Income		
< Regional minimum wage	196	80.0
≥ Regional minimum wage	49	20.0
Parity		
Primipara	74	30.2
Multipara	159	64.9
Grande multipara	12	4.9
Childs Characteristic		
Child Ages		
< 24 months	107	43.7
≥ 24 months	138	56.3
Sex		
Boy	117	47.8
Girl	128	52.2
Nutrition Status		
Stunting	50	20.4
Normal	195	79.6
Consumption of Carbohydrate		
< 3x/day	26	10.6
≥ 3x/day	219	89.4
Consumption of Protein		
< 3x/day	30	12.2
≥ 3x/day	215	87.8
Home Sanitation		
Floor (watertight & easy to clean)		
No	33	13.5
Yes	212	86.5

Variable	N	%
Wall (watertight & easy to clean)		
No	50	20.4
Yes	195	79.6
Ceiling (easy to clean & does not collapse)		
No	80	32.7
Yes	165	67.3
The roof of the house (about 10 meters high)		
No	231	94.3
Yes	14	5.7
Homeroom function		
No	44	18.0
Yes	201	82.0
Kitchen Room		
No	106	43.3
Yes	139	56.7

The frequency of children's consumption of carbohydrate and protein sources is shown in Table 2. It can be seen that the average daily consumption of carbohydrate sources such as rice 2 times/day, tubers 2 times/day, bread, biscuits, and noodles 2 times/day. These consumption habits are in line with previous research which showed that children usually consume 2 times/day as sources of carbohydrates, rice, tubers, bread, biscuits, and noodles.¹⁴ Average daily consumption of vegetable protein sources 2 times/day and animal protein 8 times/day. The majority of consumption of animal protein sources in children is obtained from the consumption of formula milk and fresh liquid milk. The indicator for the dose of formula milk consumption in the study by Santosa et al. was significant in shaping the child's stunting factor.¹⁵ WHO recommends babies be given exclusive breastfeeding for the first 6 months of life to achieve optimal growth, development, and health. Furthermore, to meet their growing nutritional needs, babies must receive complementary foods that are sufficiently nutritious and safe during breastfeeding until they are 2 years old or older.¹⁶

Table 2. Frequency consumption of carbohydrate and protein sources

Consumption	Mean±SD	Median	Min-Max
Carbohydrate			
Rice	2.43±0.95	3.0	0.0-5.0
Tubers	1.64±1.62	1.2	0.0-8.0
Bread, biscuits, and noodles	2.10±2.10	1.7	0.0-16.0
Protein			
Vegetable	2.46±2.51	2.0	0.0-14.0
Animal	7.85±6.02	6.5	0.0-42.0

Table 3 shows that mothers under the age of 35 have more stunted children than those aged 35 and over. Maternal age is related to the incidence of stunting in children ($p=0.029$; OR: 0.440; 95% CI:

0.221-0.874). There is a significant correlation between maternal age and the incidence of stunting in previous studies. Children of teenage mothers are 8 times more likely to experience stunting than adult mothers.¹⁷ Other studies have suggested that mothers in the age group ≤ 19 years have a 1.5 times higher chance than mothers in the ≥ 45 -year group to have very short toddlers.¹⁸ Children who are aged 24 months and over are more stunted than children under 24 months. Research conducted by Aguayo et al. showed that the prevalence of stunting was four times higher in children aged 18–23 months compared to children aged 0–5 months. This reflects the nature of chronic/cumulative nutritional deficiencies in infancy and early childhood.¹⁹ There is a significant relationship between a child's age and the incidence of stunting ($p < 0.001$; OR: 0.253; 95% CI: 0.120-0.533). This is in line with research conducted by Hong which shows that child age is related to stunting.²⁰

The habit of consuming food sources of carbohydrates and protein is not related to stunting. Previous studies have shown that children aged 6–23 months who are not fed multiple times/day are 63% more likely to be stunted and lower egg consumption is associated with a twofold increase in the likelihood of stunting in children aged 6–23 months.¹⁹ Research others found evidence of a strong association between stunting and indicators of consumption of animal protein, as well as indicators of consumption of milk, meat/fish, and eggs, and evidence that consuming a lot of animal protein is more beneficial than just any one type of animal protein.²¹ The chance of stunting is 2 times greater in children who are food insecure compared to those who are food secure.²² For this reason, a balanced diet with optimal amounts of essential nutrients in early life plays an important role in future health programs so that children's growth and development can be optimal and prevent stunting later.²³

In this study, home sanitation was not related to stunting. However, a healthy home must maintain good hygiene, including the cleanliness of floors, walls, ceilings, furniture, and other household equipment, to prevent the accumulation of dust, dirt, and potential disease transmission. Children from households without access to proper sanitation have an 88% higher probability of experiencing severe stunting.¹⁹ Environmental factors (house type, floor type, access to water, drinking water sources, and household electricity) were identified as being associated with stunting.^{24,25} The chance of stunting is 4.5 times greater among children living in poor-quality homes.²²

Table 3. Factors Associated with Stunting

Variable	Stunting		Normal		p-value	OR (95% CI)
	N	%	N	%		
Mothers Age						
< 35 years	33	17.2	159	82.8	0.029*	0.440(0.221-0.874)
≥ 35 years	17	32.1	36	67.9		
Mothers Education						
Low	38	22.4	132	77.6	0.334	1.511(0.739-3.090)
High	12	16.0	63	84.0		
Mothers Occupation						

Variable	Stunting		Normal		p-value	OR (95% CI)
	N	%	N	%		
Housewife	42	20.8	160	79.2	0.909	1.148(0.496-2.660)
Work	8	18.6	35	81.4		
Family Income						
< Regional minimum wage	42	21.4	154	78.6	0.552	1.398(0.609-3.208)
≥ Regional minimum wage	8	16.3	41	83.7		
Parity						
Primipara	11	14.9	63	85.1	0.214	0.591(0.284-1.230)
Multipara	39	22.8	132	77.2		
Child's Age						
< 24 month	10	9.3	97	90.7	<0.001*	0.253(0.120-0.533)
≥ 24 month	40	29.0	98	71.0		
Sex						
Boy	21	17.9	96	82.1	0.451	0.747(0.399-1.399)
Girl	29	22.7	99	77.3		
Consumption of Carbohydrate						
< 3x/day	3	11.5	23	88.5	0.353	0.477(0.137-1.659)
≥ 3x/day	47	21.5	172	78.5		
Consumption of Protein						
< 3x/day	3	10.0	27	90.0	0.205	0.397(0.115-1.367)
≥ 3x/day	47	21.9	168	78.1		
Flooring						
No	6	18.2	27	81.8	0.913	0.848(0.330-2.183)
Yes	44	20.8	169	79.2		
Wall						
No	8	16.0	42	84.0	0.503	0.694(0.303-1.591)
Yes	42	21.5	153	78.5		
Ceiling						
No	17	21.3	63	78.8	0.953	1.079(0.559-2.083)
Yes	33	20.0	132	80.0		
The roof of the house						
No	47	20.3	35	79.5	0.572	0.937(0.251-3.493)
Yes	3	21.4	160	79.6		
Homeroom function						
No	9	20.5	35	79.5	1.000	1.003(0.447-2.253)
Yes	41	20.4	160	79.6		
Kitchen Room						
No	20	18.9	86	81.1	0.717	0.845(0.449-1.590)
Yes	30	21.6	109	78.4		

*significant (<0.05)

Binary logistic regression analysis showed that the child's age was the dominant factor for stunting (p-value <0.001; AOR: 0.254; 95% CI: 0.120-0.541). Children aged <24 months are more prevented from experiencing stunting 0.254 times than those aged ≥ 24 months. Several previous studies have shown that the age of the child is a significant determinant related to stunting.^{20,24,26} Research

conducted in three districts in Indonesia shows that children aged 12-23 months have more than three times the chance of experiencing stunting compared to children aged 0-5 months.²⁷ An unbalanced diet and feeding that does not meet the nutritional needs of children can also cause stunting in children over the age of 2 years. Lack of consumption of food consumed, lack of variety of food, or feeding in insufficient quantities can affect children's growth.³

Table 4. Binary Logistic Regression Analysis of Factor Associated with Stunting

Characteristics	p-value	AOR	95% CI
Mothers age	0.061	0.487	0.229-1.035
Parity	0.470	0.746	0.336-1.654
Child's age	<0.001	0.254	0.120-0.541

CONCLUSION AND SUGGESTIONS

A child's future health depends on proper nutrition during the first 1,000 days of life, as well as during pregnancy and the early years of life. Interventions that can be carried out to prevent stunting should include promotion and nutrition counseling for families and other activities that identify and prevent the causes of stunting, including nutritional insecurity and increasing food security. Children aged 6–59 months with stunting need to receive nutrient-dense foods to meet their needs extra for weight and height gain and functional recovery.

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QUALITATIVE STUDY OF HUSBAND SUPPORT IN THE UTILIZATION OF ANTENATAL CARE (ANC) SERVICES AT THE TANARA HEALTH CENTER, SERANG DISTRICT

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ABSTRACT

Background: This study aims to obtain in-depth information about deep-husband support Utilization of Antenatal Care (ANC) services at the Tanara Health Center District. **Method:** This study uses a qualitative method with a phenomenological approach. This research was conducted in the working area of the Tanara Public Health Center, Serang Regency, involving 11 informants which were divided into 5 key informants and 6 supporting informants. The sampling technique used to determine the informants for this study was purposive sampling. This research was conducted for one month from January 2023 to February 2023. The research data was obtained through observation, interviews, and documentation studies. Then, the data obtained were analyzed using reduction techniques, data presentation, and drawing conclusions which were then validated using source and technique triangulation methods.

Keywords: ANC, Service, Utilization, Husband's Support

ABSTRAK

Latar Belakang: Penelitian ini bertujuan untuk memperoleh informasi mendalam tentang dukungan suami mendalam Pemanfaatan layanan Antenatal Care (ANC) di Distrik Puskesmas Tanara. **Metode:** Penelitian ini menggunakan metode kualitatif dengan pendekatan fenomenologi. Penelitian ini dilakukan di wilayah kerja Puskesmas Tanara, Kabupaten Serang, dengan melibatkan 11 informan yang terbagi atas 5 informan kunci dan 6 informan pendukung. Teknik pengambilan sampel yang digunakan untuk menentukan informan untuk penelitian ini adalah purposive sampling. Penelitian ini dilakukan selama satu bulan dari Januari 2023 hingga Februari 2023. Data penelitian diperoleh melalui observasi, wawancara, dan studi dokumentasi. Kemudian, data yang diperoleh dianalisis menggunakan teknik reduksi, penyajian data, dan penarikan kesimpulan yang kemudian divalidasi menggunakan metode triangulasi sumber dan teknik.

Kata kunci: ANC, Pelayanan, Pemanfaatan, Dukungan Suami

INTRODUCTION

Antenatal care (ANC) services are health services provided to mothers during pregnancy to optimize the physical and mental health of the mother as well as possible, so that the mother is ready for birth, postpartum, preparing for exclusive breastfeeding, and returning reproductive health (Ministry of Health, 2018). The purpose of antenatal care services is to fulfill the rights of pregnant women by providing the best quality services so that mothers can go through their pregnancies well, give birth safely and the babies born are healthy and of good quality¹³.

According to the World Health Organization, the global maternal mortality rate (AKI) is 303,000. The Maternal Mortality Rate (MMR) in ASEAN is 235 per 100,000 live births (KH) (ASEAN Secretariat, 2020). According to the Indonesian Demographic and Health Survey Data (SDKI) the Maternal Mortality

Rate (MMR) in Indonesia has increased, in 2002-2007 it was 228 per 100,000 KH and in 2007-2015 it was 359 per 100,000 KH. The Maternal Mortality Rate (MMR) for 2012-2015 was 305 per 100,000 KH, which means that the MMR has decreased from the previous year, and in 2020 the number of MMR is 4,627 cases (cases as of March 27, 2020)⁹.

An overview regarding the condition of health development was obtained from the evaluation results of the 2012-2017 Banten Provincial Health Strategic Plan. The Maternal Mortality Rate (MMR) in Banten Province has increased, In 2011 the MMR was 168.8 per 100,000 live births to 308 per 100,000 live births and the IMR was 32/1000 KH. MMR has increased because of the increasing number of high-risk pregnant women, early community detection that is still low, and referral decisions for high-risk pregnant women that are still not precise and fast¹. According to data from the Directorate of Family Health, the Maternal Mortality Rate (MMR) in Banten has decreased, namely 247 cases in 2018 to 212 cases in 2019, but has increased in 2020, namely 242 cases¹⁴.

According to the Profile of the Serang District Health Office, the Maternal Mortality Rate (MMR) is 195 per 100,000 live births or 58 cases with 29,787 live births. Banten Province Statistical Data states that the MMR in Serang Regency in 2018 was the highest among the eight districts or cities in Banten Province, namely 61 cases¹.

Mother involvement and awareness are needed about the importance of antenatal care or prenatal care by health workers and increasing delivery support at health facilities is one way to reduce the number of MMRs⁷. Service antenatal care is provided at least 6 (six) times during pregnancy, namely: once in the first trimester, twice in the second trimester, and three times in the third trimester. Lack of ANC visits can cause harm to the mother and fetus, such as bleeding during pregnancy because no signs of danger are detected. Assessment of antenatal care (ANC) is carried out based on K1 and K4 coverage. Husband's support is a form of embodiment of attention and affection. Support can be given both physically and psychologically. Husbands have a large enough share in determining the health status of the mother. Good husband support can provide good motivation for mothers to have their pregnancy checked

In Serang District, the coverage of antenatal care services for new visits (K1) in 2018 was 102.1% of the target of 31,071 pregnant women. While the coverage of antenatal care (K4) services was 92%, an increase compared to 2017 of 83.8%. According to a preliminary study at the Serang Regency Health Office, the highest maternal mortality rate (MMR) in 2021 occurred in the work area of the Tanara Health Center, Serang Regency, namely 10 cases, besides The number of K1 visits in August 2022 was 61.4% and the number of K4 visits in August namely 57.6%. From the results of initial observations, it is known that people in the working area of the Tanara Health Center, Serang Regency, still use paraji for pregnancy

checks or during childbirth, this is evidenced by data from 9 villages in the work area of the Tanara Health Center, Serang Regency, only 3 villages with KI coverage of 100 %, only 2 villages had 100% KIV coverage and 4 villages had 100% coverage of deliveries by health workers. Based on this phenomenon, researchers are interested in researching the use of antenatal care (ANC) services at the Tanara Health Center, Serang Regency.

From the preliminary study data, it was found that there were still many pregnant women who did not comply with ANC examinations at health service facilities. or family about her pregnancy. Based on this background, the formulation of the problem in this study is "How is the husband's support in utilization service antenatal care (ANC) at the Tanara Health Center Serang District”.

METHOD

In this research, the type of research used is a qualitative method with a phenomenological approach, which is research based on subjective or phenomenological experiences experienced by individuals. Qualitative methods are generally carried out through descriptions in the form of words and language, in a natural context, and by utilizing various natural methods. This research was conducted to obtain in-depth information about deep husband support utilization of antenatal care (ANC) services at the Tanara Health Center, Serang District.

The time the author used in conducting this research was from January 2023 to February 2023, starting from collecting research data to compiling research results. The research was conducted in the working area of the Tanara Public Health Center, Serang Regency.

The research informants were determined using a purposive technique. The selection of the research sample was based on the consideration that the research informants were able to provide complete and relevant information regarding the research objectives. Key informants and supporters are the subjects of this study, mothers who have babies 0-3 months with a history of less than 6 ANC visits become key informants, then family, paraji, and midwives are supporting informants. The number of informants in this study was 11 informants, with the distribution of 5 key informants and 6 supporting informants. 3 key informants and 3 supporting informants came from Tenjoayu Village, Tanara District and 2 key informants and 3 supporting informants came from Cibodas Village, Tanara District.

There are two sources of data in this study, namely primary data and secondary data. Primary data from this study were taken directly from informants through interviews. Furthermore, secondary data from this research is data used to support secondary data in the form of documentation.

There are three data collection techniques used in this study; Observational data, interviews, and documentation. (1) Observation, at this stage, the researcher observed phenomena related to the research topic, namely regarding the Utilization of Antenatal Care Services at the Tanara Health Center Serang

District. (2) Interviews. In this study, the researchers used semi-structured interviews with the help of an interview guide, after which the questions were developed along with the conversation so that it became an interactive interview between the researcher and the informant. Interviews were conducted directly by researchers to obtain in-depth information about deep husband support utilization of antenatal care services. (3) Documentation. This documentation technique is needed to illustrate confirmation that the authenticity of the research being carried out is guaranteed by including evidence in the form of pictures, videos, or photos.

In this study, researchers used three steps of the Analysis Technique from Miles and Huberman (1994): (1) Data reduction. Data reduction is a form of analysis to filter data, categorize it, direct it, eliminate unnecessary data, and arrange it in such a way that it can be drawn. credible conclusion. In other words, data reduction is used to select all important information that is used to answer the problems of this research. (2) Data presentation, this technique is used to display all important data that is arranged in a systematic manner that allows conclusions to be drawn. (3) Concluding. One method for analyzing data qualitatively is to draw conclusions and use the results of the analysis to take action.

RESULTS AND DISCUSSION

The Tanara Health Center is located in Tanara Village, Serang District, Banten. The Tanara Health Center is one of 31 health centers in Serang Regency, which is located in the village of Tanara. The results of observations that have been made, from the access to the Tanara Health Center are classified as good because the entrance to the health center is directly connected to the main road. From transportation access, the Tanara Health Center cannot be accessed using public transportation such as public transportation or buses. Regarding the operation of the puskesmas, it is an inpatient puskesmas so that patients who need outpatient care can already be carried out. The working area of the Tanara Health Center consists of 9 villages namely Tanara, Bendung, Lempuyang, Siremen, Cibodas, Cerukcuk, Tenjoayu, Sukamanah, and Pedaleman.

Utilization of ANC Based on Informant Characteristics

Table 1. Characteristics of Key Informants

Key Informants	Age	Education	Work	Baby Age
K1	16 years	Junior High School	IRT	Two months
K2	33 years	Junior High School	IRT	One month
K3	27 years	Junior high school	IRT	One month

Key Informants	Age	Education	Work	Baby Age
K4	47 years	Didn't graduate from elementary school	IRT	One month
K5	38 years	Didn't graduate from elementary school	IRT	Two months

Source: Primary Data

Based on Table 5.2 of the five informants interviewed, there was one informant aged <20 years and two informants aged >35 years, all informants had low education and all informants were housewives. Informants aged <20 years and >35 years felt embarrassed to do health checks at the puskesmas, afraid of being talked about so the informants chose not to do pregnancy checks.

"I'm ashamed that I'm old but I'm still pregnant, so I think it's okay to be pregnant with this one, I don't need to check it, just wait for the birth"(Informant K4).

All informants had low education and were housewives whose daily activities were carried out at home. All informants still believe in and carry out the tradition of prenatal checks in Paraji. In addition, the informants also had limited information regarding prenatal care.

Table 2. Characteristics of Supporting Informants

Supporting Informants	Age (Years)	Education
P1	38	Didn't graduate from elementary school
P2	35	Senior high school
P3	46	Didn't graduate from elementary school
P4	70	Didn't graduate from elementary school
P5	68	Didn't graduate from elementary school
P6	33	D3

Source: Primary Data

Supporting informants in this study were the husbands and families of the key informants as well as the health center midwife Tanara.

Utilization of Antenatal Care Services (ANC)

Table 3. Utilization of Antenatal Care (ANC) Services

Informant	ANC status in the Puskesmas		ANC examination time	ANC place	Childbirth History
	Yes	No			
K1	Yes		1 time on TM 1	Public health center	Labor in paraji
K2	No		1 time on TM 1 and 2 times on TM 2	Clinic	Labor in paraji
K3	Yes		3 times on TM 2 and 2 times on TM 3	Public health center	CS delivery in hospital
K4	Yes		1 time on TM 3	Public health center	CS delivery in hospital
K5	No		1 time on TM 2	Clinic	Delivery in paraji accompanied by a midwife

Based on the table above, it is known that all informants conducted ANC examinations less than 6 times. 3 informants carried out ANC examinations at the Puskesmas and 2 other informants carried out ANC examinations at the clinic.

Husband or Family Support

The results of interviews with informants, most husbands or families did not fully support pregnant women in checking their pregnancies at the health center, husbands or families only asked or reminded them to check their pregnancies, husbands or families did not provide motivation or encouragement to pregnant women to check their pregnancies at the health center. The husband not being able to take her for a pregnancy check-up at the puskesmas was one of the reasons a small number of informants did not go for a pregnancy check-up at the puskesmas because access to the puskesmas could not use public transportation or buses, husbands could not take them because they were busy working. Only a small number of informants were accompanied by their husbands to carry out pregnancy checks at the puskesmas, the husbands who accompanied them did not want to go into the examination room

"It's far away, to the puskesmas there's no one to accompany you to work in the rice fields so you can't travel, and the biggest child also goes to school in the morning"(Informant K5).

This is reinforced by the information of supporting informants

"I went to the puskesmas, no one came to accompany me, my husband went to the fields all the time, so he couldn't accompany me for a pregnancy check-up."(Informant P5).

This study focuses on the utilization of antenatal care (ANC) services at the Tanara Health Center. The KI coverage was 92.4% and the KIV coverage was 79.1%. This shows that the utilization of ANC services in the working area of the Tanara Health Center has not yet reached the target of 100%. Utilization of antenatal care services (ANC) is influenced by several factors, one of which is the support of the husband or family.

Based on the results of this study, it was found that several informants were of an age that was not recommended for pregnancy; <20 years and >35 years. According to Manuba in Hazairin⁴, the too-young age category is mothers who are <20 years old, and too old are mothers who are >35 years old. The risk of pregnancy in mothers who are too young usually arises because they are not ready psychologically or physically. Pregnancy for mothers over 35 years of age will allow certain risks to occur, including the risk of pregnancy which is caused by the maturation of the mother's age. In addition, age determines a person's level of maturity and strength in thinking and working, so increasing age will motivate someone to get the use of health services (Gunarsa, 2008). According to research by Usman, et al¹⁶ it shows that generally pregnant women who take advantage of ANC services are aged 20-35 years.

Next is the support of the husband or family. The research results show that husbands or families do not fully support pregnant women to have their pregnancies checked at the puskesmas. Research by Indrastuti & Mardiana (2019) states that the lack of husband's support for mothers is due to a lack of awareness of the importance of health and the importance of checking the health of the mother and fetus, as well as the influence of parents or in-laws who are not supportive. According to research by Tassi et al.¹⁵, the husband's support is not only limited to taking the mother to a health service to do a pregnancy check-up. Accompanying and accompanying the mother during pregnancy checks are some forms of support that should be shown by the husband so that pregnant women feel cared for and certainly do not feel alone going through their pregnancy.

Family support can increase the willingness and ability of mothers to use health facilities. Maternal health activities during pregnancy are the effect of family support, both support from the husband and other family members. Pregnant women who get full support from their families will be optimistic about carrying out their pregnancy and being able to meet their psychological needs³.

CONCLUSION AND SUGGESTIONS

This research is a qualitative research that aims to obtain in-depth information about husband's support in the utilization of antenatal care (ANC) services. Data were obtained through in-depth interviews with mothers who have babies 0-3 months, their families, and midwives.

Based on the results of the study, it can be concluded that the use of antenatal care (ANC) services is less than the minimum standards for husbands or families who do not fully support pregnant women to

check their pregnancies at the puskesmas. The husband cannot accompany or take the pregnancy check-up because he is busy at work, even though he is taking the pregnancy check-up, the husband refuses to come into the examination room.

To the Tanara Community Health Center, Serang Regency, to carry out health promotion for pregnant women and their families, especially regarding the importance of routine antenatal care (ANC) checks. To health workers to provide services professionally and serve with heart, to foster public trust to have their health checked by health workers. It is suggested that future researchers continue this research by adding other variables such as knowledge and socio-economics and adding questions in the interview guide in more depth so that broader and more in-depth information is obtained about the use of antenatal care (ANC) services.

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ANEMIA IN YOUNG WOMEN IN THE CITY OF SOUTH TANGERANG IN 2023

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ABSTRACT

Background: A health problem in adolescents that is still happening today is anemia. The problem of anemia in young women needs further treatment because young women are prospective mothers who will give birth to children as the successor to the nation. **Purposes:** The study aimed to describe the incidence of anemia and the recipients of blood-added tablets for young women in the city of South Tangerang. **Methods:** This research was conducted using descriptive research. The population of this study was young women who had been screened for Hemoglobin (Hb). From January to May 2023 in all junior high schools/equivalent grades 7,8,9 and high school/equivalent grades 10,11,12 in the city of South Tangerang there were 46,624 people. The data were obtained from the Hb screening report from the South Tangerang City Health Office and were analyzed univariately in the form of a frequency distribution. **Results:** The results showed that 15,015 girls (32.20%) experienced anemia with mild anemia at 54.41%, moderate anemia at 40.39%, and severe anemia at 5.20%. The highest percentage of anemia was in grade 9 reaching 37.56% and the highest prevalence of anemia for young women was in the Setu sub-district of 40.27%. For blood-added tablet recipients for young women in South Tangerang City, the rate has reached 67.63% of the target of 68%. **Conclusions:** This study concludes that the incidence of anemia in female adolescents is still high, exceeding the national target and the proportion of female adolescents receiving iron tablets is good. Collaboration between various parties is needed to reduce the prevalence of anemia among school girls' parents, regional officials from the health office, the education and culture office, and the Ministry of Religion of the city of South Tangerang regarding nutritional action activities and monitoring and evaluation of consumption of blood-added tablets in young women.

Keywords: *Anemia, young women, hemoglobin screening, recipients of blood supplementary tablets.*

ABSTRAK

Latar Belakang: Masalah kesehatan pada remaja yang masih terjadi saat ini adalah anemia. Masalah anemia pada remaja putri perlu penanganan lebih lanjut karena remaja putri merupakan calon ibu yang akan melahirkan anak sebagai penerus bangsa. **Tujuan:** Penelitian ini bertujuan untuk mendeskripsikan kejadian anemia dan penerima tablet penambah darah bagi remaja putri di Kota Tangerang Selatan. **Metode:** Penelitian ini dilakukan dengan menggunakan penelitian deskriptif. Populasi penelitian ini adalah wanita muda yang telah diskining untuk Hemoglobin (Hb). Dari Januari hingga Mei 2023 di seluruh SMP/ sederajat kelas 7,8,9 dan SMA/ sederajat kelas 10,11,12 di Kota Tangerang Selatan sebanyak 46.624 orang. Data diperoleh dari laporan skrining Hb dari Dinas Kesehatan Kota Tangerang Selatan dan dianalisis secara univariat dalam bentuk distribusi frekuensi. **Hasil:** Hasil penelitian menunjukkan bahwa 15.015 anak perempuan (32,20%) mengalami anemia dengan anemia ringan sebesar 54,41%, anemia sedang sebesar 40,39%, dan anemia berat sebesar 5,20%. Persentase anemia tertinggi berada di kelas 9 mencapai 37,56% dan prevalensi anemia tertinggi untuk remaja putri berada di Kecamatan Setu sebesar 40,27%. Untuk penerima tablet pertambah darah bagi remaja putri di Kota Tangerang Selatan, angka tersebut telah mencapai 67,63% dari target 68%. **Kesimpulan:** Penelitian ini menyimpulkan bahwa kejadian anemia pada remaja perempuan masih tinggi, melebihi target nasional dan proporsi remaja perempuan penerima tablet zat besi baik. Kolaborasi berbagai pihak diperlukan untuk menurunkan prevalensi anemia di kalangan orang tua anak perempuan sekolah, perangkat daerah dari dinas kesehatan, dinas pendidikan dan kebudayaan, dan

Kementerian Agama Kota Tangerang Selatan mengenai kegiatan aksi gizi serta monitoring dan evaluasi konsumsi tablet tambah darah pada remaja putri.

Kata kunci: Anemia, Remaja Putri, Skrining Hemoglobin, Penerima Tablet Tambahan Darah.

INTRODUCTION

Health and nutrition problems in Indonesia during the First 1000 Days of Life period became the focus of attention because they not only had an impact on morbidity and mortality in mothers and children but also had permanent consequences for the quality of life of individuals into adulthood. The emergence of nutritional problems in children under the age of 2 years is closely related to the health and nutrition preparation of a woman to become a potential mother, including young girls.¹

One of the nutritional problems in Indonesia that often occurs in adolescents related to the occurrence of Maternal Mortality Rate (MMR) is iron nutritional anemia, anemia is the most common case in society. However, in general, people still consider illness to be trivial, especially when it occurs in adolescence. In this case, anemia occurs in adolescents who are already menstruating and is caused by a lack of consuming foods that contain iron.³

A health problem in adolescents that is still happening today is anemia. The problem of anemia in young women needs further treatment because young women are prospective mothers who will give birth to children as the successor to the nation. After all, healthy mothers will give birth to healthy babies and have no problems with their growth and development.

The impact of anemia seen in adolescents is decreased work productivity, stunted growth and development, the body's susceptibility to infection, reduced body fitness, and decreased enthusiasm for learning and achievement. At some point, the teenager will become a mother-to-be. If a mother has anemia during pregnancy, she will be at high risk of experiencing bleeding during childbirth which can cause death to the mother. The occurrence of anemia can be caused by wrong, irregular, and unbalanced food intake with the adequacy of the nutritional sources needed by the body, including carbohydrate intake as a source of energy, protein intake, both animal and vegetable protein, fat/oil intake, vitamin C intake and especially lack of food sources that contain iron as well as folic acid. In general, efforts to overcome the problem of anemia in adolescents are related to food intake consumed every day and foods that contain iron.⁴

In this case, early prevention is needed to prevent the impact of anemia on young women. The prevention that is being pursued by the government is by establishing a supplementation program for blood-boosting tablets in young women to meet iron intake in preventing anemia. The iron supplementation program for young women began in 2014 and has become one of the specific interventions to accelerate the reduction of stunting. The targets of this program are young women aged 12-18 years who are in

educational institutions (junior high school and high school or equivalent) through the School/Madrasah Health Unit. Preventive dose by administering one iron tablet every week for 52 weeks. Giving iron tablets at the right dose can prevent anemia and increase iron reserves in the body. Monitoring and evaluation of the iron supplementation program is carried out by the program holder at the health center in collaboration with teachers at the school

The study aimed to describe the incidence of anemia in female adolescents and female adolescents receiving iron tablets in South Tangerang City.

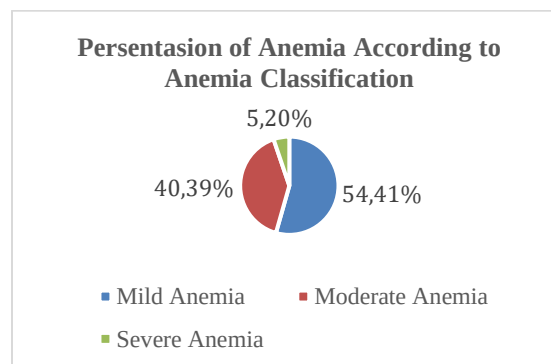
METHOD

The population of this study was young women who had been screened for Hemoglobin (Hb), from January to May 2023 in all junior high school/equivalent grades 7,8,9 and high school/equivalent grades 10,11,12 in South Tangerang city of 46 624 people. The data used is secondary data.

Secondary data is information that has been collected and recorded by someone other than the user for a purpose, not related to the current research problem. It is an available form of data collected from various sources such as censuses, government publications, internal organizational records, reports, books, journal articles, websites, and so on. The data were obtained from the Hb screening report from the South Tangerang City Health Office and were analyzed univariately in the form of a frequency distribution.

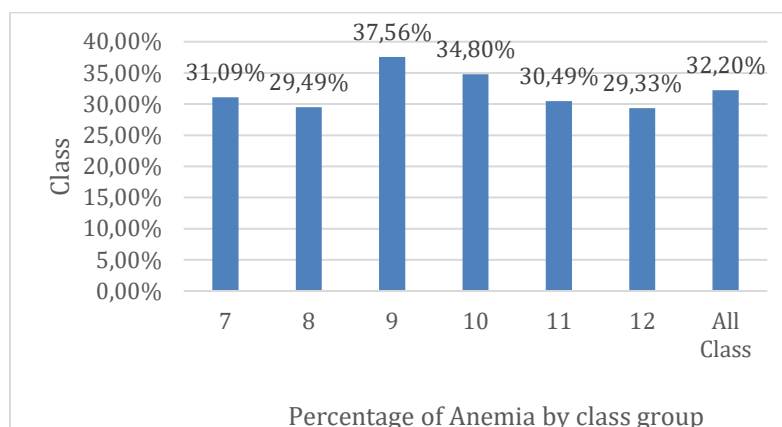
RESULTS AND DISCUSSION

From the results of 46,624 young girls in grades 7, 8, 9, 10, 11, and 12 who were screened for Hb in South Tangerang City in 2023, data on the Anemia category were obtained as follows:



Graph 1: Presentation of Anemia in Young Women According to Anemia Classification

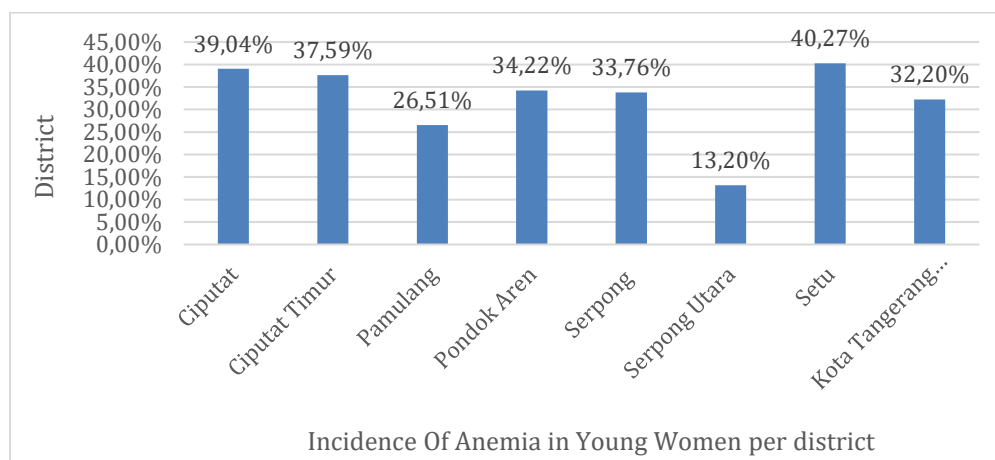
The results of the study (graph 1) showed that 15,015 (32.20%) young women experienced anemia with mild anemia at 54.41%, moderate anemia at 40.39%, and severe anemia at 5.20%



Graph 2: Percentage of Anemia by Class Group

The highest percentage of anemia for girls was in grade 9 reaching 37.56% (Graph 2) compared to other classes from grade 7 to class 12 while the lowest percentage of anemia was in class 12 reaching 29.33%.

The distribution per district of anemia in female adolescents can be illustrated in the graph below:



Graph 3: Incidence of Anemia in Young Women per District

In the city of South Tangerang, schools at the junior high school/equivalent grades 7,8,9 and high school/equivalent grades 10,11,12 are spread across 7 (seven) districts including Ciputat, East Ciputat, Pamulang, Pondok Aren, Serpong, North Serpong, and Setu Districts. For the highest sub-district, female adolescent anemia was in the Setu sub-district at 40.27% (Graph 3). For blood-added tablet recipients for young women in South Tangerang City, the rate has reached 67.63% of the target of 68%.

CONCLUSION AND SUGGESTIONS

This study concludes that the incidence of anemia among young women in South Tangerang City is still high, exceeding the national target and the proportion of young women receiving iron tablets is good.

Collaboration between various parties is needed to reduce the prevalence of anemia in young girls among parents of school girls, regional health office officials, education and culture offices, and the ministry of religion in the city of South Tangerang regarding nutritional action activities. Continuous monitoring and evaluation carried out by school officers, youth program holders, and health centers as well as support from schools is very useful for the success of the program providing iron supplements to young women. Coordinating and cooperating as well as the commitment of various stakeholders to support the achievement of the coverage of iron supplements for young women.

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FAMILY PLANNING PROGRAM PARTICIPATION AND CONTRACEPTIVE USAGE IN LEUWISADENG SUBDISTRICT, 2022: A DESCRIPTIVE OBSERVATIONAL STUDY

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ABSTRACT

The primary indicator of the success of Family Planning (FP) will be evident from the number of contraceptive users among women of reproductive age (WRA). This study aims to evaluate the participation rate in FP and the utilization of contraceptives in Leuwisadeng District in the year 2022. Method: A descriptive research design with a quantitative approach was employed. The study population consisted of WRA in the Leuwisadeng District, with the research sample drawn from the population of FP participants. Data were collected from family registration reports through the New SIGA application and analyzed through univariate analysis by calculating percentages, which were then presented in tabular form. Results: FP participation rate: The total number of WRA in 2022 was 13,375 individuals. Out of these, 9,785 individuals (73%) were FP participants, while 3,593 individuals (27%) were non-participants. The most commonly used contraceptive method was injectable contraceptives, with a total of 6,158 individuals (62% of the total FP participants). Oral contraceptive pills were used by 2,281 individuals (23%), intrauterine devices (IUDs) by 130 individuals (1.3%), the Woman Operation Methode/Tubectomy by 96 individuals (1%), implants by 976 individuals (10%), condoms by 110 individuals (1.1%), and Vasectomy by 24 individuals (0.2%). Conclusion: The FP program in Leuwisadeng District in 2022 has achieved a reasonably good level of participation, with 73% of the total WRA being FP participants. However, there are still a significant number of WRA who have not yet participated in FP, and injectable contraceptives are the most commonly used method. Recommendation: Cross-sectoral collaboration is needed to promote family planning and enhance participation in the FP program.

Keywords: Family Planning, FP participation, Contraception

ABSTRAK

Indikator utama keberhasilan Program Keluarga Berencana (KB) akan terlihat dari jumlah pengguna kontrasepsi di kalangan wanita usia reproduksi (WUS). Studi ini bertujuan untuk mengevaluasi tingkat partisipasi dalam KB dan pemanfaatan kontrasepsi di Kecamatan Leuwisadeng pada tahun 2022. Metode: Desain penelitian deskriptif dengan pendekatan kuantitatif digunakan. Populasi studi terdiri dari WUS di Kecamatan Leuwisadeng, dengan sampel penelitian diambil dari populasi peserta KB. Data dikumpulkan dari laporan registrasi keluarga melalui aplikasi SIGA baru dan dianalisis melalui analisis univariat dengan menghitung persentase, yang kemudian disajikan dalam bentuk tabel. Hasil: Tingkat partisipasi KB: Jumlah total WUS pada tahun 2022 adalah 13.375 individu. Dari jumlah tersebut, 9.785 individu (73%) merupakan peserta KB, sedangkan 3.593 individu (27%) bukan peserta. Metode kontrasepsi yang paling umum digunakan adalah kontrasepsi suntik, dengan total 6.158 individu (62% dari total peserta KB). Pil kontrasepsi oral digunakan oleh 2.281 individu (23%), alat kontrasepsi dalam rahim (AKDR) oleh 130 individu (1,3%), Metode Operasi Wanita/Tubektomi (MOW) oleh 96 individu (1%), implan oleh 976 individu (10%), kondom oleh 110 individu (1,1%), dan Metode Operasi Pria/Vasektomi (MOP) oleh 24 individu (0,2%). Kesimpulan: Program KB di Kecamatan Leuwisadeng pada tahun 2022 telah mencapai tingkat partisipasi yang cukup baik, dengan 73% dari total WUS menjadi peserta KB. Namun, masih ada sejumlah WUS yang belum berpartisipasi dalam KB, dan kontrasepsi suntik adalah metode yang paling umum digunakan. Rekomendasi: Kolaborasi lintas sektor diperlukan untuk mempromosikan KB dan meningkatkan partisipasi dalam program KB.

Kata Kunci: Keluarga Berencana, Partisipasi, Alat Kontrasepsi

INTRODUCTION

Family planning is an important aspect of reproductive health programs that aim to provide individuals and couples with opportunities to make informed choices about the number and spacing of their pregnancies. Family planning has a significant role in improving maternal and child health, reducing maternal and infant mortality, and empowering women to actively participate in social and economic development.⁷

One indicator of the success of the family planning program is the level of contraceptive use in couples of childbearing age (PUS). Effective contraceptive use not only helps prevent unwanted pregnancies but also allows individuals and couples to plan families according to their goals and aspirations.³

Leuwisadeng District is located in Bogor Regency and houses 8 villages, namely Leuwisadeng, Sadeng Kolot, Babakan Sadeng, Wangun Jaya, Sadeng, Sibanteng, Kalong 1 and Kalong 2. Based on data from BPS in 2022, there was an increase in the population of the Leuwisadeng sub-district by 0.88%. Leuwisadeng sub-district has been actively implementing family planning initiatives to improve reproductive health outcomes and support the welfare of its residents. To evaluate the effectiveness of family planning programs and the level of participation in contraceptive use, it is important to assess contraceptive use in EFAs in the sub-district.²

This study aims to evaluate the level of family planning participation and contraceptive use in EFA in Leuwisadeng District in 2022. By analyzing birth control participation data and contraceptive methods used, we can gain insight into the effectiveness of birth control programs and identify areas that require further attention and improvement.²

METHOD

The research design used in this study is descriptive research with a quantitative approach. The population of this study consisted of EFAs living in the Leuwisadeng District. The study sample was taken from the population of family planning participants in the sub-district. Sampling is carried out using a simple random sampling method, where several KB participants are randomly selected to be the research sample.

Data for this study were obtained from family data collection reports through the New SIGA application, which is a tool used to monitor and collect information about family planning participation and contraceptive use. The data included information about the number of birth control participants, the contraceptive methods used, and the demographic characteristics of the participants.²

Data analysis was carried out univariately. The percentage of contraceptive use is calculated based on the number of individuals using each contraceptive method divided by the total birth control participants. The results of the analysis are then presented in the form of tables to provide a clear picture of the level of family planning participation and contraceptive use in EFA in Leuwisadeng District.

RESULTS AND DISCUSSION

The presented data in Table 1 provides a comprehensive overview of the distribution of couples of childbearing age across different villages in Leuwisadeng District for the year 2022. It is evident that Leuwisadeng village itself has the highest number of couples of childbearing age, totaling 2,266, followed closely by Sadeng Kolot with 2,149 couples.

Table 1. Number of Couples of Childbearing Age in Leuwisadeng District in 2022

No	Village	Number of Couples of Childbearing Age
1	Leuwisadeng	2266
2	Sadeng Kolot	2149
3	Babakan Sadeng	1705
4	Wangun Jaya	1653
5	Sibanteng	1771
6	Sadeng	1706
7	Kalong I	1042
8	Kalong II	1083
Total		13375

These figures underscore the need for effective family planning initiatives, as they directly impact a significant portion of the district's population. The total number of couples of childbearing age in Leuwisadeng District, as shown in the table, amounts to 13,375. This serves as a critical baseline for assessing the reach and impact of family planning programs within the district.

Table 2. Number of KB Acceptors and Non-KB Acceptors in Leuwisadeng District in 2022

No	Village	Number of Couples of Childbearing Age KB acceptor	Number of Couples of Childbearing Age Not a KB Acceptor
1	Leuwisadeng	1672	594
2	Sadeng Kolot	1560	589
3	Babakan Sadeng	1251	456
4	Wangun Jaya	1217	437
5	Sibanteng	1294	477
6	Sadeng	1258	448
7	Kalong I	751	291
8	Kalong II	782	301
Total		9785	3593

Table 2 provides a detailed breakdown of the number of couples of childbearing age in Leuwisadeng District in 2022, categorized into KB acceptors (those who participate in the Family Planning program) and non-KB acceptors (those who do not participate).

The data reveals that across the various villages in Leuwisadeng District, a significant number of couples actively participate in the Family Planning (KB) program. For instance, in Leuwisadeng village, out of the 1,672 couples of childbearing age, 594 are KB acceptors. This indicates that approximately 35% of couples in this village have chosen to participate in the Family Planning program.

Similarly, in Sadeng Kolot, there are 589 KB acceptors out of 1,560 couples, accounting for approximately 37.8% of the couples in this village who have opted for Family Planning.

This pattern is consistent across the different villages, with a substantial proportion of couples choosing to participate in the Family Planning program. The highest percentage of KB acceptors is observed in Kalong I, where 38.8% of couples have chosen to participate, followed closely by Sadeng Kolot.

Conversely, there are couples in each village who have not yet become KB acceptors. For instance, in Leuwisadeng, 1,078 couples out of 1,672 have not yet chosen to participate in the Family Planning program. This highlights an opportunity for targeted interventions to increase participation rates in this village.

Overall, the total number of KB acceptors in Leuwisadeng District in 2022 is 9,785, which represents a significant portion of the population of childbearing age couples. This indicates a positive trend towards reproductive health awareness and the acceptance of Family Planning methods within the community.

However, it is important to continue efforts to educate and engage with those who have not yet chosen to participate. Understanding the specific reasons behind their decision will be crucial in tailoring interventions to address their concerns and ultimately increase participation rates.

In conclusion, the data in Table 2 reflects a commendable level of participation in the Family Planning program across Leuwisadeng District. By identifying and addressing the needs of those who have not yet participated, we can further strengthen the impact of Family Planning initiatives in the community.

Table 3. Types of Contraceptive Methods Used in Leuwisadeng District in 2022

No	Village	Types of Contraceptive Methods						
		IUD	MOW	MOP	Condom	Implant	Injectable	Pills
1	Leuwisadeng	17	18	5	7	191	1133	301
2	Sadeng Kolot	15	2	1	6	118	1113	305
3	Babakan Sadeng	15	13	5	27	72	946	273
4	Wangun Jaya	0	0	4	24	65	714	410
5	Sibanteng	38	24	1	14	194	750	273
6	Sadeng	30	25	6	17	133	784	263
7	Kalong I	12	12	1	8	143	382	193
8	Kalong II	3	2	1	7	60	436	273
Total		130	96	19	40	976	6258	2291

Use of Contraceptive Methods: The most widely used contraceptive method by birth control participants is injectable birth control, with a total of 6,158 people (62% of the total birth control participants). Followed by birth control pills with 2,281 people (23%), IUDs with 130 people (1.3%), MOW with 96 people (1%), implants with 976 people (10%), condoms with 110 people (1.1%), and MOP with 24 people (0.2%).

The results of this study show that the Family Planning (KB) program in Leuwisadeng District in 2022 has achieved a fairly good participation rate, with 73% of the total Couples of Childbearing Age (PUS) being family planning participants. This shows that there is relatively high awareness and participation from the community in participating in family planning programs.⁹

However, there are still several EFAs that have not yet become family planning participants, so further efforts are needed to increase their participation. Socialization and counseling programs about the benefits and importance of birth control need to continue so that more individuals and couples realize the benefits of contraceptive use.⁴

In terms of contraceptive methods used, injectable birth control is the most common method used by birth control participants, with a proportion of 62%. This can be due to factors such as ease of use, effectiveness in preventing pregnancy, and convenience of long-term use. Even so, it is important to still provide a diverse choice of contraceptive methods to birth control participants, so that they can choose a method that suits their preferences and needs.⁵

The results of this study provide a strong basis for related parties, such as government agencies and health service providers, to continue to improve and develop family planning programs in the Leuwisadeng District. In increasing family planning participation, cross-sectoral cooperation is essential, including with educational, religious, and community organizations, to promote the importance of family planning and provide accurate information and easy access to contraceptive services.¹

CONCLUSION AND SUGGESTIONS

The family planning program in Leuwisadeng sub-district in 2022 has achieved a good level of enrollment, but further efforts are still needed to increase community participation in the family planning program.⁸ In this context, the use of contraceptive methods, especially injectable birth control, needs to be continuously promoted and accompanied by a holistic approach, including socialization, education, and support from various parties, to achieve optimal family planning goals.⁶

ACKNOWLEDGMENT

We would like to thank the relevant parties in the Leuwisadeng sub-district who have given permission and support to our collection. Their collaboration in providing access to family data collection through the New SIGA application was invaluable in this study. In addition, we would like to thank our supervisors who have provided valuable direction, guidance, and advice throughout this research. Their guidance helped us steer this research in the right direction and made a significant contribution to the writing of this report.

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EVALUATION OF THE SUSTAINABILITY OF THE ESSENTIAL PUBLIC HEALTH EFFORT PROGRAM AT THE TEAM-BASED NUSANTARA SEHAT ASSIGNMENT HEALTH CENTER, MINISTRY OF HEALTH, REPUBLIC OF INDONESIA

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ABSTRACT

Background: The Nusantara Sehat Team-based Program (NST) is a program that places health workers with 9 categories of health professionals in remote border areas and islands (DTPK) for 2 years every batch. NST aims to fill the shortage of health workers at the DTPK puskesmas so that the main tasks of the puskesmas can continue. This study aims to evaluate the sustainability of the essential public health program at the NST placement center between 2016 and 2018. **Method:** Quantitative research method with cross-sectional design. The population is the NST batch 1-2 community health center (2016) as post-placement and NST batch 6-8 health center (2018) as placed in 28 provinces, 43 districts, and 39 health centers. The sample is the community at the placement and post-placement health centers. Data collection was carried out by interviewing the people who were selected as samples using a questionnaire by trained enumerators. A statistical test was conducted to assess the average coverage index of the essential public health program at the puskesmas by comparing the average coverage index of the program during placement and after placement with an independent t-test. **The result:** The results of the study showed that the NST essential public health program experienced sustainability, as seen from the results of statistical analysis, it was found that $p = 0.26$ 95% CI (0.11-0.41) at the NST placement health center and $p = 0.76$ 95% CI (0.36-0.49) at post-placement health centers. Sustainable programs are health promotion, empowerment, environmental health, MCH, and Nutrition. Programs that are not sustainable are disease prevention

Keywords: Sustainability, Nusantara Sehat Team-based Program

ABSTRAK

Latar Belakang: Nusantara Sehat Team-based Program (NST) merupakan program yang menempatkan tenaga kesehatan dengan 9 kategori tenaga kesehatan di daerah perbatasan terpencil dan pulau-pulau (DTPK) selama 2 tahun setiap angkutannya. NST bertujuan untuk mengisi kekurangan tenaga kesehatan di puskesmas DTPK sehingga tugas pokok puskesmas dapat terus berjalan. Penelitian ini bertujuan untuk mengevaluasi keberlanjutan program kesehatan masyarakat esensial di pusat penempatan NST antara tahun 2016 dan 2018. **Metode:** Metode penelitian kuantitatif dengan desain cross-sectional. Penduduknya adalah puskesmas NST batch 1-2 (2016) sebagai post-placement dan puskesmas NST batch 6-8 (2018) yang ditempatkan di 28 provinsi, 43 kabupaten, dan 39 puskesmas. Sampel adalah masyarakat di puskesmas penempatan dan pasca penempatan. Pengumpulan data dilakukan dengan mewawancarai orang-orang yang

terpilih sebagai sampel menggunakan kuesioner oleh enumerator terlatih. Uji statistik dilakukan untuk menilai indeks cakupan rata-rata program kesehatan masyarakat esensial di puskesmas dengan membandingkan indeks cakupan rata-rata program selama penempatan dan setelah penempatan dengan uji-t independen. **Hasil:** Hasil penelitian menunjukkan bahwa program kesehatan masyarakat esensial NST mengalami keberlanjutan, dilihat dari hasil analisis statistik, ditemukan bahwa $p = 0,26$ 95% CI (0,11-0,41) di puskesmas penempatan NST dan $p = 0,76$ 95% CI (0,36-0,49) di puskesmas pasca penempatan. Program berkelanjutan adalah promosi kesehatan, pemberdayaan, kesehatan lingkungan, KIA, dan Gizi. Program yang tidak berkelanjutan adalah pencegahan penyakit

Kata kunci: Keberlanjutan, Program Berbasis Tim Nusantara Sehat

INTRODUCTION

The state should provide health services to every Indonesian citizen wherever they are, including in remote border areas and islands (DTPK)¹. The main pillar in the health system that provides health services to every color of the country is health workers (Nakes)² Health Workers are the main mover in health services (yankes) both at first-level health care facilities (FKTP) and referrals (FKTR). Health workers are defined as people who devote themselves to the health sector and have knowledge and/or skills through education in the health sector which for certain types require authority to carry out health efforts^{3,4}.

The Puskesmas according to its function provides a variety of health services which include community health efforts (UKM) and individual health efforts (UKP)⁵. Health efforts at the puskesmas can run well if the adequacy of health workers in terms of type, number, and competence is fulfilled. In fact, for various reasons, there are still many puskesmas in DTPK that do not have sufficient health workers both in type, number, and competence, that can reduce the rights of citizens in DTPK areas to get health services.

It is the government's obligation to fulfill health workers, both in number, type, and competence so that the implementation of health efforts can continue⁵ The Team-based Healthy Nusantara Program (NST) is a model for fulfilling health workers in DTPK areas⁶ with 9 categories of health professions namely: doctors, dentists, public health, nutrition, nurses, midwives, environmental health, laboratories and pharmaceuticals. Placement of NST which aims to meet the number and type of health workers following the standards in puskesmas⁶

Batch 1 NST was placed by the Ministry of Health in 2015. The term batch or "force" is a sequence of assignments based on numerical order with an assignment period of 2 years so that each batch has a term of service of 2 years. Each end of the batch assignment gets the replacement of the next batch. It is hoped that the batch replacement will be accompanied by the sustainability of the puskesmas program or sustainability⁷. Results of the 2015-2017 NST evaluation research conducted by the National Institute of Health Research and Development, Indonesian Ministry of Health, showed the results that program

coverage increased by 80%⁷ after being assigned NST⁸. The purpose of this study was to evaluate the sustainability of essential public health efforts (PMK No. 23 of 2014) at the NST-assigned health center.

METHOD

This type of quantitative research with cross-sectional design. The study was conducted to see the average coverage index of essential community health programs at puskesmas (PMK No 23 of 2014) at NST-assigned puskesmas. Statistical tests were carried out using the one-tailed t-test. The research population is the people who receive the benefits of the NST program in 17 provinces, 30 districts, 31 health centers, and 5,425 samples. The sample is the community from health centers who were randomly selected in 26 health centers

Sampling by way of 2-stage cluster sampling according to WHO standards⁸. The number of clusters is selected in the first stage and the number of survey subjects is selected in the second stage. In the first stage, each health center was randomly selected as a cluster of 25 Rukun Tetangga (RT) as clusters and then added 5 reserve RTs so that a total of 30 clusters (only 25 clusters were collected). In the second stage, 7 Rumah Tangga (RUTA) were randomly selected for each cluster so that a total of 175 RUTA for each health center. The data collection method is a quick survey on selected RUTA. The head of the family or other family members representing each selected RUTA are to be interviewed by enumerators who have been trained using a questionnaire. The questionnaire was first tested for validity and reliability. The sampling scheme is shown in Figure 1

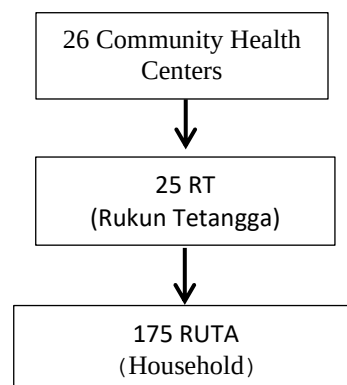


Figure 1. Sampling Scheme

Sustainability measurements can be known from statistical tests by comparing the average index^{9,10} of program coverage based on PMK No 23 of 2014 concerning puskesmas between 2016 (batches 1 and 2) and 2018 (batches 6 and 8). Batches 6 and 8 are a replacement for batches 1 and 2. It is said that there will be program sustainability if the average coverage value of the puskesmas program in 2016 is lower or the same compared to 2018.

Based on PMK No. 23 of 2014 the essential public health program (UKM) includes health promotion services, environmental health services, maternal, child, and family planning health services, nutrition services, and disease prevention and control services^{3,6,11}

- a. Health promotion is an effort to improve the ability of the community through learning from, by, for, and with the community so that they can help themselves and develop community-based activities according to local socio-cultural conditions and supported by health-oriented public policies^{11,12}. Programs include the existence and utilization of community-based health efforts (posyandu, posbindu, poskesdes), counseling programs (schools, mental health, and drugs, pregnant and lactating women), immunization and counseling outreach programs, counseling on infectious diseases (HIV/AIDS, diarrhea, typhoid, hepatitis), counseling programs on infant feeding (ASI and MP-ASI), dietary counseling programs and self-medication (pregnant women, dietetics and self-medication for drug use).
- b. Empowerment is a process of human or community development through community capacity building, behavior change, and community organizing in the health sector¹¹ including forming cadres, utilizing posyandu, and traditional medicine.
- c. Environmental health services are activities aimed at realizing a healthy environmental quality, both from the physical, chemical, biological, and social aspects to prevent diseases and/or health problems caused by environmental risk factors, activities include: monitoring Public places (mosques, markets and schools), clean water sources, food management¹⁸
- d. Maternal, child, and family planning (KB) health services are efforts in the health sector that involve services and maintenance of pregnant women, birthing mothers, postpartum mothers, breastfeeding mothers, infants and toddlers, and preschoolers including immunization, elementary school student health, childbearing age or public
- e. Pelayanan gizi adalah pelayanan yang bertujuan untuk meningkatkan mutu gizi masyarakat meliputi pelacakan kasus gizi di masyarakat dan kunjungan rumah,
- f. Nutrition services are services that aim to improve the quality of community nutrition including tracking cases of malnutrition in the community and home visits
- g. Disease prevention and control services include non-communicable diseases, filariasis, zoonoses, HIV/AIDS, sexually transmitted infections, DHF, and malaria

The research location is the community at the health center: Aceh (Simeulue Cut), Sumatera Utara (Tanjung Beringin), Kepulauan Riau (Serasan Timur, Tembelan, Tebing), Riau (Sungai Guntung, Rupert Utara, Selat Baru), Bengkulu (Enggano), Kalimantan Barat (Sajingan Besar, Badau, Balai Karangan), Kalimantan Timur (Tiong Ohang), Kalimantan Utara (Long Nawang, Long Ampung), Sulawesi Utara (Gemeh, Kendahe), Sulawesi Tengah (Ogodeide), Maluku (Ilwaki, Lelang, Adault), Maluku Utara (Bere-

bere) Nusa Tenggara Timur (Silawan, Haliwen, Wedomu, Maritaing, Buraga, Ndao Nuse, Wini), Nusa Tenggara Barat (Dompu), Papua (Bupul, Kimam, Sabar Miokre, Skouw Mabo dan Sarni) dan Papua Barat (Dorehkar). Time for conducting research February-December 2018.

Research approval (ethical approval) was obtained from the Health Research Ethics Commission of the National Institute Health Research Development of the Republic of Indonesia Ministry of Health dated March 28 2018 with number LB.02.01/5.2/KE.116/2018. Respondents involved in this study gave their consent by signing an informed consent before the interview.

RESULTS AND DISCUSSION

The characteristics of the largest research health center were 31 (79.5%) hospitalized, 19 (48.7%) very remote, 14 (35.8%) not yet accredited, 37 (94.9%) available houses for NST, 15 38, 5% do not have 24-hour electricity, 27 (69.2%) have water all year round, 24 (61.5%) have mobile health centers available, and 28 (71.8%) have ambulances available. The highest number of unmet NST staff are physicians and dentists. NST staff at assignment and post-assignment health centers as shown in Table 1.

Table 1. NST officers at the Placement and Post-Placement Health Centers

No	Variable	Health Centers							
		Assignment				Post- Assignment			
		2016		2018		2016		2018	
		N	%	N	%	n	%	N	%
1.	Physician								
	a. Fulfilled	32	82.1	24	61.5	11	84.6		
	b. Not Fulfilled	7	17.9	2	5.1	2	15.4		
2.	Dentist								
	a. Fulfilled	37	94.9	21	53.8	12	92.3		
	b. Not Fulfilled	2	5.1	5	12.8	1	7.7		
3.	Nurse								
	a. Fulfilled	7	17.9	4	10.3	3	23.1		
	b. Not Fulfilled	32	82.1	22	56.4	10	76.9		
4.	Midwife								
	a. Fulfilled	4	10.3	4	10.3	1	7.7		
	b. Not Fulfilled	35	89.7	22	56.4	12	92.3		
5.	Public Health Workers								
	a. Fulfilled	4	10.3	8	20.5	1	7.7		
	b. Not Fulfilled	35	89.7	18	46.2	12	92.3		
6.	Sanitarian								
	a. Fulfilled	3	7.7	8	20.5	0	0		
	b. Not Fulfilled	36	92.3	18	46.2	13	100		
7.	Laboratory								
	a. Fulfilled	16	41.0	8	20.5	7	53.8		
	b. Not Fulfilled	23	59.0	18	46.2	6	46.2		
8.	Nutritionists								
	a. Fulfilled	14	35.9	9	23.1	3	23.1		

there is no data
at the time of
the study

No	Variable	Health Centers							
		Assignment				Post- Assignment			
		2016		2018		2016		2018	
		N	%	N	%	n	%	N	%
	b. Not Fulfilled	25	64.1	17	43.6	10	76.9		
9.	Pharmacy								
	a. Fulfilled	22	56.4	8	20.5	7	53.8		
	b. Not Fulfilled	17	43,6	18	79,5	6	23,1		

Source: NST research results, 2018

The index value of the essential UKM program at the assigned puskesmas decreased from 4.0 in 2016 to 3.5 in 2018 so the index value decreased by 0.5. The index value at post-assignment health centers decreased from 7.6 in 2016 to 7.1 in 2018 so the index value decreased by 0.5. The index value of the Essential Public Health Efforts program at the assignment and post-assignment health centers is shown in Table 2.

Table 2. Index Value of the Essential UKM Program at NST Evaluation Research Assignment and Post Assignment Health Centers, 2018

Essential UKM Program	Assignment		Information	Post Assignment		Information
	Health Centers			Health Centers		
	2016	2018		2016	2018	
Community Empowerment	3,7	3,3	decrease	7,1	6,8	decrease
Environmental Health	5,9	3,7	decrease	7,8	7,0	decrease
Maternal and Child Health and Family Planning	3,7	3,5	decrease	7,7	7,6	decrease
Nutrition	3,6	3,7	increase	7,7	6,7	decrease
Preventive & Control Disease	3,2	3,6	increase	7,7	7,4	decrease
Essential Public Health Effort Program	4,0	3,5	decrease	7,6	7,1	decrease

Source: NST research results, 2018

The average value index of the essential UKM program is obtained from the difference in the average scores of the assigned and post-assigned puskesmas programs in 2016 and 2018. The average program score is a composite of each activity in each program. Statistical test results for the UKM program between 2016 and 2018 at the Assignment Health Center p.Value = 0.26 95% CI 0.11-0.41) and post-assignment p.Value = 0.76 95% CI (0.36-0.49) there is no difference or sustainability.

Essential UKM programs that experience sustainability, because there is no difference in the statistical test results between the assigned and post-assigned puskesmas, are; 1) health promotion, 2) empowerment, 3) environmental health, 4) maternal and child health and family planning, 5) nutrition, and 6) disease prevention. The results of the analysis of the average index of essential public health efforts in 2016 and 2018 at the NST assignment and post-assignment health centers are shown in Table 3.3.

Table 3. Index of Average Value of the Essential UKM Program at the Assignment and Post Assignment Health Centers of NST Evaluation Research, 2018

No	Essential UKM Program Items	Statistical Test Results			
		Assignment Health Center		Post Assignment Health Center	
		p. Value	CI 95%	p. Value	CI 95%
1.	Health Promotion	p=0,11	(0,10-1,04)	p= 0,83	(0,89-1,10)
2.	Empowerment	p= 0,11	(0,10-1,04)	p= 0,83	(0,34-0,42)
3.	Environmental Health	p= 0,00	(-1,35-0,45)	p= 0,38	(0,10-0,26)
4.	Maternal and child health and Family Planning	p= 0,22	(0,09-0,41)	p= 0,94	(0,11-0,12)
5.	Nutrition	p= 0,24	(0,10-0,39)	p= 0,94	(0,11-0,12)
6.	Disease Prevention	p= 0,20	(0,07-1,03)	p= 0,78	(0,47-0,61)
7.	Essential UKM Program	p=0,26	(0,11-0,41)	p= 0,76	(0,36-0,49)

Source: NST research results, 2018

The bias that can occur is in the form of recall bias and community subjectivity. The validity that can occur is internal validity in the form of limited instruments and external because the enumerators are puskesmas staff. Data validity is maintained from the time of planning and implementation in the form of preparation of instruments involving program managers and experts, testing and repair of instruments, enumerator education of at least Diploma health, provision of researchers (Training Of Trainers), enumerator training, questionnaires, and standardized instruments.

Sustainability or "sustainable program" is a program that can be maintained if it provides benefits and achieves the objectives of a program^{13, 16}. The essential UKM program is a top-down program that is used to evaluate sustainability through quantitative study research methods. The top-down program in the theory of sustainability is a program that has been determined by the government so that it becomes a mandatory program at the puskesmas

Based on the results of statistical tests, there is generally no difference in the essential UKM programs at the assigned and post-assignment health centers, so that they are all sustainable. The ability of the puskesmas to maintain program sustainability is inseparable from the motivation possessed by NST to be able to join forces with other puskesmas staff (non-NST) and are ready to carry out their duties even though they are in DTPK areas. The motivation possessed by NST is the result of being formed during a debriefing period through education at the Pusdikkes for approximately 35 days. This provision is very important because NST will be assigned to the DTPK area. DTPK as an NST locus has its challenges and characteristics that are different from the conditions of non-DTPK areas due to geographical conditions that are difficult to reach, limited infrastructure, and human resources¹⁴.

Based on the research results, sustainable essential UKM is health promotion, community empowerment, environmental health, maternal, child, and family planning health and nutrition. The essential UKM that is not sustainable is disease prevention (placement health center). Sustainable essential

UKM at the assigned puskesmas due to the presence of the NST which is generally the spearhead in running essential UKM programs at the puskesmas. The decrease in the average index at the puskesmas after the assignment was because the programs that had been run by the NST generally could no longer be continued by the puskesmas. The results of the analysis show that there are programs that have experienced a decrease in the index, which means that the coverage of programs at puskesmas has decreased in 2018 compared to 2016, more due to the achievement of the coverage of the NST batch 1 and 2 programs, which is better than the coverage of the NST batch 6 and 8 programs. This decrease occurred due to several factors. factors including the spirit possessed and innovation carried out by NST batches 1 and 2 are better than NST batches 6 and 8, government support has decreased and equipment is complete

The decrease in the number of NST workers assigned to the placement health center from batch 1-2 to batch 6-8 replacement resulted in a decrease in program coverage achievements. The number of puskesmas that experienced a decrease in NST staff was 13 (50%) from a total workforce of 160 people in batch 1-2 to 147 people in batch 6-8 or a decrease of 8.2%. The biggest decrease was in environmental health workers (9 people) and community health workers (8 people). The decrease in the index for the disease control program compared to the previous batch was due to the success of the previous batch of NST in suppressing the incidence of infectious diseases so that the program was reduced, for example, acute respiratory infection, tuberculosis, and diarrhea²⁰.

CONCLUSION AND SUGGESTIONS

The switch from batches 1-2 to batches 6-8 provided sustainable results even though the essential UKM experienced a decline caused by the decreased level of NST enthusiasm and reduced NST staff assigned to the next batch and the success of the program in the previous batch. Sustainable puskesmas programs are health promotion, community empowerment, environmental health, maternal, child, and family planning health, nutrition services, and prevention of disease services

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CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

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ACHIEVEMENT OF NATIONAL INDICATORS OF HOSPITAL QUALITY IN INDONESIA

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ABSTRACT

Background: The National Quality Indicator Measurement (INM) of hospitals is mandatory to be conducted as a basis for planning, monitoring, evaluation, and decision-making for the improvement of healthcare services in hospitals, following Minister of Health Regulation Number 30 of 2022. **Objective:** This study aims to determine the overview of the achievement of hospitals in Indonesia in reporting and meeting the National Quality Indicators (INM). **Method:** The method used in this study is descriptive with secondary data analysis. Quality indicator data was obtained from the achievement data of national quality indicators reported in the mutu.fasyankes.kemkes.go.id/simar/ application. **Results:** All provinces have implemented the reporting of INM measurements, and the number of hospitals reporting INM in the first quarter of 2023 has increased compared to the reporting of hospital INM in the fourth quarter of 2022. There are still 18 provinces with INM reporting compliance below 50%. There is no difference in reporting compliance between government/TNI/POLRI-owned hospitals, state-owned enterprises, and private hospitals. The average achievement of INM targets in 2023 has improved compared to 2022. Compliance with the use of Personal Protective Equipment (PPE) is an indicator of low achievement. **Conclusion and Suggestions:** Compliance in reporting INM by hospitals has increased after the implementation of the obligation to measure and report INM according to Minister of Health Regulation Number 30 of 2022. However, the achievement of the compliance indicator for the use of PPE is still low. It is necessary to strengthen healthcare workers' adherence to the use of PPE.

Keywords: National Quality Indicators, Hospitals, Indonesia

ABSTRAK

Latar Belakang: Pengukuran Indikator Nasional Mutu (INM) rumah sakit wajib dilakukan sebagai bahan dalam perencanaan, pemantauan dan evaluasi serta pengambilan keputusan untuk peningkatan pelayanan kesehatan di rumah sakit sesuai dengan Permenkes Nomor 30 tahun 2022. **Tujuan:** Penelitian ini bertujuan untuk mengetahui gambaran capaian keberhasilan rumah sakit di Indonesia dalam melaporkan dan memenuhi Indikator Nasional Mutu (INM). **Metode:** Metode yang digunakan dalam penelitian ini adalah metode deskriptif dengan analisis data sekunder. Data indikator mutu diambil dari data capaian indikator nasional mutu yang dilaporkan pada aplikasi mutu [fasyankes.kemkes.go.id/simar/](https://mutu.fasyankes.kemkes.go.id/simar/). **Hasil:** Seluruh provinsi telah melaksanakan pelaporan pengukuran INM dan jumlah rumah sakit yang melaporkan INM pada triwulan 1 (satu) tahun 2023 mengalami peningkatan dari pelaporan INM rumah sakit pada triwulan 4 (empat) tahun 2022. Masih terdapat 18 provinsi dengan kepatuhan pelaporan INM rumah sakit di bawah 50%. Tidak terdapat perbedaan kepatuhan pelaporan rumah sakit baik pada rumah sakit milik Pemerintah/TNI/POLRI, BUMN dan swasta. Rata-rata capaian target INM pada tahun 2023 mengalami peningkatan dari tahun 2022. Kepatuhan penggunaan Alat Pelindung Diri (APD) merupakan indikator dengan ketercapaian yang rendah. **Kesimpulan dan Saran:** Kepatuhan pelaporan INM rumah sakit mengalami kenaikan paska diberlakukannya kewajiban pengukuran dan pelaporan INM sesuai Permenkes Nomor 30 tahun 2022, walaupun demikian, capaian indikator kepatuhan penggunaan APD masih rendah. Perlu dilakukan penguatan kepada tenaga kesehatan untuk meningkatkan kepatuhan penggunaan APD.

Kata kunci: Indikator Nasional Mutu, Rumah Sakit, Indonesia

INTRODUCTION

Hospitals as health service facilities that provide individual health services, especially curative and rehabilitative, are required to be able to provide efficient, effective, and quality health services completely and oriented to patient satisfaction following predetermined standards. For this reason, it is a must that the hospital always makes efforts to improve quality both internally and externally on an ongoing basis.

Quality health services are the rights of every customer and can provide opportunities to win competition with other health care providers. Quality of service and value have a direct impact on customers. Customer satisfaction is influenced by the perceived quality of service¹. Good service quality is one of the important factors in creating customer satisfaction². For this reason, hospitals as health service providers should pay attention to the needs and satisfaction of patients who use health services. Patient complaints against health services received should be minimized with various efforts to improve quality.

Patient complaints are a problem faced in almost all countries. The number of patient complaints in the world continues to increase, In the National Health Service (NHS) in the United Kingdom (UK) in 2015-2016 there were 198,739 complaints which increased the following year by 4.9% to 208,415 complaints. Data from the Hospital and Community Health Service (HCHS) in 2017-2018 total written complaint reports were 113,989. The largest proportion was associated with inpatient services at 32.7%, This figure showed an increase from the previous year of 31.3% and complaints also increased in the categories of clinical treatment, behavior of medical personnel in providing services, and communication in services. Meanwhile, Gloucestershire Hospitals received 1031 complaints in 2017-2018 and experienced an increase of 13% from the previous year of 913 complaints.³

Not much different from conditions in various countries, health services, especially in hospitals, still get complaints from patients. The level of patient satisfaction with hospital services in Indonesia still varies and there is still room for improvement. The results of a patient satisfaction survey conducted by the Ministry of Health in 2020 showed that around 70% of patients were satisfied with hospital services in Indonesia.⁴ Although this figure is quite high, there are still 30% of patients who are dissatisfied with hospital services.

There are 26% of respondents, namely Sadikin Hospital patients receive poor service and there are still several complaints that must be a top priority to be improved from the attributes of Interactional Justice and Distributive Justice. These including doctors' expertise in providing information about health problems suffered by patients, doctors' expertise in asking patient complaints, nurse expertise in providing information about health problems, diseases suffered by patients, and communication between patients and doctors.³

Efforts to improve the quality of hospital services carried out effectively and efficiently aim to make the health services provided by the hospital efficient and successful. Service quality efforts and activities carried out must be comprehensive and integrative regarding structures, processes, and outcomes systematically and continuously.

The Ministry of Health as the regulator has developed efforts to improve the quality of hospitals both internally and externally. External Continuous Quality Improvement is part of efforts to improve the quality of service in the hospital as a whole. Some activities that include external quality improvement are licensing, certification, and accreditation. Meanwhile, internal quality improvement (Internal Continuous Quality Improvement) is where the hospital makes efforts to improve quality regularly, including setting, measuring, reporting, and evaluating quality indicators and reporting patient safety incidents. This internal quality improvement is the most important thing for hospitals to ensure service quality. The measurement of the National Quality Indicator (INM) aims to assess whether the efforts that have been made can improve service quality on an ongoing basis, as well as to provide feedback, and public transparency, and can be used as a benchmark in identifying the best practices for learning.⁵

The government has developed several national quality indicators that are measured periodically and regularly. These indicators cover various aspects of health services, such as infection prevention, rational use of drugs, and health services for mothers and children. By monitoring national quality indicators regularly, it is expected to create better and better quality health services in all hospitals in Indonesia.

Hospitals are required to report and communicate the results of INM achievements regularly. Such reporting and communication are needed in planning, monitoring, and evaluation as well as decision-making for the improvement of health services in hospitals. Reporting is carried out in stages starting from internal hospitals to external to the Ministry of Health.

The obligation to measure and report national indicators of hospital quality is contained in the Regulation of the Minister of Health of the Republic of Indonesia Number 30 of 2022 concerning National Indicators of Health Service Quality for Independent Practices of Doctors and Dentists, Clinics, Community Health Centers, Hospitals, Health Laboratories, and Blood Transfusion Units. National Hospital Quality Indicators consist of hand hygiene compliance (KKT), compliance with the use of Personal Protective Equipment (PPE), patient identification compliance, emergency cesarean section surgery response time, outpatient waiting time, elective surgery delay, doctor visit time compliance, laboratory critical result reporting, national formulary use compliance, clinical pathway compliance, patient risk.

There are 11 National Quality Indicators that show significant differences between types of Education Hospitals. The Main Teaching Hospital is better at achieving two indicators, namely patient identification compliance and patient fall prevention efforts. Affiliated Teaching Hospitals are better at achieving five indicators, namely speed of complaint response time, clinical pathways compliance, laboratory critical test result report time, compliance with the National Formulary (Fornas), and handwashing compliance. Meanwhile, Satellite Education Hospital is better in achieving four indicators, namely outpatient waiting time, patient and family satisfaction, compliance with doctors' visit hours, and emergency response time.⁶

Not much research has been conducted related to INM because its implementation was only enforced nationally in October 2022 through Minister of Health Regulation Number 30 of 2022. This study aims to determine the picture of the success of hospitals in Indonesia in reporting and meeting the National Quality Indicators (INM).

METHOD

The method used in this study is a descriptive method with secondary data analysis. Quality indicator data is taken from data on the achievement of national quality indicators (INM) reported on the fasyankes.kemendes.go.id/simar/ quality application. The data analyzed is INM achievement report data in December 2022 and March 2023. The picture of the hospital's success in reporting and meeting INM targets is displayed in the form of a frequency distribution table.

RESULTS AND DISCUSSION

There are a total of 617 hospitals reporting National Quality Indicator (INM) achievements in December 2022 and as many as 1,722 hospitals reporting INM achievements in March 2023. INM reporting has been distributed in 34 provinces. The percentage of INM reporting compliance increased from 19.99% in December 2022 to 57.40% in March 2023 (Table 1).

Table 1. Distribution of National Quality Indicator Reporting by Province

Province	Number of Hospitals	Reporting in December 2022		Reporting in March 2023	
		n	%	n	%
Aceh	74	5	6,76	21	28,38
Bali	74	14	18,92	48	64,86
Banten	126	17	13,49	73	57,94
Bengkulu	25	7	28,00	16	64,00
D I Yogyakarta	80	16	20,00	50	62,50
Dki Jakarta	196	59	30,10	155	79,08
Gorontalo	19	7	36,84	9	47,37
Jambi	40	2	5,00	28	70,00
Jawa Barat	402	85	21,14	256	63,68
Jawa Tengah	340	72	21,18	226	66,47

Province	Number of Hospitals	Reporting in December 2022		Reporting in March 2023	
		n	%	n	%
Jawa Timur	412	114	27,67	260	63,11
Kalimantan Barat	55	5	9,09	26	47,27
Kalimantan Selatan	53	11	20,75	35	66,04
Kalimantan Tengah	31	1	3,23	14	45,16
Kalimantan Timur	58	7	12,07	27	46,55
Kalimantan Utara	15	1	6,67	4	26,67
Kepulauan Bangka Belitung	27	9	33,33	17	62,96
Kepulauan Riau	37	3	8,11	9	24,32
Lampung	81	37	45,68	61	75,31
Maluku	30	3	10,00	14	46,67
Maluku Utara	22	1	4,55	7	31,82
Nusa Tenggara Barat	43	3	6,98	19	44,19
Nusa Tenggara Timur	56	4	7,14	23	41,07
Papua	50	3	6,00	11	22,00
Papua Barat	24	2	8,33	9	37,50
Riau	77	29	37,66	64	83,12
Sulawesi Barat	14	0	0,00	12	85,71
Sulawesi Selatan	118	15	12,71	49	41,53
Sulawesi Tengah	40	14	35,00	32	80,00
Sulawesi Tenggara	39	2	5,13	22	56,41
Sulawesi Utara	55	5	9,09	29	52,73
Sumatera Barat	82	13	15,85	35	42,68
Sumatera Selatan	85	38	44,71	68	80,00
Sumatera Utara	207	13	6,28	43	20,77
Total	3087	617	19,99	1772	57,40

Based on Table 1, it can be seen that there has almost doubled the number of hospitals reporting INM achievements from the original 19.99% in December 2022 to 57.40%.

Compliance with reporting INM achievements has continued to increase since the enactment of the Regulation of the Minister of Health of the Republic of Indonesia Number 30 of 2022 concerning National Indicators of Health Service Quality for Independent Practices of Doctors and Dentists, Clinics, Community Health Centers, Hospitals, Health Laboratories, and Blood Transfusion Units.

In December 2022, hospitals reporting INM achievements came from 33 provinces. No hospitals in West Sulawesi Province reported INM achievements in December 2022. Meanwhile, in March 2023, all provinces have reported INM achievements. There are 18 provinces with the percentage of compliance with reporting INM achievements still below the national average consecutively from the lowest, namely North Sumatra, Papua, Riau Islands, North Kalimantan, Aceh, North Maluku, West Papua, East Nusa Tenggara, South Sulawesi, West Sumatra, West Nusa

Tenggara, Central Kalimantan, East Kalimantan, Maluku, West Kalimantan, Gorontalo, North Sulawesi, and Southeast Sulawesi.

The highest percentage of compliance reporting INM achievements in March 2023 is in West Sulawesi Province. However, this may be due to the low number of hospitals in West Sulawesi Province compared to other provinces, which is 0.45% of the total number of hospitals in Indonesia, making it easier to conduct guidance and supervision in reporting INM achievements.

The provinces of West Java and East Java, which are the two provinces with the highest number of hospitals in Indonesia, have been relatively good in reporting INM achievement compliance because they have been above the national average of 63.68% and 63.11% of INM achievement reporting compliance. A total of 621 hospitals are Government/TNI POLRI-owned hospitals, 21 SOE-owned hospitals, and 1,130 Organization/Individual/Private Hospitals. When compared with the total number of hospitals by ownership, the percentage of compliance with reporting Government/TNI/POLRI hospitals is 53.7%, state-owned hospitals is 56.8%, and Organization/Individual/Private hospitals are 58.3% (Table 2).

Table 2. Distribution of Compliance Reporting of National Quality Indicators Based on Hospital Ownership Status

Hospital Ownership Status	Reporting Compliance
Government/TNI/POLRI	53,7%
BUMN	56,8%
Organization/Individual/Private	58,3%

Based on the table above, shows that there is no significant difference regarding compliance with INM reporting based on hospital ownership. Organizational/individual/private hospitals are slightly better at reporting INM achievements than Government/TNI/POLRI hospitals and state-owned hospitals.

INM achievements that must be reported are 13 indicators with reporting time according to the reporting period. Because in this study the data analyzed was the achievement of INM in March, there is one indicator that cannot be analyzed, namely patient satisfaction. The analysis results show that there is an increase in the average INM achievement in March 2023 compared to the average INM achievement reported in December 2022 (Table. 3).

Table 3. Average Distribution of National Quality Indicators

National Quality Indicators (INM) of Hospitals	INM Achievement Target According to Minister of Health Regulation No. 30 of 2022	Average INM Achievement in March 2023	Average INM Achievement in December 2022
Hand hygiene compliance	85	88,54	89,40
PPE compliance	100	94,77	94,74
Patient Identification Adherence	100	97,64	96,97
Caesarean section response time Emergency	80	82,78	59,06
Outpatient waiting time	80	80,00	79,24
Postponement of Elective Operations	5	7,53	7,19
Physician visite time adherence	80	80,85	81,10
Reporting of laboratory critical results	100	97,47	93,35
Fornas usage compliance	80	93,20	91,02
Adherence to the Clinical pathway	80	86,16	73,95
Compliance with the risk prevention of falling patients	100	96,79	94,57
Speed of response time to complaints	80	96,83	83,89
Average achievement of INM target		83,55	78,48

Although there was an increase in the average achievement of the INM target in March 2022 compared to the average achievement of the INM target in December 2023, there were two indicators that experienced a decrease in achievement. Handwashing compliance indicators decreased by 0.86 points in March 2023 and physician visite compliance indicators decreased by 0.25 points compared to the reporting period in December 2022.

Some indicators did not achieve the target in reporting INM achievements in March 2022 and the percentage of achievement is the lowest compared to other indicators, namely compliance with PPE use (95%). When juxtaposed with the reporting data on INM achievements in December 2022, the compliance indicator for PPE use also did not reach the target and only increased by 0.03 points in the reporting period in March 2023.

Quality health services are an obligation in realizing universal health coverage, which illustrates the important role of quality health delivery. Improvement in the delivery of health services requires a careful focus on the quality of health services that can meet the quality dimension, which includes the delivery of effective, safe, patient-focused services as well as timely, fair, integrated, and efficient.⁽⁷⁾ Health service quality is the level of health services for individuals and communities that

can improve optimal health outcomes, provided according to service standards, and the latest scientific developments, as well as to fulfill patient rights and obligations.⁵

To maintain and improve the quality of health services on an ongoing basis, health facilities measure and evaluate the quality of health services following Quality Indicators. Quality indicators aim to detect health services that are not optimal either in structure, process, or results, and can be used as a reference in efforts to improve the quality of health services.⁸

With the issuance of regulations related to the obligation to measure and report INM by health facilities in October 2022 as stipulated in the Regulation of the Minister of Health of the Republic of Indonesia Number 30 of 2022, it encourages an increase in the percentage of reporting INM achievements in the March 2023 period (57.40%) compared to the reporting period in December 2022 (19.99%). This is certainly driven by the efforts of the Directorate of Health Service Quality which actively conducts socialization, workshops, monitoring, and evaluation of INM measurement and reporting to all hospitals in Indonesia. The use of fasyankes.kemkes.go.id/simar/ quality applications is thought to also contribute to the ease of reporting so that it is more efficient and improves INM reporting compliance.

Based on INM achievement data for the reporting period in March 2022, individual/organizational/private hospitals have the highest level of compliance with INM achievement reporting compared to Government/TNI/POLRI and state-owned hospitals. The results of INM achievements must be reported and communicated periodically according to the profile of each quality indicator. Reporting and communication are needed in planning, monitoring, evaluating, and decision-making to improve health services in Puskesmas.⁵

There are still 18 provinces reporting compliance below the national average, all of which are provinces outside Java. Health development in Indonesia is currently faced with the challenge of disparity in status achievement and access to health services.⁹ This condition is in line with the health development process in Indonesia which also tends to show disparities between the West and East regions. A research proves that spatially, geographical conditions in an area contribute to creating disparities between regions, including in childbirth services in healthcare facilities.¹⁰

Not only in Indonesia, disparities between regions also occur in several other countries. For example, an Iranian study found regional differences in Iran on obstetrics and gynecology services and their relationship to child and infant mortality rates. Regional disparities in Iran also occur in health services for children and adolescents.¹¹ The existence of hospital class levels based on service capabilities also indicates differences in the ability of available resources. Plus the disparity in the availability of hospital resources and facilities in various regions of Indonesia. This should be expected to contribute to the distribution of reporting compliance and INM achievements of hospitals in Indonesia.

There is an INM with an average percentage of achievement of 95% of the predetermined INM target, namely compliance with the use of PPE. Non-compliance with the use by health workers found in various hospital agencies due to knowledge, facilities, and environmental factors, increases the risk of nosocomial infections. Increasing compliance with the use of PPE for health workers is something that needs to be implemented to improve infection prevention and control efforts.¹² The results of a study prove that the principle of human factor design through audit and reporting programs with staff involvement can significantly increase compliance with the use of PPE over time by up to 90%.¹³

The percentage of compliance in reporting hospital INM achievements has only reached 57.40% of the hospital population, there are still 18 provinces with low INM reporting compliance, and there are still INM achievements that have not met targets such as compliance indicators for the use of PPE, indicating that efforts are still needed to increase hospital commitment in making continuous quality improvement efforts. The following are some efforts that can be made to improve measurement and compliance reporting and improve the achievement of hospital quality indicators, namely: 1) awareness and education; 2) communication and feedback; 3) supervision and accountability; 4) benchmarking; and 5) awards and recognition.

Increase awareness and understanding of hospital staff on the importance of measuring and reporting INM achievements. Training and education related to INM can help inform staff about the purpose and benefits of measurement and reporting. A literature study resulted in recommendations that the implementation of quality indicators in hospitals is most effective if feedback reports are provided in combination with educational implementation strategies and/or the development of quality improvement plans.¹⁴

Effective communication and feedback between hospital management and staff responsible for INM measurement and reporting is essential. Providing regular feedback to staff on INM measurement and reporting results can provide motivation and strengthen compliance. Staff involvement and participation are associated with the success of quality improvement initiatives and the value of better quality indicators in hospitals.¹⁵ The results of research at Ahmad Tabib Hospital provide lessons that the implementation of quality improvement will run well if management and service elements can collaborate well and can carry out their main duties and functions optimally.¹⁶

Making reporting compliance part of staff responsibility and performance can drive higher compliance. Proper oversight and accountability for quality indicator reporting can encourage staff to report in a timely and accurate manner. In hospital accreditation standards according to Kepmenkes number 1128 of 2022, hospital INM measurement is part of a hospital quality improvement and patient safety program that needs to be evaluated in coordination meetings involving committees, hospital leaders and unit heads every quarter to ensure continuous quality improvement.

Benchmarking by involving various related parties, both within the hospital and among other hospitals, can help improve reporting compliance. These activities may include the exchange of experiences, best practices, and suggestions between hospitals to improve reporting compliance and achievement of INM targets. Benchmarking activities in health services as a process of comparative evaluation and identification of causes to achieve performance improvement.¹⁷ Benchmarking as the continuous search and real application of better practices that lead to superior competitive performance.¹⁸

Encouraging and rewarding staff who consistently report on quality indicator achievements can be a powerful incentive. Public recognition of hospitals or staff achieving high levels of compliance can provide additional motivation. Hospitals need to reward and punish staff who have made changes well and maintained them. Giving rewards or punishments is considered to be able to motivate staff to maintain change. Rewards use all motivating situations, ranging from biological drives that are a person's main need, to results that reward a person, such as financial, attention, affection, and high-level social aspirations.¹⁶

By implementing these efforts, hospitals are expected to improve reporting compliance and achievement of INM targets. This will help improve the monitoring of quality improvement programs and lead to continuous improvement as part of Continuous Quality Improvement (CQI) in health services provided by hospitals. To implement these efforts, hospitals need to have a strong commitment to quality improvement and allocate sufficient resources so that all hospitals can provide quality health services to improve the degree of public health.

CONCLUSION AND SUGGESTIONS

Hospital INM reporting compliance has increased after the enactment of INM measurement and reporting obligations according to Minister of Health Regulation Number 30 of 2022, but the percentage of reporting compliance has only reached 57.40% of the entire hospital population in Indonesia. Organizational/individual/private hospitals have the highest level of compliance with reporting INM achievements compared to Government/TNI/POLRI and state-owned hospitals. The distribution of INM reporting compliance is uneven because there are still 18 provinces with reporting compliance percentages below the national average of reporting compliance.

The achievement of compliance indicators for the use of PPE is still low compared to 12 other indicators. It is necessary to strengthen health workers to improve compliance with the use of PPE, one of which is by using human factor design principles through audit and reporting programs with staff involvement.

Some efforts that can be made to improve compliance with INM reporting and achievements include increasing staff awareness and education related to INM, communication and feedback between management and staff, supervision and accountability, benchmarking, and rewards and recognition to

staff. Furthermore, more in-depth research can be conducted to understand the factors that affect the reporting of quality indicators, such as organizational factors, policies, work culture, and leadership support so that the Ministry of Health can make improvements in the implementation of quality improvement efforts policies through hospital INM measurement and reporting.

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EFFECTIVENESS OF EARLY MOBILIZATION ON MUSCLE STRENGTH AND PAIN SCALE IN POST-ORIF TIBIA FIBULA FRACTURE PATIENTS AT HOSPITAL IN JAKARTA CENTRAL

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ABSTRACT

Fracture is a condition where there is a break in bone tissue. ORIF is a surgical procedure that aims to restore the condition of the fracture as before. The problems that arise after ORIF is the occurrence of pain and limited activity. To reduce the problems that arise is to implement ROM (Range Of Motion) early mobilization. Objective ROM is to increase muscle strength and reduce the pain scale experienced by patients with tibia and fibula fractures. The method in this study was quasi-experimental with the total sampling technique. The analysis in this study used the Jamovi application with the Paired Samples T-Test and Repeated Measurement ANOVA. After ROM training there was a significant increase ($P\text{-value} = <0.001$) during the 4 days of hospitalization with a mean difference ranging from 2.00. In early mobilization exercises carried out independently at home for 10 days there was a significant increase in muscle strength ($P\text{-value} = <0.001$) with a mean difference ranging from 3.40. In measuring the pain scale after the ROM intervention was carried out for 4 days in the hospital, the results showed a significant decrease ($P\text{-Value} = <0.001$) with a mean difference of around -2.00. Meanwhile, in measuring the pain scale on days 7 and 14 of independent ROM exercises at home, the results were not significant where the $P\text{-value} = 0.363$ with a difference in mean values ranging from +0.100. The application of EBNP, namely the provision of early mobilization exercises (ROM) has proven effective in increasing muscle strength and gradually reducing the pain scale in patients with tibia and fibula fractures.

Keywords: Tibia fibula fracture, early mobilization exercise (ROM), muscle strength, pain scale

ABSTRAK

Fraktur adalah suatu keadaan dimana terjadi patahnya jaringan tulang. ORIF merupakan prosedur pembedahan yang bertujuan untuk mengembalikan kondisi fraktur seperti semula. Permasalahan yang muncul setelah dilakukan ORIF adalah terjadinya nyeri dan keterbatasan aktivitas. Untuk mengurangi masalah yang timbul adalah dengan melakukan penerapan mobilisasi dini ROM (Range Of Motion). Tujuan ROM adalah untuk meningkatkan kekuatan otot dan mengurangi skala nyeri yang dialami pasien dengan fraktur tibia dan fibula. Metode pada penelitian ini adalah quasi eksperimen dengan teknik teknik pengambilan sampel adalah total sampling. Analisis pada penelitian ini menggunakan aplikasi Jamovi dengan uji Paired Samples T-Test dan Repeated Measurement ANOVA. Setelah dilakukan pelatihan ROM terjadi peningkatan yang signifikan ($P\text{-value} = <0,001$) selama 4 hari rawat inap dengan selisih rata-rata berkisar 2,00. Pada latihan mobilisasi dini yang dilakukan secara mandiri di rumah selama 10 hari terjadi peningkatan kekuatan otot yang signifikan ($P\text{-value} = <0,001$) dengan selisih rata-rata berkisar 3,40. Pada pengukuran skala nyeri setelah dilakukan intervensi ROM selama 4 hari di RS diperoleh hasil penurunan yang signifikan ($P\text{-Value} = <0,001$) dengan selisih mean sekitar -2,00. Sedangkan pada pengukuran skala nyeri hari ke 7 dan 14 latihan ROM mandiri di rumah diperoleh hasil yang tidak signifikan dimana $P\text{-value} = 0,363$ dengan selisih nilai mean berkisar +0,100. Penerapan EBNP yaitu pemberian latihan mobilisasi dini (ROM) terbukti efektif meningkatkan kekuatan otot dan menurunkan skala nyeri secara bertahap pada pasien patah tulang tibia dan fibula.

Kata Kunci: Fraktur fibula tibia, latihan mobilisasi dini (ROM), kekuatan otot, skala nyeri

INTRODUCTION

A fracture is a condition where the continuity of the bone is lost or reduced, either solid bone or cartilage, and this fracture can be total or partial. The World Health Organization (WHO) states that traffic accidents are the number 8 cause of death and are the top cause of death in people aged 15-29 years. In 2018 fracture cases were recorded by 21 million people, in 2019 there were 15 million people and in 2020 there were 13 million people with a prevalence rate of 2.7% (1,2). Riskesdas data (2018) also shows that gender and place of occurrence have a relationship with the incidence of bone fractures, men (6.6%) are more susceptible to bone fractures than women (4.6%), meanwhile according to (3) in men Men are more likely to experience fractures due to driving. As many as 1.3 million people experience disability and even death each year due to traffic accidents (4)

Surgery is one of the methods used as fracture treatment which aims to restore the fracture to its original state, namely the Open Reductive Internal Fixatie/ORIF (5). ORIF is a surgical procedure that aims to restore the position of the fractured bone so that function and bone stabilization return (6). The problems that arise after the ORIF installation procedure are the occurrence of pain and limited movement. Early mobilization is an activity or movement or position change performed by the patient after several hours of surgery (7). Research conducted on the effectiveness of Range Of Motion (ROM) by (8) found that in the first group, there was an increase in muscle tone of 1.8 and a standard deviation of 0.632. Meanwhile, in group 2, which received 3 actions, the increase in muscle tone was 2.3 and the standard deviation was 0.32. Meanwhile, the research of (9) showed that there was an effect of early ambulation on increasing the fulfillment of the Activity of Daily Living (ADL) in postoperative patients with limb fractures with a P value of 0.00 (<0.05). Agarwal-Harding et al., 2015

Range Of Motion (ROM) is an exercise to move parts of the body to maintain flexibility and the ability to move joints. Range of motion (ROM) exercise are exercise carried out to maintain or improve the level of perfection of the ability to move joints normally and completely to increase muscle mass and muscle tone (Potter & Perry, 2005). ROM has many goals, including maintaining flexibility and ability to move joints, reducing pain, restoring the client's ability to move muscles, improving blood circulation (Potter & Perry, 2005).

Andri July, 2020 analyzed the effect of ambulation mobilization on changes in pain in postoperative patients with a sample of 35 people, the results showed that patients who carried out mobilization activities totaled 82.9% and patients who did not carry out mobilization activities amounted to 17.1%, patients who did ambulation activities amounted to 82.9% and patients who did not carry out ambulation activities amounted to 17.1%, moderate pain amounted to 77.1% and severe pain amounted to 22.9% with the result of square p value = 0.000 on the Che-square test. From the several studies above, it can be seen that early mobilization is effective for increasing muscle strength

and reducing pain, however, there are no studies that combine the variables of increasing muscle strength and reducing pain, therefore researchers are interested in conducting this research.

METHOD

This research involved 10 respondent with responder criteria post ORIF Tibia Fibula fracture. In this data analysis, nurses use the Jamovi application software to perform data calculations. Jamovi is a graphical interface display application to make it easier for users to carry out quantitative data analysis using the statistical programming language R. Jamovi has a point and click display so that users do not need to type command line commands in R. The research design used a quasi-experimental study in which the pre and post-test methods. ROM training was given to respondent for 14 days. Looked at the differences in the degree of pain, muscle strength before and after treatment, and muscle strength after ROM exercises. It is hoped that after respondent dp ROM exercises, they will find a decrease in the degree of pain and an increase in muscle strength so that respondent can be more independent in carrying out activities. The data analysis used in this study is the paired T-test where this study tries to find a comparison of the data before and after in pairs and connected. For continuous data types, repeated measurements are carried out within a certain period. The analysis used is Repeated Measurement Anova measurements. The sampling technique in this study will use the total sample.

RESULTS AND DISCUSSION

The results of the table presentation show that the demographic data from 10 respondents in the age variable showed that the majority of respondents were adults, namely 26 - 44 years (50%). The most common gender is men, namely 6 people (60%) and for work activities, it is mostly found among working respondents, namely 8 people (80%).

Table 1. Demographic Data Respondent

Variable		Respondent	
1	Age	n	(%)
	Elderly (45 – 65 years old)	4	40.0
	Mature (26 – 44 years old)	5	50.0
	Teenager (12 – 25 years old)	1	10.0
	TOTAL	10	100
2	Gender		
	Male	6	60.0
	Female	4	40.0
	TOTAL	10	100
3	Level og Education		
	Low Education (Elementary school – Senior high school)	5	50.0
	High Education (Diploma – Doctoral)	5	50.0
	TOTAL	10	100
4	Work Activity		
	Non worker	2	20.0
	Worker	8	80.0
	TOTAL	10	100

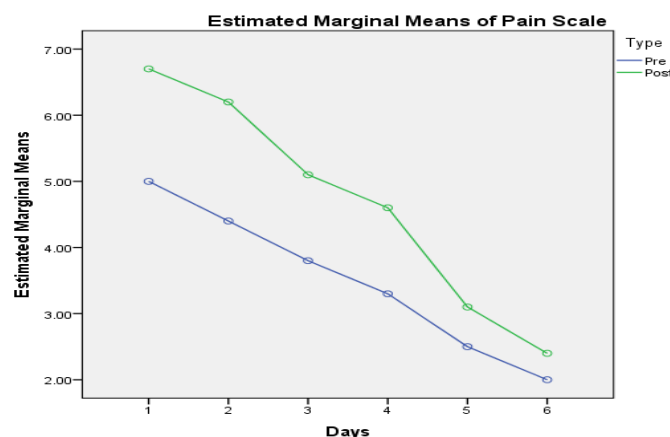
The result of data analysis on the pain scale from day 1 to day 14 showed significant difference where the p value ($<0,001$) in the Repeated Measures Anova test showed a mean difference of 3.00 on an effect size of 0.114 on the pain scale after ROM training for 4 treatment day. Meanwhile, data analysis on day 7 and day 14 showed that there was no significant difference in the reduction in pain scale where p value was 0.363 in the paired simple T-Test with mean value of 0.10 with an effect size of 0.114.

Table 2. Results of Pain Scale Analysis of Post ORIF Patients with Fibula Fractures Before & After Range of Motion Intervention (N = 10)

Paired Sample T-Test

			Statistic	df	p	SE difference		Effect Size
N7-Pre	N14-Post	Student's	0.361	9.00	0.363	0.100	0.277	Cohen's d 0.114

Note. H_a $\mu_{\text{measure1}} - \text{Measure 2} > 0$



Graph 1. Distribution of the Average Pain Scale of Post ORIF Patients with Fibula Fractures Before & After ROM Exercise from D1 to H14

The description of the diagram above states that there are several days that have a significant reduction in pain, namely 5 is the same as day 7 and 6 is the same as day 14.

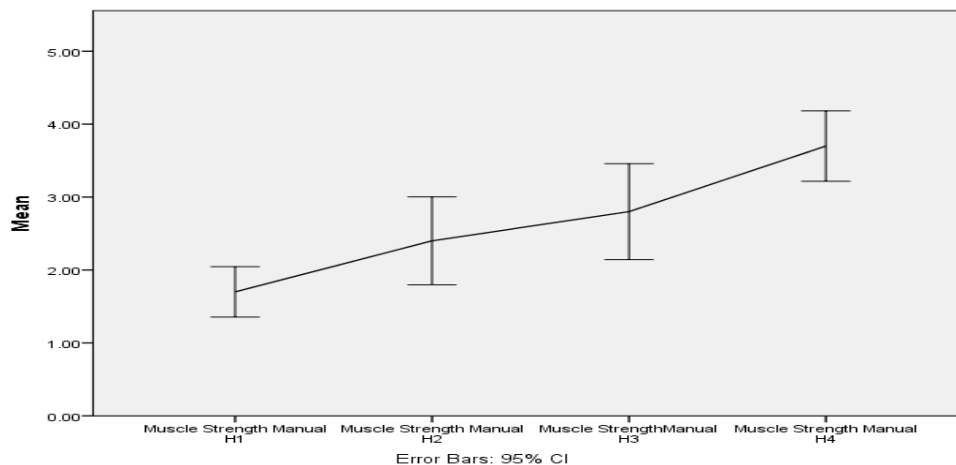
Result of data analysis on the pain scale from day 1 to day 4 showed of significant difference where the p value (<0.001) in the paired sample T-Test showed a mean difference of 2.00 at an effect size of 4.24. This is because on the day of treatment H4 the patient's wound healing process enters the proliferation phase.

Table 3. Results of Analysis of Muscle Strength in Post ORIF Patients with Se Fibula Fractures After ROM Exercise Intervention

										95% Confidence Interval		95% Confidence Interval	
			Statistic	df	p	Mean difference	SE Difference	Lower	Upper		Effect Size	Lower	Upper
KO1	KO4	Student's	13.42	9.00	<.001	2.00	0.149	1.66	2.34	Cohen's d	4.24	2.214	6.26
		Wilcoxon	55.0		0.004	2.00	0.149	1.50	2.50	Rank	1.00		
		W								biserial correlation			

Note. $H_a: \mu_{\text{Measure1}} - \mu_{\text{Measure2}} \neq 0$

^a1 pair(s) of values were tied



Graph 2. The average distribution of the increase in strength scale after ROM exercises on H1-H4

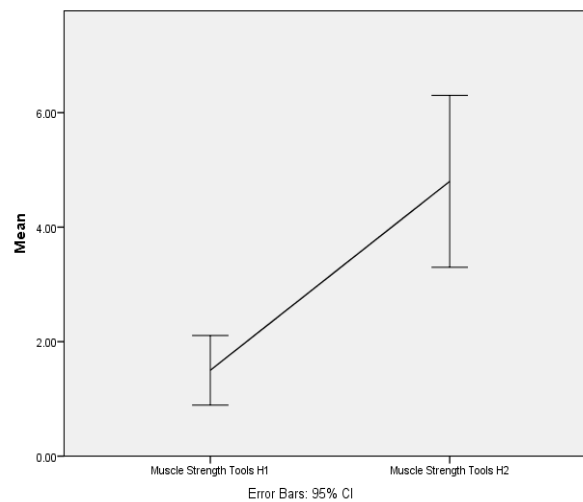
Table 4. Results of Analysis of Muscle Strength in Post ORIF Patients with Se Fibula Fractures After ROM Exercise Intervention on D-7 and D-14

Paired Sample T-Test

		Statistic	df	p	Mean difference	SE Difference	95% Confidence Interval		Cohen's d	Effect Size	95% Confidence Interval	
							Lower	Upper			Lower	Upper
KO7	KO14	Student's t	5.85	9.00	<.001	3.40	0.581	2.09	4.71	1.85	0.789	2.88
KO14	KO7	Wilcoxon	45.0a		0.009	4.00	0.581	2.50	5.00	Rank	1.00	
		W								biserial correlation		

Note. $H_a: \mu_{\text{Measure1}} - \mu_{\text{Measure2}} \neq 0$

^a1 pair(s) of values were tied



Graph 3. The average distribution of the increase in strength scale after ROM exercises on H7-H14

Based on table 1. shows that the majority are adults aged between 26-45 years as many as 5 respondents (50%). This is different from research conducted Andri July, 2020 where his research showed that the majority of lower extremity fractures often occur in children aged 12-25 years. This is because patients with an adult age range (26-45 years) are a fairly productive age group where the activities they carry out are more often outside the home and aimed at fulfilling their daily life needs. This is reinforced by the explanation of (11) in their article which said that "Fractures are more common at the age of under 45 years caused by motor vehicle accidents".

The male gender is the most respondents in this nursing practice, namely as many as 6 respondents (60%). This is in line with Desiartama & Aryana, 2017 where most of the respondents in their study were male, as many as 78 (69.1%) were men. This is because men tend to be more active in activities compared to women. This causes the possibility of fractures in men to be greater than in women (11). Higher education and lower education have the same distribution, namely as many as 5 respondents (50%). The results of this study are different from the research conducted by Mardiono & Putra, 2018 where 33 respondents (53.1%) had a high level of education. This is in line with Desiartama & Aryana, 2017, where most of the respondents in their study were male, as many as 78 (69.1%) were men. This is because men tend to be more active in activities compared to women. This causes the possibility of fractures in men to be greater than in women (11). Higher education and lower education have the same distribution, namely as many as 5 respondents (50%).

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greater than in women (Reeves CJ et al., 2001). Higher education and lower education have the same distribution, namely as many as 5 respondents (50%).

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Table 2. shows that there is a significant decrease in the pain scale in H1 to H14 as shown in graph 5.1 above. And the results of data analysis on the pain scale from day 1 to day 14 showed a significant difference where the p-value (<0.001) in the test repeated Measures ANOVA showing a mean difference of 3.00 at an effect size of 0.114 on the pain scale after ROM exercises for 4 days of treatment. Meanwhile, data analysis on day 7 and day 14 showed no significant difference in decreasing pain scale where p-value = 0.363 on the Paired Simple T-Test with a mean value of 0.10 on effect size = 0.114. ROM exercises that are carried out on patients are active movements of the lower limbs,

namely the patient's legs where ORIF has been carried out in handling fractures that occur. This is in line with Andri's research in July 2020, which stated that pain that is formed in postoperative patients is acute pain due to surgical wounds or incisions where mobilization is needed to improve blood circulation in the farthest area of the body, namely the lower extremities and will accelerate wound repair.

Whereas on day 7 to day 14 there was no significant decrease in the pain scale. This is because, on the 7th and 14th postoperative days, the client is allowed to go home and do ROM exercises independently at home. The patient's independent practice at home is highly dependent on self-motivation and family participation for the success of the therapy given. This Independent Exercise resulted in an average decrease in the pain scale less than optimal so the results were not significant. Independent ROM exercises are very dependent on self-care motivation in health patterns when carrying out physical activities.

Functional status is a picture of the ability of positive health activities which is seen from the client's ability to be independent in terms of doing physical activity exercises. Understanding disease conditions and the lack of individual roles results in differences in motivation from actions taken to achieve independence (Siegert & Taylor, 2004). The impact that arises is disinterest and fear of failure as an obstacle. Readiness to increase independence is related to non-optimal behavior at the action and maintenance stages. Support from close people is a form of social support that can be used as motivation to increase physical activity (Potter & Perry, 2005). Functional status toward normal life transition in serious illness has a relationship with the appearance of the ability to play a role and activities that are influenced by the family. Family support is a family function with component integrity including adaptation, partnership, development, affection, and resolve (16)

Table 3. shows that there is a significant increase in muscle strength in H1 to H4 as shown in graph 5.2 above. And the results of data analysis on the pain scale from day 1 to day 4 showed a significant difference where the p-value (<0.001) on Paired Simple T-Test test showed a mean difference of 2.00 on an effect size of 4.24 on manual measurement of muscle strength. So this research is said to be effective. This is because, on the H4 day of care, the patient's wound healing process enters the Proliferation phase. Where the process of tissue inflammation requires good circulation of blood, nutrients, and oxygen to speed up the ongoing wound closure process. An increase in functional status in the repair of bone tissue and surrounding organs requires the right stimulus so that the process of healing and repair of bone structures can take place quickly (17). A decrease in the inflammatory phase accompanied by rehabilitation programs such as ROM exercises and ambulation supports an increase in functional status. ROM exercises are the earliest type of strengthening exercises because they have the smallest possibility of interfering with fracture stability. ROM exercises are performed by contracting the muscles and without moving the joints, so that muscle strength is maintained

(Hoppenfeld & Murthy, 2011). Exercise provides a stressor to the bone healing phase. During the bone healing process, it is important to do ROM exercises so that it will result in increased mobilization and return of muscle strength. Returning bone function levels to normal for activities can take place more quickly than for those who do not do ROM exercises.

Table 4. Shows that there was a significant increase in muscle strength in H7 to H14 as shown in Graph 5.3 above. And the results of data analysis on the 7th to 14th-day pain scale found a significant difference where the p-value (<0.001) on the Paired Simple T-Test test shows a mean difference of 3.40 at an effect size of 1.85 on the measurement of muscle strength using a back and leg dynamometer. Functional status self-care motivation on health patterns can be seen from attention to physical activity. The willingness to seek and receive directions is related to the patient's willingness to perform physical activity. Inadequate assistance is assisting to perform activities one can do but still assisting. Excessive assistance can reduce the development of the client's ability to be independent so it affects functional status. The assistance provided will reduce the opportunity to do the activity repeatedly. The best exercise to improve performance is to do it repeatedly (18)

CONCLUSION AND SUGGESTIONS

A fracture is a condition of loss or reduction of bone continuity, both solid bone, and cartilage, and this fracture can be total or partial. Patients with fracture problems need fast and appropriate treatment through ORIF surgery. However, in the reality of treating patients with fractures, there are still several things that often become obstacles to wound healing or restoration of bone function. Obstacles that often occur after orif surgery include: the occurrence of acute pain, impaired physical mobility, contractures, and increased patient anxiety. Early ROM Exercise in Tibia Fibula Fracture Patients in the Inpatient Room of Gatot Subroto Army Hospital. In this study, the results showed that there was a significant difference ($p = 0.000$) in changes in pain reduction after early ROM exercises. And also obtained the same results on muscle strength, where there was a significant increase ($p = 0.000$) by showing a mean difference of 2.00 at an effect size of 4.24 in measuring muscle strength either manually or using a tool.

Strengths and Weaknesses of Implementation

1. Early ROM exercises given can increase muscle strength after ORIF action on Tibia and Fibula Fractures which will also increase patient mobility
2. Early ROM exercises given can reduce acute pain that occurs in muscle patients after ORIF action on Tibia and Fibula Fractures which will also reduce dependency and increase patient independence
3. Self-motivation is an effort to increase self-awareness in patients to regularly want and be able to take medical action, especially in the regularity of doing regular and scheduled ROM exercises.
4. The role of the family is needed as a monitor of patient compliance in carrying out the agreed therapy plan, especially on the adherence to the ROM exercise schedule independently.

5. The application of early ROM procedures that do not yet exist in the form of SOPs can be carried out independently by nurses in collaboration with other medical teams such as surgeons and physiotherapy officers.
6. Awareness and family participation to want to be actively involved in reminding patients to practice ROM independently to speed up the healing process.

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UTILIZATION OF MANGROVE ENDOPHYTIC FUNGI AS A SUSTAINABLE AND ENVIRONMENTALLY FRIENDLY SOURCE OF CHITOSAN

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ABSTRACT

Chitosan is an important biopolymer that is used as a raw material in several industries, but the manufacturing process has the potential to harm the environment. This study aimed to exploit chitosan in mangrove endophytic fungi and to characterize it. The four fungi isolates used were 20BB0501, 20CB07, 20BA04, and 20BA0502. Fungi were obtained from mangrove plants and identified macroscopically and microscopically using the coverslip method. After performing fungal maintenance on MEA media, fungi cultivation was done on rice media for 14 days. A chitosan extract was made by isolating and extracting the chitosan from the fungal biomass. FTIR was used to characterize the isolated chitosan extract. Macroscopic examinations revealed that each of the four strains had a delicate structure and was white. According to the extraction results, the yield of chitosan from the fungal biomass was 7.5%, 16.7%, 1.6%, and 11%, respectively. According to the FTIR data, showed the degree of deacetylation reached 85.02%, 97.78%, 88.7%, and 85.02%. It can be concluded that mangrove endophytic fungi can be used in the manufacture of chitosan, which produces a high degree of deacetylation using a more environmentally friendly process. The results of this study indicate that marine fungal strains can be used as a source of chitosan. This basis can be developed for the production of bio surfactants, enzymes, and the discovery of new bioactive compounds has pharmacological and biotechnological potential.

Keywords: Chitosan, Degree of deacetylation, Endophytic fungi, Solid state fermentation.

ABSTRAK

Kitosan merupakan biopolimer penting yang digunakan sebagai bahan baku di beberapa industri, namun proses pembuatannya berpotensi membahayakan lingkungan. Penelitian ini bertujuan untuk mengeksplorasi kitosan pada fungi endofit mangrove dan mengkaraktisasinya. Empat isolat fungi yang digunakan adalah 20BB0501, 20CB07, 20BA04, dan 20BA0502. Fungi diperoleh dari tanaman mangrove dan diidentifikasi secara makroskopis dan mikroskopis menggunakan metode coverslip. Setelah melakukan pemeliharaan fungi pada media MEA, dilakukan budidaya fungi pada media beras selama 14 hari. Ekstrak kitosan dibuat dengan mengisolasi dan mengekstraksi kitosan dari biomassa fungi. FTIR digunakan untuk mengkaraktisasi ekstrak kitosan hasil isolasi. Pemeriksaan makroskopis menunjukkan bahwa keempat strain tersebut memiliki struktur halus dan berwarna putih. Berdasarkan hasil ekstraksi, rendemen kitosan dari biomassa fungi masing-masing sebesar 7,5%, 16,7%, 1,6%, dan 11%. Berdasarkan data FTIR menunjukkan derajat deasetilasi mencapai 85,02%, 97,78%, 88,7%, dan 85,02%. Dapat disimpulkan bahwa fungi endofit mangrove dapat digunakan dalam pembuatan kitosan yang menghasilkan deasetilasi tingkat tinggi dengan proses yang lebih ramah lingkungan. Hasil penelitian ini menunjukkan bahwa strain fungi laut dapat dimanfaatkan sebagai sumber kitosan. Landasan ini dapat dikembangkan untuk produksi biosurfaktan, enzim, dan penemuan senyawa bioaktif baru yang berpotensi farmakologi dan bioteknologi.

Kata Kunci: Kitosan, Derajat deasetilasi, Fungi endofit, Fermentasi solid state.

INTRODUCTION

Chitosan is an environmentally friendly biopolymer and is needed as an industrial raw material. Chitosan is a chitin-derived compound that is widely distributed in nature as a supporting material for the exoskeleton of crustaceans, insect cuticles, fungal cell walls, and algae. Interest in chitosan depends on the myriad of biological and technological benefits demonstrated by this polymer, including antioxidant, antibacterial, body weight reduction, antihyperlipidemic, mineral absorption, anti-inflammatory, antitumor, antimicrobial, and antifungal.¹⁻²⁻³⁻⁴ In 2019, global market interest in chitosan reached USD 6.8 billion, with a compounded annual growth rate (CAGR) of 24,7% between 2020 and 2027. The increase in chitosan market demand is influenced by the many applications of polymers in several industries. high-value industries such as medical, cosmetic, pharmaceutical, and food. Due to the many benefits it produces, chitosan has been widely studied in several studies such as polymer chemistry, biology, biotechnology, and applications to broaden its applications, such as the study of the mechanisms involved in the activity of chitosan, chitosan derivatives, and in-depth studies of chitosan content in different microorganisms.

Based on previous studies, chitosan was isolated from crustaceans with four main stages: deproteination, demineralization, depigmentation, and deacetylation. However, the acquisition of chitosan from these crustaceans encountered several problems, such as the limited availability of crustaceans, and could only be obtained at certain seasons; the production process took a long time and was high-cost; and chemically, it has the potential to pollute the environment due to the use of large amounts of chemicals such as acids and alkalis at high temperatures (generally the concentration of alkali used ranges from 30–50% at 100°C). In addition, the resulting chitosan has a high molecular weight, thus limiting its biomedical applications. To overcome these problems, recently, studies on the production of chitosan from fungi have begun to be of interest.

Fungi have cell walls consisting of glycoproteins as structural components (chitin and glucans) and polysaccharides as interstitial components of fungal cell walls (galactose, glucuronoprotein, mannoprotein, and xylomannoprotein). *Aspergillus niger* and *Mucor rouxii* cell walls are composed of 45% chitin. Chitin through the deacetylation process will produce chitosan. The production of chitosan from fungi can produce chitosan with a medium-low molecular weight which is suitable for biomedical applications. Fungal preparations are not limited to certain seasons because they can be obtained from the pharmaceutical and biotechnology industries, and the use of substrates for growth is very economical. In addition, chitosan from fungi is more controlled in terms of low viscosity and shows a high degree of deacetylation.

Early studies of chitosan from fungi mostly used *Mucor rouxii*, a Zygomycota species. Meanwhile, recently, the fungal species that have received much attention as a source of chitosan are Ascomycota (*Aspergillus niger*), Deuteromycota, and Basidiomycota (*Lentinus edodes*), and also from

other Zygomycota species (*Absidia* sp. and *Rhizopus oryzae*).⁵ The content of chitin/chitosan in fungal cell walls varies, influenced by species, physical conditions, and growth time. In addition, the key factor that affects the quality and quantity of chitosan is the fermentation condition. Fungal biomass production can be carried out by submerged fermentation (SMF) and solid-state fermentation (SSF). Fungal fermentation directly using the SMF technique can occur more quickly. However, the amount of biomass produced is greater in SSF than in SMF, therefore the production of chitosan with SSF will be higher.⁶

Based on the description above, the isolation of chitosan can be done in a more environmentally friendly way by utilizing marine fungi as a source of chitosan. This study aims to obtain chitosan from fungi through a fermentation process using rice media and to characterize it using Fourier Transform Infrared Spectroscopy (FTIR).

METHOD

In this study, fungi samples were taken from the mangrove area of Sriminosari Village, East Lampung, Lampung Province, Indonesia. Samples of endophytic fungi were taken from the stems and roots of mangrove plants. Sampling was carried out randomly at coordinates 5° 19' 01.0" S and 105° 49'19.8" E.

To identify the morphology of the endophytic mangrove isolate, the isolate was grown on malt extract agar/MEA for 4-6 days at 27°C. The object glass was cleaned with 70% alcohol and heated on a Bunsen flame. Place the deck glass where the isolated fungus grows, then observe it under a microscope lens.⁷

Each strain was cultivated in a 1000 mL Erlenmeyer flask containing 250 g of rice medium and incubated at 27°C for 14 days. The mycelium is separated by centrifugation (4000 rpm, 20 min). The supernatant was washed with distilled water, dried at 60°C for 24 hours, separated with rice media, and stored for chitosan extraction.⁸

The dry mycelium was treated with a 5% (v/v) acetic acid solution overnight (1:40 w/v). The filtrate containing chitosan was centrifuged and collected for the next procedure. Furthermore, the chitosan in the filtrate was precipitated using absolute ethanol (1:3, v/v) and neutralized with distilled water. The isolated chitosan was treated with NaOH solution until pH 14 was reached, then rinsed with distilled water to neutralize it before being dried with nitrogen gas for further analysis.

The dried chitosan was characterized using an Agilent Cary 630. The FTIR spectrum of chitosan was scanned in the range of 4000-650 cm⁻¹ (resolution 16, 1/cm).

RESULTS AND DISCUSSION

In this study, four strains of fungal were isolated from the roots and stems of mangrove *Avicennia* sp. in Sriminosari Village, which are shown in Table 1. Four fungal strains were studied to

determine their ability to produce chitosan. Fungi are an important part of human life. Fungi can grow in the spaces between plant cells on stems, leaves, roots, and petioles that do not cause disease symptoms in their host plants. These fungi are known as endophytic fungi. The mangrove endophytic fungi have been widely used for the production of bio surfactants, enzymatic potential, and the discovery of new bioactive compounds with potential pharmacological and biotechnological interest.⁹⁻
¹⁰ Meanwhile, studies on the acquisition of chitosan from endophytic mangrove fungi have not been much studied.



Figure 1. Mangrove (*Avicennia* sp.) of Sriminosari, Lampung, Indonesia

Table 1. Isolate Fungi

No	Sample code	Color	Description
1	20BB0501	white	stem
2	20CB07	white	stem
3	20BA04	white	root
4	20BA0502	white	root

Morphological Identification

Identification of mangrove endophytic fungi was carried out macroscopically and microscopically. Macroscopic identification is carried out with the naked eye or with the help of a magnifying glass on various organs of living things. Macroscopic identity is based on shape, size, color, and surface characteristics. Meanwhile, microscopic identification was carried out by using a microscope to observe the mycelium (hyphae), structure, spores, and morphology. The results of macroscopic observations showed that each fungal isolate had a fine structure and was white (Figure 2), while microscopic observations showed the character of each isolate (Figure 1). Microscopic observation of isolate 20BB0501 revealed hyaline and unbranched hyphae, irregular conidia, cylindrical in size, short, and wide. These characteristics are the characteristics of *Paecilomyces* sp.

reported by Paul et al.¹¹ Furthermore, isolate 20CB07 showed that macroconidia were cylindrical, slightly curved or straight, and hyaline hyphae were fiber-like and unbranched, which was characteristic of *Fusarium* sp.¹²

Microscopic visualization of isolate 20BA04 showed the presence of branching hyphae forming flat and short conidiophores. Conidia have a two-layer wall; outer electron layer (epispore) and innermost electron layer (conidia). From these observations, it was suspected that isolate 20BA04 was *Trichoderma* sp.¹³ Then, isolate 20BA0502 was observed to have hyaline hyphae, having a round, semi-round, or oval shape in its conidia structure. The conidia are attached to the phialides, which are attached to the tip of the conidiophore. The conidiophores are swollen, known as vesicles. Vesicles are characteristic of the genus *Aspergillus* sp.¹² The four strains identified were fungi from the phylum Ascomycota. These results are from the study conducted by Chen et al., which found fungi species Ascomycota from mangrove endophytic fungi.¹⁴

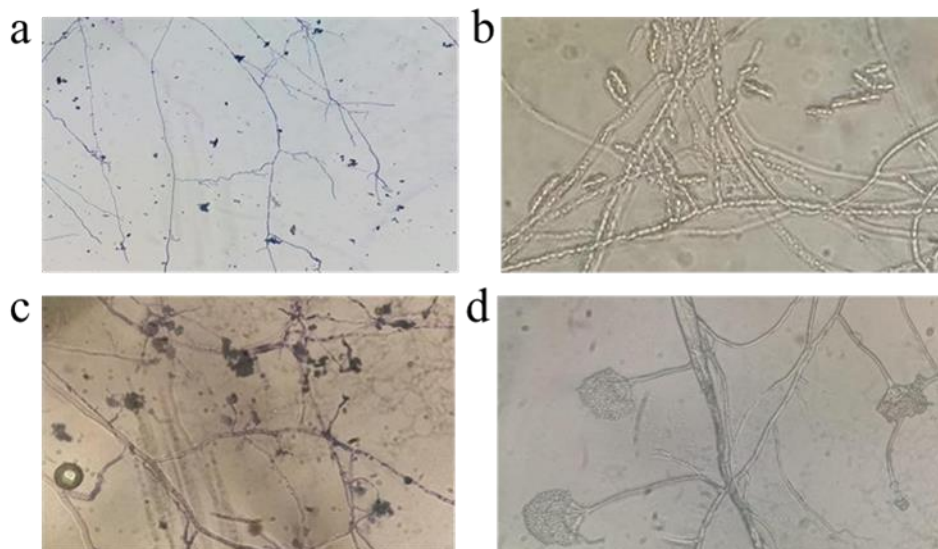


**Figure. 2 Visualization of fungi, with light microscopic scale 400×
(a) 20BB0501; (b) 20CB07; (c) 20BA04; (d) 20BA0502**

Solid State Fermentation

The results of the cultivation of the four strains by submerged fermentation using rice residue containing 50 g of rice in 200 mL of seawater are shown in Figure 2. The weight of dry crude extract with the highest yield is shown by the 20CB07 strain, which reached 31.3 g, then 20BA0502 at 26.6 g, 20BB0501 at 23.8 g, and the lowest yield was found in 20BA04 (15.7 g). The maximum extract yield was studied after 14 days of incubation, but the observations showed a decrease in mass. This decrease can be caused by the consumption by microorganisms as nutrients and an increase in the concentration of biomass due to the use of enzymes, such as their use in the hydrolysis process; polymer hydrolysis by hydrolytic enzymes.

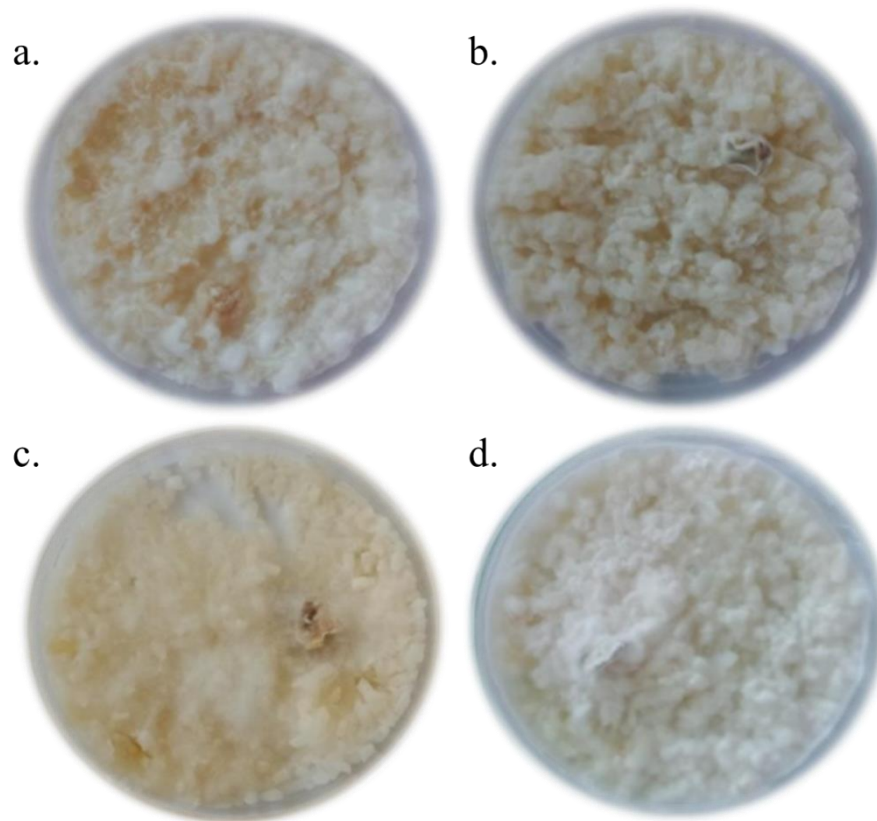


Figure. 3 Isolated fungi submerged cultivation
(a) 20BB0501; (b) 20CB07; (c) 20BA04; (d) 20BA0502

Extraction of Chitin/Chitosan

The results of chitosan extraction from the four strains of fungi showed the highest yield was produced by the 20CB07 strain, with a yield percentage of 16.7%, followed by 20BA0502, which reached 11%, and 20BB0501 had 7.5%. The 20BA04 strain had the lowest yield at 1.6%. The difference in yield percentage results can be caused by the type of fungal isolate. Each fungus has different components that make up its cell wall. According to a study conducted by Sebastian et al., natural chitosan is mostly found in Zygomycota species, while the Basidiomycota, Deuteromycota, and Ascomycota species have not reported the presence of natural chitosan as a component of their cell walls.¹⁵ The four strains of fungi used in this study (20CB07, 20BA0502, 20BB0501, 20BA04), which are suspected to be fungi of the type *Fusarium* sp., *Aspergillus* sp., *Paecilomyces* sp., and *Trichoderma* sp., are fungi of the Ascomycota species. It shows that this study succeeded in finding that Ascomycota species contain chitosan as a component of their cell walls.

Chitosan extraction is divided into several important steps, i.e. treatment with acetic acid, precipitation with ethanol, and the addition of NaOH. The use of acetic acid aims to extract chitosan contained in fungal biomass. In this study, the concentration of acetic acid used was 5%. According to a study conducted by Santoso et al., 5% acetic acid can hydrolyze chitosan to reduce its molecular

weight, thereby increasing the solubility of chitosan in water.¹⁶ This has intensified the application of chitosan as an important biopolymer in pharmacology and biotechnology. The acetic acid-treated chitosan extract was then mixed with absolute ethanol (1:3) to precipitate the extracted chitosan in the filtrate. Chitosan is insoluble in some organic solvents such as alcohol, acetone, dimethyl formamide, and dimethyl sulfoxide, so when chitosan is dissolved in these solvents, precipitation will occur. Next, the chitosan residue was added with NaOH for the deacetylation process. Deacetylation is a process for the removal of acetyl groups. In fungi, there is free chitosan and chitosan obtained from chitin deacetylation. Therefore, deacetylation is very necessary.

Characterization of Chitosan

In this study, the characterization of chitosan and the determination of the degree of deacetylation of chitosan were carried out using FTIR (Figure 4).

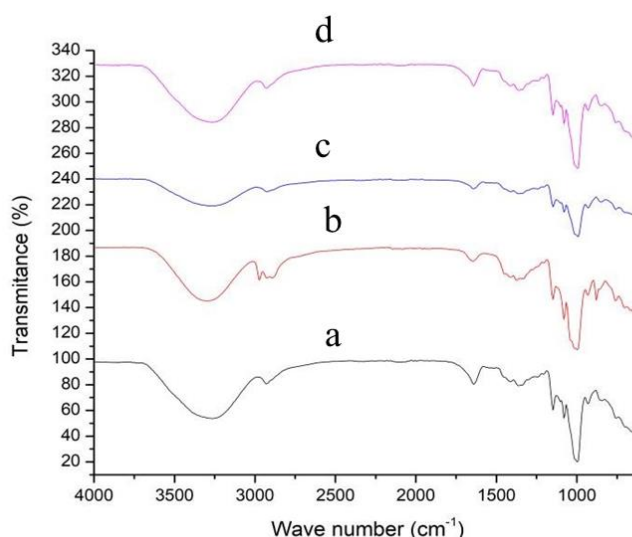


Figure. 4 FTIR Spectrum from different strains (a) 20BB0501; (b) 20CB07; (c) 20BA04; (d) 20BA0502

The spectrum peaks of each sample were compared with the FTIR spectrum of commercial chitosan reported by Drabczyk et al.¹⁷ The results of the comparison show that the chitosan isolated from the four strains showed significant similarity with commercial chitosan. Furthermore, the degree of deacetylation of chitosan was determined by the following formula:¹⁸

$$DD\% = 100 - \left(\frac{A_{1655}}{A_{3450}} * \frac{100}{1,33} \right)$$

The results of the calculation of the degree of deacetylation of each fungal isolate 20BB0501, 20CB07, 20BA04, and 20BA0502 were 85.02%, 97.78%, 88.7%, and 85.02%. As previously stated, the degree of deacetylation is an important parameter that affects the physicochemical properties of chitosan. The degree of deacetylation is related to the number of pronation groups, thus having an impact on solubility and positive charge. The high solubility and positive charge can increase the

application of chitosan in several fields, such as in the food industry, as an antimicrobial agent, antioxidant, and chelating agent.

CONCLUSION AND SUGGESTIONS

In this study, it was shown that mangrove endophytic fungi can be used in the manufacture of chitosan with a high degree of deacetylation. Furthermore, the manufacture of chitosan from fungi can be carried out with a simple process because the extraction process does not require demineralization treatment, as in the acquisition of chitosan from crustaceans. This can reduce the use of chemicals that have an impact on environmental pollution. Then, the results showed that among the strains isolated from mangrove endophytes, the 20CB07 strain, which is suspected to be a *Fusarium* sp. based on microscopic identification, had the most potential for sustainable chitosan production because it produces the highest biomass, chitosan extract, and degree of deacetylation.

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EPIDEMIOLOGY OF PITYRIASIS VERSICOLOR IN ELEMENTARY SCHOOL CHILDREN IN THE BANTAR GEBANG, BEKASI

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ABSTRACT

Pityriasis versicolor (PV) is a disease caused by a superficial fungus, namely Malassezia furfur. This disease is chronic with skin appearance that has characteristics in the form of well-defined skin lesions and white (hypopigmentation) and pink to brownish (hyperpigmentation). PV disease causes itching and a psychological impact in the form of a decrease in self-confidence. The purpose of this study was to determine the percentage of PV incidence in elementary school children at the Garbage Disposal Site, Bantar gebang, Bekasi, West Java. This type of research is quantitative and descriptive with a cross-sectional design. The research sample consisted of 87 elementary school students in grades 1 and 2 who were selected based on inclusion criteria, namely the presence of hypopigmented and hyperpigmented lesions. The examination was carried out microscopically with the solatip method using 10% KOH. Data analysis was performed by using descriptive statistical tests. The results of this study showed that there were 35 (40%) students who were positively infected with PV, which was confirmed by the presence of spores and hyphae of the fungus M. furfur. The age most affected by PV is 7 years old, with a percentage of 17 (49%) students, while the percentage of the sex most affected by PV is male, with as many as 23 (53%) students. The study concludes that the prevalence of children in grades 1 and 2 at Yayasan Dinamika Indonesia Elementary School around the Bantargebang landfill, Bekasi, West Java, is in the middle category. The factors that influence the incidence of PV in this study are outdoor activities, which cause the facial area to sweat easily, and lack of personal hygiene.

Keywords: Bantar Gebang, Bekasi, *Malassezia furfur*, Pityriasis versicolor, West Java

ABSTRAK

Pityriasis versicolor (PV) merupakan penyakit yang disebabkan oleh jamur superfisial yaitu Malassezia furfur. Penyakit ini bersifat kronis dengan penampakan kulit yang mempunyai ciri-ciri berupa lesi berbatas jelas, berwarna putih (hipopigmentasi), dan berwarna merah muda sampai kecoklatan (hiperpigmentasi). Penyakit PV menimbulkan rasa gatal dan dampak psikologis berupa penurunan rasa percaya diri. Tujuan penelitian ini adalah untuk mengetahui persentase kejadian PV pada anak sekolah dasar di Tempat Pembuangan Sampah Bantar gebang, Bekasi, Jawa Barat. Jenis penelitian ini adalah kuantitatif dan deskriptif dengan desain cross-sectional. Sampel penelitian terdiri dari 87 siswa sekolah dasar kelas 1 dan 2 yang dipilih berdasarkan kriteria inklusi yaitu adanya lesi hipopigmentasi dan hiperpigmentasi. Pemeriksaan dilakukan secara mikroskopis dengan metode solatip menggunakan KOH 10%. Analisis data dilakukan dengan menggunakan uji statistik deskriptif. Hasil penelitian menunjukkan terdapat 35 (40%) siswa yang positif terinfeksi PV, hal ini dibuktikan dengan adanya spora dan hifa jamur M. furfur. Usia yang paling banyak terkena PV adalah 7 tahun dengan persentase 17 (49%) siswa, sedangkan jenis kelamin yang paling banyak terkena PV adalah laki-laki dengan persentase sebanyak 23 (53%) siswa. Hasil penelitian menyimpulkan bahwa prevalensi anak kelas 1 dan 2 SD Yayasan Dinamika Indonesia sekitar TPA Bantargebang, Bekasi, Jawa Barat, berada pada kategori sedang. Faktor yang mempengaruhi kejadian PV pada penelitian ini adalah aktivitas di luar ruangan yang menyebabkan area wajah mudah berkeringat dan kebersihan diri yang kurang baik.

Kata Kunci: Bantar Gebang, Bekasi, Jawa Barat, *Malassezia furfur*, Pityriasis versicolor

INTRODUCTION

Pityriasis versicolor is a skin disease caused by a superficial fungal infection named *Malassezia furfur*. This fungus was originally known as *Pityrosporum* and includes lipophilic fungi that are part of the normal human flora. However, it can turn opportunistic under certain conditions and infect human skin, especially the stratum corneum. Skin infected with *Malassezia furfur* will show patches that are lighter, darker or reddish than the surrounding skin area. These spots are lesions in the form of macules, plaques, or follicular papules with various colors, such as hypopigmentation, hyperpigmentation and erythema, with fine scales on top and surrounded by normal skin so that they can be easily distinguished from the surrounding skin. The most dominant body parts affected by Pityriasis versicolor are the chest and back because these parts have many sebaceous glands. However, this disease can also infect other parts of the body, such as the arms, neck, and face (1).

In general, this disease is found almost all over the world in areas with high humidity. Pityriasis versicolor is almost always found worldwide, with a 20-25% prevalence in tropical climates, humidity, and high rainfall (2). One of the countries with a high prevalence of Pityriasis versicolor is Indonesia. Indonesia is located on the equator with a temperature of 30°C and 70% humidity, so it has the potential to become a country affected by Pityriasis versicolor. Indonesian people call the disease Pityriasis versicolor or Tinea versicolor with Panu disease.

In several cases, patients infected with Pityriasis versicolor will experience symptomatic symptoms in the form of itching in the parts infected with the *Malassezia furfur*. Epidemiological survey results for the last 20 years show that Pityriasis versicolor is included in skin diseases affecting children. Although it does not cause mortality, it affects morbidity and child psychology, affecting children's quality of life (3).

Referring to the problems and impacts caused by Pityriasis versicolor, it is necessary to monitor the area with the incidence of Pityriasis versicolor. Areas that need to be monitored for Pityriasis versicolor are Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jabodetabek). One of these cities is Bekasi, especially for children who live in the Bantar Gebang Final Waste Disposal Site area. The choice of Bantar Gebang Final Waste Disposal Site area as the sampling location was because Bantar Gebang Final Waste Disposal Site area is the largest waste disposal site in Indonesia with humid and hot environmental conditions. This area is surrounded by residential areas and school facilities at both primary and upper secondary levels, so it can potentially be infected with skin diseases, such as PV. The selection of elementary school children as sampling subjects was because elementary school-age children do many activities that cause sweating and do not care about personal hygiene, supported by poor environmental conditions, making them more susceptible to PV.

Several previous studies that the basis of this research include reported that 13.33% of construction workers in the Sukatani Cimanggis area, Depok, West Java, were infected with

the *Malassezia* sp. and 66.6% of construction workers with hypopigmentation due to *Malassezia* sp. infection (4).. The incidence of Pityriasis versicolor at the Ciputat District Health Center, South Tangerang, Banten, from January 1-December 31, 2020, was 54.8% in the 16-20 age group (5). The monitoring results found that 4.8% of men in the productive age group of RT 1,2,3, Tomang Village, West Jakarta, had Pityriasis versicolor (6). The findings on the results of the examination noted that 32 (51.6%) students at Muthmainnatul Qulub Al-Islami Islamic Boarding School Cibinong Bogor were infected with Pityriasis versicolor (7).

Previous research shows no data regarding Pityriasis versicolor in Bekasi City, West Java, especially at the Bantar Gebang Integrated Waste Disposal Site, Indonesia's largest Waste Disposal Site. This study aimed to determine the percentage of the incidence of Pityriasis versicolor in elementary school children at the Indonesian Dinamika Foundation, Ticketing Udik Village, Bantargebang District, Bekasi City, West Java Province. This research data is expected to provide information about the epidemiology of Pityriasis versicolor at the Bantargebang location so that it can be used as a basis for preparing work programs for local health centers in carrying out efforts to prevent, treat and monitor the spread of Pityriasis versicolor with a wider scale location.

METHOD

This type of research is descriptive quantitative with a cross-sectional design, which is carried out by taking 1x fecal sampling on 87 Elementary School Children in classes 1 and 2 in Yayasan Dinamika, Indonesia, around Bantargebang, Bekasi City, West Java. Sample examination was carried out at the STIKES Mitra Keluarga Mycology Laboratory. The tools and materials used in this study included masking tape, glass slides (Sail Brand), microscopes (Olympus), 70% alcohol, alcohol swabs (one swab), and 10% KOH reagent (Merck)

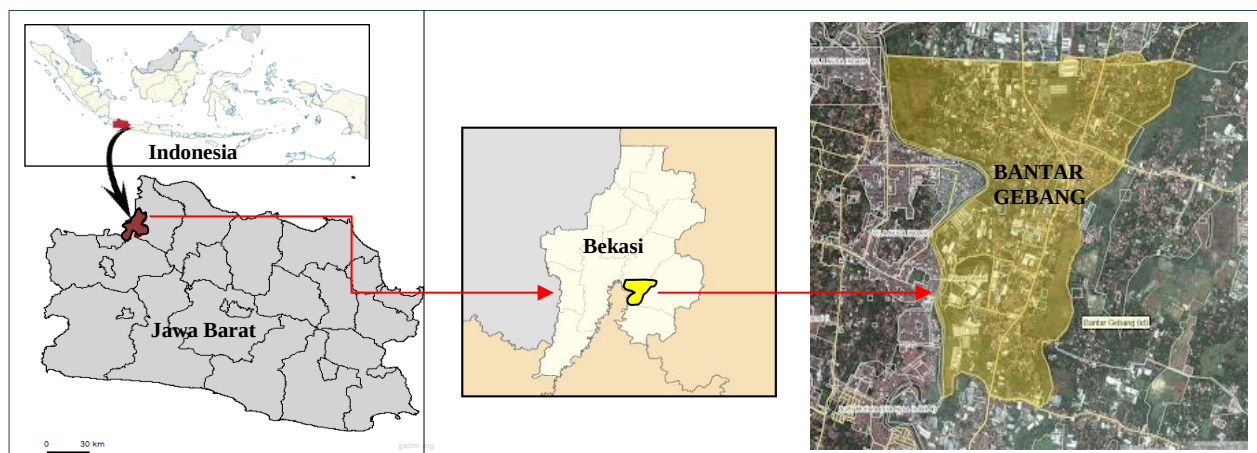


Figure 1. Sampling location in Yayasan Dinamika Indonesia, Bantargebang, Bekasi City, West Java.

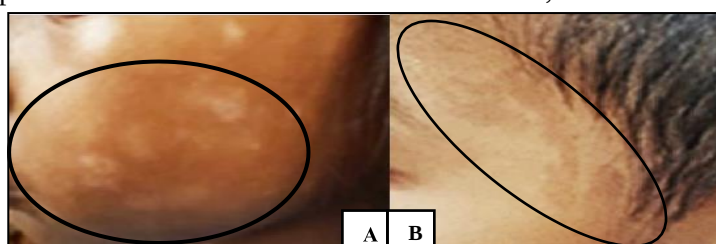
Procedure research consists of 3 stages: pre-analytic, analytical, and post-analytic. The pre-analytical stage includes preparing tools, materials, and sampling techniques by purposive sampling

using inclusion and exclusion criteria. Respondents used as inclusion criteria were elementary school children in classes 1 and 2 with hypopigmented and hyperpigmented skin and confirmed microscopically positive for *M.furfur* fungus. The next stage is the analysis, which examines the skin using the KOH method. The examined skin is sterilized using an alcohol swab to remove grease, dust, and other impurities. Tape is attached to the skin with the lesion/scalp. The tape was affixed to a glass object with 2 drops of 10% KOH and then leveled so that the 10% KOH solution spread to all parts of the tape. Then, *M. furfur* was observed using a microscope. Finally, the analytical stage is carried out by identifying the presence/absence of the *M.furfur* using a light microscope. Identification was confirmed positive if the respondent's sample showed the presence of short, straight, or bent hyphae surrounded by many small round groups of spores (appearances like spaghetti and meatballs). Identification of the morphology of the *M. furfur* based on medical parasitology books.

The data that has been collected is then processed in the form of tables and figures. The data were then analyzed using descriptive statistical tests to describe the incidence of pityriasis versicolor in elementary school children at Yayasan Dinamika Indonesia in Bantargebang, Bekasi, West Java, Indonesia.

RESULTS AND DISCUSSION

This research was conducted at elementary school Yayasan Dinamika Indonesia, RT 01/RW05, Pangkalan V, Ciketing Udik Village, Bantargebang District, Bekasi City, West Java Province. The population used in this study was 112 class 1 and 2 elementary schools in Yayasan Dinamika, Indonesia. The number of class 1 is 71 students, and class 2 is 41 students. Sampling was carried out by purposive sampling technique using inclusion and exclusion criteria to obtain a sample of 87 people or respondents. Samples were examined for clinical manifestations, which can be seen in **Figure 2**.



Picture 2. A. White spots (hypopigmentation). B. Brown spots (Hyperpigmentation)

Figures 2. A and B show the clinical manifestations of pityriasis versicolor in the respondents in white spots (hypopigmentation) and brown spots (hyperpigmentation). Pityriasis versicolor or tinea versicolor, occurs due to a superficial fungal infection called *Malassezia furfur*. This fungus is lipophilic yeast that is a normal inhabitant of the skin flora, but under certain conditions (temperature, humidity, sebum gland production, sweat, genetics, immunocompromised conditions, and malnutrition), it can turn into opportunistic fungi that produce compounds that interfere with melanization causing changes pigmentation in the form of skin hypopigmentation or hyperpigmentation (8)

Based on the questionnaire, all samples that had lesions in the facial area were probably caused by the activities of students who had direct contact with the sun. The infected students often play or help their parents look for trash after school. Faces in direct contact with the sun cause the area around the face to become hot to the point of sweating when doing activities outside the home. This condition causes the facial area to become moist due to excessive production of oil glands, and lack of personal hygiene triggers *M. furfur* to grow around the face. The results of the literature review by Radila (2022) state that there is a relationship between personal hygiene and the incidence of pityriasis versicolor. Someone with poor personal hygiene tends to be more susceptible to pityriasis versicolor than individuals with good personal hygiene. In addition, humid and hot environmental conditions can also affect the incidence of pityriasis versicolor (9).

Yayasan Dinamika Indonesia is located in a residential area around the Bantargebang Integrated Waste Disposal Site. Environmental conditions surrounded by garbage can also make pityriasis versicolor infection easy to occur. The natural decomposition process of accumulated waste requires a warm enough temperature for the decomposition process to run quickly. This condition increases the temperature and humidity around the waste pile. Suppose a person has high activity around the environment. In that case, there will be a change in the form of *M. furfur* as the normal flora of the skin in the form of yeast into mycelium (pathogen) in students at Yayasan Dinamika Indonesia (10).

The results of an examination of 87 skin scraping preparations with lesions/scales using the KOH method, which were observed with a light microscope, found that 35 children tested positive for pityriasis versicolor, while 52 students tested negative for pityriasis versicolor. The tabulation of pityriasis versicolor examination results can be seen in **Table 1**.

Table 1. Examination pityriasis versicolor in class 1 and 2 children at Yayasan Dinamika Indonesia Elementary School, Bantargebang, Bekasi

Results	Frequency	Percentage (%)
Positive	35	40%
Negative	52	60%
Total	87	100%

Table 1 shows the percentage of children in classes 1 and 2 at Yayasan Dinamika Indonesia Elementary School, Bantargebang, Bekasi, who tested positive for pityriasis versicolor as many as 35 (40%) while negative as many as 52 (60%). The results of this study complement previous research conducted in several regions and on different subjects, including the study that reported examining skin scrapings using 10% KOH on 139 MTs students at Islamic Boarding School X, Mempawah Hilir District, West Kalimantan, found 18 samples (12.9%) showed the appearance of hyphae and spores in the light microscope (11). The results of a direct examination of tinea versicolor on students at the Muthmainnatul Qulub Al-Islami Islamic Boarding School in Cibinong, Bogor, West Java, with 10% KOH showed as many as 32 (51.6%) were positively infected with tinea versicolor (7)

Meanwhile several factors that affect the distribution of Pityriasis versicolor are age and gender. In this study, the distribution of pityriasis versicolor by age can be seen in **Table 2**.

Table 2. Distribution of Pityriasis versicolor based on age

Result	Age group (year)							
	6		7		8		9	
	N	%	N	%	N	%	N	%
Positive	4	11%	17	49%	8	23%	5	14%
Negative	31	89%	18	51%	27	77%	30	86%
Total	35	100%	35	100%	35	100%	35	100%

Table 2. Shows the number and percentage of distribution of pityriasis versicolor based on age, including 4 (11%) 6 years old, 17 (49%) 7 years old, 8 (23%) 8 years old, and 5 (14%) 9 years old. According to Chandra *et al.* (2019), the age classification in this study is in the 0-10 year age group category. In general, pityriasis versicolor can affect all ages, with an annual incidence reported as much as 5% -8%, but this disease is more dominantly found in individuals aged 15-24 years who live in areas with hot temperatures and high humidity. This age includes the teenage years when hormonal changes occur, and increased physical activity causes the work of the sebaceous (oil) glands to increase so that the body's skin sweats easily. As a result, *M. furfur* easily grows in areas of skin that sweat excessively.

Another factor that influences the incidence of pityriasis versicolor is gender. According to Sudiadnyani (2016), gender is one factor influencing the incidence of pityriasis versicolor, which is relative. Gender is situational because the sex used as the subject of Pityriasis versicolor has different behavior at each incident location. The study of gender distribution affected by pityriasis versicolor can be seen in **Table 3**.

Table 3. Distribution of Pityriasis versicolor based on gender

Gender	Positive	Negative	Number	(%)
Male	23	20	43	53%
Female	12	32	44	27%
Total	35	52	87	100%

Table 3 shows the percentage of the gender affected by pityriasis versicolor, namely 23 (53%) male and 12 (27%) female who were positive for pityriasis versicolor. Research results found that the most common subjects with pityriasis versicolor are caused by males doing outdoor activities more often, which causes excessive sebum (oil) production, which triggers the growth of *M. furfur* as the main cause of pityriasis versicolor. Different results were reported that more female students were exposed to pityriasis versicolor at Islamic boarding schools because female students often use powder and lotion to increase skin moisture when sweating, which triggers the growth of *M. Furfur* (12), (13).

In this study, a positive diagnosis of pityriasis versicolor was established by scraping the infected skin using the KOH method and observing it with a light microscope. The results of microscopic examination with a light microscope can be seen in **Figure 3**.

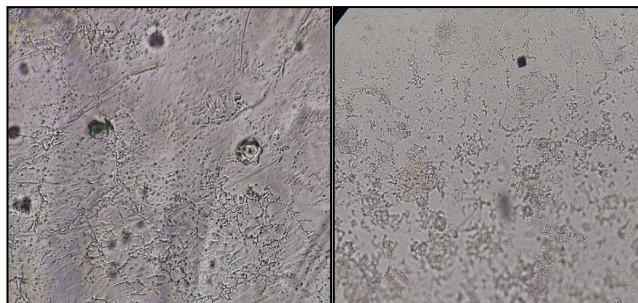


Figure 3. Microscopic morphology of *M. Furfur* on skin scraping preparations using the 10% KOH method (10x magnification)

Figure 3. The result of skin scraping examination documentation using the 10% KOH method using a light microscope shows the presence of short, non-pigmented, unbranched hyphae and spherical-shaped cells. Pityriasis versicolor is caused by the fungus *M. furfur*. On microscopic examination of the skin scrapings of *M. Furfur*, it can be seen in the form of short, straight/bent, grouped hyphae, round, and grouped spores. This shape is known as the spaghetti and meatball appearance (14).

CONCLUSION AND SUGGESTIONS

Based on the results of an examination of skin scrapings using the KOH method, it was found that the number and percentage of incidents of pityriasis versicolor in elementary school children class 1 and 2 Yayasan Dinamika Indonesia, Bantargebang, Bekasi was 35 (40%) in the medium category. The distribution of the incidence of pityriasis versicolor was higher in males, as many as 23 (53%), 7 years old, and as many as 17 (49%). The positive result indicator for pityriasis versicolor was shown by the finding of the *M. furfur*, which was similar to spaghetti and meatball appearance in the form of short, straight/bent hyphae, round, and clustered spores.

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PREVENTION OF SEXUAL VIOLENCE THROUGH PUBERTY EDUCATION AT SDIT MUTIARA INSAN BEKASI REGENCY

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ABSTRAK

Pubertas kini terjadi pada periode lebih awal dibanding beberapa dekade lalu, demikian pula kejadian kekerasan seksual yang kenaikannya relatif tidak terkendali. Riset ini bertujuan melihat efek edukasi pubertas untuk meningkatkan pengetahuan peserta didik kelas tinggi terkait pencegahan kekerasan seksual. Desain penelitian menggunakan kuasi eksperimental berupa ceramah dan diskusi selama 60 menit secara paralel pada kelas terpisah dengan masing-masing seorang fasilitator. Partisipan terdiri dari 22 siswa Kelas IV, dan masing-masing 31 siswa Kelas V dan VI. Pengukuran pengetahuan dilakukan menggunakan pre dan pos tes terdiri dari 10 pertanyaan betul-salah. Analisis data menggunakan Uji T. Terjadi peningkatan pengetahuan secara signifikan pada siswa Kelas tinggi (nilai $P < 0,0001$). Diskusi memperlihatkan interaksi sangat dinamis pada masing-masing kelas, beberapa partisipan cukup asertif dan aktif bertanya, terutama terkait aspek psikologis (pengenalan dan pengelolaan emosi) serta social (hubungan interpersonal dan komunikasi). Edukasi mutlak diperlukan secara berkesinambungan dengan metode pembelajaran yang sesuai dengan karakteristik remaja yang khas, tidak sama dengan pedagogi atau andragogi.

Kata kunci: pendidikan, sekolah dasar, pubertas, seksual, kekerasan

ABSTRACT

Compared to a few decades ago, puberty now happens earlier, and the frequency of sexual assault is rising wildly. The purpose of this study is to examine how puberty education affects high-grade elementary school students' awareness of sexual assault prevention. With a facilitator in each class, the research design employs a quasi-experimental format of concurrent lectures and conversations lasting 60 minutes. 22 fourth-graders, 31 fifth-graders, and 31 sixth-graders make up the participants. Ten true-false questions from a pre-and post-test were used to gauge knowledge. The T-test was utilized in data analysis. The understanding of high school students significantly increased (P value 0.0001). All class discussions showed an exceptionally lively exchange of thoughts, and several students were particularly aggressive and engaged in raising issues of psychological (the recognition and control of emotions) and social (interpersonal connections and communication) interest. Continuous education is important, along with teaching strategies that are not the same as pedagogy or andragogy but rather suitable for the typical characteristics of adolescents.

Keywords: education, elementary school, puberty, sexual, violence

INTRODUCTION

In many cultures and societies, including Indonesia, discussions about sexuality-related topics are often considered taboo, especially in elementary schools and among young children (1). It's worth noting that attitudes and norms around discussing sexuality are evolving, and there is a growing recognition of the importance of comprehensive and age-appropriate sex education. In recent years, there has been a push for more inclusive and informative sex education programs that help young people develop a healthy understanding of their bodies, relationships, and consent (2). However, the

extent to which these changes have been implemented can vary widely depending on the cultural and societal context.

The signs of puberty now appear at an early age; some cases indicate that the diagnosis began to be enforced before the age of five. There has been a trend of earlier onset of puberty in some individuals, and cases of precocious puberty (puberty starting before the age of 8 in girls and before the age of 9 in boys) have been reported. Precocious puberty is a medical condition where the body begins to undergo the physical changes of puberty at an unusually young age. It's important to note that while early puberty can be influenced by various factors, including eating habits and media exposure (3), it is still considered a medical condition in cases where it occurs before the typical age range. Early intervention and medical evaluation are important to ensure that any underlying causes are identified and managed appropriately.

Unquestionably, teacher professional development is essential to ensuring that educators are given the tools they need to successfully meet the learning needs of students in the twenty-first century. The issues raised regarding meaningful learning, behavior change, habituation, and pedagogical and content competence are all crucial factors in contemporary education. Improved teaching techniques and better student learning outcomes can result from teacher professional development programs. Educators must stay informed, flexible, and dedicated to giving their students the best learning opportunities as the educational landscape changes constantly.

Puberty is thought to have a strong connection to sexuality. To prevent sexual violence, comprehensive puberty education is given to students on their needs and developmental stages. Children, especially those in elementary school, need role models both at home and at school because they generally think concretely and learn best by imitation (4). Puberty education aims to foster and uphold moral behavior (including sexual behavior), specifically sexual abstinence. The purpose of this study is to examine how puberty education affects high-grader elementary school student's knowledge of sexual violence prevention.

METHOD

The research design uses a quasi-experimental format of concurrent lectures and conversations lasting 60 minutes, with a facilitator in each class. Intervention and data collection were carried out on 18 July 2023 at SDIT Mutiara Insan, an Islamic-based elementary school with a high-quality standard (granted an A accreditation from the Ministry of Education). The participants were the total sample of higher-graders, consisting of 22 fourth graders, 31 fifth graders, and 31 sixth graders. The knowledge was evaluated using ten true-false questions from a pre-and post-test. Specific signs of puberty, the types and likelihood of sexual violence, prevention strategies, and the awareness and regulation of emotions are among the topics that are covered in the questions. Data analysis employed the T-test.

RESULTS AND DISCUSSION

The 84 respondents who provided information had a median age of 10 years. At the end of the intervention, the student's knowledge score was 6.8 with a standard deviation of 1.56 and a variation of 3-10 (Table 1).

Table 1. Age Distribution and Student Knowledge

Variable	Mean Median	SD	Minimum- Maximum
Age	10,3 10,0	0,98	9-14 years old
Level of Knowledge	6,8 7,0	1,56	3-10

Table 2. Average Student Knowledge Score before and after Intervention

Category	Mean	SD	SE	p-value	n
Pre-test	5,94	1,48	0,16	0,0001	84
Post-test	6,82	1,56	0,17		

After the intervention, there was a significant increase in knowledge (Table 2). The intervention's process evaluation revealed very dynamic interactions (Fig. 1).



Figure 1. Interactions during the intervention process

Specific signs of puberty

Nearly all of the specific puberty symptoms, especially physical changes, can be named by participants. Some people still do not understand the psychological and behavioral changes that take place, though. Some participants found the behavior of their friends to be annoying and unpleasant. The individual in question, on the other hand, finds his behavior amusing.

The facilitator demonstrates how to recognize behavioral, emotional, and physical changes along with their effects. For instance, differences in the size and shape of a female's and a male's bodies, as well as reproductive processes and the requirement to cover private parts. Considering that the processes that take place are specific to each individual, participants are also urged to respect variations in physical size and shape because the processes that occur are unique to each person.

Teenagers have a low level of knowledge regarding specific puberty symptoms, according to the SKRRI 2017 data. Less than 10% of teenagers are aware that increased sexual desire is one of the signs of puberty (5). Only 65 to 80% of young people engage in abstinence behavior, despite national survey data showing a range of 90-95% (6,7). Puberty education-based behaviour change interventions are crucial and urgent (4,8,9).

The various forms, potential, and methods for preventing sexual violence

There is still a critical need for education and awareness of the various types and manifestations of sexual violence. Participants learned that simple acts like other people whistling and making sexually suggestive comments can be reported as harassment. Punishment for peeking into private areas or activities, such as rooms and bathrooms, may also have sexual overtones. To increase awareness, foster safe environments, and prevent harassment, education about the various types and forms of sexual violence is essential. It's critical to inform people about sexual violence, harassment, and inappropriate behavior and give them the tools they need to act when they see or experience it.

Children can only focus their attention for 10 to 20 minutes at a time, so special teaching techniques are needed to prevent learning failures (10). To lessen the issue of failure to thrive and mistakes in student patterns and parenting patterns, various efforts are required (11). Additionally, educators must enhance their pedagogical abilities, material knowledge, and support for students' self-assured communication. It was noted that more than half of the participants had experienced menarche and wet dreams; consequently, there is an urgent need for knowledge about puberty, and teachers must impart the most recent knowledge through scientific and technological advancements (12).

The awareness and regulation of emotions

Participants learn how to identify emotions, their symptoms, and a variety of other ways to express them. The facilitator also talked about how holding one's emotions in can hurt oneself while expressing them excessively can hurt others. The learning experience is a valuable and important aspect of emotional intelligence education. Teaching people how to recognize, comprehend, and control their emotions is an essential life skill that can have a positive effect on their interpersonal relationships, general well-being, and mental health.

The first step towards developing emotional intelligence is to assist participants in identifying and labeling their emotions. This entails growing in emotional awareness and developing the ability to

recognize various emotions, including joy, sadness, anger, fear, and more. Understanding the behavioral and physical signs of the various emotions can also offer insightful information. The facilitator also talks about how no emotion is right or wrong or positive or negative. Certain emotions are required in particular circumstances. When potential danger threatens, a person who lacks fear, for instance, won't flee the scene or call for assistance. Therefore, while fear is common, kids must learn how to avoid and prepare for it.

After that, it's crucial to learn healthy and productive ways of expressing emotions. People need to be aware that suppressing their emotions can have detrimental effects on their mental and emotional health. It can be empowering to promote open communication and the discovery of suitable outlets for emotional expression, including words, artwork, writing, prayer, recitation of the Holy Qur'an, participating in sports, or other activities.

Throughout life, it's normal to feel a variety of emotions, both good and bad. Positive emotions can improve quality of life and contribute to general well-being if one embraces and enjoys them (13). The students also can get support from friends, family, or a mental health professional if they ever find themselves struggling with negative emotions. Children must perform numerous repetitive and varied activities. They will choose which activities to enjoy, be completed easily, produce excellent products, and may later become professions where they can earn money or non-material results (14–16).

CONCLUSION AND SUGGESTIONS

Comprehensive puberty education treatments have been shown to improve students' understanding of the detection, prevention, and awareness of sexual assault. Continuously engaging all kids in activities is necessary to bring about behavioral changes and improve students' ability to recognize sexual assault. Promoting a comprehensive understanding of sexual violence and its various forms is an essential step toward creating safer and more respectful environments for all individuals. It's important to approach these topics with sensitivity, empathy, and a commitment to fostering positive change. Discuss strategies for preventing sexual violence, including bystander intervention, fostering respectful communication, and creating a culture of consent and respect can be performed at elementary schools.

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FACTORS ASSOCIATED WITH THE BEHAVIOR OF PERSONAL PROTECTIVE EQUIPMENT (PPE) IN WORKERS AT HEIGHT AT THE SAVYAVASA LUXURY RESIDENCE PROJECT IN 2023

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ABSTRAK

Bekerja di ketinggian adalah suatu kegiatan atau aktivitas yang dilakukan oleh pekerja pada suatu tempat kerja pada permukaan tanah atau air yang terdapat perbedaan ketinggian dan berpotensi terjatuh yang dapat menyebabkan pekerja atau orang lain di tempat kerja tersebut mengalami cedera atau meninggal dunia. Kecelakaan kerja yang melibatkan ketinggian mengakibatkan kematian 2,78 juta pekerja per tahun pada tahun 2018. Tujuan penelitian ini adalah untuk melihat hubungan antara variabel independen (usia, pendidikan, pengetahuan, sikap, ketersediaan APD) dengan variabel dependen (perilaku penggunaan APD pada pekerja di ketinggian) PT TAISEI-CSC JO Proyek Apartemen Mewah Savyavasa. Sampel diambil dengan teknik *purposive sampling* dengan jumlah responden sebanyak 120 orang. Analisis dilakukan secara bivariat melalui uji chi-square. Sebanyak 77 (64,2) pekerja berperilaku buruk. Hasil penelitian menunjukkan terdapat hubungan antara pendidikan, pengetahuan, dan umur. Saran bagi pekerja untuk lebih meningkatkan kedisiplinan dalam menaati aturan yang berlaku. Bagi pihak perusahaan untuk lebih meningkatkan sosialisasi K3.

Kata Kunci: Perilaku, Penggunaan Alat Pelindung Diri, Ketinggian, Pekerja

ABSTRACT

Working at height is an activity or activity carried out by workers at a workplace on the surface of land or water where there is a height difference and has the potential to fall which could cause the worker or other people in the workplace to experience injury or death. Work accidents involving heights resulted in the deaths of 2.78 million workers per year in 2018. This research aims to look at the relationship between the independent variables (age, education, knowledge, attitudes, availability of PPE) and the dependent variable (the behavior of using PPE among workers in height). PT TAISEI-CSC JO Savyavasa Luxury Apartment Project. Samples were taken using a purposive sampling technique with a total of 120 respondents. Analysis was carried out bivariate using the chi-square test. A total of 77 (64.2) workers behaved badly. The results showed that there was a relationship between education ($p=0.000$), knowledge (0.000), and age (0.016). Suggestions for workers to further increase discipline in complying with applicable regulations. For the company to further improve K3 socialization.

Keywords: Behavior, Use of Personal Protective Equipment, Height, Workers

INTRODUCTION

Occupational safety and health (OHS) is an effort to create a safe, healthy, and pollution-free environment so that work accidents do not occur, which in turn can increase work productivity and efficiency. Workplace accidents can disrupt the overall production process, harm the environment, and ultimately impact society as a whole (1). As well as resulting in casualties and material losses for employers and workers. In this day and age, safety measures must be implemented to maintain employee interaction with their work. Because it is the key to the success of a company to be able to advance in the field of OHS, worker safety is important for the company (2).

According to the Minister of Manpower of the Republic of Indonesia Number 9 of 2016 concerning safety and occupational health at heights, working at heights is an activity or activity of workers carried out by workers at work on land or water surfaces where there are differences in height and have the potential to fall which can cause workers or other people who are in the workplace to suffer injury or death or cause damage and loss of property (3).

According to the International Labor Organization, reported that occupational accidents involving height resulted in the deaths of 2.78 million workers per year in 2018. More than 380,000 (13.7 percent) of those deaths were caused by accidents at work, while about 2.4 million (86.3%) were caused by occupational diseases. There are almost a thousand times more non-fatal workplace accidents each year than fatal ones. An estimated 374 million workers are injured in non-fatal accidents each year, and many of these accidents have a serious impact on workers' earning potential. On average, two people die every day in Europe from work-related accidents (4).

In Indonesia, the risk of workplace accidents is directly correlated with infrastructure development. Although the number of work accidents in Indonesia is still relatively high, the construction industry is the main cause with an annual incidence rate of 32%. BPJS Ketenagakerjaan recorded 153,044 cases of work accidents in 2020, compared to manufacturing, the risk of serious injury and death from construction accidents is 2.5 times higher and ranks as one of the most dangerous occupations in the world. According to the Ministry of Manpower of the Republic of Indonesia in 2014, construction workers accounted for 31.9% of all work accidents, which is a relatively high figure. Workers fell from heights 26 percent, collided 12 percent, and were exposed to 9 percent of the accidents, because businesses have not fully implemented OHS regulations and because workers are negligent in complying with existing regulations, many work accidents still occur (5).

Work-at-height accidents remain a problem in the construction industry that requires attention and prevention. According to the Agency Organizer Social Security (BPJS) Employment, there were 123,041 cases of work accidents reported in 2017 and 173,105 in 2018. According to the Central Bureau of Statistics (BPS) in August 2018, workers with less than a high school diploma comprised 58.76 percent of the total Indonesian labor force. As a result, awareness of appropriate workplace behavior is affected. Work involving heights poses the greatest risk for occupational accidents in the construction industry. Only 2.1% of 15,000 large businesses in Indonesia utilize an OHS management system (6).

Based on the Regulation of the Minister of Manpower and Transmigration in 2010 Article 1, states that tools that can protect workers whose job is to cover part or all of their bodies from hazards that can endanger themselves or others in the workplace (7). According to ISC Safety School (2017) Companies must take steps to reduce the risk of workers falling from heights because working at heights is one of the leading causes of serious injury due to several factors, including unsafe work environments and inexperienced workers (2). This study aims to determine the factors associated with behavior the

use of personal protective equipment (PPE) on workers at height at PT. TAISEI-CSC JO The Savyavasa Luxury Apartment Project in 2023.

METHOD

This research is a type of descriptive quantitative research using cross-sectional. Data collection of independent and dependent variables is taken simultaneously or in one period of time together. This study aims to see the relationship between the independent variables (age, education, knowledge, attitude, availability of PPE) and the dependent variable (PPE use behavior in workers at height). In this study, data were collected from respondents using a survey method using a questionnaire. This research was conducted at PT TAISEI-CSC JO The Savyavasa Luxury Apartment Project, with a total of 120 people. Using the purposive sampling technique where the sample selection is desired by the researcher based on objectives/problems related to the objectives and research problems so that the sample can be representative to represent the characteristics of the population.

RESULTS AND DISCUSSION

Based on table 1, the frequency distribution of the behavior of using personal protective equipment on workers at an altitude of all workers totaling 120 (100%) there are 77 (64.2) workers who behave badly, and as many as 43 (35.8%) workers behave well.

Table 1. Frequency Distribution. Personal Protective Equipment Use Behavior

Behavior	Frequency (N=120)	Percentage (%)
Bad	77	64,2
Good	43	35,8

Based on Table 2, it is known that the proportion of characteristics of the largest respondent is young age (61.7%) with a primary education level (72.5%) workers with less knowledge (65%) than workers with negative attitudes (50.8%) and PPE facilities (49.2%) are available. Based on the results there is no significant relationship between the behavior of using personal protective equipment and the age of workers ($p = 0.286$). The largest proportion of those aged < 32 years with poor behavior (58.1%) and those aged > 32 years with poor behavior (69.6%).

The analysis of the relationship between the behavior of using PPE in workers at heights with workers' education showed that there is a significant relationship between behavioral use of personal protective equipment with worker education ($p = 0.000$). The largest proportion of primary education with bad behavior (83.3%) and higher education with bad behavior (25%).

Table 2. Distribution of Respondent Characteristics

Variable	Frequency (N=120)	Percentage (%)
Age		
< 32 Tahun	74	61,7
>32 Tahun	46	38,3

Variable	Frequency (N=120)	Percentage (%)
Education		
Basic	87	72,5
High	33	27,5
Knowledge		
Less	79	65
Good	41	34,2
Attitude		
Negatives	61	50,8
Positif	59	49,2
PPE Availability		
Incomplete	37	30,8
Complete	59	49,2

The analysis of the relationship between the behavior of using personal protective equipment and the age of workers ($p = 0.286$). The largest proportion of those aged < 32 years with poor behavior (58.1%) and those aged > 32 years with poor behavior (69.6%). The analysis of the relationship between behavioral use of personal protective equipment with worker education ($p = 0.000$) The largest proportion of primary education with bad behavior (83.3%) and higher education with bad behavior (25%).

The analysis of the relationship between the behavior of using personal protective equipment and knowledge ($p = 0.000$). The largest proportion was poor knowledge with poor behavior (82.3%) and good behavior with good behavior (29.3%). The analysis of the relationship between the behavior of using personal protective equipment and the attitude of workers ($p = 0.016$) The largest proportion is negative attitude with bad behavior (73.8) and positive attitude with bad behavior (50.8%). The analysis of relationship between the behavior of using personal protective equipment and the availability of workers PPE ($p = 0.332$). The largest proportion is not available with bad behavior (70.3%) and available with bad behavior (59.0%).

Table 3. Relationship between Independent Variables and Worker Behavior in The Savyavasya Luxury Residence Project in 2023

Variable	Worker Behavior		Total N	P-Value
	Good	Bad		
	n	n		
Age				
< 32 years	49 (58,1%)	25 (41,9%)	74 (100%)	0,691
> 32 years	28 (69,6%)	18 (30,4%)	46 (100%)	
Education				
Basic	67 (83,8%)	13 (16,3%)	80 (100%)	0,000
High	10 (25%)	30 (75%)	40 (100%)	
Knowledge				
Less	65 (82,3%)	14 (17,7%)	79 (100%)	0,000
Good	12 (29,3%)	29 (70,7%)	41 (100%)	
Attitude				
Negative	45 (73,8%)	16 (26,2%)	61 (100%)	0,016
Positive	30 (50,8%)	29 (49,2%)	59 (100%)	

Variable	Worker Behavior		Total N	P-Value
	Good n	Bad n		
PPE Availability				
Incomplete	26 (70,3%)	11 (29,7%)	37 (100%)	0,332
Complete	49 (59,0%)	34 (41,0%)	83 (100%)	

Based on the bivariate results, it shows that workers who have bad behavior on the use of personal protective equipment in workers at altitude with age < 32 years as many as 43 (58.1%) compared to workers with age > 32 years as many as 32 (69.6%) statistical tests produced ($p=0.286$), this shows that there is no significant relationship between age and the behavior of using personal protective equipment in workers at altitude.

This is in line with research by (Apriluana, 2016) obtained a p-value of 0,216, meaning that there is no relationship between age and the behavior of the use of personal protective equipment on workers at high altitudes (8). In contrast to research conducted by (Aisyah, 2020) obtained a value of 0.001, this shows that there is a relationship between age and behavioral use of personal protective equipment on workers at heights (9).

In this study, the age of workers obtained homogeneous results so there was no significant relationship. The research of (Mulyanti, 2018) and (Rahaju, 2011), states that age does not have a relationship to the behavior of individuals because age differences do not necessarily differ in habits of use PPE when working at heights when someone >30 years old tends to be 50% non-compliant with using PPE when working at heights (10).

In the Education variable, the results of the bivariate analysis showed a significant relationship ($p = 0.000$) between the behavior of the use of personal protective equipment in workers at high altitudes with the education level of the workers. This is in line with the research of (Firman et al., 2019) from the results of the statistical test obtained a p-value of 0.030 meaning that there is a significant relationship between the level of education and the use of PPE on workers at the height of PT. Surya Agrolika Reksa in Sei Basau OR= 5.0 (CI95%; 1.28-19.53) which means respondents with low education levels are 5 times more at risk of not using PPE than those with high education levels. Because a high level of education is very influential in the use of PPE (11). This research was found under what Green said in (Notoatmodjo, 2003) cited by F. R. P. (Saragih et al., 2018), education is one of the predisposing factors of a person that affects behavior (12).

Education is a fundamental factor in motivating behavior or providing a personal reference in an individual's learning experience. A person's level of education determines the breadth of knowledge and how a person behaves. Someone who has a low education will find it difficult to absorb innovations so it will be difficult to achieve the expected changes (13) (12).

Reviewing the results of the research that has been conducted shows a significant relationship ($p = 0.000$) between the behavior of the use of personal protective equipment on workers with the level

of knowledge of the worker. This is consistent with the research of (Septian, 2019) that the chi-square test indicated that there was a relationship between knowledge and the behavior of the use of personal protective equipment in workers at a significant height and the results were $p=0.000$, besides the results of research by (Pritwi, 2019) on construction workers value (14).

There is a conformity of the results of this research with the Lawrance Green theory which explains that knowledge is one of the factors that facilitate or predispose factors of one's behavior and vice versa, one's behavior is caused by one's knowledge which becomes an internal factor of an individual.

Based on the results of the research that has been conducted it shows a significant relationship ($p = 0.016$) between the behavior of the use of personal protective equipment on workers at altitude with the attitude of workers. This is in line with the research of Bara et al., (2021) on firefighting workers in the fire department of city X that there is a relationship between attitudes and behavior of using personal protective equipment on workers at heights with a p-value of 0.035, which explains that a poor attitude affects workers in using personal protective equipment it can increase the risk of occupational accidents. In addition, research from (Sangaji, 2018) showed the amount of behavior that did not use personal protective equipment on workers at heights on respondents with a poor attitude of 66.7% and from the results of the Spearman test obtained a p-value of 0.044, which means there is a relationship between attitudes and behavior of using personal protective equipment on workers at heights altitude (13).

This research was found to be consistent with that conveyed by (Notoatmojo, 2014) attitude is how the opinion or assessment of a person will something. Meanwhile, according to Campbell (1950) in Notoatmojo (2014) attitude is a syndrome or collection of symptoms in responding to a stimulus or object so that it involves thoughts, feelings, attention, and other psychological symptoms (15).

In the statistical test results, it was found that workers who had bad behavior regarding the use of protective equipment on workers at heights who stated that there was no availability of PPE 26 (70.3%) compared to workers who stated the availability of PPE 49 (59%) the statistical test resulted in $p=0.332$, this indicates that there is no significant relationship between the availability of PPE and the behavior of the use of protective equipment on workers at heights. This research is by the research conducted by Askhary (2017) obtained $p=0.12$ ($p>0.05$), meaning that there is no relationship between the availability of PPE with the behavior of the use of personal protective equipment on workers at heights In contrast to research (Listyandini, 2019) there is a relationship between availability PPE with the behavior of the use of personal protective equipment in workers at heights, obtained a p-value ($0.000 < \alpha (0.05)$) (16).

This research is not in line with what Green says (1980) behavior is manifested in three factors, for example, the enabling factor which is the availability of Facilities and facilities in health The supply

of PPE is a factor that supports the realization of behavior or action, this situation is in line with NotoatmOjo who suggests that attitudes automatically have not been applied into action without being driven by the availability of facilities (15).

CONCLUSION AND SUGGESTIONS

Based on the results of the research that has been carried out, it can be concluded that the behavior of the use of personal protective equipment on workers at high altitudes shows that the behavior of workers is poor at 62.5%. The high bad behavior of workers based on the results of the study was caused by the low behavior of the use of masks when working (50%), then the use of large hooks when working (46.7%), and the use of hand protective equipment (37.5%). when. working. The results of statistical tests show that there is a relationship between education, knowledge, and attitudes toward the behavior of using personal protective equipment on workers at higher altitudes ($p < 0,005$).

With this research, it is hoped that workers will further increase discipline in complying with applicable rules, such as always using PPE in full using a mask at work, attaching large hooks when working at height, and using gloves when working, remind coworkers if they do not use personal protective equipment completely and always pay attention to the work environment so that there are no unsafe conditions. For the company to further improve K3 socialization, both always use personal protective equipment such as masks, attaching large hooks and gloves when working to all workers and conducting training on safe working at height to improve workers' skills, knowledge and can improve workers' attitudes about the obligation to use complete PPE while working.

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DETERMINANTS OF COVID-19 PREVENTION BEHAVIOR IN WOMEN OF REPRODUCTIVE AGE IN SOUTH TANGERANG CITY YEAR 2020

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ABSTRAK

Virus corona, yang menyebabkan penyakit pada manusia dan hewan, termasuk Middle East Respiratory Syndrome (MERS), Severe Acute Respiratory Syndrome (SARS), dan COVID-19, adalah sekelompok virus yang diketahui menyebabkan infeksi saluran pernapasan pada manusia. Data pemantauan COVID-19 di Kota Tangsel hingga tanggal 2 Februari 2023 menyebutkan Kota Tangsel menduduki peringkat pertama dengan kasus tertinggi di Provinsi Banten dengan jumlah kasus terkonfirmasi positif sebanyak 117.671 kasus. Penelitian ini bertujuan untuk mengetahui determinan yang berhubungan dengan perilaku pencegahan COVID-19 pada Wanita Usia Subur. Penelitian ini dilakukan pada bulan Januari 2023 dengan menggunakan desain cross-sectional. Sampel penelitian diambil dengan menggunakan One-Stage Cluster dan didapatkan sebanyak 190 wanita berusia antara 15-49 tahun. Hasil penelitian menunjukkan perilaku pencegahan COVID-19 sebagian besar baik, sebagian besar berusia <25 tahun (63,7%), mempunyai pendidikan menengah (58,9%), status bekerja (60%), berpengetahuan baik (95,3%) dan sikap baik (52,1%). Pada variabel umur, pendidikan, pekerjaan, dan pengetahuan diperoleh hasil p value > 0,05. Sedangkan variabel sikap memperoleh p-value < 0,05. Usia, pendidikan, pekerjaan, dan pengetahuan tidak berhubungan dengan pencegahan COVID-19 dan hanya faktor sikap saja yang berhubungan dengan perilaku pencegahan COVID-19. Disarankan kepada masyarakat untuk meningkatkan sikap yang baik sehingga menghasilkan perilaku pencegahan COVID-19 yang baik.

Kata Kunci: COVID-19, Perilaku, Wanita Usia Reproduksi

ABSTRACT

Coronaviruses, which are responsible for diseases in humans and animals, including Middle East Respiratory Syndrome (MERS), Severe Acute Respiratory Syndrome (SARS), and COVID-19, are a group of viruses known to cause respiratory infections in humans. Monitoring data for COVID-19 in South Tangerang City until February 2 2023 states that South Tangerang City is in the first level with the highest cases in Banten Province with 117,671 positive confirmed cases. This study aims to determine the determinants associated with COVID-19 prevention behavior in Women of Reproductive Age. This research was conducted in January 2023 using a cross-sectional design. The research sample was taken using the One-Stage Cluster and found as many as 190 women aged between 15-49 years. The results showed that most of the behaviors for preventing COVID-19 were good, most were aged <25 years (63.7%), had secondary education (58.9%), working status (60%), good knowledge (95, 3%) and good attitude (52.1%). In the variables of age, education, work, and knowledge, the results obtained were p value > 0.05. Meanwhile, the attitude variable obtained a p-value <0.05. Age, education, occupation, and knowledge are not related to COVID-19 prevention and only attitude factors are related to COVID-19 prevention behavior. It is recommended for the community to improve good attitudes to produce good COVID-19 prevention behavior.

Keywords: COVID-19, Behavior, Women of Reproductive Age

INTRODUCTION

Coronaviruses, which are responsible for diseases in humans and animals, including Middle East Respiratory Syndrome (MERS), Severe Acute Respiratory Syndrome (SARS), and COVID-19, are a group of viruses known to cause respiratory infections in humans.¹ This disease and the disease it causes had never been detected in humans before the outbreak in Wuhan, China in December 2019 and

spreading to many other countries. Severe Acute Respiratory Syndrome with the severity of the virus that causes Coronavirus Disease-2019 (COVID-19), also known as SARS according to some studies, known as Coronavirus 2 (SARS-COV2) (transmitted between animals and humans) from camels to humans via civet cats (civet cats).² Since mid-December 2019 the coronavirus disease known as COVID-19 has spread to almost all over the world and has become a global pandemic.³

Based on world data, as of February 1, 2023, the United States is the country with the highest positive cases in the world, with a total of 102,179 million positive cases. Globally, COVID-19 infection has reached 670,901,884 million positive cases and 6,835,274 million deaths.⁴ According to statistical data, it is stated that in Indonesia positive cases were confirmed from December 2019 to February 1, 2023, and a total of 6,730,289 positive cases were found. million cases and a total of 160,817 thousand cases of death.⁵ Banten Province is in fifth place with 363,348 thousand total positive cases, 358,533 thousand recovered, and 2,982 total deaths.⁶

According to Global Health data, the number of positive cases of COVID-19 whose sex is known as of November 2021 shows positive cases of COVID-19 in women totaling 90,192,768 positive cases.⁷ Positive cases of COVID-19 in Indonesia as of 14 January 2023 by gender show the number of positives in women is greater than that of men, namely 50.4%.⁸ According to statistical data on women until Friday 28 May 2021, 51.3% of women in Indonesia are receiving treatment due to contracting the COVID-19 coronavirus. This number exceeds the proportion of men, namely 48.7%. However, the percentage of men who died from corona was higher than women. Men account for up to 56.3% of all deaths caused by coronavirus, compared to women's percentage of 43.7%.⁹ The results of previous studies showed that the Long-COVID symptom cluster of 1.2 million people who had symptoms of SARS-CoV-2 infection was more common in women aged 20 years or older (10.6%) with 3 months after symptomatic infection with SARS-CoV-2. 2 compared to men aged 20 years or more (5.4%).¹⁰

Every resident must be able to maintain health by complying with health protocols to help break the chain of disease transmission in people of all ages and walks of life, including Women of Reproductive Age, who play an important role in the family and can meet the needs of all family members.¹¹ Women of Reproductive Age are women aged 15 to 49 years with unmarried, married, or widowed status who are included in the reproductive age category¹². Low knowledge about risks and how to stop transmission of the virus is a factor that can affect Women of Reproductive Age's awareness of preventing COVID-19. Similar to research conducted in North Kuta District, Badung Regency, it was revealed that most of the respondents or 71.3% were in the good knowledge category and most, or 80.6% obtained information about COVID-19 through social media and WUS behavior in preventing the spread of COVID-19 has shown adherence to health protocols, namely 92.6% by washing hands properly followed by 91.8% using masks properly.¹¹

Factors that influence COVID-19 prevention behavior in WUS are sociodemographic factors consisting of a person's age, education, and occupation. The results of research on the people of Paya Bujok Blang Pase Village, Langsa City showed that there was a relationship between age, education, and knowledge with the behavior of preventing COVID-19 (p-value 0.000)¹³ and there was a relationship between people's age (0.018), education (0.046) and work (0.010) with COVID-19 prevention behavior in RT 002/007 Simpangan Village.¹⁴ However, based on the results of research conducted in the Democratic Republic of the Congo, there was no statistically significant difference in the effect of education level on women's knowledge, attitudes, and practices for controlling transmission of COVID-19 in Democratic Congo, women with higher levels of education were not found to always show increased knowledge, attitudes, or practice of appropriate strategies for prevention and control of COVID-19 in Democratic Congo. The results also show that education can have both positive and negative effects in alleviating the burden of COVID-19.¹⁵

The results of COVID-19 monitoring data in South Tangerang City until February 2 2023 state that South Tangerang City is in the first level with the highest cases in Banten Province since the first appearance of COVID-19 with 117,671 positive confirmed cases with details of 116,860 being declared cured and 786 cases dying.¹⁶ Based on the background that has been described, the authors are interested in research to find out the Determinants of COVID-19 Prevention Behavior in Women of Reproductive Age in South Tangerang City using secondary data from the 2020 South Tangerang IAKMI Survey Data.

METHOD

This study used a Quantitative Analytical method with a Cross-Sectional study design. While taking samples using the One Stage Cluster technique and obtained as many as 190 women aged between 15 and 49 years. This study follows the research design used by the IAKMI South Tangerang Online Survey 2020 which stipulates that data collection is only carried out once for each respondent whose measurement is carried out through an individual questionnaire. Secondary data from the results of the 2020 IAKMI South Tangerang Online Survey was used in this study. The variables measured in this study were prevention behavior, age, education, occupation, knowledge, and attitudes. Variable measurement using scoring on each statement.

RESULTS AND DISCUSSION

Based on Table 1, it can be seen that the description of the research subjects based on COVID-19 prevention behavior is that 114 people have good COVID-19 prevention behavior with a percentage of 60%, based on the age of the respondents, 121 people are less than 25 years old with a percentage of 63.7%. Description of the research subjects based on education level, 112 people had a higher level of education with a percentage of 58.9%, and based on employment status, 114 people had jobs with a percentage of 60%. Description of research subjects based on level of knowledge, 181 people had good

knowledge with a percentage of 95.3%, and based on attitude, 99 people had good attitudes with a percentage of 52.1%.

Table 1. Characetristics of Respondents

Variable	Frequency	Percentage (%)
Covid-19 Prevention Behavior		
Good	114	60
Bad	76	40
Age		
< 25 years	121	63.7
> 25 years	69	36.3
Education		
Higher education	112	58.9
Middle education	78	41.1
Occupation		
Work	114	60
Doesn't work	76	40
Knowledge		
Good	181	95.3
Enough	9	4.7
Attitude		
Good	99	52.1
Not enough	91	47.9

Based on Table 2 it is known that there is no relationship between the age variable and COVID-19 prevention behavior with a p-value of 0.157. It is known that there is no relationship between educational variables and COVID-19 prevention behavior with a p-value of 0.718. In the work variable, there is no relationship with COVID-19 prevention behavior with a p-value of 0.629 and odds of 1.157 and there is no relationship between the knowledge variable and COVID-19 prevention behavior with a p-value of 0.265. Based on the table above, it is known that only the attitude variable has a relationship with COVID-19 prevention behavior with a p.Value of 0.000 and an Odds Ratio of 3.774, which means that respondents with a good attitude are 3.530 times more likely to behave in a good way to prevent COVID-19 than respondents who have a poor attitude.

Table 2. Determinants of COVID-19 Prevention Behavior in Women of Reproductive Age in South Tangerang City 2020

South Tangerang City 2020						
Variable	Behavior				OR	P value
	Good		Not enough			
	n	%	n	%		
Age						
< 25 years	68	56.2	53	43,8	1.559 (0.842-2.886)	0.157
≥ 25 years	46	66.7	23	33,3		
Education						
Middle Education	66	58.9	46	41,1	1.115 (0.617-2.015)	0.718
Higher education	48	61.5	30	38,5		

Occupation						
Work	70	61.4	44	38.6	1.157 (0.641-2.090)	0.629
Doesn't work	44	57.9	32	42.1		
Knowledge						
Good	107	59.1	74	40.9	0.413 (0.083-2.045)	0.265
Enough	7	77.8	2	22.2		
Attitude						
Good	74	74.7	25	25.3	3.774 (2.043-6.973)	0.000
Not enough	40	44	51	56		

RESULTS AND DISCUSSION

Age is the number of respondents' life span from birth to the time of filling out the questionnaire with an age range between 15 to 49 years. Age that is still in numerical form is categorized into two categories, namely the age category <25 years and the age category ≥ 25 years. From the results of the study, it was found that most of the respondents were aged <25 years and the results of the study showed that there was no relationship between the age variable and the behavior of preventing COVID-19 with odds of 1.559. In this study, there was no relationship between age and COVID-19 prevention behavior because respondents aged <25 years and respondents aged ≥ 25 years showed the same results, namely good COVID-19 prevention behavior. The results of this study are in line with research conducted by Sari, Ayu Riana. et al. (2020) which showed that there was no significant relationship between age and COVID-19 prevention behavior. 0.000)¹³ and a study in the Kapasa Makassar Village showed the same results, that is, age has a significant relationship with COVID-19 prevention behavior, meaning that adults have good COVID-19 prevention behavior.¹⁸

From the results of the study, it was found that most of the respondents' education was secondary education and there was no relationship between the education variable and the behavior of preventing COVID-19 and the odds were 1.115. Education affects both individuals and their social environment, to improve health behavior and improve health and quality of life. The results of this study show that education level is not related to COVID-19 prevention behavior because respondents with secondary education show good prevention behavior and respondents with higher education also show good behavior. These results are in line with research conducted by Fakhira, et al. (2022) which showed that there was no relationship between education level and COVID-19 prevention behavior (p-value 0.130).¹⁹ p-value of 0.026¹⁶ and the research in the Kapasa Makassar Village showed the same results, namely the level of education has a significant relationship with COVID-19 prevention behavior, meaning that a high level of education has good COVID-19 prevention behavior.²⁰

The results showed that some of the respondents worked. The results of the bivariate analysis showed that there was no relationship between work variables and COVID-19 prevention behavior with odds of 1.157. Employment status in this study was not related to COVID-19 prevention behavior

because respondents who did not work demonstrated good COVID-19 prevention behavior and working respondents also demonstrated good COVID-19 prevention behavior. The results of the same study showed that there was no relationship between work and COVID-19 prevention behavior (p-value 0.230) in the Paya Bujok Blang Pase Village community, Langsa City¹³ and there was no significant relationship between employment status and COVID-19 prevention behavior.¹³ In the results of other studies showed different results carried out at the Pemurus Inner Health Center in the City of Banjarmasin which showed a relationship between work and the incidence of COVID-19 which had a p value of 0.035²⁰.

Knowledge is all information that is known by someone, in this study knowledge is measured through 11 statements that must be answered with the choice of true, false, or don't know. The statement contains the COVID-19 virus, its signs and symptoms, and how it is transmitted. The results showed that most of the respondents had good knowledge and the results showed that there was no relationship between knowledge and behavior to prevent COVID-19 with odds of 0.413. In this study, knowledge was not related to COVID-19 prevention because respondents with sufficient knowledge performed good preventive behavior, and respondents with good knowledge also demonstrated good preventive behavior.

The same results were found in research in the To'bulung sub-district, Bara District, Palopo City, which showed that there was no relationship between knowledge and COVID-19 prevention behavior with $p=0.463>0.005$.²¹ In contrast to the results of research conducted in South Korea, the results of knowledge were direct. influencing both attitudes and practices as factors that influence COVID-19 prevention behavior. In this study, belief in efficacy is a variable that mediates the relationship between knowledge and the three behaviors to prevent COVID-19, namely wearing a face mask, practicing hand hygiene, and avoiding crowded places.²²

Attitude is said to be a response that only arises when the individual is exposed to a stimulus. In this study, attitudes were measured using 15 statements with the choices of strongly agree, agree, disagree, and strongly disagree. Based on these results the attitude is categorized as a less attitude and a good attitude. An unfavorable attitude is an attitude that does not accept or does not tolerate the prevention of transmission of COVID-19, while a good attitude is an attitude that tolerates the prevention of transmission of COVID-19.²³ The results showed that most respondents had a good attitude. The results of this study indicate that attitude is related to COVID-19 prevention behavior following Lawrence Green's Theory which explains that attitude is a predisposing factor that contributes to a person's health behavior. A person's attitude determines how they will react to contextual cues, which may initiate or direct their actions. A person's attitude towards an object is determined by whether they feel happy or supportive of it (favorable), or whether they feel unhappy or indifferent to it

(unfavorable). For this reason, a positive attitude is needed to prevent the transmission of COVID-19 to break the chain of disease transmission.

This is in line with research that shows that most participants have a positive attitude toward tackling COVID-19.²⁵ Research conducted in China also shows a more positive attitude among inpatients associated with good prevention and control behavior. For inpatients, hospitals should focus on teaching hand hygiene, conditions when masks must be worn and how to wear them correctly, and maintaining proper social distancing.²⁶ The results of a study conducted among adolescents in Palangka Raya City showed a value of $p = 0.004$, namely that there is a relationship between attitudes and behavior of respondents.²⁷ In research conducted in Banten Province, it was shown that there was a significant relationship between attitudes and behavior in preventing COVID-19 where the p -value < 0.0522 and there was a relationship between attitude (p -value = 0.000) to precautionary measures for COVID-19.²⁸

CONCLUSION AND SUGGESTIONS

Based on the results of the study it can be concluded that most of the behavior in preventing COVID-19 among WUS in South Tangerang City in 2020 showed good results, aged < 25 years, had secondary education, working status, and had good knowledge and attitudes. In this study, there was no relationship between age, education, occupation, knowledge, and behavior to prevent COVID-19. However, there is a relationship between attitudes and behavior to prevent COVID-19 among WUS in South Tangerang City in 2020.

The suggestions in the research are: it is hoped that the community will continue to implement the behavior to prevent the transmission of COVID-19 and a positive attitude is needed in preventing the transmission of COVID-19 to break the chain of disease transmission, as for the Health Service, it is hoped that this research can become a reference and consideration in deciding to improve a good attitude towards the community in efforts to prevent the transmission of COVID-19, as for IAKMI Tangerang Selatan as the owner of the data, it is hoped that this research will become a source of information for the community to improve good attitudes in implementing good COVID-19 prevention behaviors, and for future researchers, it is hoped that the results of this study can be used as a basis for developing research on similar topics.

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FACTORS ASSOCIATED WITH THE LEVEL OF YOUTH ATTENDANCE AT THE YOUTH POSYANDU IN THE CIPONDOH HEALTH CENTER IN 2022

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ABSTRAK

Berdasarkan Profil Kesehatan Indonesia (2021), Provinsi Banten merupakan salah satu provinsi yang cakupan pelayanan kesehatannya terhadap anak usia sekolah masih terbatas. Selain itu, tingkat kehadiran remaja di Posyandu remaja di wilayah kerja Puskesmas Cipondoh masih berada di bawah target dalam 1 tahun terakhir yaitu hanya 15% dari target yang ditetapkan sebesar 70%. Desain penelitian ini menggunakan *cross-sectional* dengan sampel 50 remaja. Teknik pengambilan sampel menggunakan *total sampling*. Analisis data dengan uji *Chi-Square* (α 0,005). Terdapat hubungan yang signifikan antara pengetahuan ($p=0,000$), jarak ($p=0,020$), dukungan teman sebaya ($p=0,008$), dengan tingkat kehadiran remaja di Posyandu remaja. Tidak terdapat hubungan yang signifikan antara dukungan keluarga dengan kehadiran remaja di Posyandu remaja. Faktor yang berhubungan dengan tingkat kehadiran remaja di Posyandu remaja wilayah kerja Puskesmas Cipondoh tahun 2022 adalah pengetahuan, jarak, dan dukungan teman sebaya. Saran yang dapat diberikan ialah dengan memberdayakan kader Posyandu remaja di setiap RW agar dapat mengkoordinir remaja untuk datang ke Posyandu remaja dan melakukan kegiatan yang dapat menarik minat remaja untuk datang ke Posyandu.

Kata kunci: *Tingkat Kehadiran, Posyandu Remaja, Remaja*

ABSTRACT

Based on the Indonesian Health Profile (2021), Banten Province is one of the provinces whose health service coverage for school-age children is still limited. Apart from that, the attendance rate of teenagers at the youth Posyandu in the Cipondoh Community Health Center working area was still below the target in the last year, namely only 15% of the target set at 70%. This research design used a cross-sectional design with a sample of 50 teenagers. The sampling technique uses total sampling. Data analysis using the Chi-Square test (α 0.005). There is a significant relationship between knowledge ($p=0.000$), distance ($p=0.020$), peer support ($p=0.008$), and the level of attendance of teenagers at the youth Posyandu. There is no significant relationship between family support and adolescent attendance at the youth Posyandu. Factors related to the level of attendance of teenagers at the youth Posyandu in the Cipondoh Community Health Center working area in 2022 are knowledge, distance, and peer support. Suggestions that can be given are to empower youth Posyandu cadres in each RW to be able to coordinate teenagers to come to youth Posyandu and carry out activities that can attract teenagers to come to Posyandu.

Keywords: *Attendance rate, Youth Posyandu, Youth*

INTRODUCTION

Posyandu is a health program originating from the Ministry of Health that is implemented from, by, and for the community as an effort to improve public health status (1). Health services for adolescents can be provided through youth Posyandu which includes promotive and preventive efforts in the form of Healthy Life Skills (PKHS), adolescent reproductive health, mental health and drug prevention, physical activity nutrition, prevention of Non-Communicable Diseases (PTM), and prevention of

violence in adolescents (2). Many problems occur in adolescents because of the tendency to engage in risky behavior. Some of the problems that occur in adolescents include anemia in adolescents, juvenile delinquency, difficulty focusing, lack of confidence, use of illegal drugs, and smoking (3).

According to the Indonesian Health Profile (2021), Banten Province is one of the provinces with the coverage of health services for school-age children that is still lacking. This school-age child health service aims to detect early risk of disease in adolescents in the school environment so that it can be followed up immediately and promote optimal growth and development. Health services for school-aged children are integrated with the local Puskesmas. The coverage of health services for SMP/MTs children in Indonesia is 54.4%, but Banten Province is only at 48.1%. While the coverage of services for SMA/MA children in Indonesia is 45.2%, Banten Province is only at 38.9% (4). The attendance rate for adolescents at the Posyandu for youth in the working area of the Cipondoh Health Center is still below the target for the last 1 year, which is only 15% of the target set at 70%.

Health services for adolescents can be provided through youth Posyandu which includes promotive and preventive efforts in the form of Healthy Life Skills (PKHS), adolescent reproductive health, mental health and drug prevention, physical activity nutrition, prevention of Non-Communicable Diseases (PTM), and prevention of violence in adolescents. According to Notoatmodjo, the attendance rate of adolescents at the youth Posyandu has several related factors, including predisposing factors, supporting factors, and driving factors. Several variables that are believed to be related to the level of youth attendance at youth Posyandu include knowledge, distance, peer support, and family support (5), (6), (7), (8), (9), (10).

Based on the description above and the impact arising from the low level of attendance of adolescents in youth Posyandu can hinder the process of implementing adolescents, so that adolescents can tend to engage in risky behavior. Therefore, researchers are interested in examining the factors related to the attendance rate of adolescents at the youth Posyandu in the working area of the Cipondoh Health Center in 2022.

METHOD

This type of research uses a cross-sectional study design with a total sampling technique. The sample in this study was 50 adolescents who lived in the working area of the Cipondoh Health Center and visited the youth of Posyandu. The independent variables in this study were knowledge, the distance from the residence to the youth posyandu, peer support, and family support. The dependent variable in this study is the presence of adolescents. Statistical analysis in this study used the chi-square test.

RESULTS AND DISCUSSION

Based on the data above, it can be seen that there are 29 teenagers (58.0%) who can be said to regularly visit the youth Posyandu. Meanwhile, there were 21 teenagers (42.0%) who did not routinely

visit the youth Posyandu. In the knowledge variable, it can be seen that there are 39 teenagers (78.0%) who have good knowledge about youth Posyandu. Meanwhile, there were 11 teenagers (22.0%) who had poor knowledge about youth Posyandu. Meanwhile, in the variable distance from the respondent's residence to the youth Posyandu, there were 34 adolescents (68.0%) who had houses that were close to the youth Posyandu. Meanwhile, 16 teenagers (32.0%) have homes that are far from the youth Posyandu. Meanwhile, 16 teenagers (32.0%) have homes that are far from the youth Posyandu.

Table 1. Distribution of Youth Attendance Rate, Knowledge, Distance, Peer Support, and Family Support

Variable	n	%
Youth attendance rate	29	58
Routine	21	42
Not a routine		
Knowledge	39	78
Good	11	22
Not enough		
Distance	34	68
Near	16	32
Far		
Peer support	37	74
Support	13	26
Does not support		
Family support	31	62
Support	19	38
Does not support		

In addition, 37 teenagers (74.0%) had peers who supported them in coming to the youth Posyandu. Meanwhile, there were 13 teenagers (26.0%) who did not have peers who supported them in coming to the youth Posyandu. In the family support variable, there were 31 teenagers (62.0%) who had supportive families to come to the youth Posyandu. Meanwhile, there were 19 teenagers (38.0%) who did not have a supportive family to come to the youth Posyandu.

Table 2. Bivariate Analysis of Handwashing Behavior

Variable	Youth Attendance Rate				Total		OR (95% CI)	P-Value
	Routine		Not Routine					
	n	%	n	%	n	%		
Knowledge								
Good	28	71.8	11	28.2	39	100	5.280 (1.455-19.163)	0.020
Not enough	1	9.1	10	90	11	100		
Distance								
Near	24	70.6	10	29.4	34	100	5.280 (1.455-19.163)	0.020
Far	5	31.3	11	68.8	16	100		
Peer support								
Support	26	70.3	11	29.7	37	100	7.879 (1.811-34.275)	0.008
Does not support	3	23.1	10	76.9	13	100		

Variable	Youth Attendance Rate				Total		OR (95% CI)	P-Value
	Routine		Not Routine					
	n	%	n	%	n	%		
Family support								
Support	18	58.1	13	41.9	31	100	1.007 (0.317-3.202)	1.000
Does not support	11	57.9	8	42.1	19	100		

Based on the results of the bivariate analysis table, a significant relationship was found between knowledge and the attendance rate of adolescents at the youth Posyandu with a p-value of 0.000 (CI 2.904- 22.099). The same is true of distance and peer support variables with a p-value of 0.020 (CI 1.455-19.163) and a p-value of 0.008 (CI 1.811- 34.275). Whereas in the family support variable, no significant relationship was found with the attendance rate of adolescents in youth Posyandu with a p-value of 1.000 (CI 0.317–3.202).

The analysis of the relationship between knowledge and the attendance level of adolescents at the youth Posyandu, the p-value was 0.000. This shows that there is a significant relationship between knowledge about youth Posyandu and the level of attendance of adolescents at the Youth Posyandu in the working area of the Cipondoh Health Center. The relationship between knowledge and the level of attendance of adolescents at the youth Posyandu is consistent with Notoatmodjo's theory, which states that knowledge is one of the predisposing factors that influence adolescents to regularly come to the youth Posyandu every month (11).

Based on the results of the bivariate test analysis, it was found that there was a significant relationship between the distance of the respondents' residence and the attendance rate of adolescents at the youth Posyandu with a p-value of 0.020. Teenagers say that with the existence of a youth Posyandu in their neighborhood, they feel that access to health services is easy to reach. Especially if the place of service is near where he lives. Adolescent visits to youth Posyandu can increase their knowledge and skills in living a healthy lifestyle (12).

Peers are one of the factors that can influence a teenager's interest in coming to the youth Posyandu in the vicinity. Teenagers will imitate the actions of their friends or accept invitations to come to the youth Posyandu from their friends. Therefore, an approach through peers is a form of health promotion that is quite effective so that teenagers want to come to the youth Posyandu with their friends (13).

One other factor that influences the interest of adolescents to visit the youth Posyandu is the family factor. Families can provide support in the form of providing information and advice, suggestions, and discussions to adolescents to solve the problems they are facing. Various other supports that can be given by the family to their adolescent children can include material assistance such as providing housing, money, and so on (14).

CONCLUSION AND SUGGESTIONS

Based on the results of research conducted on 50 adolescents at the Posyandu for youth in the working area of the Cipondoh Health Center, it can be concluded that the variables that have a significant relationship are knowledge (p-value 0.000), distance (p-value 0.020) and peer support (0.008). while the variable that has no significant relationship is family support with a p-value of 1,000.

It is expected that the Community Health Center will improve the implementation of Posyandu activities so that they can function optimally in increasing teenagers' knowledge about youth Posyandu, empowering youth Posyandu cadres in each RW so that they can coordinate teenagers to come to youth Posyandu and more frequently hold activities that can attract the interest of the community, especially teenagers.

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FACTORS RELATED TO WORK STRESS IN THE ONLINE MOTORCYCLE TAXI DRIVER COMMUNITY IN DEPOK CITY IN 2022

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ABSTRAK

Angka kejadian stres dinilai cukup tinggi, dimana lebih dari 350 juta orang di dunia mengalami stres. Dan menurut Organisasi Kesehatan Dunia stres merupakan penyakit dengan peringkat ke-4 di dunia. Tercatat sekitar 10% penduduk di Indonesia mengalami stres. Berdasarkan hasil penelitian terdahulu diketahui bahwa pada cakupan wilayah Jakarta, Bogor, Depok, Tangerang, dan Bekasi (Jabodetabek) terdapat 19 orang (63,3%) pengemudi ojek online yang mengalami stres, kemudian ojek online yang mengalami stres sebanyak 19 orang (63,3%). supir taksi yang tidak mengalami stres sebanyak 11 orang. (36,7%). Tujuan penelitian ini adalah untuk mengetahui faktor-faktor yang berhubungan dengan stres kerja pada komunitas pengemudi ojek online di Kota Depok Tahun 2022. Metode dalam penelitian ini menggunakan pendekatan kuantitatif dengan desain studi cross-sectional dengan jumlah sampel 130 orang. responden. Hasil uji analisis bivariat menunjukkan bahwa variabel yang berhubungan dengan stres kerja adalah usia (p-value 0,000), jenis kelamin (p-value 0,003), status perkawinan (p-value 0,000), dan beban kerja (p-value 0,000). Variabel yang tidak berhubungan dengan stres kerja adalah hubungan interpersonal (p-value 0,236). Penelitian ini menyimpulkan bahwa faktor yang mempunyai hubungan dengan stres kerja adalah usia, jenis kelamin, status perkawinan, dan beban kerja. Sedangkan variabel hubungan interpersonal tidak ada hubungan.

Kata kunci: *Stres, Stres Kerja, Taxi Online*

ABSTRACT

The incidence of stress is considered quite high, where more than 350 million people in the world experience stress. And according to the World Health Organization stress is a disease with the 4th rank in the world. It is recorded that around 10% of the population in Indonesia experience stress. Based on the results of previous research, it was found that in the coverage area of Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jabodetabek), there were 19 people (63.3%) online motorcycle taxi drivers who experienced stress, then online motorcycle taxi drivers who did not experience stress as many as 11 people. (36.7%). The purpose of this study was to find out the factors related to work stress in the online motorcycle taxi driver community in Depok City in 2022. The method in this study used a quantitative approach with a cross-sectional study design with a sample size of 130 respondents. The results of the bivariate analysis test showed that the variables related to work stress are age (p-value 0,000), gender (p-value 0,003), marital status (p-value 0,000), and workload (p-value 0,000). The variable that is not related to work stress is interpersonal relationships (p-value 0,236). This study concludes that the factors that have a relationship with work stress are age, gender, marital status, and workload. While the variables of interpersonal relationships have no relationship.

Keywords: *Stress, Work Stress, Online taxis*

INTRODUCTION

Job stress is a condition where there is a feeling of tension that arises from the interaction between humans and their work which then creates an imbalance between the physical and psychological states which then has an impact on emotions, up to a person's condition (1). The incidence of stress is considered quite high, where almost more than 350 million people in the world experience stress, and according to the World Health Organization (WHO), stress is a disease ranked 4th in the

world. The results of a study conducted by the Health and Safety Executive in the UK involved the UK population, namely 487,000 people who were considered to be still productive from 2013-2014. Then it was found that the prevalence of stress was most prevalent in women (54.62%) compared to men (45.38%) (2).

It is recorded that around 10% of the population in Indonesia experience stress. Based on Basic Health Research Data (Riskesdas) in 2013 there were around 1.33 million people in DKI Jakarta who experienced stress. Then it was recorded that as many as 704,000 residents of Central Java experienced mental disorders, of the total population experiencing mental disorders, as many as 96,000 insanity experienced, and as many as 608,000 people experienced stress.

Work stress can happen to anyone, including online motorcycle taxi drivers. The quality of work of online motorcycle taxi drivers can be influenced by one factor, namely the existence of work stress (3). Work stress can harm online motorcycle taxi drivers, this impact greatly affects psychological and biological conditions (4).

Based on the results of previous research, data were obtained in the coverage area of Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jabodetabek) in April 2021, there were 19 people (63.3%) online motorcycle taxi drivers who experienced stress, then online motorcycle taxi drivers who 11 people (36.7%) did not experience stress. In the Gojek driver community in Medan, it was found that 32 people (66.7%) experienced mild stress, 13 people (31.3%) experienced moderate stress, and 1 person (2.1%) experienced stress by weight category (5).

Several intrinsic factors can trigger stress in workers and it can interfere with a person's mental state. This study wanted to examine several factors including age, gender, marital status, workload, and interpersonal relationships.

Based on the data above, it can be seen that the level of work stress is still high in the coverage area, in which Depok is included in the coverage area. This is what makes the author interested in studying factors related to work stress in the online motorcycle taxi driver community in Depok City.

METHOD

This research is a quantitative study using a cross-sectional design. The data used in this study are primary data with the data collection method using purposive sampling. The number of respondents in this study were 130 respondents. The data obtained was carried out using a Google form which was filled in directly by the online motorcycle taxi driver.

RESULTS AND DISCUSSION

Based on Table 1, it is known that the majority of online motorcycle taxi drivers in this study were aged ≥ 28 years with a total of 70 respondents (53.8%), while drivers aged < 28 years were 60 respondents (46.2%). Based on gender, the majority of online motorcycle taxi drivers in this study were

male, namely 115 respondents (53.8%) and female as many as 15 respondents (46.2%). Most of the online motorcycle taxi drivers in this study were married, namely, 78 respondents (60.0%) while those who were not married were 52 respondents (40.0%).

Based on Table 1, it is known that there were 22 respondents (16.9%) who experienced heavy work stress, as many as 82 respondents (63.1%) experienced moderate work stress and as many as 26 respondents (20.0%) experienced mild work stress. Based on the workload category, there were 79 respondents (60.8%) who had a heavy workload and 51 respondents (39.2%) had a light workload. In the category of interpersonal relations, there were 59 respondents (45.4%) in the category of bad interpersonal relations, and as many as 71 respondents (54.6%) in the category of good interpersonal relations.

Table 1. Distribution of Respondents by Age Group, Gender, and Marital Status

Variable	n	%
Age		
≥ 28 years	70	53,8
< 28 years	60	46,2
Gender		
Woman	15	46,2
Man	115	53,8
Marital status		
Marry	78	60
Not married	52	40
Work stress		
Heavy	22	16,9
Currently	82	63,1
Light	26	20,0
Workload		
Heavy	79	60,8
Light	51	39,2
Interpersonal relations		
Bad	59	45,4
Good	71	54,6

Based on bivariate analysis, it shows that there is a relationship between age and work stress (p-value = 0.000). This is in line with the results of research conducted by Safitri (2021) which stated that there is a relationship between age and work stress (6). According to the explanation expressed by Schlick et al., (2013) there are differences in stress levels caused by different job demands for each age group so this can cause different levels of stress. Individuals with an older age group are at risk of experiencing higher work stress due to the large workload and responsibilities they bear (7).

The analysis of the relationship between gender and work stress (p-value = 0.013). This is in line with research conducted by Azteria & Hendarti (2020) which states that there is a relationship between gender and work stress. Gender is a characteristic that distinguishes between men and women both biologically and physiologically. In this case, women tend to experience stress, this is due to hormonal changes in the female body. Women tend to have feelings of anxiety, guilt, increased or

decreased appetite, and sleep disturbances. When experiencing stress, women tend to feel sad, sensitive, angry, and cry easily (8).

Table 2. The Relationship between Work Stress and Age, Gender, Marital status, Workload, and Interpersonal Relationships

Variable	P-value
Age	
≥28 years old	0.000
<28 years	
Gender	
Woman	0.013
Man	
Marital status	
Marry	0.003
Not married yet	
Workload	
Heavy	0.000
Light	
Interpersonal Relations	
Bad	0.236
Good	

The analysis of the relationship between marital status and work stress (*p-value*= 0.003). This is in line with the results of research conducted by Rhamdani & Wartono (2019) which states that there is a relationship between marital status and work stress (9). Marital status is a necessity for every individual, this can be a good influence for individuals in carrying out their daily activities. An individual who has married status tends to have good life satisfaction and this has a good impact on quality of life. After marriage, there will usually be a division of roles with a spouse, this can make homework a little easier because there is cooperation between the spouses (Hardani, 2016) (10).

Based on bivariate analysis, it shows that there is a relationship between workload and work stress (*p-value*= 0.000). This is in line with research conducted by Sunarti et al., (2021) which states that there is a significant relationship between workload and work stress. According to Anoraga (2019) in Sunarti et al., (2021) said that the greater the physical and mental workload experienced by an individual, this becomes a source of work stress. One of the elements that causes excessive workload is short work time. Thus workers are required to complete the work quickly, precisely, and carefully. But with the demands of time, it can also lead to errors that trigger work stress (11).

Based on bivariate analysis, it shows that there is no relationship between interpersonal relationships and work stress (*p-value*= 0.236). This is in line with research conducted by Sari et al., (2017) which states that there is no relationship between interpersonal relationships and work stress. According to the theory expressed by Wisnuwadhani & Mashoedi (2012) in Sari et al., (2017), interpersonal relationships are reciprocal and can influence one another. Feeling comfortable and calm in the work environment is an effective way to reduce stress. Good interpersonal relationships in the

work environment make workers not easily complain and have the ability to solve problems that occur in the work environment (Sari et al., 2017) (12).

CONCLUSION AND SUGGESTIONS

Based on the results of research that has been conducted on the online motorcycle taxi driver community in Depok in 2022, there are still many online motorcycle taxi drivers who experience heavy work stress. Drivers who experienced heavy work stress were mostly drivers aged ≥ 28 years, male, married, had a heavy workload, and had a good relationship with drivers. Based on the results of the bivariate test, it was stated that there was a relationship between work stress and the variables age, gender, marital status, and workload. There is no relationship between work stress and interpersonal relationship variables.

Drivers are expected to always pay attention to their physical and psychological conditions. This is done to avoid things that can cause work stress.

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DETERMINANTS OF PRIMARY DYSMENORRHOEA IN SISIWI SMA NEGERI 1 GARUT IN 2022

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ABSTRAK

Angka kejadian dismenore di Indonesia mencapai 64,5%, berdasarkan survei yang dilakukan di salah satu sekolah di Kabupaten Garut, sebanyak 60-70% siswi mengalami dismenore primer. Tujuan penelitian ini adalah untuk mengetahui hubungan usia *menarche*, siklus menstruasi, riwayat keluarga, aktivitas fisik, frekuensi konsumsi fast food, dan riwayat paparan asap rokok dengan kejadian dismenore primer. Metode dalam penelitian ini menggunakan cross-sectional dengan jumlah sampel sebanyak 176 sampel yang ditentukan menggunakan *stratified random sampling* dengan menentukan probabilitas menggunakan probabilitas proporsional terhadap ukuran kemudian diuji secara univariat dan bivariat menggunakan Chi Square dengan $\alpha = 0,05$. Hasil penelitian menunjukkan faktor-faktor yang berhubungan dengan kejadian dismenore primer antara lain usia saat *menarche*, riwayat keluarga, frekuensi konsumsi makanan cepat saji, aktivitas fisik, dan riwayat paparan asap rokok. Sedangkan siklus menstruasi tidak berhubungan dengan kejadian dismenore primer. Saran yang dapat diberikan peneliti antara lain agar mahasiswa lebih berhati-hati dan mewaspada diri untuk mencegah terjadinya dismenore primer.

Kata kunci: *Dismenore, siswi, menstruasi.*

ABSTRACT

The incidence of dysmenorrhea in Indonesia has reached 64.5%, based on a survey conducted at one school in Garut Regency, as many as 60-70% of female students experienced primary dysmenorrhea. This study aimed to determine the relationship between the age of menarche, menstrual cycle, family history, physical activity, frequency of fast food consumption, and history of exposure to cigarette smoke with the incidence of primary dysmenorrhea. The method in this research uses cross-sectional with a total sample of 176 samples determined using stratified random sampling by determining probability using probability proportional to size then tested univariately and bivariately using Chi Square with $\alpha=0.05$. The results of the study showed that factors associated with the incidence of primary dysmenorrhea included age at menarche, family history, frequency of fast food consumption, physical activity, and history of exposure to cigarette smoke. Meanwhile, the menstrual cycle is not related to the incidence of primary dysmenorrhea. Suggestions that researchers can give include students being more careful and aware of themselves to prevent primary dysmenorrhea.

Keywords: *Dysmenorrhea, female students, menstruation.*

INTRODUCTION

Reproductive health is a healthy condition for men and women psychologically, socially, and physically, which has a relationship with the functions and processes in the reproductive system to always be responsible for protecting and maintaining the reproductive organs. This reproductive health condition needs to be considered when menstruation occurs. Adolescence is a period in which puberty occurs and is a period of transition from children to adults, in women it can be marked by menstruation. Menstruation is one of the signs of puberty experienced by women in their teens. In the process of menstruation, there is a process of shedding the inner lining of the female uterine wall, which contains many blood vessels (1).

According to Prayitno (2014), dysmenorrhea, or what is known as menstrual pain is a disorder of the reproductive system that is often felt by women in general. Dysmenorrhea occurs due to an imbalance of the hormone progesterone in the blood, causing gynecological complaints which can eventually result in the emergence of pain that is often felt by women (2). Primary dysmenorrhea is pain in the form of cramps in the lower abdomen before or during the menstrual period without any pelvic pathology or abnormalities in the female reproductive organs. Primary dysmenorrhea is a major female problem that affects 90% of young women and more than 50% of women who experience menstruation (3).

Incidence of dysmenorrhea Based on data from *the World Health Organization* (WHO) in 2017, it was found that as many as 1,769,425 women (90%) experienced dysmenorrhea with 10-60% experiencing severe dysmenorrhea. Data globally, the average incidence of dysmenorrhea in the world reaches 50% more women who must experience it (4). The results of reports from studies in India, China, and Canada the prevalence of dysmenorrhea is higher, namely between 45-60% (5). Based on research conducted in the United States, it was found that the prevalence of dysmenorrhea there was 85% in young women. Based on a large study conducted in Australia on high school adolescents (SMA), it was found that the prevalence of dysmenorrhea was higher among them, namely as many as 93% felt menstrual pain (6).

Although the prevalence rate of dysmenorrhea in Indonesia does not yet have a definite number, based on epidemiological research conducted in Denpasar, as many as 67% of junior high school students experience dysmenorrhea, and as many as 87.7% of female students in Natar Lampung Selatan experience dysmenorrhea (7). Based on research conducted by Ernawati in 2010, the incidence of dysmenorrhea in Indonesia reached 64.5%, 54.89% of which was primary dysmenorrhea and 9.36% secondary dysmenorrhea. The prevalence of dysmenorrhea in West Java is quite high, as many as 54.9% of women experience dysmenorrhea (8).

Dysmenorrhea is a disease that does not have proper treatment. There are still many young women or women with dysmenorrhea who consult health professionals. It is known that there are several factors associated with the incidence of dysmenorrhea. Based on the results of the research that has been done, the factors associated with the incidence of dysmenorrhea include family history, age at menarche, menstrual cycle, physical activity, and *fast food* eating patterns (9)(10).

Based on data from the Garut Regency Health Office, the incidence of dysmenorrhea in Garut Regency does not have complete data, but the results of research conducted at one of the schools there, namely SMK YBKP3 Tarogong Kidul Garut, found that as many as 60-70% of young women experience dysmenorrhea (11). Based on the description above, the researcher is interested in conducting further in-depth research with the research title "Factors Associated with the Incidence of Primary Dysmenorrhea in Class X Students at SMA Negeri 1 Garut in 2022". Thus, it is hoped that this

research can provide an overview of one of the public health problems, especially among female students.

METHOD

Cross-sectional research design which was carried out from October 2022 to January 2023 at SMA Negeri 1 Garut. The sample in this study amounted to 17 samples. Sampling was carried out by *stratified random sampling* to divide into several strata, then the opportunity for the sample to be selected used *probability proportionate to size* (PPS), and then the sample was selected using the *random sampling method with quota* to take samples from each predetermined stratum. Data analysis was carried out descriptively and analytically, descriptively to see an overview of the dependent (primary dysmenorrhea) and independent variables (age of menarche, menstrual cycle, family history, frequency of *fast food consumption*, physical activity, and history of exposure to cigarette smoke), then analytic using *chi-square* to see the relationship between the dependent and independent variables.

RESULTS AND DISCUSSION

Based on Table 1. Distribution of respondents based on age, It is known that most respondents in this study were 15 years old, namely 112 (63.6%) respondents, and respondents with a small age, namely 14 years old, namely 4 (2.3%) respondents. There were 165 (93.2%) female students who experienced primary dysmenorrhea, while 12 (6.8%) female students did not experience primary dysmenorrhea. The pain level of primary dysmenorrhea that occurred in most respondents experienced mild dysmenorrhea, namely 84 (47.7%). Respondents who experienced severe dysmenorrhea did not differ much from respondents who did not have primary dysmenorrhea, namely 13 (7.4%).

Table 1. Characteristics of Respondents

Variables	Frequency	Percentage (%)
Age		
14 years	4	2.3
15 years	112	63.6
16 years	60	34.1
Primary dysmenorrhea		
Primary Dysmenorrhea	165	93.2
No Primary Dysmenorrhea	12	6.8
Primary Dysmenorrhea Grades		
Mild Dysmenorrhea	84	47.7
Moderate Dysmenorrhea	67	38.1
Severe Dysmenorrhea	13	7.4
Very Severe Dysmenorrhea	0	0
Age of Menarche		
<12 Years	80	45.5
≥12 Years	96	54.5
Menstrual Cycle		
Irregular	57	32.4
Regular	119	67.6

Variables	Frequency	Percentage (%)
Family History		
Yes	104	59.1
No	72	40.9
Physical Activity		
Very low	19	10.8
Low	122	69.3
Currently	32	18.2
Tall	3	1.7
Very high	0	0.0
Fast Food Frequency		
Often	133	75.6
Seldom	43	24.4
History of Cigarette Smoke Exposure		
Exposed	149	84.7
Not Exposed	27	15.3

Part of big respondents own menarche age ≥ 12 years is as many as 96 (54.5%) female students. Whereas part small respondents own age of menarche < 12 years are as many as 80 (45.5%) female students. Part big respondents own cycle menstruation regular that is as many as 119 (67.6%) students. Whereas part small number of respondents own cycle menstruation that is not regular that is as many as 57 (32.4%) female students. Part of big respondents own a history family with primary dysmenorrhea i.e. as many as 104 (59.1%) female students. Whereas part small female student with history family No dysmenorrhea as many as 72 (40.9%) female students. Part big respondent own activity low physique that is as many as 122 (69.3%) female students. Whereas part small number of respondents own activity high physique _ that is as many as 3 (1.7%) female students.

Part big frequent respondents consuming fast food ie as many as 133 (75.6%) female students. Whereas part small rare respondents consuming fast food as much as 43 (24.4%) female students. Part big respondents who have a history exposed to cigarette smoke as many as 146 (83.0%) female students. Whereas part small respondents did not have a history of exposure to cigarette smoke as many as 30 (17.0%) female students.

Table 2. Relationships Age of Menarche, Menstrual Cycle, Family History, Frequency of Fast Food Consumption, Physical Activity, and History of Exposure to Cigarette Smoke

Variable	Primary Dysmenorrhea				Total		PR (95% CI)	P Value
	Primary Dysmenorrhea		No Primary Dysmenorrhea					
	n	%	n	%	n	%		
Age of Menarche							1,143 (1,060-1,233)	0.003
Abnormal	80	100	0	0	80	100		
Normal	84	87.5	12	12.5	96	100		
Menstrual Cycle							1.083 (1.012-1.158)	0.106
Abnormal	56	98.2	1	1,8	57	100		
Normal	108	90.8	11	9,2	119	100		
Family History							1.110 (1.011-1.1219)	0.016
Yes	101	97.1	3	2,9	104	100		
No	63	87.5	9	12.5	72	100		

Variable	Primary Dysmenorrhea				Total		PR (95% CI)	P Value
	Primary Dysmenorrhea		No Primary Dysmenorrhea					
	n	%	n	%	n	%		
Consumption of Fast Food							1,236 (1,058-1,445)	0.000
Often	130	97.7	3	2,3	133	100		
Seldom	34	79,1	9	20,9	43	100		
Physical Activity							1,282	
Very low	19	100	0	0.0	19	100		0.001
Low	119	97.5	3	2,5	122	100		0.998
Currently	25	78.1	7	21,9	32	100		0.001
Tall	1	33,3	2	66,7	3	100		0.130
Very high	0	0	0	0.0	0	0		
Cigarette Smoke Exposure							1,234 (1,006-1,514)	0.004
Exposed	143	96.0	6	4.0	149	100		
Not Exposed	21	77.8	6	22.2	27	100		

Based on table 2, the results of bivariate analysis using *chi square*, it was found that the menarche age variable had a significant relationship ($p\text{ value} = 0.003$, $PR = 1.143$) with the incidence of primary dysmenorrhea in class X students at SMA Negeri 1 Garut. The menstrual cycle variable did not have a significant relationship ($p\text{ value} = 0.106$, $PR = 1.083$) with the incidence of primary dysmenorrhea in class X students at SMA Negeri 1 Garut. In the family history variable, there was a significant relationship ($p\text{ value} = 0.016$, $PR = 1.110$) with the incidence of primary dysmenorrhea in class X students at SMA Negeri 1 Garut. In the variable frequency of *fast food consumption*, there was a significant relationship ($p\text{ value} = 0.000$, $PR = 1.236$) with primary dysmenorrhea in class X students at SMA Negeri 1 Garut. Very low physical activity variables ($p\text{ value} = 0.001$, $PR = 1.282$) and moderate physical activity ($p\text{ value} = 0.001$, $PR = 1.282$) have a significant relationship with the incidence of primary dysmenorrhea in class X students at SMA Negeri 1 Garut. In the variable history of exposure to cigarette smoke there is a significant relationship ($p\text{ value} = 0.004$, $PR = 1.234$) with the incidence of primary dysmenorrhea in class X students at SMA Negeri 1 Garut.

Based on the results of the study, it was found that there were 80 (100%) female students with menarche age ≥ 12 years of primary dysmenorrhea. This is in line with research conducted by Romlah and Agustin (2020) which explained that there is a relationship between the age of menarche and the incidence of primary dysmenorrhea with a $p\text{ value} = 0.02$. A woman with a younger menarche age has a higher risk of experiencing primary dysmenorrhea compared to a woman with a normal menarche age, because teenagers who are still relatively young, the function of the reproductive organs can still occur narrowing of the cervix and they are not ready yet. for development to occur. In addition, the factor of mental readiness in women with early menarche is not fully ready to experience and understand menstruation (13).

Based on the results of the study, it was found that the menstrual cycle of female students mostly had normal menstrual cycles compared to female students with abnormal menstrual cycles. This is not in line with research conducted by Hikmah (2021) et al, which states that there is a significant relationship between the menstrual cycle and the incidence of primary dysmenorrhea. However, this is in line with research conducted by Fachruddin (2021) et al, which states that the menstrual cycle does not have a significant relationship between the menstrual cycle and the incidence of primary dysmenorrhea.

Based on the results of this study, there was no significant relationship between the menstrual cycle and the incidence of primary dysmenorrhea because most female students had normal menstrual cycles and only a small proportion of female students had abnormal menstrual cycles, so no significant relationship was found between menstrual cycles. menstruation with primary dysmenorrhea.

Based on the results of the study, it was found that most female students who had a family history of primary dysmenorrhea experienced primary dysmenorrhea compared to female students who did not have a family history of primary dysmenorrhea. there is a significant relationship between family history and the incidence of primary dysmenorrhea in female students. The results of this study are in line with research conducted by Hamza (2021) which states that there is a relationship between family history and the incidence of primary dysmenorrhea with *a p value* = 0.030. One of the risk factors that can influence the occurrence of primary dysmenorrhea is family history. Family history can be seen from the habits in the family, such as lifestyle and lifestyle. Even so, it is possible that in addition to a different lifestyle and lifestyle, it can still reduce the risk of experiencing primary dysmenorrhea. The potential for primary dysmenorrhea in a family history is strengthened by the presence of genetic factors where these factors can pass anything on to their offspring (2).

Based on the results of this study, it was found that female students who often consumed *fast food* frequently experienced primary dysmenorrhea. There is a significant relationship between the frequency of *fast food consumption* and the incidence of primary dysmenorrhea. The results of this study are in line with research conducted by Nuzula (2019) and Oktaviana, it was found that there was a significant relationship between the frequency of *fast food consumption* and the incidence of primary dysmenorrhea with *a p value* = 0.001. Teenagers now indeed consume *fast food* has become a daily meal. *Fast food* in the globalization era especially tastes good, now it's very easy to get, so many people, especially young people, consume it. One of the substances contained in *fast food* is *the presence of trans fatty acids which function as a source of free radicals that can cause damage to cell membranes*. One of the components contained in the cell membrane has a function as a provider of arachidonic acid which is a substance that can turn into prostaglandins. If a person consumes *fast food* frequently, that person will likely experience dysmenorrhea, because the amount of prostaglandins produced in the body increases and causes dysmenorrhea (17).

Based on the results of this study, it was found that most female students had relatively low physical activity. There is a significant relationship between very low physical activity and moderate activity with the incidence of primary dysmenorrhea. This is in line with research conducted by Romlah (2020) and Agustin, it was found that there was a significant relationship between physical activity and the incidence of primary dysmenorrhea. There is an increase in primary dysmenorrhea, that is, if a woman has a history of less or very low physical activity, a woman can experience dysmenorrhea because the blood vessels do not receive oxygen properly (13). In this study, 19 (100%) women with very low activity had primary dysmenorrhea. In the results of this study, the majority of female students with low physical activity as many as 119 (97.5%) experienced primary dysmenorrhea as well.

The relationship between very low physical activity and moderate physical activity with the incidence of primary dysmenorrhea is known that there is a significant relationship, because most female students have very low physical activity and students with moderate activity do not rule out experiencing primary dysmenorrhea like this research conducted. In female students with low physical activity, a high incidence of primary dysmenorrhea was found, namely as much as 97.5%, but did not have a significant relationship with the incidence of primary dysmenorrhea. The possibility occurs because of the discovery of female students with low physical activity or not still experiencing primary dysmenorrhea.

The results of this study found that female students who had a history of exposure to cigarette smoke mostly had a history of exposure to cigarette smoke and experienced primary dysmenorrhea. There is a relationship between the history of exposure to cigarette smoke and the incidence of primary dysmenorrhea in this study. This is in line with research conducted by Nuzula (2019) and Oktaviana, which found that there was a significant relationship between exposure to cigarette smoke and the incidence of primary dysmenorrhea. Nicotine is not only found in cigarettes, but also in the smoke emitted by someone who is smoking. Nicotine is a substance that can cause disease. Nicotine is also a substance that can cause the release of prostaglandins, so prostaglandin levels increase as a result of nicotine entering the body, resulting in intense contractions and spasmodic pain which is pain that is felt before or during the menstrual period or primary dysmenorrhea (17).

Based on the results of this study, a significant relationship was found between a history of exposure to cigarette smoke and the incidence of primary dysmenorrhea in class X students at SMA Negeri 1 Garut in 2022 because most female students had a history of exposure to cigarette smoke in the past month, making it possible to experience dysmenorrhea. primary. Based on the survey conducted in this study, it was found that most female students were exposed to cigarette smoke while in public places, namely 55.6% and 30.66% were exposed in their respective homes.

CONCLUSION AND SUGGESTIONS

Based on the results of the research that has been done, it can be concluded that the factors associated with the incidence of primary dysmenorrhea include age at menarche, menstrual cycle, family history, frequency of fast food consumption, physical activity, and history of exposure to cigarette smoke. Meanwhile, the variable that has no significant relationship is the menstrual cycle. It is hoped that the students always organize and pay attention to physical activity, types of food and the surrounding environment in their daily lives, students who have an abnormal age at menarche should be more aware of the factors that can lead to primary dysmenorrhea, students who have a family history of primary dysmenorrhea should also pay more attention to habits and be more aware of the factors that can lead to primary dysmenorrhea, students should carry out regular physical activity, and seek information about prevention of primary dysmenorrhea before the arrival of the menstrual period, reducing consumption of fast food and replacing it with healthy and nutritious foods, and pay more attention to the surrounding environment and avoid exposure to cigarette smoke both inside and outside the home to minimize the occurrence of primary dysmenorrhea.

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THE RELATIONSHIP BETWEEN HOUSEWIVES' BEHAVIOR IN WASTE MANAGEMENT IN RW 07 PETUKANGAN SELATAN VILLAGE IN 2022

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ABSTRAK

DKI Jakarta mengalami peningkatan sampah setiap tahunnya. Saat ini sampah di DKI Jakarta mencapai 7.400 ton/hari dan di Kota Jakarta Selatan pada tahun 2021 menghasilkan sampah sebanyak 1.937 ton/hari dan 532.885 ton/tahun. Penelitian ini bertujuan untuk mengetahui hubungan Perilaku Ibu Rumah Tangga dalam Pengelolaan Sampah di RW 07 Kelurahan Petukangan Selatan Tahun 2022. Penelitian ini menggunakan metode kuantitatif dengan pendekatan analitik observasional, dan desain penelitian cross sectional, menggunakan purposive sampling dengan jumlah responden sebanyak 100 orang. Hasil penelitian ini tidak ditemukan hubungan antara pendidikan dengan perilaku ibu rumah tangga dengan p-value (sebesar 0,810) dan tidak terdapat hubungan antara sikap dengan perilaku ibu rumah tangga dengan p-value (sebesar 0,094), variabel yang berhubungan yaitu pengetahuan dengan p-value (0,007) dan infrastruktur dengan p-value (0,008). Pada penelitian ini ditemukan bahwa tidak ada hubungan antara pendidikan dan sikap terhadap perilaku pengelolaan sampah, namun terdapat hubungan antara pengetahuan dan prasarana dengan perilaku pengelolaan sampah. Bagi masyarakat untuk mengikuti rangkaian kegiatan pelatihan terkait pengelolaan sampah yang dilakukan pemerintah untuk mendapatkan ilmu yang dapat diterapkan pada lingkungan.

Kata Kunci: Pendidikan, Pengetahuan, Sikap, Prasarana, Perilaku Pengelolaan Sampah

ABSTRACT

DKI Jakarta has experienced an increase in waste every year. Currently, waste in DKI Jakarta has reached 7,400 tons/day and in the City of South Jakarta in 2021 it produced 1,937 tons/day and 532,885 tons/year of waste. This research aims to determine the relationship between Housewives' Behavior in Waste Management in RW 07 Petukangan Selatan Village in 2022. This study used quantitative methods with an observational analytical approach, and a cross-sectional study design, using purposive sampling with 100 respondents. The results of this study found no relationship between education and the behavior of housewives p-value (of 0.810) and there was no relationship between attitudes with the behavior of housewives with a p-value (of 0.094), related variables namely knowledge with a p-value (0.007) and infrastructure with p-value (0.008). In this study, it was found that there was no relationship between education and attitudes toward waste management behavior, but there was a relationship between knowledge and infrastructure and waste management behavior. For the community to participate in a series of training activities related to waste management carried out by the government to get knowledge that can be applied to the environment.

Keywords: Education, Knowledge, Attitudes, Infrastructure, Waste Management Behavior

INTRODUCTION

Solid waste generation of 2.24 billion tons has been generated in 2020. Population growth and urbanization are so fast that waste is estimated to increase by 73% from 2020 to 3.88 billion tons by 2050 (1). The Environmental Protection Agency explained that in 2017 the total generation of municipal solid waste in the United States was 267.8 million tons, which is an increase compared to 2015 of 5.7 million tons (2).

According to data from the Ministry of Environment and Forestry (KLHK, 2021), Indonesia produced 67.8 million tons of waste in 2020 and 68.5 million tons in 2021. As much as 37.3% of waste comes from household activities (3). DKI Jakarta has increased in production waste every year. Currently, waste in DKI Jakarta has reached 7,400 tons/day. The largest contributors came from residential areas, namely 60% and the rest came from the business and industrial world at 29%. Based on this number, 60% comes from residential areas covering 2,742 RW (DKI Jakarta Provincial Government, 2021). As for the generation of waste in the City of South Jakarta in 2021, namely 1,937 tons/day and 532,885 tons/year.

Community behavior during waste management greatly affects the level of environmental health, a behavior that is still widely carried out by the community, namely the behavior of burning waste. Because behavior is an attitude produced due to human interaction with the environment the behavior of individuals and society will affect it (Wulandari & Lestari, 2020). Results of research on education with waste management behavior, 23 (67.6%) have higher education and carry out good waste management (4). Research on the relationship of knowledge with the behavior of housewives in waste management has a statistical test result of $p\text{-value} = 0.021$ or $p < 0.05$ meaning that H_0 is rejected and H_a is accepted which means there is a relationship between knowledge and handling household waste (5).

The results of the study between attitudes and behaviors obtained a $p\text{-value} = 0.024$ meaning that there is a significant (meaningful) relationship between attitudes and waste management behaviors. $OR = 3,266$ means, housewives are positive with a 3,226 chance of carrying out waste management behaviors (4). Another study on facilities and infrastructure shows that the $p\text{-value}$ result = 0.019 influences the community in waste management (6). In previous research, there is a picture that the behavior of housewives in waste management is still not good. So, researchers are interested in conducting research in RW 07 Petukangan Selatan Village in 2022.

METHOD

This research uses quantitative methods with an observational analytical approach and uses a cross-sectional study design. The analysis carried out was univariate and bivariate which was carried out to determine the relationship between the behavior of housewives in waste management in RW 07 Petukangan Selatan Village in 2022. The sample in this study was 100 respondents who used a questionnaire. The analysis carried out in this study was univariate to see the prevalence and bivariate analysis of chi-square ($\alpha = 0.05$) as well as the calculation of the Odds Ratio (OR).

RESULTS AND DISCUSSION

Based on the table 1, it was found that respondents who had low education were 6 people (6%), while respondents who had higher education were 94 people (94%). It was found that 8 respondents had poor knowledge (8%) and 92 respondents had good knowledge (92%). It was found that 10 respondents had a bad attitude (10%) and 90 respondents had a good attitude (90%). It was found that respondents who had less infrastructure facilities were 58 people (58%) and respondents who had sufficient infrastructure were as many as 42 people (42%). It was found that respondents who had bad behavior were 35 people (35%) and respondents who had good behavior were 65 people (65%).

Table 1. Distribution Frequencies

Variable	N	%
Education		
Low	6	6
High	94	94
Knowledge		
Less	8	8
Good	92	92
Attitude		
Less	10	10
Good	90	90
Infrastructure		
Less	58	58
Enough	42	52
Waste Management Behavior		
Less	35	35
Good	65	65

Based on the table 2, the result obtained a p-value = 0.810 which means that there is no significant relationship between education and the behavior of housewives in waste management in RW 07 Petukangan Selatan Village in 2022. This research is in line with the research conducted by Sari et al (2017) obtained p-value = 0.355 with $\alpha=0.05$ which means that it can be said that there is no relationship between education level and waste management behavior (7). The research was also strengthened by research conducted by Istiqomah (2020) getting results of $p = 0.115$, which means that there is no relationship between the level of education and the behavior of housewives in managing waste (8). This research is not in line with the research conducted by Warin-angina (2019), based on the results found there is a meaningful influence between the education of the head of the family on community behavior in residential waste management ($p\text{-value} = 0.000 < \alpha=0.05$) (Warin-angina, 2019).

Table 2. Bivariate Analysis

Variable	Waste management behavior				Total		P-value	OR (95% CI)
	Not good		Good		n	%		
	n	%	n	%				
Education								
Low	4	66.7	2	33.3	6	100	0.810	4.06 (0.7-23.4)
High	31	33	63	67	94	100		
Knowledge								
Not good	6	85.7	1	14.3	7	100	0.007	13.2 (1.5-115)
Good	29	31.2	64	68.8	93	100		
Attitude								
Negative	6	60	4	40	10	100	0.094	3.1 (0.8-12)
Positive	29	32.2	61	61	90	100		
Infrastructure								
Less	27	46.8	31	53.4	58	100	0.008	3.7 (1.4-9.3)
Enough	8	19	34	81	42	100		

The result obtained p value = 0.007 which means that there is a significant relationship between knowledge and waste management behavior. This research is in line with the research conducted by Safitri & Rangkuti (2019) obtained p-value = 0.018 ($p < 0.05$) which means there is a relationship between knowledge and waste management behavior (Safitri & Rangkuti, 2019). In another study conducted by Akbar (2021), it was found that p-value = 0.001 ($p < 0.05$) which can be concluded that there is a relationship between aspects of knowledge to waste management in Mutoi Village (9). This research is not in line with the research conducted by Mufaridah & Handayani (2019) obtained a p-value result of 0.152 which means that H_0 is accepted and H_a is rejected, meaning that there is no relationship between the level of knowledge and waste management behavior in housewives (Mufaridah & Handayani, 2019).

The result obtained p value = 0.094 which means that there is no significant relationship between attitudes and waste management behavior. This research is in line with the research conducted by Hidayah (2020) obtained p-value = 0.201 which means that there is no significant relationship between attitudes and waste management behavior (Hidayah et al., 2021). The research conducted by Nurhayati (2022) is not in line with this research which obtained a p-value = 0.002 (≤ 0.05), which means that it shows that there is a significant relationship between the attitudes and behaviors of residents in managing household solid waste in Alam Barajo District, Jambi City (10).

The result obtained p value = 0.008 which means that there is a significant relationship between infrastructure and waste management behavior. This research is in line with that conducted by Nurhana (2022) obtained $p = 0.000$ where $p < \alpha$ ($\alpha = 0.05$) then H_0 is rejected, which means that there is a relationship between facilities and household waste management in the work area of the Puskesmas Pakue District, North Kolaka Regency (Nurhana et al., 2022). The study conducted by Nurin et al. (2021), was not in line with this study because it was found that in urban waste disposal facilities the p-value of p-value $0.159 > \alpha = 0.05$, and in garbage disposal facilities in rural areas the p-value of $0.24 >$

$\alpha = 0.05$ which means there is no significant influence of waste disposal facilities on waste processing (11).

CONCLUSION AND SUGGESTIONS

Based on the results above the good behavior of housewives in RW 07 Petukangan Selatan Village were 65 people with a percentage 65%, based on the education of housewives, 94 people had a higher education level with a percentage 94%. Description of the research subjects based on the knowledge of housewives, 92 people had a good knowledge with a percentage 92%, based on the attitude of housewives, 90 people had a good attitude with a percentage 90%, and based on the infrastructure facilities, 58 people has less infrastructure facilities with a percentage 58%.

Bivariate results obtained $p\text{-value} = 0.180$ which means that there is no significant relationship between education and the behavior of housewives in waste management. Bivariate results obtained $p\text{-value} = 0.007$ which means that there is a significant relationship between knowledge and the behavior of housewives in waste management. Bivariate results obtained $p\text{ value} = 0.094$ which means that there is no significant relationship between attitudes and behavior of housewives in waste management. Bivariate results obtained $p\text{- value} = 0.008$ which means that there is a significant relationship between infrastructure and the behavior of housewives in waste management.

Based on this research it is hoped that the South Jakarta government especially the South Petukangan Village, to educate the public regarding household waste management in the form of training on waste management. For the community to participate in a series of training activities related to waste management carried out by the government to get knowledge that can be applied to the environment. Furthermore, researchers are expected to be able to develop research, better understand, and know about the health science of the environment for household waste management.

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RELATIONSHIP BETWEEN KNOWLEDGE, ATTITUDE, AND PERSONAL HYGIENE WITH SCABIES INCIDENCE AT THE DAARUL ILMI CENGLONG ISLAMIC BOARDING SCHOOL 2022

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ABSTRAK

Kudis merupakan penyakit kulit yang disebabkan oleh parasit jenis *Sarcoptes scabies hominis*. Prevalensi skabies di Indonesia mengalami penurunan, data Kementerian Kesehatan RI mengalami penurunan dari tahun 2008 hingga tahun 2013, terlihat dari data prevalensi tahun 2008 mencapai 5,69% hingga 12,96%, tahun 2012 mencapai 4,9% hingga 12,95% dan data terakhir pada tahun 2013 mencapai 3,9% hingga 6%. Tujuan penelitian ini adalah untuk mengetahui hubungan pengetahuan, sikap, dan personal higiene dengan kejadian skabies di Pondok Pesantren Daarul Ilmi Cengklong Tahun 2022. Metode penelitian ini merupakan penelitian kuantitatif analitik dengan menggunakan pendekatan cross sectional dengan pendekatan cross sectional. sampel berjumlah 72 orang, pengambilan sampel dilakukan dengan teknik total sampling. Pengambilan data menggunakan kuesioner. Analisis data menggunakan uji Chi-square ($\alpha = 0,05$). Variabel Hasil Jenis kelamin dan kejadian skabies tidak berhubungan (p -value 0,828). Variabel yang berhubungan dengan kejadian skabies adalah Usia (p -value 0,035), Pengetahuan (p -value 0,000), Sikap (p -value 0,028), dan Personal Hygiene (p -value 0,034). Kesimpulannya, tidak ada hubungan yang signifikan antara jenis kelamin dengan kejadian skabies. Terdapat hubungan yang signifikan antara umur, pengetahuan, sikap, dan kebersihan diri dengan kejadian skabies di Pondok Pesantren Daarul Ilmi Cengklong.

Kata kunci: *Skabies, Pengetahuan, Sikap, Kebersihan Pribadi*

ABSTRACT

Scabies is a skin disease caused by the parasite *Sarcoptes scabies hominis* variety. The prevalence of scabies in Indonesia has decreased, data from the Indonesian Ministry of Health decreased from 2008 to 2013, as can be seen from the prevalence data for 2008 reaching 5.69% to 12.96%, 2012 reaching 4.9% to 12.95% and the latest data in 2013 reached 3.9% to 6%. The purpose of this study was to find out the relationship between knowledge, attitudes, and personal hygiene with the incidence of scabies at Daarul Ilmi Cengklong Islamic Boarding School in 2022. This research method is a quantitative analytic study using a cross-sectional approach with a sample of 72 people, sampling was carried out using the total sampling technique. Retrieval of data using a questionnaire. Data analysis used the Chi-square test ($\alpha = 0.05$). Variable Results Gender and the incidence of scabies were not related (p -value 0.828). Variables related to the incidence of scabies were Age (p -value 0.035), Knowledge (p -value 0.000), Attitude (p -value 0.028), and Personal Hygiene (p -value 0.034). In conclusion, there is no significant relationship between gender and the incidence of scabies. There is a significant relationship between age, knowledge, attitudes, and personal hygiene and the incidence of scabies at the Daarul Ilmi Cengklong Islamic Boarding School.

Keywords: *Scabies, Knowledge, Attitude, Personal Hygiene*

INTRODUCTION

Scabies is a skin disease caused by the parasite *sarcoptes scabies hominis* variety the main symptom of which is itching which predominates at night (1). Scabies is transmitted in two ways, directly (skin to skin) and indirectly (clothes, towels, and bedding that are used together) (2). Scabies have many signs or symptoms such as the appearance of a tunnel (cuniculus). Itching that occurs due

to sensitization to mite secretions and excretions takes approximately one month after exposure to scabies. It was at that time that white spots filled with fluid appeared (3).

World Health Organization (WHO) stated that the incidence of scabies in 2014 was 130 people in the world 2014 International Alliance for the Control of Scabies (IACS) the incidence of scabies varies widely from 0.3 to 46% (4). The highest incidence of scabies affects infants and children who live in tropical areas and countries with low resources. In parts of the Pacific, the prevalence of scabies is as much as 20 to 30%, with a prevalence of more than 50% in children (5). In 2015 the prevalence of scabies occurred in several countries the highest were Nigeria (10.5%), Kenya (8.3%), Egypt (4.4%), Mali (4%), and Malawi(0.7%) (6).

Scabies is common in Indonesia, this is because Indonesia is included in a tropical country. The prevalence of scabies in Indonesia has decreased, data from the Indonesian Ministry of Health has decreased from 2008 to 2013, as can be seen from the 2008 prevalence data reaching 5.69% to 12.96%, in 2012 reaching 4.9% to 12.95% and the latest data in 2013 it reached 3.9% to 6%. Even though there has been a decrease in prevalence, Indonesia has not been free from scabies, and is still an infectious disease problem in Indonesia⁶. The prevalence of skin disease according to data from the Indonesian Ministry of Health throughout Indonesia in 2012 was 8.46% and increased in 2013 by 9%, scabies became third of 12 skin diseases (7). The Indonesian Ministry of Health stated that in 2015 people with scabies in Indonesia reached 6.915.135 people with a prevalence reaching (2.9%) of the total population of 238.452.952 people and in 2016 there was an increase in scabies reaching (3,6%) (8).

Factors in the incidence of scabies can be influenced by knowledge, attitudes, personal hygiene. According to Aminah, Sibero, and Ratna (2015), the results of the study found a relationship between knowledge and the incidence of scabies. Knowledge greatly influences the emergence of scabies (9). According to Kariza, Agung and Herry (2022), based on the results of the research conducted, the majority of students' knowledge levels were bad by 42 people (65%) about scabies. Lack of knowledge regarding scabies will make it easier for the disease to spread and infect other people (4). Primary et al., (2021) , based on the results of the study it showed that 31 respondents (88.6%) had sufficient scabies prevention attitudes, 4 respondents (11.4%) had less scabies prevention attitudes, and no respondents had scabies prevention attitudes good (10). The cause of a bad attitude in carrying out personal hygiene can quickly lead to scabies. Therefore, there is a relationship between attitudes and the incidence of scabies in students. According to Simanjuntak & Andriyani (2022) , there is a relationship between attitudes and scabies incidents at the Modern Islamic Boarding School Ta'dibAl Syarikin Medan (1).

Majis, Ratna, and Susan (2020) based on the result of research at Islamic Boarding Schools in Bandung Regency, respondents with poor personal hygiene reached 55% while good personal hygiene reached 45%, it can be concluded that there are still many students with poor personal hygiene. From

the results of the study to see the relationship between personal hygiene and the incidence of scabies, it showed that the value of $p = 0.042$ was smaller than $\alpha = 1.05$ so that statistically there was a significant relationship between hygiene and the incidence of scabies (11).

The results of interviews with administrators and teachers at the Darul Ilmi Islamic Boarding School on Friday 25 November 2022, that there are still many female students and female students who experience symptoms of scabies/scabies skin disease, the symptoms are itching, white spots appearing, and pus appearing. Arises in the hands, between the fingers and also the feet. Islamic boarding schools do not have their own clinic, if anyone experiences pain, the students are brought to the nearest clinic or hospital.

In the description of the background above and when surveying the location of Islamic boarding schools there were still many students who were affected by scabies, because of this the researchers were interested in exploring "The Relationship Between Knowledge, Attitudes and with Scabies Incidence at Daarul Ilmi Cengklong Islamic Boarding School in 2022". From this research it is hoped that it can reduce the incidence of scabies in Islamic boarding schools, and can be used as a reference in preventing scabies from continuing to spread.

METHODS

This research is a quantitative analytic using a cross sectional approach. This research was conducted at the Daarul Ilmi Cengklong Islamic Boarding School in December 2022. The choice of location was based on the observation that there were very many cases of scabies at the Daarul Ilmi Cengklong Islamic Boarding School. The population used by the total sampling technique was 72 respondents. Retrieval of data using a questionnaire. Analysis in this study used statistical software with two stages, namely univariate analysis to determine the frequency distribution of the dependent variable (scabies incidence) and the independence variable (knowledge, attitude, and personal hygiene). Bivariate analysis was performed using the chi-square test.

RESULTS AND DISCUSSION

In the table 1, it can be seen that most of respondents is 12-15 years (77,8%), while the majority of gender is male as many as 39 respondents (54,2%). The results of the analysis of variables on the incidence of scabies affected by scabies were 37 respondents (51,4%), knowledge variables who had poor knowledge were 48 respondents (66,7%), attitude variables who had negative attitude were 57 respondents (79, 2%), and the personal hygiene variables who had poor personal hygiene were 43 respondents (59,7%).

Table 1. Characteristic of Respondents

Variable	Frequency (n)	Percentage (%)
Age		
9-11 years	16	22,2
12-15 years	56	77,8
Gender		
Man	39	54,2
Woman	33	45,8
Scabies incidence		
Scabies	37	51,4
No scabies	35	48,6
Knowledge		
Poor	48	66,7
Good	24	33,3
Attitude		
Negative	57	79,2
Positive	15	20,8
Personal hygiene		
Poor	43	59,7
Good	29	40,3

The result of the analysis of the relationship between gender and the incidence of scabies, the majority of respondents who experienced scabies were male students namely 53,8%, while female students were 48,5%. The results of chi-square test with a significant level of 5% obtained a p-value of 0.828 because $p = 0.828 > 0.05$ then H_0 was accepted, so there was no significant relationship between the gender of the respondent and the incidence of scabies at Daarul Ilmi Islamic Boarding School.

Table 2. Relationship Between Knowledge, Attitude, And Personal Hygiene with Scabies Incidence

Variable	Scabies incidence				Total n	OR	Pv
	Scabies		No scabies				
	n	%	n	%			
Gender							
Man	21	53,8	18	46,2	39	1.240	0.828
Woman	16	48,5	17	51,5	33		
Age							
9-11 years	4	25	12	75	16	0.232	0.035
12-15 years	33	58,9	23	41,1	56		
Knowledge							
Poor	33	68,8	15	31,3	48	11.00	0.000
Good	4	16,7	20	83,3	24		
Attitude							
Negative	25	43,9	32	56,1	57	0.195	0.028
Positive	12	80	3	20	15		
Personal hygiene							
Poor	27	62,8	16	37,2	43	3.2	0.034
Good	10	34,5	19	65,5	29		

The results of the analysis of the relationship between age and the incidence of scabies, most of the respondents who experienced scabies were aged 12-15 years 58.9% while those aged 9-11 years were 25.0%. The results of the chi-square test with a significant level of 5% obtained a p-value of 0.035 because $p = 0.035 < 0.05$ then H_0 was rejected, so it means that there is a relationship between the age of the respondent and the incidence of scabies at Daarul Ilmi Islamic Boarding School.

The results of the analysis of the relationship between knowledge and the incidence of scabies, most of the respondents who experienced scabies had poor knowledge of 68.8% while good knowledge of 16.7%. The results of the chi-square test with a significant level of 5% obtained a p-value of 0.000 because $p = 0.000 < 0.05$ then H_0 was rejected, so it means that there is a relationship between the respondent's knowledge and the incidence of scabies at Daarul Ilmi Islamic Boarding School.

The results of the analysis of the relationship between attitude and the incidence of scabies, most of the respondents who experienced scabies had a negative attitude of 43.9% while a positive attitude of 80.0%. The results of the chi-square test with a significant level of 5% obtained a p-value of 0.028 because $p = 0.028 < 0.05$ then H_0 was rejected, so it means that there is a relationship between the attitude of the respondents and the incidence of scabies at Daarul Ilmi Islamic Boarding School.

The result of the analysis of the relationship between personal hygiene and the incidence of scabies, most of the respondents who experienced scabies had poor personal hygiene of 62.8% while 34.5% had a good attitude. The result of the chi-square with a significant level of 5% obtained a p-value of 0.034 because $p = 0.034 < 0.05$ then H_0 was rejected, so it means that there is a relationship between personal hygiene of respondents and the incidence of scabies at Daarul Ilmi Islamic Boarding School.

The results of the bivariate analysis showed that there was no significant relationship between gender and the incidence of scabies with a P value of 0.828. The results of this study are in line with Ibadurrahmi et al, (2016), that there is no relationship between gender and the incidence of scabies at the Qotrun Nada Islamic Boarding School in 2015/2016 with a p-value > 0.005 of 0.584 (12). The results of this study are not in line with Naftassa & Putri, (2018) that there is a relationship between gender and the incidence of scabies with $p < 0.05$, which is 0.009. In this study, female students experienced more scabies. From the two studies above, it is stated that both male and female sexes have the same chance of getting scabies. The results above state that both male and female sexes have the same chance of getting scabies (7).

The statistical test results obtained a significant relationship between age and the incidence of scabies at the Daarul Ilmi Cengklong Islamic Boarding School in 2022, with a p value < 0.05 , which is 0.035, which means that there is a significant relationship between age and the incidence of scabies. The results of this study are in line with Imartha, et al, (2017) that age has a significant relationship with the occurrence of scabies with a p value of 0.035, the distribution of respondents based on the age

of the children, namely early adolescents aged less than 14 years as many as 105 people (56.5%) and late adolescents < 14 years as many as 18 people (43,5%) (13). So that the majority of students at the Jabal An-nur Al-Islami Islamic Boarding School are early adolescents aged < 14 years as many as 105 people (56,5%). The results of this study are not in line with Devi Nuraini Ariningtyas, (2019) that the age variable has no significant relationship with the incidence of scabies with a significance of 0.283. Differences were found which explained that there was a relationship between age and the magnitude of the risk of certain diseases and the nature of resistance in certain age groups (14).

The statistical test results obtained a significant relationship between knowledge and the incidence of scabies at the Daarul Ilmi Cengklong Islamic Boarding School in 2022, with a p value <0.05, which is equal to 0.000, which means that there is a significant relationship between knowledge and the incidence of scabies. The results of this study are in line with Aminah, et al (2015) , from the results of the study it was found that there was a relationship between knowledge and the incidence of scabies. Knowledge is very influential on the emergence of scabies obtained p-value = 0.001, which means there is a relationship. The level of knowledge that is not good tends to have a significantly higher prevalence of scabies compared to people who have good knowledge. The results of this study are also in line with Kariza, Agung and Herry (2022) , based on the results of research conducted on the knowledge level of the majority of students who were poor by 42 people (65%) about scabies. Lack of knowledge regarding scabies will make it easier for the disease to spread and infect other people (4)(9).

According to the Big Indonesian Dictionary, knowledge comes from the word "know" which means to understand after researching, witnessing, experiencing and so on. Knowing and understanding defines one's knowledge of something that is already known, increased knowledge can be obtained from the experience carried out (Darsini, Fahrurrozi and Cahyono, 2019) from the explanation above the things that cause students' knowledge to be less good about scabies because they have never experienced this then it happens knowledge of students becomes less good (15).

The results of this study are not in line with Ridwan, et al (2017) , from the results of the prevalence of respondents with less knowledge with a total of 41 people (57.7%) and sufficient with a number of 30 people (42.3%). The results of the bivariate analysis on the statistical test knowledge variable using the chi-square test with a p value of 0.301 so that H₀ is accepted, which means there is no relationship between knowledge and the incidence of scabies at Darul Muhlisin Islamic Boarding School, Kendari City in 2017 (6).

The statistical test results obtained a significant relationship between attitude and the incidence of scabies at the Daarul Ilmi Cengklong Islamic Boarding School in 2022, with a p value <0.05, which is equal to 0.028, which means there is a significant relationship between attitudes and the incidence of scabies. The results of this study are in line with Simanjuntak & Andriyani (2022) , the results of

the attitude variable were obtained by the distribution of respondents with 44 people (73.3%) having a good attitude and 16 people (26.7%) having a bad attitude towards scabies, from the results The p value was 0.24, so there was a relationship between attitude and the incidence of scabies at the Ta'dib Al Syarikin Modern Islamic Boarding School, Medan. The results of this study are also in line with Pratama et al., (2021) , that 31 respondents (88.6%) had sufficient scabies prevention attitudes, 4 respondents (11.4%) had less scabies prevention attitudes, and no respondents had good scabies prevention attitudes. The cause of a bad attitude in carrying out personal hygiene can quickly lead to scabies. Therefore, there is a relationship between attitudes and the incidence of scabies in students (1)(10).

In english, attitude is called attitude. Attitude itself is defined as a way of reacting to something you want to do. Where is a tendency to do something that is being faced (Suharyat, 2009). It can be seen from the understanding of the attitude above that a bad attitude greatly influences the incidence of scabies. The results of this study are not in line with Ramadhan, (2020) instatistical tests using the Chi Square test obtained p value = 0.063, therefore there is no significant relationship between attitudes and the incidence of scabies (16).

The statistical test results obtained a significant relationship between personal hygiene and the incidence of scabies at the Daarul Ilmi Cengklong Islamic Boarding School in 2022, with a p value <0.05, which is equal to 0.034, which means that there is a significant relationship between personal hygiene and the incidence of scabies. The results of this study are in line with Majid, Ratna and Susan (2020), based on the results of research at Islamic boarding schools in Bandung Regency, respondents with poor personal hygiene reached 55% while good personal hygiene reached 45%, it can be concluded that there are still many students with personal hygiene the bad one. From the results of the study to see the relationship between personal hygiene and the incidence of scabies, it showed that $p=0.042$ was smaller than $\alpha=0.05$ so that statistically there was a significant relationship between personal hygiene and the incidence of scabies (11).

Personal hygiene is self-cleanliness and health which aims to prevent disease both physically and psychologically (17). From the results of the research above that poor personal hygiene causes scabies in accordance with the above definition of cleanliness is personal health. The results of this study are not in line with Aliffiani and Mustakim, (2020) students and female students who experience scabies have more good personal hygiene (57%) than those with poor personal hygiene (43%). The statistical test results obtained were p value = 1, meaning that there was no significant relationship between personal hygiene and the incidence of scabies at the Ar-Rofi'I Islamic Boarding School (18).

CONCLUSION AND SUGGESTIONS

The results of the study conducted on 72 respondents, the researchers concluded that there was no significant relationship between gender and the incidence of scabies at the Daarul Ilmi Cengklong Islamic Boarding School with a p value = 0.828. There was a significant relationship between age and the incidence of scabies at the Daarul Ilmi Cengklong Islamic Boarding School with a p value = 0.035, There is a significant relationship between Knowledge and the incidence of scabies at the Daarul Ilmi Cengklong Islamic Boarding School with p value = 0.000, There is a significant relationship between attitude and the incidence of scabies at the Daarul Ilmi Cengklong Islamic Boarding School with a p value = 0.028, and There is a significant relationship between personal hygiene and the incidence of scabies at Daarul Ilmi Cengklong Islamic Boarding School with p value = 0.034.

It is hoped that the ustad and the ustadzah pay attention to the cleanliness of the students and female students to avoid scabies. and always clean the bed regularly, and ustad and ustadzah provide health education to students and female students by collaborating with health authorities in preventing the occurrence of scabies skin disease and maintaining good and proper personal hygiene. For Santri dan santriwati and Satriwati Always maintain personal hygiene, don't change clothes with friends, always clean the bed regularly, It's best to take a shower 2 times a day, If you get scabies, you should go straight to the nearest clinic, Avoid direct and indirect contact with friends who are affected by the disease scabies.

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ANALYSIS OF FATIGUE WORK FACTORS IN CONSTRUCTION WORKERS OF PT. MANDALA PUTERA PRIMA IN THE BANK INDONESIA KARAWANG PROJECT IN 2023

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ABSTRAK

Tenaga kerja sebagai aset investasi perlu bekerja dengan baik dan benar, antara lain dengan memperhatikan faktor-faktor yang dapat menimbulkan kelelahan. Sebagaimana diketahui, bahwa dengan meningkatkan kinerja organisasi melalui penanganan prosedur kerja yang ergonomis merupakan salah satu cara untuk meningkatkan produktivitas dan mencegah kecelakaan kerja. Penelitian ini untuk mengetahui analisis faktor kelelahan kerja pada pekerja konstruksi PT. Mandala Putera Prima dalam Proyek Bank Indonesia Karawang Tahun 2023. Jenis penelitian observasional analitik dengan pendekatan *cross-sectional study*. Hasil dari penelitian ini adalah 90,5% pekerja berumur <30 tahun lebih banyak mengalami gejala kelelahan kerja dengan $p\text{-value} > 0,05$ yaitu 0,661, 95,0% mempunyai masa kerja 2-5 tahun, mengalami gejala kelelahan kerja dengan $p\text{-value} > 0,05$ yaitu 0,708, durasi kerja > 8 jam, 90,5% mengalami gejala kelelahan kerja dengan $p\text{-value} > 0,05$ yaitu 0,825 dan beban kerja berat dengan gejala kelelahan kerja, 80,0% mengalami gejala kelelahan kerja dengan nilai dari $p > 0,05$ yaitu 0,218. Risiko terjadinya kelelahan kerja pada aktivitas pekerja konstruksi mempunyai risiko timbulnya gejala penyakit. Pekerja dengan risiko timbulnya gejala kelelahan kerja disarankan untuk mengurangi risiko kelelahan kerja pekerja membiasakan tidur cukup 7-8 jam sehari dan mengonsumsi makanan seimbang (terutama sayur dan buah).

Kata kunci: Kelelahan Kerja, Konstruksi, Faktor Kelelahan Kerja

ABSTRACT

Labor as an investment asset needs to work properly and correctly, among others, by taking into account the factors that may cause fatigue. As is known, that by increasing organizational performance through handling ergonomic work procedures is one way to increase productivity and prevent work accidents. Research to find out the analysis of fatigue work factors in construction workers of PT. Mandala Putera Prima in The Bank Indonesia Karawang Project Tahun 2023. This type of analytic observational research with a *cross-sectional study* approach. The result from this research is 90.5% of workers aged <30 years experience more symptoms of work fatigue with a $p\text{-value} > 0.05$, namely 0.661, 95.0% have a working period of 2-5 years, experience symptoms of work fatigue with a $p\text{-value} > 0.05$, namely 0.708, duration of work > 8 hours, 90.5% experienced symptoms of work fatigue with a $p\text{-value} > 0.05$, namely 0.825 and heavy workload with symptoms of work fatigue, 80.0% experienced symptoms of work fatigue with a value of $p > 0.05$, namely 0.218. The risk of work fatigue in construction worker activities has a risk of the symptoms of the disease occurring. Workers with a risk of symptoms of work fatigue recommend that to reduce the risk of work fatigue workers get used to getting enough sleep 7-8 hours a day and eating a balanced diet (mainly vegetables and fruits).

Keywords: Work Fatigue, Construction, Fatigue Work Factors

INTRODUCTION

Occupational Safety and Health (OHS) is the interest of employers, workers, and governments around the world. According to estimates by the International Labor Organization (ILO), every year around the world 2 million people die due to work-related problems (1). Of this number, 354,000 people had fatal accidents. In addition, every year 270 workers experience work-related accidents and

160 million suffer occupational diseases. The costs that must be incurred for the hazards due to this work are very large. The ILO estimates that the losses suffered as a result of work-related accidents and diseases annually are more than US\$1.25 trillion (2).

Law No. 1 of 1970 concerning work safety considers that every worker has the right to protection for his safety in carrying out work for the welfare of life and to increase national production and productivity, that every other person who is in the workplace must also have his safety guaranteed, that every source production needs to be used and used safely and efficiently (3). In a survey in the USA, fatigue is a big problem. It was found that 24% of all adults who came to the polyclinic suffered from chronic fatigue. Almost the same data can be seen in a community held by Kendal in England which states that 25% of women and 20% of men always complain of tiredness (Setyawati, 1994). Another study that evaluated 100 people suffering from fatigue showed that 64% of fatigue cases were caused by psychological factors, 3% due to physical factors, and 33% due to these two factors (Setyawati, 1994).). The results of a study on the relationship between age, length of work, and years of service to fatigue by I Made Pujawan and Rajen Nimrod on pinisi boat craftsmen in Bulukumba, found that the greatest fatigue complaints were felt by all workers in the age group over 30 years compared to the age group under 30 years after work in a day. Meanwhile, regarding the relationship between tenure and fatigue, it was found that from respondents who experienced fatigue, the highest fatigue complaints were experienced by workers with long category 3 working years (> 5 years), namely as many as 46% (4)(5)(6)(7).

Excessive working time can increase human error or work errors due to increased fatigue and reduced sleep hours. Working hours for workers in the private sector have been regulated in Law Number 13 of 2003 concerning Manpower, In a week a person can usually work well for 40-50 hours. The provisions for working hours have been regulated in two systems, namely 7 working hours in one day or 40 working hours in one week for 6 working days in one week (8). Or 8 hours of work in one day or 40 hours of work in 1 week for 5 working days in 1 week. More than that, it is likely that negative things will arise for the workforce concerned and the work itself. The longer the working time in a week, the greater the tendency for unwanted things to happen (9)(10).

Construction workers are jobs that have a high level of fatigue (5)(11)(10). Construction workers tend to use their physical abilities when working. Building work consists of work on the stone section, excavation section, iron section, steel section, and others. If this work is combined with a heavy workload, excessive energy demand on workers will cause worker fatigue, reduce worker performance by reducing work speed, and increase the risk of errors while working (Nurmianto, 2003). Tarwaka, 2015 stated that workload is one of the problems that workers often face (12). The workload can be in the form of physical loads and mental loads. Any workload received by workers must be on the physical abilities, cognitive abilities, and limitations of the humans who receive the burden cited in (11).

METHOD

The type of research used is analytic observational research with a cross-sectional study approach. aims to see the relationship between the independent variable to the dependent variable, namely the relationship between age, years of service, duration of working time, and workload on work fatigue in construction workers at PT. Mandala Putera Prima at Bank Indonesia Karawang Project in 2023. The data used uses primary data and interview data from the results of questionnaires filled out by respondents consisting of Characteristics of Respondents and the IFRC Questionnaire (SSRT: subjective self-rating test). Furthermore, to calculate the workload used the 10 beats method using a stopwatch. This method can calculate the working pulse rate as follows:

$$\text{Pulse} = \frac{10 \text{ pulses} \times 60}{\text{Calculation time}}$$

As for how to measure the pulse with the 10-pulse method, namely by placing the fingertips of the second, third, and fourth hands above the surface of the skin on the wrist. When the measurement starts, the stopwatch is turned on for 10 seconds, then multiplied by 6 to get the result of one minute and for 10 seconds the stopwatch is turned off, then the pulse rate is recorded. The collected data will be processed using a data processing application. Methods of data analysis using univariate analysis to get an overview of the frequency distribution of each variable and bivariate analysis to see the relationship and the magnitude of the relationship between the independent variables (age, years of service, duration of work time, and workload) with the dependent variable work fatigue.

RESULTS AND DISCUSSION

Demographic characteristics of workers are presented in Table 1. The majority of workers are aged <30 years (52.3%), most of the respondents have worked for more than 5 years (47.7%), the majority of respondents work more than 8 hours a day (95, 5%), and the majority of 10 respondents with workload in the heavy category (22.7%). Workers who work have different levels of risk of fatigue which can have various risks of fatigue while working. The score shown is based on Yoshitake (1971), Industrial Fatigue Research Committee (IFRC) Japan in Table 2.

Table 1. Demographic Characteristics of Respondents

Respondent Characteristics	n	%
Age		
< 30 years	23	52.3
≥ 30 years	21	47.7
Years Of Service		
< 1 years	2	4.5
1-2 years	1	2.3
2-5 years	20	45.5
> 5 years	21	47.7

Respondent Characteristics	n	%
Working Duration		
6-8 hours	2	4.5
> 8 hours	42	95.5
Workload		
Light Load	34	77.3
Heavy Load	10	22.7

Classification of fatigue that has a risk level of not occurring fatigue (1) and categories of fatigue risk occurring (2). Category (1) If symptoms of fatigue risk occur, immediate remedial action is required to change. Meanwhile, if the classification in the category of fatigue does not occur (1), then there is no need for corrective action.

Table 2. Fatigue Risk Level

Fatigue level	Score	Clasification	Corrective action
1	30 – 52	No fatigue	No corrective action is required
2	53 - 120	Fatigue ensues	Action required

Symptoms of fatigue risk in workers have presented in Table 3. 40 respondents experienced symptoms of fatigue (90.9%) and 4 respondents experienced no fatigue (9.1%).

Table 3. Fatigue Risk Levels of Respondents

Fatigue Level	n	Percentage (%)
No fatigue	4	9.1
Fatigue ensues	40	90.9

The results of the data obtained regarding the correlation between the independent variables (Age, Work Mass, Work Duration, and Workload) with the dependent variable (Work Fatigue) have a variety of different interpretations such as: Increasing age will be followed by a process of degeneration of the organs so that in this case the ability of the organs will decrease. The decreased ability of the organs will cause the younger workforce to experience fatigue. From a total of 44 respondents, 21 respondents aged less than 30 years (91.3%) experienced more work fatigue than respondents who were more than 30 years old.

One indicator of work tenure for workers tends to be related to work productivity, the longer a person works the higher his productivity because he is more experienced and has good skills. A person's working time determines his efficiency and productivity. Extended working time ability and not accompanied by high efficiency usually shows a decrease in productivity and a tendency to fatigue, illness, and accidents. Of the 44 total respondents, there were 19 respondents with a working period of 2-5 years who most experienced symptoms of work fatigue that needed follow-up, while there was only 1 respondent with a working period of less than 2-5 years who did not experience symptoms of work fatigue.

Table 4. Correlation between Age, Years of Service, Duration of Working Time, Workload and Work Fatigue

Variable	Work Fatigue				Total	%	P-value
	No		Yes				
	n	%	n	%			
Age							
< 30 Years	2	8.7	21	91.3	23	100.0	0.661
≥ 30 Years	2	9.5	19	90.5	21	100.0	
Amount	4	9.1	40	90.9	44	100.0	
Years of Service							
< 1 Years	0	0.0	2	100.0	2	100.0	0.708
1-2 Years	0	0.0	1	100.0	1	100.0	
2-5 Years	1	5.0	19	95.0	20	100.0	
> 5 Years	3	14.3	18	85.7	21	100.0	
Amount	4	9.1	40	90.0	44	100.0	
Working Duration							
6-8 Hours	0	0.0	2	100.0	2	100.0	0.825
> 8 Hours	4	9.5	38	90.5	42	100.0	
Amount	4	9.1	40	90.9	44	100.0	
Workload							
Light Load	2	5.9	32	94.1	34	100.0	0.218
Heavy Load	2	20.0	8	80.0	10	100.0	
Amount	4	9.1	40	90.9	44	100.0	

Someone who works continuously at some point will experience fatigue. Both jobs that require physical exertion and jobs that require brain work. Fatigue can be in the form of physical and mental exhaustion, that's when people need rest before all their energy runs out. Manpower Act No. 25 of 1997 Article 100 Paragraph 2 that the required working time for workers is 8 (eight) hours a day or 40 hours a week for 5 (five) working days a week. While the results of 90.5% of respondents who work with a duration of working time in day of more than 8 hours experience symptoms of work fatigue. The reason for some respondents working more than 8 hours a day is because of the overtime hours, the more overtime each day the respondent has, the more monthly wages he will receive.

A good workload is a workload given to employees that exceeds their work capacity. If the workload provided is balanced with the work capacity of employees, optimal performance conditions will occur. However, on the contrary, there will be a decrease in work performance if the workload is too high. In measuring the level of workload on work fatigue in some respondents there were 8 people or 80.0% of respondents who felt a heavy workload and experienced complaints of symptoms of work fatigue (6)(13)(14)(15).

CONCLUSION AND SUGGESTIONS

The risk of work fatigue in construction worker activities has a risk of symptoms of the disease occurring, The highest risk is in activities or work processes because of the duration of work and also the heavy workload and mentality, this is due to work carried out with long duration of work in a day and the perceived workload is quite high on work activities. The highest proportion of symptoms of work fatigue was found in the duration of work with 95.5% of those working for long durations

experiencing these symptoms. Symptoms of work fatigue are not related to age, length of work, duration of work day, and length of work. We recommend reducing the risk of work fatigue in the final inspection to suggest that workers get used to getting enough sleep 7-8 hours a day. Consume a balanced nutritional diet (especially vegetables and fruits), don't consume alcohol, manage stress well, do regular exercise, don't smoke, and need to do regular stretching every day. It is necessary to provide workers with training or training on the risks of work fatigue in the workplace and follow the required work procedures properly.

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THE RELATIONSHIP BETWEEN STRESS LEVELS AND NUTRITIONAL STATUS WITH MENSTRUAL CYCLE IRREGULARITIES IN CLASS XII ADOLESCENTS AT NUSANTARA VOCATIONAL SCHOOL 02 CIPUTAT HEALTH IN 2022

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ABSTRAK

Masa remaja merupakan peralihan kehidupan dari masa kanak-kanak menuju masa dewasa. Siklus menstruasi adalah periode antara dimulainya periode menstruasi terakhir dan dimulainya periode baru. Stres dapat mempengaruhi siklus haid selain itu stres juga dapat mempengaruhi tidak teraturnya siklus haid yaitu status gizi seseorang. Tujuan penelitian ini adalah untuk mengetahui hubungan tingkat stres dan status gizi dengan ketidakaturan siklus menstruasi pada remaja putri kelas XII SMK Nusantara 02 Kesehatan Ciputat Tahun 2022. Penelitian ini dilakukan pada bulan Desember 2022 dengan menggunakan desain cross-sectional. Sampel diambil dengan menggunakan teknik total sampling sebanyak 70 responden. Analisis data dilakukan dengan menggunakan Uji Chi-Square dan Uji Regresi Logistik Sederhana. Hasil uji bivariat menunjukkan tidak terdapat hubungan antara tingkat stres ($p=0,404$) dan status gizi ($p=0,465$) dengan siklus menstruasi tidak teratur pada remaja ($p>0,05$). Saran bagi remaja untuk mulai memperhatikan perubahan siklus menstruasi secara rutin setiap bulannya dan mulai menjaga berat badan dengan rutin berolahraga dan melakukan berbagai aktivitas untuk mengurangi tingkat stresnya dengan bermain bersama teman berbelanja, dan menggunakan ponsel pintar untuk mengakses media sosial seperti seperti YouTube, Instagram dan media sosial lainnya.

Kata kunci: Remaja, Tingkat Stress, Status Gizi, Siklus Menstruasi

ABSTRACT

Adolescence is a transition of life from childhood to adulthood. The menstrual cycle is the period between the start of the last menstrual period and the start of a new period. Stress can affect the menstrual cycle in addition to stress which can affect the irregularity of the menstrual cycle, namely a person's nutritional status. The purpose of this study was to find out the relationship between stress levels and nutritional status with menstrual cycle irregularities in class XII young women at SMK Nusantara 02 Health Ciputat in 2022. This research was conducted in December 2022 using a cross-sectional design. Samples were taken using a total sampling technique of 70 respondents. Data analysis was performed using the Chi-Square Test and Simple Logistic Regression Test. The results of the bivariate test showed that there was no relationship between stress levels ($p=0.404$) and nutritional status ($p=0.465$) with irregular menstrual cycles in adolescents ($p>0.05$). Suggestions for adolescents to start paying attention to changes in the menstrual cycle regularly every month and start maintaining their weight by doing regular exercise and carrying out various activities to reduce their stress levels by playing with friends shopping, and using smart phones to access social media such as YouTube, Instagram and other social media.

Keywords: Adolescents, Stress Level, Nutritional Status, Menstrual Cycle

INTRODUCTION

Adolescence is a transition of life from childhood to adulthood. This period is characterized by rapid physical, psychological, and social changes. This period is also a period of searching for identity so youth are vulnerable to environmental influences (1). Based on data from the Indonesian

Demographic and Health Survey, the estimated number of adolescents aged 10-19 years is 45.3 million people, or around 17% of the total population of Indonesia (2).

Menstruation is the shedding of the uterine lining (endometrium), causing blood to flow out of the uterus through the vagina (3). The menstrual cycle is the period between the start of your last menstrual period and the start of your new period. A woman's menstrual cycle usually occurs every 21-35 days and usually lasts 5-7 days (4). According to the 2018 Riskesdas data, 70.1% of young women aged 10-19 in Indonesia reported experiencing menstruation, and as many as 3.5% of adolescents had experienced irregular menstruation in the past year and the cause of irregular menstruation in women aged 10-59 is Great stress, thinking too much up to 14.5% (5). It is proven that irregular menstruation occurs in 11.7% of vulnerable adolescents aged 15-19 years in Indonesia (6).

Stress can affect the menstrual cycle because the luteinizing hormone and follicle-stimulating hormone are disrupted, egg cells cannot develop, and estrogen and progesterone cannot be formed, resulting in menstrual irregularities (7). It was found that the proportion of stressed students in the world is 38-71%, while in Asia the proportion is 39.6-61.3%. Meanwhile in Indonesia alone, 36.7-71.6 percent of students experience stress (8).

The other factors besides stress can affect irregular menstrual cycles, namely a person's nutritional status. Nutritional status is an important factor in optimal health. The nutritional status of adolescents aged 16-18 throughout Indonesia is generally 7.5% thin, 1.9% very thin, 5.7% obese, and 1.6% obese. The highest prevalence of obesity is in DKI Jakarta Province at 4.2% and the lowest is in West Sulawesi Province at 0.6% (9). This is reinforced by research (Rismatiti et al., 2022) the results obtained from the chi-square test with a p-value of $0.00 < 0.05$, which means there is a relationship between stress and the menstrual cycle of adolescents in Bhinneka Karya (2).

Based on the background description above, researchers are interested in examining whether there is a relationship between stress levels and nutritional status with menstrual cycle irregularities in class XII female adolescents at SMK Nusantara 02 Ciputat Health.

METHOD

This study used a Quantitative Analytical method with a Cross-Sectional study design. This research will be conducted at Nusantara Health Vocational School 02 Ciputat in December 2022. The choice of place was based on the results of interviews with 10 female students at Nusantara Health Vocational School 01 and 10 students at Nusantara Health 02 Ciputat, it was found that class XII students at Health Vocational Schools experienced higher levels of stress compared to class XII students at SMK Nusantara 01 due to greater pressure from educators in health schools. The sample used was class XII students as many as 71 students, using a total sampling technique. Data collection tool using a questionnaire.

Data analysis was performed using univariate analysis to explain or describe each research variable & and bivariate analysis (Chi Square Test and Simple Logistic Regression Test) to measure the relationship between the independent variables and the dependent variable. Measurement of the dependent variable (Menstrual Cycle) was carried out using a questionnaire that had been tested for validity, then for the independent variable nutritional status it was carried out by measuring body weight and height using a SECA weighing scale with an accuracy of 0.1 kg and a microtome with an accuracy of 0.1 cm, the stress level variable was measured using the DASS (Depression Anxiety Stress Scale) questionnaire.

RESULTS AND DISCUSSION

Based on table 1, it can be seen that the majority age group is 17 years old (65.7%). Then the univariate results of the stress level variable for the majority of respondents were included in the normal stress level category of 22 (31.4%) respondents with a minority in the stress level category of 13 (18.6%) respondents. Meanwhile, the nutritional status variables were mostly in the normal category with 44 (62.9%) respondents, and the lowest in the obese category with 9 (12.9%) respondents. Meanwhile, for the menstrual cycle variable, out of 70 respondents, 46 (65.7%) experienced irregular menstrual cycles and the remaining 24 (34.3%) respondents experienced regular menstrual cycles.

Table 1. Characteristics of Respondents Based on Age Group, Stress Level, Nutritional Status, Menstrual Cycle

Variable	n	%
Age group		
16 years	6	8.6
17 years	46	65.7
18 years	16	22.9
19 years	2	2.9
Stress level		
Heavy	14	20.0
Currently	21	30.0
Light	13	18.6
Normal	22	31.4
Nutritional status		
Fat (> 25.0)	9	12.9
Normal (18.5-25.0)	44	62.9
Skinny (<18,5)	17	24.3

Based on table 2, the results of the chi-square test analysis and simple logistic regression on the stress level variable show that there is no significant relationship between stress levels and menstrual cycle irregularities with a p.value of $0.404 > 0.05$, these results indicate that not only respondents with severe stress levels Only those who can experience menstrual cycle irregularities, but respondents with normal stress levels can also experience menstrual cycle irregularities. This is caused by other factors that arise from oneself or the surrounding environment. Then the results of the chi-square test analysis

and simple logistic regression on the nutritional status variable showed that there was no significant relationship between nutritional status and menstrual cycle irregularities with a p.value of $0.465 > 0.05$.

Table 2. Relationship between Stress Level and Nutritional Status with Menstrual Cycle Irregularities

Variable	P-Value	OR	CI (95%)
Stress level			
Heavy	0.404	0.828	0.532-1.289
Currently			
Light			
Normal			
Nutritional status			
Fat (> 25.0)	0.465	0.733	0.319-1.686
Normal (18.5-25.0)			
Skinny (<18.5)			

Based on the results of bivariate analysis is known that there is no relationship between nutritional status and menstrual cycle irregularities with a p.value of $0.465 > 0.05$, then H_0 is rejected. The results of this study are in line with research (Ilmi et al., 2019) conducted at SMA N 6 South Tangerang with p-value = 0.822 which means there is no relationship between nutritional status and menstrual cycle irregularities (10). Then also in line with research (Maulia et al., 2021) which was carried out on young women in the Warnasari Village, Cilegon City, Banten, with statistical test results obtained a p-value = 0.377, which means there is no relationship between nutritional status and menstrual cycle irregularities (11). However, this research is not in line with research (Dya et al., 2019) which was carried out on female students of MAN 1 Lamongan with p-value = 0.036 which means there is a relationship between nutritional status and menstrual cycle irregularities (12).

In this study, it was found that the dominant respondents who experienced menstrual cycle irregularities were respondents with normal nutritional status, so it can be concluded that nutritional status does not affect the menstrual cycle. This can happen because there is an assumption that the researchers are influenced by other variables not examined, such as age at menarche, physical activity, and endocrine disorders. Backed by research (Pasparini, 2017) that also mentions the factors that can affect the menstrual cycle, namely disrupted hormone function, systemic disorders, thyroid gland, and the hormone prolactin (13).

In the stress level variable, the results of the bivariate analysis found that there was no relationship between stress levels and irregular menstrual cycles with a p-value of $0.404 > 0.05$. This is in line with research (Luthfi et al., 2020) which was carried out on female students of the Faculty of Nursing at Andalas University, with a p-value = 0.232 which means there is no relationship between stress levels and menstrual cycle irregularities (14). Then also in line with research (Arum et al., 2019) which was carried out on Semesta Vocational High School students in Brebes, with a p-value = 0.164 which means there is no relationship between stress levels and menstrual cycle irregularities (15).

However, this research is not in line with the research (Achmad et al., 2021) students of the Faculty of Medicine at the Christian University of Indonesia, with $p\text{-value} = 0.006$ which means there is a relationship between stress levels and menstrual cycle irregularities (16).

In the results of this study, it was found that respondents with moderate to severe stress levels experienced menstrual cycle irregularities, and the dominant respondents who experienced normal stress levels also experienced menstrual cycle irregularities. It can be concluded that stress levels do not affect the menstrual cycle in adolescents, but there are more dominant factors such as lifestyle. Backed by research (Karmina et al., 2016) with significant results showing that lifestyle affects the menstrual cycle. This is influenced by different reproductive hormone conditions in different lifestyles and stress levels (17).

CONCLUSION AND SUGGESTIONS

Based on the results of the research and discussion in the previous chapter, it can be concluded that the majority of respondents who experienced menstrual cycle irregularities were (65.7%), then respondents with normal stress level categories experienced menstrual cycle irregularities as much as (31.4%), as many as (62.9%) respondents have normal nutritional status with menstrual cycle irregularities. Statistical test results showed that there was no relationship between stress level $p\text{-value}$ 0.404 and nutritional status $p\text{-value}$ 0.465 with menstrual cycle irregularities.

With this research, it is recommended that teenagers start to pay attention to changes in the menstrual cycle regularly every month and start to maintain weight by doing regular exercise and carrying out various activities to reduce stress levels by playing with shopping friends, and using smart phones to access social media such as YouTube, Instagram, and other social media. Then future researchers to be able to examine other factors such as age at menarche, physical activity, lifestyle, sleep duration, hormonal endocrine disorders, and systematic abnormalities that can affect the menstrual cycle.

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DETERMINANTS OF THE IMPLEMENTATION OF EARLY BREASTFEEDING INITIATION (IMD) IN THE WORKING AREA OF THE PONDOK CABE ILIR HEALTH CENTER IN 2022

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ABSTRAK

Inisiasi Menyusui Dini (IMD) wajib dilakukan segera setelah bayi lahir dan tidak dapat ditunda. IMD memberikan dampak positif bagi bayi dan ibu, pemberian ASI mempunyai peranan penting dalam menunjang pertumbuhan, kesehatan, dan kelangsungan hidup bayi serta ibu dapat menurunkan angka kesakitan dan kematian. Penelitian ini bertujuan untuk mengetahui faktor-faktor yang mempengaruhi pelaksanaan Inisiasi Menyusui Dini (IMD). Penelitian ini merupakan penelitian analitik dan menggunakan desain studi *cross-sectional*. Sebanyak 93 responden yang memiliki anak usia 0-3 bulan diperoleh dengan teknik aksidental. Analisis data dilakukan dengan menggunakan uji univariat dan bivariat. Penelitian dilakukan di wilayah kerja Puskesmas Pondok Cabe Ilir. Hasil penelitian ini menunjukkan adanya hubungan antara faktor predisposisi (usia ibu $p=0,007$, paritas $p=0,037$, sikap ibu $p=0,000$, pengetahuan ibu $p=0,000$, dan pekerjaan ibu $p=0,024$). Faktor penguat (dukungan petugas kesehatan $p=0,000$, dukungan keluarga $p=0,000$, dan dukungan suami $p=0,000$) dengan pelaksanaan IMD. Faktor yang berhubungan dengan pelaksanaan IMD di wilayah kerja Puskesmas Pondok Cabe Ilir adalah umur ibu, paritas, sikap ibu, pengetahuan ibu, pekerjaan ibu, dukungan petugas kesehatan, dukungan keluarga, dan dukungan suami. Ibu hamil diharapkan mencari informasi tentang pentingnya dan manfaat Inisiasi Menyusui Dini (IMD) bagi bayi dan ibu.

Kata kunci: Inisiasi Menyusui Dini (IMD), faktor predisposisi, faktor penguat

ABSTRACT

The incidence of dysmenorrhea in Indonesia has reached 64.5%, based on a survey conducted at one school in Garut Regency, as many as 60-70% of female students experienced primary dysmenorrhea. This study aimed to determine the relationship between the age of menarche, menstrual cycle, family history, physical activity, frequency of fast food consumption, and history of exposure to cigarette smoke with the incidence of primary dysmenorrhea. The method in this research uses cross-sectional with a total sample of 176 samples determined using stratified random sampling by determining probability using probability proportional to size then tested univariately and bivariately using Chi Square with $\alpha = 0.05$. The results of the study showed that factors associated with the incidence of primary dysmenorrhea included age at menarche, family history, frequency of fast food consumption, physical activity, and history of exposure to cigarette smoke. Meanwhile, the menstrual cycle is not related to the incidence of primary dysmenorrhea. Suggestions that researchers can give include students being more careful and aware of themselves to prevent primary dysmenorrhea.

Keywords: Early Breastfeeding Initiation (IMD), predisposing factors, enabling factors, reinforcing factors

INTRODUCTION

Early Breastfeeding Initiation (IMD) is a process that must be carried out immediately after the baby is born and cannot be delayed. Early Breastfeeding Initiation (IMD) is recommended for newborns to immediately breastfeed through their mother by placing the baby on the mother's chest so that the baby's skin is in direct contact with the mother's skin and the baby is left to look for the mother's nipple to breastfeed which is done for at least one hour as soon as the baby born, if direct contact with the

mother is blocked by a cloth or carried out for less than one hour then IMD is considered immature and can be said not to do IMD (1).

Considering that IMD is the beginning of the success of exclusive breastfeeding, the benefits of Early Breastfeeding Initiation (IMD) and exclusive breastfeeding can help children survive and build the antibodies that children need to be protected from various diseases that are often encountered or occur in childhood. children, including diarrhea and pneumonia. There is evidence that a child who is breastfed performs better on intelligence tests, is less likely to be obese and overweight, and is less likely to develop diabetes as an adult Globally, an increase in the number of breastfeeding mothers has the potential to save the lives of more than 820,000 children under five and can prevent an additional 20,000 cases of breast cancer in women every year (2).

In Indonesia, only 1 out of 2 babies under 6 months old is exclusively breastfed and at least 5% of children are still breastfed at 23 months of age, which means that almost half of all children in Indonesia do not get the nutrition they need for the first 2 years life. More than 40% of babies are introduced too early to complementary foods, namely before they reach 6 months of age, and often the food given does not meet the nutritional needs of infants (2). Babies need nutritional intake according to their body's metabolic needs. Mother's Milk (ASI) is the best intake for babies because breast milk has all types of nutrients needed for optimal development and growth. Exclusive breastfeeding for infants is beneficial for increasing immunity and can prevent morbidity and death in infants (3).

Based on Government Regulation Number 33 of 2012 concerning Exclusive Breastfeeding (ASI) breast milk is given since the baby is born for 6 months, without replacing or adding other foods or drinks, except vitamins, minerals, and medicines. Breast milk contains colostrum which is rich in antibodies because it contains protein which is useful for maintaining immunity and for killing germs in high numbers so that exclusive breastfeeding can reduce the risk of death in infants (4). One of the goals of health development in Indonesia is to achieve sustainable The Development Goals (SDGs) are to end preventable infant and under-five deaths by reducing the Infant Mortality Rate (IMR) to 12 per 1,000 live births (5).

Breastfeeding from an early age has a positive impact on both the baby and the mother. The impact on the baby is that breastfeeding has an important role in supporting the growth, health, and survival of the baby because the content of breast milk is rich in nutrients and antibodies. The impact for the mother is that breastfeeding can reduce morbidity and mortality because the process of breastfeeding will stimulate uterine contractions to reduce postpartum bleeding (6).

In practice and based on research results, it is known that the implementation of Early Breastfeeding Initiation (IMD) is influenced by various factors including the mother's age, parity, mother's education, mother's occupation, mother's knowledge, mother's attitude, place of delivery, birth attendant, health worker support, family support, and husband support. According to research by Ulfa

et al. (2022), based on the results of the study, it was shown that the age of the mothers or respondents who were classified as early adolescents were in the age range 17-25 (52.94%) had low knowledge, while respondents were at the ideal age for pregnancy aged 26-35 (47.61%) during a health check-up visit at a health care facility, from prenatal care to delivery, could not receive the information conveyed properly (7).

Parity is also one of the factors that influence the implementation of early breastfeeding initiation (IMD). According to Sari's research (2022), a p-value = 0.000 was obtained, which indicates that there is a relationship between parity and the implementation of IMD. Educational background is also one of the factors that influence the implementation of early breastfeeding initiation (IMD) (8). Based on Salanti's research (2017) it was found that mothers who carried out IMD with higher education were 53 respondents (86.9%) while those with low education levels were 8 respondents (13.1%) and obtained a p-value of 0.000, which means there is the relationship between mother's education with the implementation of IMD (9).

The mother's employment status is also one of the factors that influence the implementation of early breastfeeding initiation (IMD). Mothers who work or have jobs already have quite extensive knowledge, so they can visit health services more often during pregnancy so they get more information that will add insight or knowledge about IMD because someone who is already working interacts with or meets more people. people socially who are in the workplace environment and get a lot of information (7).

The results of research conducted by Nufra and Rahmita (2020) obtained a p-value of 0.025, which means that there is a relationship between the mother's knowledge and the implementation of IMD. Information obtained from the family and health workers will affect the mother's knowledge about IMD (10). If the information obtained from the family or health workers is inaccurate or incomplete due to a lack of knowledge or information about IMD, then the information conveyed to the mother will also be wrong (11). From The results of Nuraini et al.'s research (2022) using the chi-square test obtained a p-value of 0.000, which means that there is a relationship between the mother's attitude and the implementation of IMD (12).

The place of delivery is also one of the factors that influence the implementation of early breastfeeding initiation (IMD). According to Yuwansyah's research (2017), a p-value = 0.036 was obtained, which indicated that there was a relationship between the place of delivery and the implementation of IMD (13). Based on the research by Sihsiliya & Saputri (2018), a p-value of 0.02 was obtained, which means that there is a relationship between birth attendants and the implementation of IMD (14).

According to UNICEF & WHO (2018), most newborns in the world are left waiting too long to start suckling on their mothers later. It is estimated that 2 out of 5 or around 78 million newborns

have to wait more than 1 hour to suckle their mother. In 2017, global IMD practice coverage was 42%. Across regions of the world, the level of IMD practice varies widely, with South Asia having coverage of 40%, the Middle East 35%, around 65% in North Africa and around 65% in East and South Africa (15).

Based on data from Indonesia's Health Profile for 2020, the percentage of newborns nationally receiving IMD is 77.6%. The province of DKI Jakarta has the highest percentage of newborns receiving IMD, namely 96.1%, while the lowest percentage is the province of Maluku, which is equal to 52.1%. In 2020, the national IMD target is 54% and only the Provinces of Maluku (52.1%) and Bali (53.8%) have not reached the IMD target (11).

Based on Basic Health Research (Riskesdas) data, the proportion of IMD rates aged 0-23 months at 1-6 hours was highest (35.2%) in 2017 and experienced an increase in 2018, IMD rates in children aged 0-23 months at 1-2 months 6 hours (58.2%). The proportion of IMD in Banten Province is 54.6% and the duration of IMD in children aged 0-23 months at 1-6 hours in Banten Province is 11.1%.¹⁰ Based on the Banten Province Health Profile (2020), the percentage of newborns receiving IMD in South Tangerang City is 70.1%. Meanwhile, the coverage of exclusive breastfeeding in 2022 has the highest percentage in the West Pamulang sub-district at 79.31% and the lowest is in the Pondok Cabe Udik sub-district at 57.69% which is the working area of the Pondok Cabe Ilir Health Center (1).

The low coverage of exclusive breastfeeding in the Pondok Cabe Udik sub-district, which is part of the working area of the Pondok Cabe Ilir Health Center, compared to all other sub-districts, is quite a cause for concern. Considering that IMD is the beginning of the success of exclusive breastfeeding, it is necessary to research "Factors Influencing the Implementation of Early Breastfeeding Initiation (IMD) in the Working Area of the Pondok Cabe Ilir Health Center, which is expected to improve the implementation of IMD later.

METHOD

This research is an analytical study and uses cross-sectional by measuring a variable between the independent variable and the dependent variable at the same time. This study aims to determine whether there is a correlation or related relationship between the two variables which include the independent variables (mother's knowledge, mother's attitude, mother's age, mother's education, mother's occupation, parity, place of delivery, birth attendant, health worker support, family support, and husband's support) with the dependent variable (implementation of Early Breastfeeding Initiation (IMD)). Data analysis was carried out using univariate and bivariate tests. The place chosen to conduct this research was located in the working area of the Pondok Cabe Ilir Community Health Center, South Tangerang City.

The target sample or population needed in this study were all mothers who had babies in the working area of the Pondok Cabe Ilir Health Center, South Tangerang City in 2022. The sample used

in this study was 93 respondents with several criteria in taking respondents including, namely, all mothers who live or in the working area of the Pondok Cabe Ilir Health Center, South Tangerang City, all mothers who still have babies aged 0-3 months, all mothers who can communicate well, are willing to be respondents in the study. Sampling was carried out using an accidental technique or the process of taking respondents to be used as a sample based on a sample that the researcher happened to meet and conducted direct interviews.

RESULTS AND DISCUSSION

Based on table 1. the results of the distribution of the implementation of Early Breastfeeding Initiation (IMD) in the working area of the Pondok Cabe Ilir Health Center, it can be seen that some respondents carried out IMD, namely 71 respondents (76.3%), while respondents who did not carry out IMD were 22 respondents (23.7%). The total number of respondents used in the study was 93 respondents.

Based the table below, it can be seen that 41 respondents (44.1%) had good knowledge regarding the implementation of Early Breastfeeding Initiation (IMD), while 52 respondents (55.9%) had less knowledge regarding the implementation of Early Breastfeeding Initiation (IMD). The results of the analysis showed that 62 respondents (66.7%) had a positive attitude regarding the implementation of Early Breastfeeding Initiation (IMD), while 31 respondents (33.3%) had a negative attitude regarding the implementation of Early Breastfeeding Initiation (IMD).

The results of the analysis of respondents aged < 20 and > 35 years by 24 respondents (25.8%), while respondents aged 20-35 years by 69 respondents (74.2%). The results of the analysis showed that 88 respondents (94.6%) had higher education, while 5 respondents (5.4%) had lower education. The results of the analysis show that 47 respondents (50.5%) are respondents or mothers who work outside or inside the house, while respondents or mothers who do not work are 46 respondents (49.5%). The results of the analysis show that 27 respondents (29.0%) have respondents or mothers who have one child (primipara), while 66 respondents (71.0%) have more than one child.

The result of the analysis shows that 87 respondents (93.5%) gave birth at healthcare facilities, while 6 respondents (6.5%) gave birth not at healthcare facilities. The results showed that 87 respondents (93.5%) gave birth assisted by a health worker, while 6 respondents (6.5%) gave birth not assisted by a health worker. The results of the analysis shows that 71 respondents (76.3%) received good support from health workers and 22 respondents (23.7%) did not get support from health workers.

The results showed that 41 respondents (44.1%) received good support from their families and 52 respondents (55.9%) received less support from their families. The results showed that 71 respondents (76.3%) received good support from their husbands and 22 respondents (23.7%) received less support from their husbands. The results of the bivariate analysis test showed that there was a relationship between the age of the mother and the implementation of Early Breastfeeding Initiation

(IMD) p -value = 0.007 (<0.05), the results of the analysis were 58 (84.1%) who carried out IMD were respondents or mothers aged 20-35 years.

The resulting analysis between the mother's occupation and the implementation of IMD p -value = 0.024, it can be concluded that there is a relationship between the mother's work and the implementation of IMD, it was obtained that 41 (87.2%) of mothers who carried out IMD had jobs outside or inside the house, while mothers who not working 30 (65.2%) carry out IMD. The resulting analysis between maternal education and the implementation of IMD p -value = 0.084, it can be concluded that there is no relationship between maternal education and the implementation of IMD, obtained 69 (78.4%) highly educated mothers carry out IMD.

The resulting analysis between parity and the implementation of IMD p -value = 0.037, it can be concluded that there is a relationship between parity and the implementation of IMD, obtained from 25 (92.6%) mothers who have children with one person carrying out IMD. The resulting analysis between the mother's attitude and the implementation of IMD p -value = 0.000, it can be concluded that there is a relationship between the mother's attitude and the implementation of IMD, it was obtained that 55 (88.7%) mothers had a positive attitude towards the implementation of IMD, while 16 (51.6%) mothers who had a negative attitude carried out IMD.

The resulting analysis between mother's knowledge and implementation of IMD obtained 40 (97.6%) of mothers had good knowledge of implementing IMD, while 31 (59.6%) of mothers who had less knowledge continued to carry out IMD. The results of the statistical tests carried out obtained a value of p -value = 0.000, so it can be concluded that there is a relationship between the mother's knowledge and the implementation of IMD.

Based on table 2, analysis produced between the place of delivery and the implementation of Early Breastfeeding Initiation (IMD) p -value = 0.142, which means there is no relationship between the place of delivery and the implementation of IMD, there were 68 (78.2%) mothers giving birth at health service facilities carrying out IMD and as many as 3 (50.0%) mothers giving birth not at health service facilities carrying out IMD.

Table 1. Characteristic of Respondents

Variable	n	%
Implementation of IMD		
IMD	71	76.3
Not IMD	22	23.7
Mother Knowledge		
Good	41	44.1
Not Enough	52	55.9
Attitude		
Positive	62	66.7
Negative	31	33.3
Mother's Age		
< 20 Years And > 35 Years	24	25.8
20 – 35 Years	69	74.2

Variable	n	%
Mother's Education		
High Education	88	94.6
Low Education	5	5.4
Mother's Job		
Work	47	50.5
Doen't Work	46	49.5
Parity		
Primipara	27	29.0
Multipara	66	71.0
Place Of Giving Birth		
Health Facilities	87	93.5
Non-Health Services Fasilities	6	6.5
Childbirth Helper		
Health Workers	87	93.5
Non-Health Workers	6	6.5
Health Workers Support		
Good	71	76.3
Not Enough	22	23.7
Family Support		
Good	41	44.1
Not Enough	52	55.9
Husband Support		
Good	71	76.3
Not Enough	22	23.7

The resulting analysis between birth attendants and the implementation of Early Breastfeeding Initiation (IMD) $p=0.624$, which means there is no relationship between birth attendants and the implementation of IMD, there were as many as 67 (77.0%) mothers giving birth assisted by health workers carrying out IMD and there were 4 (66.7%) mothers giving birth not assisted by health workers still carrying out IMD.

The analysis produced between the support of health workers and the implementation of Early Breastfeeding Initiation (IMD) obtained the results of 64 (90.1%) mothers who received support from health workers could properly carry out IMD and mothers who received less support from health workers 7 (31.8%) still carry out IMD. The results of the statistical test used obtained a p -value = 0.000, which can be concluded that there is a significant relationship between the support of health workers and the implementation of IMD. The resulting analysis between family support and the implementation of Early Breastfeeding Initiation (IMD) obtained a result of 39 (95.1%) mothers who received good support from their families could carry out IMD and mothers who received less support from their families 32 (61.5%) still carry out IMD.

The results of the statistical test used obtained a value of $p = 0.000$, which can be concluded that there is a significant relationship between family support and the implementation of IMD. The resulting analysis between husband support and the implementation of Early Breastfeeding Initiation (IMD) obtained a result of 64 (90.1%) mothers who received support from their husbands could carry out IMD and mothers who did not get support from their husbands by 7 (31.8%) still carry out IMD.

The results of the statistical test used obtained a value of $p = 0.000$, which can be concluded that there is a significant relationship between the husband's support and the implementation of IMD.

Based on the results of the research on the implementation when carrying out IMD in the working area of the Pondok Cabe Ilir Health Center, it can be seen that some respondents who did IMD were 71 (76.3%) and respondents who did not carry out IMD were 22 (23.7%). The percentage showing the implementation of IMD in the working area of the Pondok Cabe Ilir Health Center is greater than the percentage of implementing IMD in the Kramatwatu work area by 50% (16). In the results of the bivariate analysis, there is a significant relationship between the variable mother's age and the variable implementing IMD (p -value = 0.007). This is in line with research that has been conducted by Ulfa et al. (2022) the results of the analysis obtained a p -value = 0.009 that there is a relationship between the age of the mother and the implementation of IMD (7). In the results of the bivariate analysis, there is a significant relationship between the variable mother's work and the variable implementing IMD (p -value = 0.024). This is in line with research that has been conducted by Nurmala et al. (2020) with a p -value = 0.010 that there is a relationship between a mother's work and the implementation of IMD (17).

Table 2. Relationship of Predisposing Factors with the Implementation of Early Breastfeeding Initiation (IMD)

Variable	<i>P-value</i>	OR	CI (95%)
Mother's age			
< 20 and > 35 years	0.007	0.224	0.080-0.628
20 – 35 years			
Mother's job			
Work	0.024	3.644	1.276-10.412
Doesn't Work			
Education			
High Education	0.084	5.447	0.848-34.987
Low Education			
Parity			
Primipara	0.037	5.435	1.173-25.173
Multipara			
Attitude			
Positive	0.000	7.366	2.563-21.173
Negative			
Knowledge			
Good	0.000	27.097	3.453-212.639
Not Enough			
Delivery Place			
Health Facilities	0.142	3.579	0.668-19.187
Non-Health Facilities			
Childbirth Helper			
Health Workers	0.624	1.675	0.286-9.827
Non-Health Workers			
Health Workers Support			
Good	0.000	19.592	5.966-64.334
Enough			
Family Support			
Good	0.000	12.188	2.647-56.108
Not Enough			

Variable	P-value	OR	CI (95%)
Husband Support			
Good	0.000	19.592	5.966-64.334
Not Enough			

Mothers who work or have jobs already have quite broad insights, so they can more often visit health services during pregnancy so that they get information that will add insight or knowledge about IMD because someone who is already working interacts or meets more people socially who are in the workplace environment and obtains a lot of information (7). The results of the bivariate analysis showed that there was no significant relationship between the mother's education variable and the IMD implementation variable (p-value = 0.084). This is in line with research conducted by Sandra et al (2016) the results of the analysis obtained a p-value = 0.382 that there was no relationship between maternal education and the implementation of IMD (18). The results of the bivariate analysis showed that there was a relationship between maternal parity and variable implementation of IMD (p-value = 0.037). This is in line with research conducted by Sari (2022) in the results of the analysis obtained a p-value = 0.000, indicating that there is a relationship between maternal parity and the implementation of IMD (8). Parity in primiparous mothers or those who have a large number of children ≤ 2 did not have enough experience so the mother was afraid to carry out IMD (13).

The results of the bivariate analysis showed that there was a significant relationship between the mother's attitude variable and the IMD implementation variable (p-value = 0.000). The results of the same research were carried out by Elfina (2021) with a p-value = 0.000 which shows that there is a link between the mother's attitude and the implementation of IMD in the working area of the Lesung Batu Health Center, Kab. Four Lawns (19).

The results of the bivariate analysis showed that there was a significant relationship between the mother's knowledge variable and the IMD implementation variable (p-value = 0.000). This is in line with the research that has been conducted by Nufra & Rahmita (2020) the results of the analysis obtained a p-value = 0.025 that there is a relationship between a mother's knowledge and the implementation of IMD (10). The results of the test conducted in this study, namely the Chi-Square test showed that there is no relationship between the place of delivery and the implementation of IMD (p-value = 0.142). These results are in line with a study conducted by Chatib et al. (2020) with a p-value = 0.323, which means that there is no relationship between the place of delivery and the implementation of IMD. p-value = 0.624). These results are in line with research conducted by Sriwahyuni (2020) with a p-value = 0.177, which means that there is no relationship between birth attendants and the implementation of IMD (20).

The results obtained using the Chi-Square test show that the support of health workers has a significant relationship with the implementation of IMD (p-value = 0.000). These results are in line with research conducted by previous researchers with p-value = 0.000 (p-value < 0.05) which means

that there is a significant relationship between the support of health personnel and the implementation of IMD with an OR value of 8.000 which means that mothers who receive support from good health workers have 8 times higher chances of carrying out IMD compared to mothers who receive less support from health workers (21). Chi-Square test results show that family support has a significant relationship with the implementation of IMD (p-value = 0.000). These results are in line with research conducted by Fitriani et al. (2022) with a p-value = 0.046 (p-value < 0.05) which means there is a relationship between family support and the implementation of IMD with an OR value of 3.4 which means that mothers who receive support from good families have a 3.4 times higher chance of carrying out IMD compared to mothers who receive less support from the family (6). Chi-Square test results show that the husband's support has a significant relationship with the implementation of IMD (p-value = 0.000). These results are in line with research conducted by Fitriani et al. (2022) with a p-value = 0.046 (p-value < 0.05) which means there is a relationship between the husband's support and the implementation of IMD with an OR value of 3.4 which means that mothers who receive support from good husbands have a 3.4 times higher chance of carrying out IMD compared to mothers who receive less support from husband (22).

CONCLUSION AND SUGGESTIONS

Based on the results of the discussion in the previous chapter, it can be concluded that as many as 76.3% of respondents carried out IMD and 23.7% did not carry out IMD. There is a relationship between predisposing factors of maternal age with p-value = 0.007, parity with p-value = 0.037, mother's attitude with p-value = 0.000, mother's knowledge with p-value = 0.000, and mother's occupation with p-value = 0.024) on the implementation of Breastfeeding Initiation (IMD). There is a relationship between reinforcing factors (support of health workers, family support, and husband's support) to the implementation of Early Breastfeeding Initiation (IMD) with p-value = 0.000. There is no relationship between predisposing factors of maternal education with a p-value of 0.084 on the implementation of Early Breastfeeding Initiation (IMD). There is no relationship between enabling factors in the place of delivery with p-value = 0.142 and birth attendant with p-value = 0.624 for the implementation of Early Breastfeeding Initiation (IMD).

The suggestions in this study are that pregnant women are expected to seek information about the importance and benefits of carrying out early breastfeeding initiation (IMD) for babies and mothers so that during childbirth they can immediately apply early breastfeeding initiation (IMD). When carrying out pregnancy control, the Puskesmas must provide information about the importance and benefits of carrying out early breastfeeding initiation (IMD) immediately after delivery and health workers must continue to promote and support the implementation of early breastfeeding initiation (IMD) to all pregnant women. Support from the family is needed in the implementation of early breastfeeding initiation (IMD). Families can provide support in the form of motivation to carry out early

breastfeeding initiation (IMD). Husbands need to find as much information about early breastfeeding initiation (IMD) as possible with their wives so that husbands can provide positive support to their wives to carry out early breastfeeding initiation (IMD) and husbands also need to accompany them during ANC to find information about early breastfeeding initiation (IMD) and accompanying his wife during the birth process so that she can help carry out early breastfeeding initiation (IMD). For other researchers who wish to research the same title, it is expected to find many references so that the research results can be more robust and reliable.

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RELATIONSHIP BETWEEN INDIVIDUAL CHARACTERISTICS WITH SYMPTOMS OF LOWER BACK PAIN IN PUTRI DAFFA CONVECTION WORKERS IN DEPOK, 2023

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ABSTRAK

Nyeri pinggang adalah masalah yang sangat umum terjadi pada orang-orang dari segala usia dan secara umum digambarkan sebagai nyeri, ketegangan otot, atau kekakuan yang terletak di bawah tepi kostal dan di atas lipatan gluteal bawah, dengan atau tanpa nyeri pada kaki. Penelitian ini merupakan penelitian deskriptif analitik dengan menggunakan pendekatan *cross-sectional*. Penelitian ini dilakukan di Konveksi Putri Daffa yang berlokasi di Kecamatan Limo, Depok dengan sampel 70 karyawan wanita konveksi daffa. Alat pengumpulan data menggunakan kuesioner. Hasil analisis uji *Chi-square* dan regresi logistik sederhana pada variabel masa kerja menunjukkan tidak terdapat hubungan yang signifikan antara masa kerja dengan nyeri pinggang, tidak terdapat hubungan antara masa kerja dengan low back pain, terdapat hubungan antara postur kerja dengan nyeri pinggang, dan tidak terdapat hubungan antara umur dengan nyeri pinggang. Dari hasil penelitian ini maka perlu adanya cara untuk mencegah nyeri pinggang dan cara mengurangi nyeri jika sudah terjadi nyeri pinggang yaitu senam punggung setiap hari, berhati-hati saat bekerja, melindungi punggung saat duduk dan standing dan stay aktif dan menjalani hidup sehat.

Kata kunci: Karakteristik Individu, Nyeri Punggung Bawah, Pekerja, Konveksi.

ABSTRACT

Low back pain is a very common problem in people of all ages and is generally described as pain, muscle tension, or stiffness located below the costal margin and above the lower gluteal fold, with or without pain in the legs. This research is a descriptive analytical study using a cross-sectional approach. This research was conducted at the Putri Daffa Convection located in Limo District, Depok with a sample of 70 female employees of the Daffa Convection. The data collection tool uses a questionnaire. The results of the Chi-square test analysis and simple logistic regression on the variable length of work showed that there was no significant relationship between work experience and low back pain, there was no relationship between work experience and low back pain, there was a relationship between work posture and low back pain, and there was no The relationship between age and low back pain. From the results of this research, it is necessary to have ways to prevent low back pain and ways to reduce pain if low back pain occurs, namely daily back exercises, being careful when working, protecting your back when sitting and standing and staying active and living a healthy life.

Keywords: Individual Characteristics, Low Back Pain, Workers, Convection.

INTRODUCTION

Low back pain is a very common problem among people of all ages and is commonly described as pain, muscle tightness, or stiffness that is located below the costal margin and above the lower gluteal folds, with or without leg pain (1). Low back pain can affect functioning, community participation and personal financial well-being in a variety of biophysical, psychological and social ways and is the most common

cause of disability in people of working age worldwide, especially in low- dan middle-income countries where employment is informal. common, and job change options are limited (2). Acute low back pain usually occurs in less than 6 weeks, whereas sub-acute low back pain occurs within 6-12 weeks, and chronic low back pain usually occurs in the long term or more than 12 weeks (3).

In 2003, 3.2% of the total US workforce lost productive time due to low back pain. In the UK, back pain is the leading cause of absenteeism from work, with an estimated 3.5 million workdays lost in 2007/2009 due to musculoskeletal disorders, especially low back pain (4). The prevalence of musculoskeletal diseases based on diagnoses by health workers in Indonesia is 11.9% dan based on diagnoses or symptoms 24.7%. A total of 11 provinces have a prevalence of joint disease above the national percentage, namely Nanggroe Aceh Darussalam, West Sumatra, Bengkulu, West Java, Central Java, East Java, Bali, West Nusa Tenggara, East Nusa Tenggara, South Kalimantan dan Papua. The prevalence of musculoskeletal diseases in Central Java alone reaches 18.9% (5).

Based on the Degree of Pain Complaints, most of the respondents, namely 18 respondents (60%) experienced complaints of pain at a moderate degree, then 11 respondents Gender Total % Female 20 66 Male 10 34 Total 30 100 Relationship of Long Standing with Miogenic Lower Back Pain Complaints in Workers Cashiers in Surakarta 65 (37%) complained of mild pain, 1 respondent (3%) complained of severe pain (6). Factors associated with complaints of low back pain include standing or bending for a long time, sitting in an inappropriate chair, driving for a long time, poor posture, lack of exercise, obesity, pregnancy, lifting, carrying, and pushing. , or pulling weights that are too heavy. Apart from the factors above, other factors related to complaints of low back pain are injuries, inflammatory diseases, cancer, and osteoporosis (7).

One of the examples of work that can cause lower back pain is sewing. In Indonesia, sewing is a job that has been occupied by both individuals and convection businesses. In carrying out work, workers are at risk of getting an accident or occupational disease. This can happen because workers often experience inappropriate sitting positions dan sitting duration resulting in a state of stiff posture dan static muscle load. Activities that use too much forward motion or bending, lifting heavy weights inappropriately, or working in a sitting position for long periods are possible factors that can cause pain in the limbs, back, arms, joints, dan other muscle tissue (8). Based on the data above, researchers are interested in researching to find out the relationship between individual characteristics and symptoms of low back pain in women's convection workers, Daffa Depok, 2023.

METHOD

This research is an analytic descriptive study using a cross-sectional approach. This research was conducted. This research was conducted at the Putri Daffa Convection which is located in the Limo District, Depok. The research was carried out in January 2023. Selection of place Based on the results of the initial visit, there were fifteen workers at the Putri Daffa Convection, Depok, who experienced complaints of lower back pain. after work. if left alone the symptoms of low back pain can have a very serious impact, this makes researchers interested in researching the relationship of individual characteristics with symptoms of low back pain at convection Putri Daffa Depok in 2023. The sample used is all Daffa Princess convection employees with a total sample of as many as 70 people, taken by total sampling. Data collection tool using a questionnaire.

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This research has gone through ethical due diligence by the Ethics Commission of the Faculty of Public Health, University of Muhammadiyah Jakarta, and is accompanied by an ethical feasibility letter No.10.580.B./KEPK-FKMUMJ/I/2022 the research was conducted by adhering to universal ethical principles.

RESULTS AND DISCUSSION

Based on Table 1 it can be seen that the new workers are twice as many from old workers (77.1%: 22.9%), while for the old working group, the most were those who worked ≤ 8 hours/day (80.0%). The results of the analysis of the attitude variable at work 64.3% of the body attitude is ergonomic, while the body attitude that is not ergonomic is as much as (35.7%). For the lower back pain variable, there were more complaints compared to those with complaints (72.9%: 27.1). Dan the results of the analysis on the age variable were that the majority were aged ≤ 35 years (65.7%).

Table 1. Characteristics of Respondents by Group Working Period, Length of Work, Posture at Work, Low Back Pain dan Age

Variable	n	%
Years of service		
New $\leq$ 5 years	54	77.1
Old $>$ 5 years	16	22.9
Length of working		
Eligible $\leq$ 8 hours/day	56	80.0
Not Qualified $>$ 8 hours/day	14	20.0
Posture at work		
Ergonomic	45	64.3
Not ergonomic	25	35.7
Lower back pain		
No complaints	51	72.9
There are complaints	19	27.1
Age		
Young $\leq$ 35 years	46	65.7
Old $>$ 35 years	24	34.3

Based on table 2. The results of the analysis of the Chi square test dan simple logistic regression on the variables of working period show that there is no significant relationship between working period dan low back pain with a p-value of $1.000 > 0.05$. Dan the results of the Chi square test analysis dan simple logistic regression on the length of work variable also show that there is no relationship between length of work dan low back pain, this can be seen from the p-value of 1,000. The results of the analysis of the Chi-square test dan simple logistic regression on the variables of posture at work, shows that there is a relationship between posture at work dan low back pain, which can be seen from the p-value of $0.001 < 0.05$.

Table 2. Relationship Between Individual Characteristics and Low Back Pain Symptoms

Variable	p-value	OR	CI (95%)
Years of service			
New $\leq$ 5 years	1.000	0.867	0.241 – 3.113
Old $>$ 5 years			
Length of working			
Eligible $\leq$ 8 hours/day	1.000	1.093	0.297 – 4.018
Not Qualified $>$ 8 hours/day			
Posture at work			
Ergonomic	0.001	7.042	2.199 – 22.547
Not ergonomic			
Age			
Young $\leq$ 35 years	0.088	0.268	0.069 – 1.037
Old $>$ 35 years			

Based on the results of the bivariate analysis, it shows that there is a relationship between the variable length of work dan low back pain with a p-value of (1.00). This is following the results of research conducted by (Gujarati, 2010) test obtained a p-value of 0.160, which means there is no significant relationship between complaints of low back pain and years of service in assembling workers. This is also following research conducted by (Soleha, 2009) who they stated that there was no significant relationship between length of work and complaints of lower back pain. Based on observations workers who have a low tenure also experience complaints of low back pain, this is because many workers who have a low tenure do work with high dan very high ergonomic risks. In addition, many of them also have smoking habits so even though their tenure is still low, they can also experience complaints of lower back pain. While the results in this study were not in line with research (Hdanayani, 2011) Based on the results of the independent T-test analysis, it was found that the average working period of workers who experienced complaints of low back pain was 120.02 months (10 years) dan workers who experienced no complaints of low back pain was 59.26 months (5 years) with a probability value of 0.004 ($p\text{-value} < 0.05$), which means that there is a significant relationship between years of service dan complaints of low back pain (9).

In the length of work variable, the results of the bivariate analysis showed that there was no significant relationship between the length of work variable dan the low back pain variable. When viewed from the p-value, it was equal to (1.00). This is in accordance with the results of research conducted by (Sakinah, 2019) regarding factors related to complaints of lower back pain in brick workers in Lawawoi Village, Sidrap Regency in 2012, with a p-value of 0.311 ($p\text{-value} > 0.05$), that is, there is no relationship between length of work dan complaints of low back pain.

The results of the bivariate analysis showed that there was a significant relationship between the variables of posture at work dan the low back pain variable. If we look at the p-value, it is equal to (0.001). This research is in line with research (Nurzannah, Sinaga dan Salmah, 2015) analysis of the relationship between length of work and complaints of lower back pain that respondents who experienced complaints of lower back pain were higher in respondents with duration of work < 8 hours a day, namely 29 respondents (90.6 %). This research is also in line with (Irawati, Yogisutanti and Sitorus, 2020) which shows that work attitude dan musculoskeletal complaints are significantly related. The p-value of 0.026 is smaller than $\alpha=0.05$. Respondents who have a risky work attitude as many as 18 people, it turned out that all respondents had musculoskeletal complaints in the high category. Respondents with work attitudes are in the no-risk category, it turns out that respondents with musculoskeletal complaints are in the low category, the number is higher when compared to respondents who have complaints in the high category (7).

The results of the bivariate analysis showed that there was no significant relationship between the age variable dan the low back pain variable with a p-value (0.088). This study is in line with (Gujarati,

2010) it is known that complaints of low back pain are experienced by workers aged ≥ 35 years. The results of statistical tests showed that there was no significant relationship between age and complaints of low back pain. Meanwhile, according to (Nurzannah, Sinaga dan Salmah, 2015), age has a significant relationship with subjective complaints on the back with a value (OR 0.259 dan p-value $0.021 < \alpha 0.05$) (10).

CONCLUSION AND SUGGESTIONS

Based on the results of the research dan discussion in the previous chapter, then it can be concluded that as many as 65.7% of respondents are young, namely less than 35 years old, as many as 77.1% of respondents have worked for more than 5 years, as many as 80% of respondents have a working length that meets the requirements, namely less than 8 hours a day. Respondents have an attitude that is not ergonomic at work as many as 35.7%, the majority of respondents who experienced complaints were 27.1%, there is no relationship between age and symptoms of low back pain with a p-value of 0.088, there is no relationship between length of work and symptoms of low back pain with a p-value of 1,000, there is no relationship between length of work and symptoms of low back pain with a p-value of 1,000, there is a relationship between posture at work and symptoms of low back pain with a p-value of 0.001.

Based on the results of this study, it is necessary to have a way to prevent lower back pain and how to reduce pain if low back pain has occurred, namely daily back exercises, being careful when working, protecting your back when sitting dan standing dan stay active dan live a healthy life. Workers aged ≥ 35 years should consume foods or drinks that contain high calcium dan pay attention to their physical condition. For the Putri Daffa Convection, they provide training for convection workers regarding ergonomic ways of working to avoid risks due to work dan holding periodic health checks, especially regarding complaints of low back pain.

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OVERVIEW OF SANITARY HYGIENE OF SNACK FOOD OUTLETS IN MANGGAR CITY PARK IN 2022

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ABSTRAK

Perkembangan tren kuliner telah membentuk budaya-budaya baru seperti wisata kuliner yang sebagian besar merupakan street food. Jajanan kaki lima umumnya mengacu pada makanan siap saji yang disiapkan di jalanan dan dijual oleh pedagang kaki lima di tempat umum. Tujuan penelitian ini adalah untuk mengetahui gambaran higiene sanitasi gerai makanan jajanan keliling di Taman Kota Manggar Tahun 2022. Jenis penelitian yang digunakan adalah penelitian deskriptif dengan pendekatan kuantitatif. Responden dalam penelitian ini adalah seluruh penjual gerai makanan jajanan keliling di Taman Kota Manggar yang ada pada saat penelitian. Pengumpulan data pada penelitian ini menggunakan metode observasi dan wawancara dengan menggunakan checklist yang bersumber dari pedoman higiene sanitasi pusat makanan/kantin atau sejenisnya yang aman dan sehat oleh Kementerian Kesehatan pada tahun 2021. Hasil penelitian ini adalah lebih dari separuh (64%) gerai makanan jajanan di Taman Kota Manggar memiliki risiko ketidaksesuaian sedang dan 35,3% dengan kategori rendah. Tidak terdapat gerai makanan dengan kategori risiko ketidaksesuaian tinggi di Taman Kota Manggar. Saran dari penelitian ini adalah agar para pedagang dapat menerapkan higiene sanitasi sesuai pedoman higiene sanitasi pusat makanan/kantin atau sejenisnya yang aman dan sehat. Bagi koordinator pedagang dan dinas kesehatan agar dapat memberikan penyuluhan keamanan pangan siap saji kepada pedagang.

Kata kunci: Kebersihan, Sanitasi, Outlet, Jajanan

ABSTRACT

The development of food trends has formed new cultures such as culinary tourism, most of which are street food. Street food generally refers to ready-to-eat food prepared on the streets and sold by street vendors in public places. The purpose of this study is to determine the picture of sanitary hygiene of mobile snack food outlets in Manggar City Park in 2022. This type of research is descriptive research with a quantitative approach. The respondents in this study were all traveling snack food outlet vendors in Manggar City Park that existed during the study. Data collection in this study used observation and interview methods using a checklist sourced from the sanitation hygiene guidelines of food centers/canteens or the like that are safe and healthy by the Ministry of Health in 2021. The result of this study is that more than half (64%) of snack food outlets in Manggar City Park have a moderate risk of incompatibility and 35.3% with low categories. There are no food outlets with a high non-conformity risk category in Manggar City Park. The advice from this study is for traders to be able to apply sanitary hygiene according to the sanitary hygiene guidelines of food centers/canteens or the like that are safe and healthy. For the coordinator of the trader and the health office to be able to provide ready-to-eat food safety counseling to traders.

Keywords: Hygiene, Sanitation, Outlets, Snacks

INTRODUCTION

The development of information and communication technology that is happening today makes it very easy for people to connect with other communities and makes it easier for people to find information quickly. In line with technological advances in the digital era, marketing is not only done traditionally, but can also be done more easily and cheaply by marketing on social media such as *Instagram, Facebook, Twitter, Blog, Youtube*, and other social media. The ease of accessing social

media makes social media one of the sources finding information and references, one of which is about food (1).

The development of food trends has formed new cultures such as culinary tourism, most of which are street food. Street food generally refers to ready-to-eat food prepared on the streets and sold by street vendors in public places (2). Based on the Sanitary Hygiene Guidelines of Snack Food Centers / Canteens or the Like that are Safe and Healthy (3), street food merchandise, or can be called mobile snack food outlets are food processing sites whose products are ready for public consumption with or without a cooking process that is managed using semi-permanent equipment that can move/move around such as carts/pickles/vehicles/means of transportation and the like. These mobile hawker stalls are commonly found in public places that are frequented by many people.

Such public places are prone to contamination with viruses, bacteria, fungi, parasites, and harmful chemicals. Contamination of food can cause the food to become a medium for a disease called *Food-borne Disease*. *Food-borne Diseases* are one of the most common public health problems in modern times. Food contaminated with bacteria, parasitic viruses or harmful chemicals causes more than 200 diseases, ranging from diarrhea to cancer. It also affects malnutrition diseases, especially in infants, young children, the elderly and the sick (4).

According to (Kemenag RI, 2013), Eating and Drinking are not only necessary to meet physical needs but also for spiritual needs. So important is food for humans that there are so many words of Allah Almighty about food and drink in the Qur'an. This shows that Islam has regulated humans to eat good food, be healthy, and not cause disease. Allah said in Surah Al-Baqarah/2:168) "*O man, Eat of the lawful and good (food) found on earth and do not follow the steps of Satan. Truly the devil is a real enemy to you*". Halal food is food that is not prohibited from being consumed according to Islamic law. Meanwhile, good food is food that can provide enough energy (calories), can maintain health and growth, and also does not cause disease (5).

WHO estimates that 600 million people or 1 in 10 people in the world fall ill after eating contaminated food and 420,000 people die each year. *Food-borne Disease* is found in many vulnerable groups, especially children under 5 years old in low- and middle-income countries. The *World Bank* reported in 2019 that the economic burden of *food-borne diseases* resulted in productivity losses in low- and middle-income countries of US\$ 95.2 billion per year, and medical expenses for *Food-borne Diseases* are estimated at US\$ 15 billion (4).

In 2019, the Food and Drug Administration (BPOM) reported 6,205 cases of which 819 (13.19%) of the figures were drink poisoning and 474 (7.63%) were food poisoning which was the second and third largest contributor to cases. Based on the group that causes food poisoning, processed food snacks of street vendors are in third place with 43 cases. Bangka Belitung Islands Province is in seventh place as a contributor to poisoning cases in Indonesia with a total of 142 people (6). In 2019

there were 29 cases of food poisoning with a threatened population of 3,510 and this decreased in 2020 to 19 cases with a threatened population of 1,000 (7) (8).

The number of diarrhea cases in East Belitung Regency in 2020 is estimated to reach 3,331 cases in the all-age group. In Manggar District, 11.31 cases of diarrhea were found. The causes of diarrhea are grouped into 6 large groups, including infections (bacterial/viral/parasitic), malabsorption, allergies, poisoning, immunodeficiency and other causes (9).

Research conducted by Riana and Sumarmi in 2018 showed a significant relationship between merchant hygiene actions and food safety ($p\text{-value}=0.005$) with the results of $\rho=-0.540^{***}$ adhesion which means that the higher the score of merchant hygiene actions, the lower the level of contamination in snack foods. Food handlers are a major source of contamination in food stated that there was a significant relationship between food handler hygiene and *MPN Coliform* contamination in snack foods ($p\text{-value}=0.033$) (10). The study is in line with the research conducted by where there is a relationship between *personal hygiene* and the contamination of *MPN Coliform* ($p\text{-value} = 0.009$) (11).

Decree of the Minister of Health of the Republic of Indonesia Number 942 / MENKES / SK / VII / 2003 concerning Guidelines for Sanitary Hygiene of Snack Food, Sanitary Hygiene is an effort to control food factors, people, places, and equipment that can or may cause diseases or health problems. Some things that greatly affect the quality of food include the hygiene of handlers such as sellers not suffering from infectious diseases, closing wounds, maintaining hand hygiene, and so on. Sanitation equipment such as equipment that has been used is washed with clean water and soap then dried with a clean rag and stored in a pollution-free place. Sanitation of serving is that food is served with a clean place/tool and must be closed. Sanitation of colonizing facilities such as the availability of clean water facilities, food storage, washing stations, and trash cans (12). In the Sanitary Hygiene Guidelines of Snack Food Centers/Canteens or the Like that are Safe and Healthy it is stated that the assessment criteria for mobile snack food outlets such as general criteria, personnel criteria, criteria for food transportation/carts, criteria for cooking/dining utensils, and criteria for food sold (3).

Research conducted in the Cimanuk Culinary Center area in 2021 found that 68.1% (49) of snack traders in the area behaved in poor hygiene and 69.4% (50) of traders had poor sanitation (13). Research on fried food vendors in the city of Pekanbaru shows that 100% of sellers do not meet the hygiene requirements of food handlers (14). This study has the same results as the study conducted by (Asran et al., 2020) where all 50 respondents were in the category of poor personal hygiene (15). However, the sanitary hygiene of street vendors in Darmaji Village, Kopang District, in 2019 is known to be good with the cleanliness value of food handlers in a good category of 100%, sanitation of equipment in a good category of 100%, and sanitation of food processing places with a good category of 90% (16).

Based on the researcher's initial observations, Manggar City Park is located in a strategic place and is a place to gather with friends and family to relieve fatigue after going through daily routines and culinary tours. Many street vendors are selling their food on the side of the road. Vendors in City Park often exhibit unhealthy food-handler hygiene behaviors, such as colonizing food in an open state right on the side of a road where many motor vehicles pass.

METHOD

This research is descriptive research with a quantitative approach. This research was conducted at Manggar City Park in December 2022. The respondents in this study were all itinerant snack food vendors in Manggar City Park who existed during data collection. Data collection was carried out on the afternoon of December 20, 2022, and the evening of December 24, 2022, using the observation and interview method using a *checklist* table sourced from the Sanitation Hygiene Guidelines for Food Centers/Canteens or the Like that are Safe and Healthy by the Ministry of Health in 2021.

RESULTS AND DISCUSSION

Based on the table 1, more than half of the 13 (76%) mobile snack outlets are included in group A1 (outlets with a cooking process) such as fried foods, boiled food, grilled, and steamed. 4 (24%) mobile snack outlets of group A2 (outlets that do not have a cooking process) such as ice and fruit rojak. Most respondents used cart transportation equipment as many as 10 (59%) respondents, 4 (23%) respondents used motorbike transportation equipment, 2 (12%) respondents used tricycles/tricycles, and 1 (6%) respondent used tricycles. More than half (64%) of snack food outlets in Taman Kota Manggar have a moderate risk of incompatibility and 35.3% with low categories. There are no food outlets with a high non-conformity risk category in Manggar City Park. According to the results of observations of sanitary hygiene behavior that is not applied by most traders, it is not providing clean water for hand washing, not washing hands regularly before processing food, using food grade cutlery, not conducting routine health checks, not closing the seasoning place tightly and not getting ready-to-eat food safety counseling which if done continuously will cause the *food* to become a medium for a disease or called *food-borne disease*.

Table 1. Characteristic of Respondents of Snack Food Outlets in Manggar City Park in 2022

Characteristics of Respondents	n	%
Group		
A1	13	76
A2	14	24
Types of conveyances		
Cart	10	58.8
Motor	4	23.5
Rickshaw/bicycle	2	11.8
Carrying pole	1	5.9
Category incompatibility	6	35.3
Low	11	64.7

Characteristics of Respondents	n	%
Standard High	0	0

A total of 17 respondents, all traveling snack food vendors in Manggar City Park can easily access safe water and latrines/toilets. However, in each outlet, there is no clean water for hand washing. The seller only provides a rag to clean hands.

Table 2. Overview of General Criteria for Mobile Snack Food Outlets in Manggar City Park

Assessment Criteria	Yes	Not
The selling path that is traversed allows traders to access safe water and latrines/toilets that can be used by traders	17 (100%)	0 (0%)
Clean water is available for the seller's hand washing, clean wipes or disposable wet wipes	0 (0%)	17 (100%)

Based on table 3, from the total 17 respondents, there were 1 (8%) respondent who suffered from the flu during the study. 14 (79%) respondents had short nails, clean and did not use nail dye, but there were still 3 (21%) respondents who had long and or unclean nails. All respondents do not regularly wash their hands or use *hand sanitizer* regularly before handling food. 15 (88%) respondents did not touch food directly after touching money, and 2 (12%) respondents touched food directly after touching money. 1(8%) of respondents did not use tools to pick up cooked food. 1(8%) do not close the wound with a lid of water resistance and clean conditions. 7 (41%) use jewelry when handling food. There are still respondents who handle smoking food, as many as 2 (12%) respondents. There were 1 (8%) respondent who sneezed directly on food. Most respondents did not have a medical examination 1 time a year, which was 12 (17%). All respondents have not received ready-to-eat food safety counseling.

Table 3. Overview of Mobile Snack Food Outlet Personnel in Manggar City Park

Assessment Criteria	Yes	Not
Healthy and free from infectious diseases	16 (92%)	1 (8%)
Short-hoofed, clean and does not wear nail dye	14 (65%)	3 (21%)
Always wash your hands with soap and running water regularly before handling food or use hand sanitizer regularly	0 (0%)	17 (100%)
After touching money, not touching food directly	15 (88%)	2 (12%)
Taking cooked food using gloves or aids (e.g. spoons, food tongs)	16 (92%)	1 (8%)
If injured then the wound is closed with a bandage / the like and closed with a waterproof cover and clean condition	16 (92%)	1 (8%)
Do not use rings and other jewelry when handling food	10 (59%)	7 (41%)
Do not smoke when handling food	15 (88%)	2 (12%)
No sneezing or coughing directly on open food	16 (92%)	1 (8%)
Do not spit carelessly when handling food	17 (100%)	0 (0%)
Not handling food directly after scratching limbs without washing hands or using hand sanitizer first	17 (100%)	0 (0%)
Personnel wear clean clothes when handling food	17 (100%)	0 (0%)
Conduct a medical examination at least 1 (one) time a year	5 (29%)	12 (71%)
Have received ready-to-eat food safety counseling	0 (0%)	17 (100%)

Based on the table 4, there were 10 (59%) respondents have a means of transportation that can protect food, while 7 (41%) transportation equipment cannot protect food. 2 (12%) food haulers are not

roadworthy. 16 (92%) clean food transportation equipment, 8 (47%) food outlets serve food openly. 3 (18%) non-vector-free conveyances and disease-carrying animals.

Table 4. Overview of Mobile Snack Food Transportation Equipment in Manggar City Park

Assessment Criteria	Yes	Not
Food transport/carts can protect food	10 (59%)	7 (41%)
Good condition and roadworthy	15 (88%)	2 (12%)
Clean	16 (92%)	1 (8%)
Food is stored in <i>food containers (food grade)</i>	17 (100%)	0 (0%)
Storage place is clean and flat	17 (100%)	0 (0%)
Cooked food is not mixed with raw food	17 (100%)	0 (0%)
Unpackaged food is served in a closed display cabinet	9 (53%)	8 (47%)
Free storage of vectors and disease-carrying animals	14 (65%)	3 (21%)

Based on table 5, as many as 15 (88%) respondents have good food management tools. As many as 16 (92%) respondents did not use disposable cutlery with a *food-grade* logo and 1 (8%) respondent used natural cutlery in the form of sticks. As many as 2 (12%) respondents washed cutlery not with running water. As many as 2 (12%) respondents did not use a clean dryer.

Table 5. Overview of Tableware/Cooking Food Snacks Around in Manggar City Park

Assessment criteria	Yes	Not
Tools used to process food either (not dirty, rusty or damaged)	15 (88%)	2 (12%)
Using disposable cutlery either natural (leaves) or artificial that has a food grade logo.	1 (8%)	16 (92%)
For washing non-disposable cutlery, washing uses a safe, flowing water source and not in the latrine/toilet (traders must provide a modified bucket or gallon that allows washing the equipment using running water)	15 (88%)	2 (12%)
Equipment dryers such as rags/cloths are always in clean condition and replaced regularly to avoid cross-contamination	15 (88%)	2 (12%)

Based on table 6, all respondents used ice cubes from trusted places. All respondents had packaged foodstuffs such as sauces that were affixed, labeled, and not expired. All respondents with group A1 outlets clean and wash food before cooking food outlets that are class A2 do not use *coolboxes* to store fresh foodstuffs. Almost all respondents (88%) did not close the seasoning place tightly. There are 4 (24%) outlets with perishable cooked food are not consumed or reheated within 4 hours, and there are 4 (24%) food outlets do not have special or temporary bins.

Table 6. Overview of Food Criteria for Mobile Snacks in Manggar City Park

Assessment Criteria	Yes	Not
If you use ice cubes, then ice cubes are made from boiled water / have been cooked or come from reliable sources	17(100%)	0 (0%)
Foodstuffs in registered packaging	17 (100%)	0 (0%)
Foodstuffs in labeled packaging	17 (100%)	0 (0%)
Packaged foodstuffs do not expire	17 (100%)	0 (0%)
(A1 only) foodstuffs are cleaned and washed before cooking/eating	13 (100%)	0 (0%)
(A2 only) Fresh food that is directly consumed such as cut fruit and salads is stored in a safe temperature, namely below 5oC (refrigerator) or in a cold temperature container / (coolbox)	3 (75%)	1 (25%)
The place of seasoning is tightly closed	2 (12%)	15 (88%)

Assessment Criteria	Yes	Not
(A1 only) Ready-to-eat soupy food is stored in hot conditions with temperatures above 60oC (containers with heaters)	13 (100%)	0 (0%)
Cooked food that is perishable and stored at room temperature should be consumed a maximum of 4 (four) hours after cooking, if it is still going to be consumed, it must be reheated	13 (76%)	4 (24%)
Provide dedicated or temporary bins	13 (76%)	4 (24%)

Research (Trigunarto, 2020) mentions the relationship between hygiene and the germ rate of snack foods (17). Research (Rahmayani et al., 2019)) states that the hygiene of handlers, food storage, and food serving are significantly related to *Escherichia coli* contamination in snacks (18). Food hygiene, sanitary hygiene of equipment, condition of hawker facilities, and sanitary hygiene of snack foods are related to E. coli contamination (19). According to the Regulation of the Minister of Health Number 1096 / Menkes / PER / VI / 2011 concerning the sanitation of jagaboga, the content of E. coli germs in food must be 0 / gr (20). *Escherichia coli* is usually found in food contaminated with feces during the food procurement process. These bacteria can cause diarrhea, nausea, vomiting, abdominal pain, and fever. *Y. enterocolitis* is a bacterium that causes similar symptoms due to lack of hygiene and sanitation of food handlers (21).

All Traveling hawker food vendors in Manggar City Park can easily access safe water and latrines/toilets. However, in each outlet, there is no clean water for hand washing. The seller only provides a rag to clean hands. Traders should provide clean water for the seller's hand washing, clean rags, or disposable wet wipes (3). This provision of clean water and clean wipes can make it easier for traders to clean their hands and prevent the emergence of food-related diseases. The use of the same rag to clean the outlet can cause a greater number of germs on the hands due to the transfer of dirt from the dining outlet on the hands (22).

Based on the results of observations and interviews, all traveling snack sellers in Manggar City Park do not handle food directly after scratching their limbs, do not spit carelessly when handling food, and use clean clothes. this is following the requirements of food handlers in the Sanitary Hygiene Guidelines of Snack Food Centers / Canteens or the Like that are Safe and Healthy, Where the seller handles the food directly after scratching the limbs, does not spit carelessly when handling food, and uses clean clothes (3).

When making observations, some respondents sneezed directly on food without wearing masks, when researchers conducted interviews, respondents claimed to have the flu and fever. This is not under the Sanitary Hygiene Guidelines of the Snack Food Center / Canteen or the Like that is Safe and Healthy, where food handlers must be healthy and free from infectious diseases. Food handlers who are sick are not allowed to process food until they are healthy again because they can transmit bacteria to food (3). In the areas of the mouth, nose, and throat, various types of microorganisms are also found.

Therefore, traders should use masks that can cover the nose and mouth to prevent droplet splashing when talking, coughing, or sneezing on food (23).

Some respondents had long and dirty nails and Respondents who used jewelry such as rings and bracelets. Long, dirty nails can be a gathering place for germs due to disease and will eventually be transmitted to visitors through snack food sold (24). Jewelry such as rings can also be a medium of food contamination because the jewelry can be a place of accumulation of dirt hidden in between jewelry (25).

There are still sellers who eat directly after touching the money. These merchants use tools to handle food but when the aids are not working, the seller will immediately use their hands to handle the food. Some respondents did not close the wounds and all respondents did not wash their hands with soap and running water regularly before handling food because there were no vendors who provided special handwashing stations at their outlets. Washing hands before handling food must be done because human hands have a considerable chance of causing food contamination (22). The skin contains glands that can secrete sweat and oil and is a source of bacteria *Clostridium perfringens*, *Staphylococcus aureus*, *Streptococcus*, and *Salmonella*. Therefore, the skin, especially the palms of the hands that are in direct contact with food, must always be clean (23).

There are still respondents smoking while handling food. These merchants wait for customers to arrive while smoking, but when customers come, cigarettes are not turned off. Cigarettes contain zar-substances that can interfere with health. Smoking during food delivery can be a transmission of disease through food because it is feared that cigarette butts will fall on food (25).

Some respondents do routine health checks once every 6 months or once every 3 months. Respondents who did not have a medical examination felt that they did not need to do so because they felt that they were healthy. A food handler is a person who is directly related to food and equipment from the processing stage to serving. Food handlers should not have infectious diseases. Therefore, regular health checks should be carried out by food handlers (26).

Based on the results of observations, there is transportation equipment that is not accompanied by storefronts or special places so that food is simply placed in an open and unprotected state. Food should be served in a closed state that cannot pose a risk of food contamination by contaminants. Therefore, food outlets must have closed display cabinets or special places to place food that can be closed (27). There is a conveyance that is declared unfit for the road, due to flat tires and there are conveyances that look rusty and moldy in some parts near the food. This mold and rust are caused due to damp means of transport and lack of care from traders. Transportation equipment must be roadworthy to avoid adverse things such as accidents and to avoid food falling from the means of transportation. The conveyance must also be clean, and free from rust and mold to avoid contamination of food.

All respondents placed food in clean and even food-grade containers. All respondents stored raw food in large transparent lunch boxes and had a food-grade logo. Raw food and cooked food are not mixed with storage because food is only processed when there are buyers. Raw food, especially meats, and seafood, and the liquids it causes contain germs (pathogenic microbes) that can contaminate other foods during processing and storage (3). The raw food storage area is located above the conveyance, but there is still a storage area located at the bottom of the conveyance. This can cause food to be easily contaminated by rodents.

Based on the results of observations of food processing equipment, some respondents still use rusty food processing equipment. Almost all respondents used food wrappers that did not have a food-grade logo as disposable cutlery such as plastic and wrapping paper as hot food wrappers. Although plastic packaging has a food-grade logo, there is no single type of plastic that is safe for food packaging, so the use of plastic to wrap food should be reduced especially for fatty, oily, and hot foods (28). Plastics used inappropriately can cause health problems because they trigger cancer and damage to body tissues (29).

Respondents washed cutlery at home with safe running water. Meanwhile, respondents who washed equipment on the spot were respondents who used eating containers such as plates. Washing is done by soaking to save the transported water so that the water for washing can be used repeatedly. Cutlery is dried with the same rags for food outlets and hand wipes. Based on research conducted by (Khalidun et al., 2018) the number of germs in the washing process by soaking is higher than washing with running water (30). The soaking process causes impurities from the rinse to settle in water and accumulate. So that it can contaminate other equipment to be washed.

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Respondents used registered, labeled, and non-expired foodstuffs. For food that uses ice cubes, it also comes from reliable sources because most traders produce their ice cubes using refillable gallons of water, or buy ice cubes from trusted refillable gallon water depots. Raw materials including water and ice can be contaminated with germs and harmful chemicals. Toxins can form from damaged and moldy food. The selection of raw materials and treatments such as using raw materials from trusted sources and not using expired raw materials can reduce the risk of contamination in food (3).

The whole soupy food is stored in a heating container. There are still vendors who let perishable food be stored at room temperature for four hours. This seller is a seller whose merchandise has not been purchased within four hours. Fruit rojak sellers also do not use coolboxes to store their merchandise. Fruits are stored only in glass containers at room temperature. Germs can multiply rapidly at room temperature. Keeping temperatures below 50C or above 600C can inhibit or stop the growth of germs/microbes (3).

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One of the most common public health problems in modern times is food contaminated with bacteria, parasitic viruses or harmful chemicals causes more than 200 diseases, ranging from diarrhea to cancer. It also affects malnutrition diseases, especially in infants, young children, the elderly, and the sick (4). Research by (Trigunarso, 2020) mentions the relationship between hygiene and the germ rate of snack foods (17). Research by (Rahmayani et al., 2019) states that the hygiene of handlers, food storage, and food serving are significantly related to *Escherichia coli* contamination in snacks (18). Food hygiene, sanitary hygiene of equipment, conditions of peddlers, and sanitary hygiene of snack foods are related to *E. coli* contamination (19). According to the Regulation of the Minister of Health Number 1096 / Menkes / PER / VI / 2011 concerning the sanitation of jagaboga, the content of *E. coli* germs in food must be 0 / gr (20). *Escherichia coli* is usually found in food contaminated with feces during the food procurement process. These bacteria can cause diarrhea, nausea, vomiting, abdominal pain, and fever. *Y. enterocolitis* is a bacterium that causes similar symptoms due to lack of hygiene and sanitation of food handlers (21).

Food-grade cutlery is one way to reduce the risk of foodborne illness. Plastics used inappropriately can cause health problems because they trigger cancer and damage to body tissues (29). There is no single type of plastic that is safe for food packaging. So the use of plastic to wrap food should be reduced especially for fatty, oily, and hot foods (28). Food-grade cutlery is one way to reduce

the risk of foodborne illness. Plastics used inappropriately can cause health problems because they trigger cancer and damage to body tissues (29). There is no single type of plastic that is safe for food packaging. So the use of plastic to wrap food should be reduced especially for fatty, oily, and hot foods (28). before processing and having a heating container to maintain the temperature of soupy food. One A2 trader does not place fresh food in a cool box. 15 merchants did not close the place of seasoning tightly. Four outlets with perishable cooked food were not consumed or reheated within 4 hours. and does not provide special or temporary bins.

CONCLUSION AND SUGGESTIONS

The conclusions of the results of the study are all vendors of mobile snack food outlets in Manggar City Park can access safe water and latrines/toilets that can be used by traders. All mobile snack food outlets in Manggar City Park do not provide clean water at each outlet. All traveling hawkers in Manggar City Park do not wash their hands with soap and running water regularly before handling food or use hand sanitizer regularly, 12 vendors do not conduct regular health checks. All traders have not received ready-to-eat food safety counseling.

Seven food transportation devices cannot protect food. Two means of transport are not roadworthy. All outlets have a food storage area (food grade), clean and even, and separate cooked and raw food. Eight outlets serve food in open condition. The three means of transport are not vector-free and disease-carrying animals. Two vendors had dirty or rusty cookware/eating utensils. Almost all vendors use non-food-grade plastic to wrap food. Two vendors wash the cutlery/cookware by soaking and not drying it with a clean rag.

All traders use ice cubes from reliable sources. All packaged foods are registered, labeled, and not expired. All group A1 outlets clean food before processing and have heating containers to maintain the temperature of soupy food. One A2 trader does not place fresh food in a cool box. 15 merchants did not close the place of seasoning tightly. Four outlets with perishable cooked food were not consumed or reheated within 4 hours. and does not provide special or temporary bins. More than half (65%) of the mobile snack food outlets in Manggar City Park have a moderate risk of discrepancy. and (35%) have a low risk of discrepancy.

Suggestions from this research it is expected that hawker food outlets in the city park will provide clean water for washing the seller's hands, clean rags, or disposable wet wipes at their respective trade outlets, always wash your hands with soap and running water or use hand sanitizer regularly before handling food, serving food that is not packaged in a display cabinet, use disposable cutlery either natural or artificial that has a food-grade logo, tightly closing the seasoning place 9) Tightly closing the seasoning place. It is hoped that the public can increase their knowledge and awareness about food hygiene and sanitation and can intelligently choose snacks that are safe for consumption.

Food seller coordinator it is hoped that it can cooperate with the health office to provide counseling on the safety of ready-to-eat food to hawker food outlets in Manggar City Park, for the East Belitung Regency Health Office it is expected to be able to carry out guidance and supervision on all snack food vendors in Manggar City Park, such as providing ready-to-eat food safety counseling because it is known that all mobile snack food outlet traders in Manggar City Park have not received ready-to-eat food safety counseling, for the next researcher it is hoped that subsequent researchers will be able to research on the factors that affect the sanitary hygiene of traders.

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THE DETERMINAN INVOLVED BY THE ACCUTE RESPIRATORY INFECTION (ARI) TO THE FABRICATION WORKER IN PT IHI POWER SERVICE INDONESIA

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ABSTRAK

Infeksi Saluran Pernapasan Akut (ISPA) merupakan salah satu Penyakit Akibat Kerja (PAK) yang berdampak pada pekerja dengan menyerang bagian pernapasan bagian atas, akibat adanya pengaruh paparan faktor lingkungan di tempat kerja. Penelitian ini bertujuan untuk mengetahui hubungan faktor lingkungan kerja dengan kejadian ISPA pada pekerja fabrikasi di PT IHI Power Service Indonesia. Penelitian ini menggunakan desain *cross sectional* pada sampel jumlah pekerja. Pengumpulan data dilakukan dengan wawancara terstruktur menggunakan kuesioner. Wawancara dilakukan kepada 54 pekerja fabrikasi. Data dianalisis dengan Analisa bivariat. Hasil penelitian menunjukkan Sebagian besar pekerja mengalami ISPA. Adapun faktor yang berhubungan dengan ISPA yaitu kebiasaan merokok (nilai $p=0,025$), masa kerja ($p=0,017$), usia pekerja ($p=0,017$), penggunaan APD masker ($p=0,018$), paparan debu ($p=0,004$). Oleh karena itu, disarankan untuk penggunaan APD masker saat bekerja, kemudian sosialisasi bahaya rokok pada pekerja yang rentan terhadap penyakit ISPA.

Kata kunci: Fabrikasi, inspeksi saluran pernapasan akut, pekerja pabrik

ABSTRACT

Accute Respiratory Infection (ARI) is one of the disease causes of work which the effect to worker and attack to the top respiratory system, it is due to of environment factor exposure in work place. This observation is use of cross sectional desain to sample of worker. Data collection is do the 57 fabrication worker. The data is analyzed by bivariat analyze. The result of observation are a half of the worker has ARI occurred. The factors of involved to ARI are smoking ($P\ value = 0,025$), working periode ($P\ value = 0,017$), age of worker ($p\ value = 0,017$), Using PPE of mask ($p\ value = 0,018$), dust exposure ($p=0,004$). Therefore, for worker must to do use PPE of mask when working, than give socialization of smoking danger to the worker that is is cause of ARI to the worker.

Keyword: Fabrication, Accute Respiratory Infection, Factory worker

INTRODUCTION

Acute Respiratory Infection (ARI) is an occupational disease that occurs in workers at work due to exposure to dust or other activities that cause problems with the respiratory tract. ISPA is an occupational disease that is most often complained of by workers, especially during their activities in the work environment which have the potential to result from exposure to dust and smoke. ISPA is a disease that attacks one or more parts of the respiratory tract from the nose to the lung sacs (alveoli) (1)(2)(3).

Data from the International Labor Organization (ILO) states that the causes of work-related deaths include cancer at 26%, respiratory tract diseases at 17%, fatal work accidents at 13.7%, and other factors at 5-7% (ILO, 2019). Prevalence of ARI events in Indonesia according to the Indonesian Health

Profile. The ten provinces with the highest incidence of ISPA are Jakarta (46.0%), Banten (45.7%), West Papua (44.3%), East Java (42.9%), Central Java (39.8%), NTB (34.6%), Bali (31.2%), West Java (28.1%) (4).

Factors that influence the incidence of ISPA in workers are smoking habits, exposure to dust, use of Personal Protective Equipment (PPE) masks, age, and length of service for the worker (Fatmawati, 2018). In fabrication work, there are work and work environment factors that influence workers to experience ARI, such as exposure to dust (blasting, work floor, workplace dust), and hot work (grinding, cutting welding, firing, and finishing) (2)(5). Apart from that, individual factors also influence the incidence of ARI in workers, such as lack of knowledge, use of PPE masks, and smoking habits. Several other factors such as age and years of work can also influence the incidence of ISPA in the workplace (Fatmawati, 2018). Several studies show that there is a relationship between factors that influence the incidence of ARI, including individual factors, work factors, and work environment factors in fabrication workers.

This research aims to determine the factors that influence the incidence of ARI in fabrication workers at PT. The variables studied consisted of the dependent variable (smoking habits, use of PPE masks, exposure to dust, length of service, and age of workers) and the independent variable, namely the incidence of ISPA in fabrication workers at PT. The location of this research was carried out at the PT.X fabrication company targeting production workers who were directly involved in the fabrication process. Based on a preliminary study with observations and clinic data from the company PT workers smoking, and dusty transportation access roads in the summer. This has the potential to cause incidents of Acute Respiratory Tract Infections (ARI) at PT X.

METHOD

This research uses quantitative analytical methods with a cross-sectional approach. The population in this study were all fabrication workers in the production section at PT. This sampling technique uses the Simple Random Sampling Technique. Data analysis includes univariate bivariate analysis using the chi-square test, so that the correlation between the independent and dependent variables can be seen with significance $\alpha \leq 0.05$ (there is a relationship) while $\alpha > 0.05$ is not significant (not related). The independent variable is measured using the interview method from the questions listed on the questionnaire. Meanwhile, the dependent variables studied were smoking habits, use of PPE masks, exposure to dust, length of service, and working age.

RESULTS AND DISCUSSION

Based on table 1, shows that the majority of respondents aged ≥ 25 years were 42 workers (77.9%), the majority of workers had secondary education (High School) as many as 47 workers (87%), and had a working period of > 12 months as many as 46 workers (85.2%), the results show that there

are 51 workers (94.5%) who have a smoking habit, 17 workers (31.5%) who do not use PPE masks when working, and 35 workers with exposure to dust >8 hours a day (64.8%).

Table 1. Frequency Distribution of Characteristics of PT Fabrication Workers X

Variables	Frequency	Percentage (%)
Age		
≤ 25 years	12	22.2
25 years	42	77.8
Education		
Elementary School	0	0
Middle school	5	9.3
High school	47	87
University	2	3.7
Years of work		
≤ 12 months	8	14.8
> 12 months	46	85.2
Smoking habit		
Yes	51	94.5
No	3	5.5
Use of PPE masks		
Yes	37	68.5
No	17	31.5
Exposure to dust		
≤ 8 hours	19	35.2
> 8 hours	35	64.8

Based on the results of statistical tests, it shows that p-value is significant 0.025 (<0.05) so that H_0 is rejected, which means there is a relationship between smoking habits and the incidence of ARI in fabrication workers at PT. X. Based on the results of statistical tests, it shows that p-value is significant 0.018 (<0.05) so H_0 is rejected, which means there is a relationship between the use of PPE masks and the incidence of ARI in fabrication workers at PT.X.

Table 2. The Relationship Between Independent Variables and Accute Respiratory Infection (ARI)

Variabel	Accute Respiratory Infection (ARI)				Total		<i>P-Value</i>
	Symptoms (Not Normal)		No Symptoms (Normal)		N	%	
	n	%	n	%			
Smoking habit							
Yes	38	74.5	13	25.5	51	100	0.025
No	2	66.7	1	33.3	3	100	
Exposure to dust							
≤ 8 hours	13	68.4	6	31.6	19	100	0.004
> 8 hours	28	80	7	20	35	100	
Use of PPE masks							
Yes	13	76.4	4	23.6	17	100	0.018
No	24	64.9	13	35.1	37	100	
Years of work							
≤ 12 months	36	78	10	22	46	100	0.017
> 12 months	5	62.5	3	37.5	8	100	

Based on the statistical test results, it shows that p-value is significant 0.004 (<0.05) so H_0 is rejected, which means there is a relationship between exposure to dust in the workplace and the incidence of ARI in fabrication workers at PT. X. Based on the results of statistical tests, it shows that P is significant 0.017 (<0.05) so that H_0 is rejected, which means there is a relationship between work period and the incidence of ISPA in fabrication workers at PT.X.

Based on the research results, it shows that 51 respondents (94.5%) were active smokers and 3 respondents (5.5%) were non-smokers. This shows that there is a tendency for the risk of ARI to occur among workers in fabrication. Based on interview observations, some workers smoke ≥ 12 cigarettes a day. The risk of workers contracting acute respiratory infections due to smoking habits is increasing. In line with research that examines the relationship between smoking habits and the incidence of ARI in workers (Sholikhah, 2015).

The relationship between smoking habits and the incidence of ARI in fabrication workers at PT. X. Based on the bivariate analysis between smoking habit variables and the incidence of ARI in workers, it shows a p-value smaller than 0.05 ($0.025 < 0.05$), which means there is a relationship between smoking habit behavior and the incidence of ARI in fabrication workers at PT. 0.025).

Cigarettes are a type of tobacco product that is burned, smoked, or inhaled. Cigarettes contain substances that are harmful to the body, especially the respiratory tract, for both active and passive smokers. A person who smokes inhales the chemicals contained in cigarettes and stimulates the cell surface of the respiratory tract, resulting in the release of mucus or phlegm. Most of the vibrating hairs in the nose are paralyzed by cigarette smoke so that the mucus in the respiratory tract cannot come out completely, thus becoming a breeding ground for bacteria that cause chronic bronchitis (Rohilla, 2015). This research is in line with Ardianto, 2012, that there is a relationship between smoking habits and the incidence of ISPA in workers with a p-value of 0.000 CI 95% 7.897-301.211 (Sholikhah, 2015).

Based on the research results, 37 respondents (68.5%) showed compliance with the use of mask PPE and 17 respondents (31.5%) did not comply with the use of mask PPE. This shows that some workers are starting to comply and be aware of using PPE masks when working. However, as many as 31.5% of workers who do not care about using PPE masks while working pose a potential risk of contracting ISPA.

The relationship between the use of PPE masks and the incidence of ARI in PT based on research from the results of the chi-square test with a p-value = 0.018 and this value is smaller than $\alpha=0.05$ (p-value = $0.018 < \alpha < 0.05$) with a CI value = (1.156-93.293) it can be interpreted that there is a significant relationship between the use of PPE masks and the risk of ARI in fabrication workers. The Personal Protective Equipment (PPE) used by workers is a mask. Respondents whose activities are exposed to a lot of dust particles require Personal Protective Equipment (PPE) masks to reduce dust that is likely to be inhaled through the nose (6). Respondents who adhere to wearing masks when

working in dusty areas will minimize the risk of exposure to inhaled dust (Budiono, 2016). Workers who do not care about using PPE masks have a large potential for exposure to dust which can result in ISPA incidents in workers (7). One factor is that workers do not use PPE masks because they feel uncomfortable at work (Chusman Rosenberg, 2017). Based on Sarwono's research in 2021, statistical test results showed a $p\text{-value} = 0.025$ for the variable use of PPE masks and the incidence of ISPA in workers, which means there is a relationship between the use of masks and the incidence of ISPA. Occupational diseases ARI can be prevented by using a mask. The use of PPE is based on the Minister of Manpower and Transmigration Regulation No. 08/Men/VII/2010 concerning Personal Protective Equipment (PPE) according to potential dangers and risks (8).

Exposure to dust with ARI events in PT.X fabrication workers based on the research results, shows that the amount of exposure received by respondents while working ≤ 8 hours was 19 respondents (35.2%), and when exposed to dust while working > 8 hours a day 35 respondents (64.8%). Based on the results of statistical tests, shows that the $p\text{-value} = 0.004$ and this value is smaller than $\alpha = 0.05$ ($p\text{-value} = 0.004 < \alpha < 0.05$) with a CI of 1.433-16.160 which shows that there is a significant relationship between dust exposure and incidence of ARI in fabrication workers at PT.X

Exposure to dust in workers at work greatly influences the incidence of ISPA, which results in Occupational Diseases (PAK). Dust in the workplace is included in the physical hazard. Dust levels in the workplace must comply with NAB according to Manpower Regulation No. 05 of 2018 concerning Work Environment Safety and Health (1). The results of Ibnu's research in 2018 showed that there was a relationship between exposure to wood dust and the incidence of ISPA in Jepara furniture workers, where based on statistical tests the $p\text{-value}$ was obtained = 0.0017 with $\alpha = 0.05$ ($p\text{-value} = 0.004 < \alpha < 0.05$). If in a workplace there is exposure to dust that exceeds the NAB (threshold value), it is necessary to carry out controls to reduce dust exposure and prevent occupational diseases (9).

Period of work with the incidence of ISPA in PT.X fabrication workers based on the research results showed that 46 respondents (88%) had a work period of > 12 months or one year, while 8 respondents had a work period of ≤ 12 months or less than one year. This shows that the incidence of ISPA is also related to the level of work experience of workers in the fabrication area.

The results of statistical tests show a $p\text{-value}$ of 0.017 and this value is smaller than $\alpha = 0.05$ ($p\text{-value} = 0.004 < \alpha < 0.05$) with a CI of 0.800-1.000 which shows that there is a relationship between length of service and the incidence of ISPA in workers fabrication at PT

This is in line with research by Vendi, 2019 regarding the relationship between length of service and the incidence of ISPA in furniture workers. Where in this research the resulting $p\text{-value} = 0.000$ with ($p\text{-value} = 0.004 < \alpha < 0.05$).

Work period is the period or length of time a worker works at a workplace (Khumaidah, 2018). The influence on the incidence of ISPA is that the longer a worker works at the workplace, the more

skilled he or she will be at work and the negative influence is that if there is dust in the work area, the greater the exposure to dust inhaled by the worker (10). From this description, related to fabrication activities that have dust levels originating from the work environment, the work process will have a large risk of ISPA in workers who have a long working period. It is necessary to monitor workers' care in using masks and controlling the environment or what is usually called industrial hygiene.

CONCLUSSION AND SUGGESTIONS

Based on the results of both univariate and bivariate research, it is concluded: there is a relationship between smoking habits and the incidence of ARI in fabrication workers with a statistical test value of $p \text{ value} = 0.025 < \alpha < 0.05$ which shows that there is a significant relationship between these two variables. There is a relationship between the use of PPE masks and the incidence of ARI in fabrication workers at PT. There is a relationship between dust exposure and the incidence of ARI in fabrication workers with statistical test results $p \text{ value} = 0.004 < \alpha < 0.05$ which shows that there is a significant relationship between these two variables. There is a relationship between the worker's length of service and the incidence of ISPA with the statistical test results $p \text{ value} = 0.017 < \alpha < 0.05$ which shows there is a significant relationship between the two variables.

Some suggestions for improvements in preventing work-related diseases such as ISPA are conduct outreach regarding the dangers of smoking for people, whether active or passive smokers, so that there is awareness among workers, use the PPE pollic, masks must be worn when working and while in the workplace to reduce exposure to dust while working, do regular medical check-ups to determine the level of dust exposure in the body and consult a doctor for preventive measures against dust exposure, carry out environmental measurements regularly to determine the dust levels in the workplace to reduce the risk of ISPA to workers and carry out the 5R or cleanliness program in the work environment to create a work environment that is clean, comfortable, and free from exposure to dust.

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LITERATURE REVIEW: EFFECTIVENESS OF STEROID IMPLANT AS THERAPY FOR MACULAR EDEMA IN RETINAL VEIN OCCULSION

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ABSTRAK

Implan deksametason intravitreal merupakan implan steroid yang dapat terurai secara alamiah yang merupakan pendekatan farmakoterapi terbaru yang disetujui Food and Drug Administration (FDA) Amerika Serikat sebagai pengobatan okultasi atau penyumbatan vena retina yang disertai edema makula, terapi ini diharapkan dapat mengurangi resiko kehilangan penglihatan dan mempercepat penyembuhan. Penelitian ini menggunakan strategi literature review yang ditelaah dari beberapa sumber seperti PubMed, ScienceDirect, dan Google Scholar dengan pemilihan artikel yang diterbitkan tahun 2015 sampai dengan tahun 2021. Pencarian di database dilakukan dengan menggunakan kata kunci seperti deksametason, implan, intravitreal, efektifitas, Edema Makula, Kortikosteroid, keamanan, visus, oklusi vena retina, retinal vein occlusion, RVO. Hasil analisis berbagai literatur menyimpulkan penderita edema makula pada okultasi vena retina yang diberi terapi steroid intravitreal memberikan efek yang baik, efektif dan aman mengurangi resiko kehilangan penglihatan dan efek samping yang pada sebagian besar kasus dapat dikendalikan secara medis seperti kenaikan tekanan intraocular dan pembentukan katarak. Bagi orang-orang yang beresiko mengalami okultasi vena retina, penting untuk melakukan pencegahan seperti mengontrol tekanan darah dan kolesterol.

Kata Kunci: Implan steroid, edema makuler, oklusi Vena Retinal

ABSTRACT

The incidence of dysmenorrhea in Indonesia has reached 64.5%, based on a survey conducted at one school in Garut Regency, as many as 60-70% of female students experienced primary dysmenorrhea. This study aimed to determine the relationship between the age of menarche, menstrual cycle, family history, physical activity, frequency of fast food consumption, and history of exposure to cigarette smoke with the incidence of primary dysmenorrhea. The method in this research uses cross-sectional with a total sample of 176 samples determined using stratified random sampling by determining probability using probability proportional to size then tested univariately and bivariate using Chi Square with $\alpha = 0.05$. The results of the study showed that factors associated with the incidence of primary dysmenorrhea included age at menarche, family history, frequency of fast food consumption, physical activity, and history of exposure to cigarette smoke. Meanwhile, the menstrual cycle is not related to the incidence of primary dysmenorrhea. Suggestions that researchers can give include students being more careful and aware of themselves to prevent primary dysmenorrhea.

Keywords: Steroid implant, macular edema, retinal vein occlusion

INTRODUCTION

The intravitreal dexamethasone implant is a biodegradable steroid implant which is the newest pharmacotherapy approach approved by the United States Food and Drug Administration (FDA) as a treatment for occultation or retinal vein blockage accompanied by macular edema. This therapy is expected to reduce the risk of vision loss and speed up healing.

The definition of Retinal Vein Blockage or Occlusion (RVO) by (Ilyas, 2010) itself is a condition where there is a blockage in the retinal vein, either in the central part or in the branches, which results in vascularization disorders in the eyeball, so that sufferers will complain of sudden

blindness. Generally, vision or visual acuity can return to function, but the complications of macular edema and glaucoma that occur simultaneously can result in a poor prognosis for the patient (Vaughan et.al, 2010). Macular edema is the main cause of decreased vision in retinal vein occlusion. Immediate initiation of treatment in this condition is associated with better visual outcomes (1).

In the United States, most patients with central retinal vein occlusion are male and older than 65 years. Most cases are unilateral occlusion, and approximately 6-14% of cases are bilateral occlusion. A study in Taiwan in 2008 noted variations in certain seasons. Branch retinal vein occlusion occurs three times more often than central retinal vein occlusion. Men and women are equally matched with the patient's age being between 60 and 70 years (2).

Meanwhile, research with a large population reported that the incidence of patients aged over 40 years who experienced retinal vein occlusion reached 2.14 cases per 1000 people in that population. Meanwhile, in patients over 64 years of age, the incidence reached 5.36 cases per 1000 people (3). In Australia, the prevalence of retinal vein occlusion ranges from 0.7% in patients aged 49-60 years, to 4.6% in patients over 80 years (McIntosh et al, 2010). Local causes of retinal vein occlusion are trauma, glaucoma, and lesions of orbital structures. This local cause remains very rare in branch retinal vein occlusion. It is necessary to suspect the presence of toxoplasmosis, Behçet syndrome, ocular sarcoidosis, and microaneurysm if these are seen in branch retinal vein occlusion (4).

Systemic processes can cause retinal vein occlusion, including hypertension, atherosclerosis, diabetes mellitus, glaucoma, aging, fasting, hypercholesterolemia, hyperhomocysteinemia, SLE, sarcoidosis, tuberculosis, syphilis, protein C resistance (factor V Leiden), protein C deficiency and S, antiphospholipid antibody disease, multiple myeloma, cryoglobulinemia, leukemia, lymphoma, Waldenstrom macroglobulinemia, polycythemia vera, and sickle cell disease (2).

Treatment is aimed at finding the cause of retinal vein occlusion and treating it, administering anticoagulation if the cause is known, photocoagulation of the retinal area experiencing hypoxia, administering corticosteroids if the blockage is caused by phlebitis (aspirin/dipyridamole), administering anti-glaucoma drugs, Radial Optic Neurotomy, Retinal endovascular surgery (REVS) (5).

The intravitreal dexamethasone implant (DEX implant; Ozurdex; Allergan, Inc., Irvine, CA) is a biodegradable steroid implant used in the treatment of retinal vein occlusion accompanied by macular edema. The DEX implant can release dexamethasone 2 slowly into the vitreous over 6 months (6). Although the intravitreal DEX implant has been approved by the United States Food and Drug Administration (FDA) as a treatment for intravitreal macular edema due to retinal vein occlusion, how effective it is compared to its safety needs to be discussed further in this literature review study.

METHOD

This research used a literature review strategy from national and international journals which were reviewed from several sources such as PubMed, ScienceDirect, and Google Scholar with the selection of articles published from 2015 to 2021, a total of 7 articles were reviewed.

A search in the database was carried out using keywords such as “dexamethasone”, “implant”, “intravitreal”, “effectiveness”, “Macular Edema”, “Corticosteroid”, “safety”, “virus”, “retinal vein occlusion”, “retinal vein occlusion”, “RVO”.

At the start of the database search using inclusion criteria, namely journals, and articles that researched and evaluated the effectiveness, advantages, and side effects of Intravitreal Steroid Implant treatment in Macular Edema Therapy for retinal vein blockage or Retinal Vein Occlusion. Then use the exclusion criteria by looking at the publication time in the 2015 - 2021 range.

In the final stage, an assessment is carried out by deleting journals that have the same title and author, incomplete text, and verifying the research results.

RESULTS AND DISCUSSION

Literature Review of the analysis of 7 articles shows that the intravitreal dexamethasone implant administration demonstrates a positive effect in the treatment of macular edema, including a reduction in central retinal thickness and an improvement in corrected visual acuity. Here is the discussion and analysis based on the review of articles.

Table 1. Results of a Literature Review of Effectiveness of Steroid Implant as Therapy for Macular Edema in Retinal Vein Occlusion

No	Author and Year	Title and Aim	Method	Results and Conclusions
1	Lam et.al, 2015 (Kanada) (7)	- Title: Real World assessment of intravitreal dexamethasone implant in patients with macular edema - Objective: To evaluate functional and anatomical improvements in patients with macular edema associated with retinal disease (Diabetes Mellitus, Central Retinal Vein Occlusion)	- Retrospective Cohort Study - Sample: 120 people with macular edema due to various etiologies - Instruments: Snellen Chart, Medical Records, Tonometry, ophthalmoscope	Single-dose intravitreal DEX implants or in combination with pharmacotherapy or other invasive procedures produce functional and anatomical improvements in chronic macular edema associated with retinal disease
2	Bakri SJ et.al, 2016 (8)	Title: Evaluation of multiple	-Retrospective Study - Sample: 31 patients	This study suggests that repeated intravitreal

No	Author and Year	Title and Aim	Method	Results and Conclusions
		dexamethasone intravitreal implants in patients with macular edema associated with retinal vein occlusion Objective: To evaluate patients treated with intravitreal DEX implants in patients with macular edema caused by RVO	- Instruments: Snellen Chart, Medical Records, Tonometry, ophthalmoscope	DEX injections, if necessary, for macular edema associated with RVO are feasible. Patients should be monitored and treated for ocular hypertension and cataract development post-therapy
3	Michalska MK et.al, 2016 (Katowice) (9)	-Title: Evaluation of the effectiveness and safety of glucocorticoids intravitreal implant therapy in macular edema due to retinal vein occlusion -Aim: To evaluate the impact of intravitreal dexamethasone implant administration on macular morphology and visual function of eyes with macular edema secondary to retinal vein occlusion	- Prospective Analysis Study - Sample: 36 patients treated with intravitreal dexamethasone implant injection for persistent macular edema - Instruments: Snellen chart, medical record, tonometry, ophthalmoscope	Intravitreal dexamethasone implant is safe, well tolerated, and likely to lead to rapid morphological and functional improvement of the macula and accelerated visual rehabilitation in patients with macular edema due to retinal vein occlusion
4	Korobelnik JF et.al, 2016 (Louvre) (10)	-Title: Two-year prospective, multicenter study of the use of dexamethasone intravitreal implant for treatment of macular edema secondary to retinal vein occlusion in the clinical setting in France -Aim: to evaluate the usage pattern, effectiveness, and	-Multicenter, longitudinal, observational Prospective Study - Sample: 375 patients - Instruments: Snellen Chart, Tonometry, Medical records, ophthalmoscope	There were changes in visual acuity with changes in BVCA parameters in patients treated with dexamethasone implants

No	Author and Year	Title and Aim	Method	Results and Conclusions
		long-term safety of intravitreal dexamethasone implants in treating macular edema secondary to central retinal vein occlusion		
5	Garweg JG and Zandi S, 2016 (11)	-Title: Retinal vein occlusion and the use of a dexamethasone intravitreal implant in its treatment - Objective: To evaluate clinical experience with Intravitreal dexamethasone implants to establish a clinically based therapeutic regimen	-Prospective Study - Sample: 30 patients - Instruments: Snellen Chart, Medical records, Tonometry, ophthalmoscope	This study concluded that in patients with chronic macular edema unresponsive to repeated anti-VEGF therapy, very satisfactory results were achieved after treatment with an intravitreal dexamethasone implant. However, these results were achieved at the expense of side effects usually associated with steroids, including in as many as 20% of patients treated with Ozurdex®, increased IOP and cataract formation, all of which could be controlled medically in the majority of cases.
6	Eter N et,al, 2017 (Jerman) (12)	Title: Dexamethasone intravitreal implant in retinal vein occlusion: real-life data from prospective multicenter clinical trial Objective: To evaluate the relationship between the duration of macular edema associated with retinal vein occlusion and the achievement of visual benefits in patients receiving intravitreal dexamethasone implants in real-world clinical practice.	-Multicenter prospective observational study - Sample: 573 patients - Instruments: Snellen Chart, Tonometry, Medical records, ophthalmoscope	dexamethasone implant is effective in improving BCVA and reducing central retinal thickness in patients with BRVO and CRVO in real-world clinical practice. The greatest BCVA at 6 months post-therapy occurred in patients with early-onset macular edema, thus confirming the benefits of early treatment. The DEX implant was well tolerated and had an acceptable safety profile for patients

No	Author and Year	Title and Aim	Method	Results and Conclusions
7	Ni Putu Ayu et,al, 2020 (Indonesia) (13)	-Title: Central Retinal Vein Occlusion: A Literature Review -Aim: Detailed discussion of Retinal Vein Occlusion as well as early diagnosis and management	-Literature review - Analysis of 55 journals	anti-VEGF and corticosteroid implants that have been clinically proven to treat CRVO-associated macular edema. Both anti-VEGF injections and intravitreal corticosteroids require repeated injections, but until now the optimal time in which repeat therapy should be carried out has not been found.

A retrospective cohort study on patients with macular edema due to retinal diseases was conducted at an eye clinic in Canada. Best-corrected visual acuity (BCVA), central retinal thickness (CRT), intraocular pressure (IOP), glaucoma and cataract surgeries, and safety data were measured from patients' medical records during a 3-month follow-up period after intravitreal DEX implantation. The study included 120 eyes with macular edema of various etiologies on the retina, including diabetes mellitus (n = 34), retinal vein occlusion (RVO, n = 30; branch in 19 and central in 11), and uveitis (n = 23). The patients had an average age of 60.9 years, and 73.3% of eyes had macular edema for 12 months prior to intravitreal DEX implantation. The mean initial BCVA was 0.63 ± 0.03 logMAR (20/86 on the Snellen chart), and the mean CRT was 474.4 ± 18.2 μ m. The mean number of DEX implant injections was 1.7 ± 0.1 in all eyes; 44.2% of eyes had repeated DEX implant injections (reinjection intervals of 2.3-4.9 months). The largest mean BCVA improvement occurred in eyes with uveitis (3.3 ± 0.6 , $P < 0.0001$), followed by RVO (1.3 ± 0.5 , $P < 0.01$) and DME (0.7 ± 0.5 , $P < 0.05$). Significant CRT reductions were observed: -255.6 ± 43.6 μ m for uveitis, -190.9 ± 23.5 μ m for diabetes, and -160.7 ± 39.6 μ m for RVO ($P < 0.0001$ for all cohorts). A 10 mmHg increase in IOP occurred in 20.6%, 24.1%, and 22.7% of patients with diabetes, RVO, and uveitis, respectively. IOP-lowering medications were administered in 29.4%, 16.7%, and 8.7% of patients with diabetes, RVO, and uveitis, respectively. Glaucoma surgery was performed on 1.7% of all eyes, and cataract surgery on 29.8% of all phakic eyes receiving intravitreal DEX implants. In conclusion, a single-dose intravitreal DEX implant or combination with other pharmacotherapy or invasive procedures resulted in functional and anatomical improvements in chronic macular edema associated with retinal diseases (7).

A retrospective study evaluated patients treated with intravitreal DEX implants for macular edema caused by RVO. Each patient underwent ophthalmologic examinations, optical coherence tomography (OCT), and follow-up at intervals of 4 to 6 weeks. Outcome parameters measured included best-corrected visual acuity (BCVA), intraocular pressure (IOP), central macular thickness on OCT, OCT fluid resolution, and treatments needed for IOP elevation and cataracts. The study's results showed that 31 patients received 82 DEX injections, with 19 patients receiving ≥ 2 injections,

12 patients receiving ≥ 3 injections, 10 patients receiving ≥ 4 injections, 6 patients receiving ≥ 5 injections, and 4 patients receiving ≥ 6 intravitreal DEX injections. All patients were followed up for a minimum of 12 weeks, with an average follow-up duration of 344.94 days. A total of 14 patients (45%) experienced ocular hypertension (≥ 22 mmHg), and 40% of phakic patients required cataract surgery. The average interval for OCT fluid resolution was 52 days (range, 28-245; SD, ± 8), and the average interval for repeat therapy was 119 days (range, 42-309; SD, ± 9). No patients required glaucoma surgery or developed endophthalmitis. The conclusion of this study suggests that repeated intravitreal DEX injections, when necessary, for RVO-associated macular edema can be performed. Patients should be monitored and treated for ocular hypertension and the development of cataracts following therapy (8).

A prospective analysis study was conducted at the Department of Ophthalmology at the University of Ophthalmology and Oncology in Katowice, involving 36 patients (17 females and 19 males) aged 28-77 years (mean age 58 ± 15 years). These patients were treated with intravitreal dexamethasone implant injections for persistent macular edema. The studied group included 16 patients with central retinal vein occlusion (16 eyes) and 20 patients with branch retinal vein occlusion (20 eyes). The objective of this study was to evaluate the impact of intravitreal dexamethasone implant (Ozurdex) administration on macular morphology and visual function in eyes with macular edema (ME) secondary to retinal vein occlusion (RVO).

The effectiveness of therapy was assessed by measuring best-corrected visual acuity (BCVA) and central retinal thickness (CRT). Safety parameters were evaluated based on intraocular pressure side effects and corneal endothelial cell density. The study revealed a significant increase in BCVA after the first, second, and third months of therapy. At 6 months post-therapy, BCVA decreased, although not significantly compared to the values obtained at the third month. Two months after intravitreal dexamethasone implantation, the CRT value was 338 ± 163 μm , which was significantly lower than before therapy. Between the third and sixth months post-therapy, there was a non-significant increase in CRT compared to the thickness observed at the second month. Two months after therapy, there was an increase in intraocular pressure (IOP) in 36% of patients, with further decreases during the last 6 months of follow-up post-therapy. Throughout the treatment, there were no significant differences in corneal endothelial cell density between branch and central retinal vein occlusions. In conclusion, intravitreal dexamethasone implants are safe and well-tolerated, and they provide improvements in visual acuity and macular thickness in patients with macular edema secondary to retinal vein occlusion and tend to lead to rapid improvement in the morphological and functional aspects of the macula and accelerate visual rehabilitation in patients with macular edema due to retinal vein occlusion (9).

A prospective multicenter longitudinal observational study (LOUVRE) conducted over 24 months to evaluate the usage patterns, effectiveness, and long-term safety of intravitreal dexamethasone implant (DEX implant) in treating macular edema secondary to central retinal vein occlusion (BRVO, CRVO) in clinical practice in France. Researchers consecutively enrolled adult patients with macular edema following retinal vein occlusion (RVO) treated with DEX implants at the outset. Re-treatment with DEX implants and other RVO treatments was administered according to the physician's discretion. The measured parameters included changes in best-corrected visual acuity (BCVA) from the beginning of therapy to 6 months post-therapy. Other measured parameters included changes in BCVA, intraocular pressure (IOP), side effects, and RVO treatments administered up to 24 months. The analysis results showed that a total of 375 patients (53.9% BRVO, 46.1% CRVO) received an average of 2.6 DEX implant injections over 2 years, with a mean injection interval of 6.6 months. The average BCVA change from baseline was 5.1 (19.0) letters at 6 months ($p < 0.001$) and 4.6 (22.3) letters at 24 months ($p < 0.001$) post-therapy. During the study, 208 patients (55.5%) received treatments other than DEX implants for RVO, typically laser therapy or ranibizumab therapy, with the first use of other therapies occurring on average at 8.7 months. The average change in BCVA at 6 months of therapy was 5.5 letters ($p < 0.001$, $N = 254$) in patients receiving only DEX implants and 4.2 letters ($p = 0.006$, $N = 121$) in patients who received additional RVO treatment during the first 6 months. At 24 months, the average change in BCVA from baseline was +20.7 letters in patients treated with DEX implants alone ($p < 0.001$) (10).

An analysis of published studies on the clinical experience with intravitreal dexamethasone implant (Ozurdex®) was conducted with the aim of establishing a clinically based therapeutic regimen. This analysis included studies involving a minimum of 15 patients with a prospective design or a minimum of 30 patients with a retrospective design, with a follow-up period of at least 6 months, and at least 2 intravitreal Ozurdex® injections in each eye. The study's results indicated that in the majority of eyes, satisfactory outcomes were achieved with injection intervals between 3 and 5 months. Initial evidence suggests similar effectiveness compared to anti-VEGF therapy as a first-line treatment. Safety issues related to the long-term and repeated use of Ozurdex® were not found in clinical application: its implantation was not associated with a sustained increase in intraocular pressure (IOP) over time or with the number of injections administered. The study concluded that in patients with chronic macular edema unresponsive to repeated anti-VEGF therapy, treatment with intravitreal dexamethasone implant can yield highly satisfactory results. However, these results were obtained with the occurrence of side effects typically associated with steroids, including a 20% incidence of increased IOP and cataract formation in patients treated with Ozurdex®, all of which can be medically managed in most cases (11).

A prospective observational multicenter study conducted over 6 months at 70 locations in Germany included patients diagnosed with macular edema due to branch or central retinal vein occlusion (BRVO, CRVO) who received DEX implants. The study aimed to evaluate the relationship between the duration of macular edema associated with retinal vein occlusion (RVO) and achieving visual gains in patients receiving intravitreal dexamethasone implant (DEX implant) in real-world clinical practice. It also aimed to determine the patterns of DEX implant use, its effectiveness, and safety in treating retinal vein occlusion patients in clinical practice. Follow-up and evaluations were conducted in accordance with standard clinical practices. Repeated DEX implant administrations and the use of other RVO therapies were at the discretion of the treating physicians. The primary endpoint was the mean change in best-corrected visual acuity (BCVA) from baseline at week 12. The analysis population consisted of 573 patients (64% BRVO, 36% CRVO). Patients received an average of 1.17 DEX implant treatments during the study period; 84.3% received a single DEX implant, and 19.9% received additional RVO management. Among patients with BCVA analyzed at baseline and at week 12 post-therapy (n = 351), the mean change from baseline BCVA at week 12 was -0.16 ETDRS letters (p < 0.001), and 33.9% of patients gained at least 3 lines of BCVA from baseline. The mean changes from baseline BCVA at week 12 were +9.5, +7.3, and +5.4 ETDRS letters in patients with macular edema durations of <90 days, 90-180 days, and >180 days, respectively. Improvement in BCVA up to week 24 and a decrease in central retinal thickness were observed in BRVO and CRVO patients. The most common adverse event was increased intraocular pressure, with no incisional glaucoma surgeries performed. The study's conclusion is that dexamethasone implants are effective in improving BCVA and reducing central retinal thickness in patients with BRVO and CRVO in real-world clinical practice. The greatest BCVA improvement over 6 months post-therapy occurred in patients with early-onset macular edema, confirming the benefits of early management. DEX implants are well-tolerated and have an acceptable safety profile for patients (12).

Based on a literature review of 55 journals, the management of CRVO has seen rapid advancements with the introduction of various new modalities, including anti-VEGF and corticosteroid implants, which have clinically proven efficacy in treating macular edema associated with CRVO. Both intravitreal anti-VEGF and corticosteroid injections require repeated administrations, but as of now, there is no optimal time interval established for when re-treatment should be performed. Further research is still needed, particularly to determine the optimal treatment intervals, thereby minimizing the burden, cost, and injection-related risks (13).

CONCLUSION AND SUGGESTIONS

Analysis of various medical literature from 7 articles shows that intravitreal steroid implant therapy (dexamethasone) is effective and has a favorable long-term safety profile in reducing the risk of blindness, accelerating healing, and improving visual acuity in eyes experiencing macular edema

due to RVO as assessed based on a decrease in retinal thickness. central and improved corrected visual acuity.

This therapy is well tolerated and tends to accelerate macular morphological and functional improvement as well as visual rehabilitation. This therapy also provides satisfactory results in patients who are unresponsive to repeated anti-VEGF therapy. Common side effects of therapy include increased IOP and cataract formation, all of which can be controlled medically in the majority of cases. It is recommended to prevent risk factors for blockage and immediately see a doctor if your vision suddenly becomes blurry without pain or red eyes. For people who are at risk of experiencing retinal vein occlusion, it is important to take precautions such as controlling blood pressure and cholesterol.

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KNOWLEDGE AND SUPPORT OF PARENTS TOWARD ADOLESCENT BLOOD TABLET CONSUMPTION COMPLIANCE IN ADOLESCENT WOMEN IN PASAR MINGGU DISTRICT

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ABSTRAK

Anemia tidak hanya mempengaruhi status kesehatan saat ini tetapi juga bisa mengakibatkan komplikasi yang muncul di kemudian hari. Penelitian ini bertujuan untuk mengetahui hubungan tingkat pengetahuan remaja putri serta dukungan orang tua terhadap kepatuhan konsumsi TTD. Penelitian ini menggunakan desain *cross-sectional* dengan pengambilan sampel menggunakan *simple random sampling* dengan Jumlah sampel sebanyak 170 responden. Pengumpulan data dilakukan melalui kuesioner, observasi lapangan, studi dokumen. Analisis data dilakukan secara bivariat dengan uji *chi square*. Hasil analisa bivariat dengan uji *chi square* pengetahuan dengan nilai $p = 0,017$ ($p < 0,05$) yang artinya terdapat hubungan bermakna antara derajat pengetahuan dan kepatuhan minum TTD. Berdasarkan dukungan orang tua, hasil didapatkan nilai $p = 0,011$ ($p < 0,05$) yang artinya terdapat hubungan yang bermakna antara dukungan Orangtua dengan kepatuhan minum TTD rutin. Kepatuhan konsumsi TTD dipengaruhi oleh pengetahuan dan dukungan orang tua. Pada masa yang akan datang perlu dilakukan penyuluhan bagi remaja putri yang pengetahuannya kurang dengan memperbaharui materi edukasi dan mencari media edukasi yang efektif dalam upaya meningkatkan pengetahuan. Disamping itu dukungan orang tua di rumah untuk melakukan pemantauan berkala pada kepatuhan remaja putri dalam meminum TTD terutama saat sedang libur.

Kata Kunci: Anemia, tablet tambah darah, remaja putri

ABSTRACT

Iron does not only affect current health status but can also lead to complications that arise in the future. This study aims to determine the relationship between the level of knowledge of young women and their parents' support for compliance with iron supplement consumption. This study used a cross-sectional design. Sampling using simple random sampling with a total sample of 170 respondents. Data collection was carried out through questionnaires, field observations, and document studies. The results of the bivariate analysis with the chi-square test of knowledge with a value of $p = 0.017$ ($p < 0.05$) which means that there is a significant relationship between the degree of knowledge and high blood pressure compliance. Based on parental support, the results obtained were $p = 0.011$ ($p < 0.05$), which means that there was a significant relationship between parental support and adherence to taking iron tablets routinely. Compliance with iron supplement consumption is influenced by parental knowledge and support. In the future, it is necessary to conduct counseling for young women who lack knowledge by updating educational materials and looking for effective educational media to increase knowledge. Besides that, parental support at home to carry out periodic monitoring of young women's compliance in taking iron tablets, especially during holidays.

Keywords: Anemia, iron tablets consumption, female adolescents

INTRODUCTION

Iron deficiency anemia is a common problem among adolescent girls and women, with significant health consequences for them (1). Anemia is a global public health problem that affects both developing and developed countries. Problems associated with iron deficiency anemia include reduced

academic potential, decreased welfare and productivity at home or in the community, and increased maternal and infant morbidity and mortality for women of childbearing age who become pregnant. The World Health Organization recommends weekly iron and folic acid supplementation (WIFAS) to reduce anemia in adolescents aged 10–19 years and women of reproductive age in areas where anemia is a public health problem, affecting >20% of women aged 15–49 years (2).

The national prevalence of anemia in women aged 15-24 years in Indonesia is 32%; another survey showed a prevalence of 30% in adolescent girls. Among adolescents, anemia affects not only current health status but can also result in complications that arise later in life. Based on 2018 data, as many as 13% of prospective brides (teenagers) in DKI Jakarta experience malnutrition. Another study states that the prevalence of anemia in teenagers reaches 25%, with 25% of them having thalassemia minor which has never been detected before. These two aspects are the key to a quality pregnancy (3)(4).

Rapid growth processes, blood loss during menstruation, and often inadequate iron intake place adolescent girls at risk of iron deficiency. Iron deficiency anemia (IDA), especially when severe, is associated with an increased risk of preterm birth, low birth weight, and maternal and child mortality, and can increase the risk of infectious and other diseases. Another related issue is the stunting case in Indonesia, where the handling of stunting is focused on women before giving birth by giving blood supplement tablets (TTD) to young women.

This activity has started by promoting Nutritional Action in Schools with 3 intervention packages, namely providing weekly TTD for young women, physical activity, and consuming balanced nutritious food (5). The target for anemia screening activities includes 100 percent of adolescent girls in 12 priority provinces for editing and 80 percent of adolescent girls in 24 other provinces. This program is included in the Ministry of Health's efforts to achieve the target of reducing stunting cases by holding "GEMAZ", Anemia-Free Golden Generation, and Zero New Stunting.

The various problems above, with the community diagnosis method which includes the stages of situation analysis, problem identification, and problem prioritization as well as selecting alternative problem solving (problem-solving cycle) will identify and completely resolve community health problems. This study began by analyzing secondary data obtained from the annual program achievement report at the Pasar Minggu Community Health Center as well as the Anemia screening report at one of the junior and senior high schools in the Pasar Minggu sub-district, where data was obtained in the form of the achievement of the Fe Rematri tablet distribution program at the Pasar Minggu Sub-district Health Center which reached a number 73.8%. Meanwhile, there is no definite data on the value of Anemia screening in Pasar Minggu District, where Anemia Screening in Pasar Minggu District is carried out only when women of childbearing age or teenagers come for health checks or CATen needs.

Anemia screening was carried out with Hb examination at SMK 37 and SMP 212 in Pasar Minggu, and other secondary data was obtained from this screening, where the number of teenagers experiencing anemia reached 38.7%. From these data, it can be seen that both from the achievements and results of anemia screening in adolescents, there are still adolescents who experience anemia and it is also necessary to investigate after distribution whether the TTD distributed can be ensured to be consumed by these adolescent girls to achieve the target of being free of cases of anemia.

METHOD

This research uses a *cross-sectional* design which aims to determine the factors related to the incidence of anemia in young women in Pasar Minggu District, South Jakarta. Sampling used *simple random sampling* with a total sample of 170 respondents. Data collection was carried out through questionnaires, field observation, and documents studies. Data analyss was carried out bivariate with the *chi-square* test.

RESULTS AND DISCUSSION

Based on data on the target achievement of the Pasar Minggu sub-district health center, it was found that data on the distribution of fe Rematri tablets reached an average value of 73.80%. This figure has met the specified achievement targets with achievement targets per sub-district that have also met the achievement targets. The results of the Hb examination, the results showed that the incidence of anemia reached 38.7% of the total female students examined at the school. These results are even higher than the national prevalence of anemia, where it is said that 3 out of 10 or 30 of the adolescent population in Indonesia suffer from anemia.

Table 1. Data on The Achievements of The Fe Rematri Tablet Distribution Program (Per TW) in The Pasar Minggu Sub-district

No.	Sub-district	Goals (%)	Target	Achievement	Scope (%)
1.	Cilandak Timur	54%	2004	1357	67.70
2.	Ragunan		1780	1219	68.50
3.	Kebagusan		519	404	77.80
4.	Pasar Minggu		1832	1047	57.20
5.	Jati Padang		2551	2136	83.70
6.	Pejaten Barat I		1622	1163	71.70
7.	Pejaten Barat II		379	379	100.00
8.	Pejaten Barat III		275	230	83.60
9.	Pejaten Timur		1458	1231	84.40
	Sub-district Pasar Minggu		12420	9166	73.80

The results of the Hb examination, the results showed that the incidence of anemia reached 57.1% of the total female students examined at the school. These results are even higher than the national prevalence of anemia, where it is said that 3 out of 10 or 30 of the adolescent population in Indonesia suffer from anemia.

Table 2. Hb Examination Results

Number	Nutritional Status	Amount	Percentage
1.	SMKN 37 Jakarta		
	Normal	136	61.30
	Anemia	86	38.70
	Total	222	100.00
2.	SMPN 212 Jakarta		
	Normal	36	57.10
	Anemia	26	41.90
	Total	62	100.00

The result from field observation is lack of knowledge regarding the impact of anemia and the importance of consuming TTD, both from young women themselves, teachers, and parents. There has not been a comprehensive examination of Hb levels so young women, teachers, and parents do not know the health condition of young women. Lack of promotion and educational media regarding anemia and the importance of routine TTD supplementation.

Based on table 3, from a total of 170 respondents, it was found that 124 respondents with a low level of knowledge did not routinely drink TTD, 26 respondents with a good level of knowledge did not routinely drink TTD and 12 people had a low level of knowledge but did not routinely drink TTD. and 8 respondents with good knowledge but regularly drank TTD. Based on table 3, from a total of 170 respondents, the results of the paired test showed a value of $p = 0.017$ ($p < 0.05$), which means there is a significant relationship between the level of knowledge and adherence to drinking TTD.

Table 3. Relationship between Knowledge and Parents Support with adherence to drinking TTD

Number	Variable	Adherence drinking TTD		P-value
		Routine	Non-Routine	
1.	Knowledge			
	Less	12	124	0.017
	Good	8	26	
2.	Support of Parents			
	Has no support	10	115	0.011
	Have support	10	35	

Based on the table 3, from a total of 170 respondents, it was found that 115 respondents did not receive teacher/parent support and did not regularly drink TTD, 35 respondents who received teacher/parent support and did not regularly drink TTD, and respondents who did not receive teacher support. /Parents who regularly drink TTD are 10 people, respondents who receive support from teachers/parents and regularly drink TTD are 10 people. Based on the table above from a total of 170 respondents, the results of the paired test showed a value of $p = 0.011$ ($p < 0.05$), which means there is a significant relationship between teacher/parental support and compliance with regular TTD drinking.

Table 4. Relationship between Adherence Drinking TTD, Diet Patterns and Body Image with Hb Levels

Number	Variable	Hb Levels		P-value
		Anemia	No Anemia	
1.	Adherence			
	Routine	73	11	0.75
	Non-routine	9	77	
2.	Diet patterns and Body Image			
	Yes	50	60	0.32
	No	32	28	
3.	Economic Status			
	Less	22	31	0.23
	Enough	60	57	

Based on the table above, from a total of 170 respondents, it was found that 50 respondents chose a diet pattern and body image and experienced anemia 32 respondents who did not choose a diet pattern and body image experienced anemia, and respondents who chose a diet pattern and body image and 60 people did not experience anemia and 28 respondents who did not choose a diet and body image pattern and did not experience anemia. Based on the table above from a total of 170 respondents, the results of the paired test obtained a value of $p = 0.32$ ($p > 0.05$), which means that there is no significant relationship between diet patterns and body image with Hb levels. Teacher/Parent Support and adherence to drinking TTD routine.

Based on the table above, from a total of 170 respondents, it was found that 22 respondents with low economic status experienced anemia, 60 respondents with sufficient economic status experienced anemia and 31 respondents with low economic status did not experience anemia, Respondents with poor economic status experienced anemia as many as 31 people. economically sufficient who are not anemic as many as 57 people. Based on the table above, from a total of 170 respondents, the results of the paired test showed a value of $p = 0.23$ ($p > 0.05$), which means there is no significant relationship between economic status and Hb levels.

This research was carried out in several stages. Firstly, analyzing secondary data from the Pasar Minggu District Health Center in the form of a Report on the Achievements of the Pasar Minggu District Health Center Program in 2022 and data on Rheumatoid Anemia screening in the Pasar Minggu District Health Center area in 2023, then in the second stage an interview was conducted with the head of UKM Implementation at the Pasar Minggu District Health Center, the person in charge nutrition program at the Pasar Minggu District Health Center, the person in charge of the UKS program at the Pasar Minggu District Health Center and several teachers and young female students along with carrying out permits to carry out counseling and Hb checking activities at SMP 212 and SMKN 37 Pasar Minggu, South Jakarta. Then provide education about anemia and check Hb using an Hb-meter and continue by distributing questionnaires about knowledge of anemia and compliance with consuming blood supplement tablets to young women at SMP 212 and SMKN 37 Pasar Minggu, South Jakarta.

This study analyzes the relationship between several factors such as knowledge of anemia with compliance with taking blood supplement tablets, knowledge of anemia with Hb levels, and factors that influence compliance with taking blood supplement tablets including the characteristics of respondents consisting of age, number of siblings, and parents' occupation. and risk factors for anemia according to young women at SMP 212 and SMKN 37 Pasar Minggu, South Jakarta.

There were 170 respondents in this study who had an Hb test, all of whom had never had an Hb test before. From the research results obtained on the relationship between knowledge and adherence to drinking TTD, it was obtained from a total of 170 respondents, it was found that 124 respondents with a low level of knowledge did not routinely drink TTD, respondents with a good degree of knowledge did not routinely drink TTD as many as 26 people and the level of knowledge of respondents 12 people were lacking but regularly drank TTD and 8 people who had good knowledge but regularly drank TTD. The results of the paired test obtained a value of $p = 0.017$ ($p < 0.05$), which means there is a relationship between the level of knowledge and adherence to drinking TTD.

This is in line with Riana's research in 2018 which stated that there was a significant relationship $p\text{-value} = 0.017$ between young women's knowledge about blood supplement tablets and compliance with taking blood supplement tablets. Adolescent girls who have less knowledge are more likely to suffer from anemia than girls with sufficient knowledge. This is because young women who have sufficient knowledge are more regular in taking blood supplement tablets than young women who have less knowledge. Knowledge about consuming blood supplement tablets greatly influences attitudes and behavior in consuming blood supplement tablets from an early age. Knowledge about the importance of consuming blood supplement tablets brings young women to think and try to avoid iron deficiency anemia in young women. The better the knowledge of young women, the better the level of compliance in consuming blood supplement tablets (4).

Knowledge influences health behavior due to the predisposing factors of the perpetrator. Good knowledge of the benefits and uses of blood supplement tablets will increase the behavior of young women in consuming blood supplement tablets. Knowledge is the result of "knowing" and occurs after a person perceives a particular object through the five human senses, namely sight, hearing, smell, taste, and touch. When sensing produces knowledge, it is influenced by the intensity of the perception's attention to the object. Most human knowledge is obtained through the eyes and ears. Knowledge is related to the formation of a person's behavior because knowledge is a very important domain in shaping behavior. Behavior that is based on knowledge will be more lasting than behavior that is not based on knowledge. Behavior itself is a set of actions or actions of a person in response to something and then becomes a habit because of the values believed and obtained from knowledge (6).

The result from this research is not in line with research by Rahayuningtyas et al. (2021), the results of the Chi-Square test show that there is no relationship between knowledge and compliance

with the consumption of blood supplement tablets in young women ($p\text{-value } 0.850 > 0.05$), which shows that there is no relationship between knowledge and the practice of consuming tablets. add the blood of young women. According to L. Green's theory, one of the factors that drive a person's behavior is knowledge. However, good knowledge does not always lead to changes in behavior. Knowledge is indeed important, but this factor is not enough to make someone behave healthily (7).

According to the 2018 Basic Health Research (Riskesdas), it was found that only 1.4% of young women regularly consume TTD every week (8). This reflects that the compliance of young women in consuming TTD is still not good. In line with the results of research conducted by Agustina (2019), it was found that 47.7% of respondents' knowledge about TTD was in the good category, the rest in the sufficient category. Knowledge is the basis of a person's willingness to act. Even though the respondents' knowledge is in the good and sufficient category, compliance in consuming TTD is still low. The research results showed that almost half (47.1%) of young women did not comply with taking TTD. Adolescent non-compliance is one of the difficulties in preventing and treating anemia. Adolescents are said to be compliant if they can consume one tablet of TTD every week, and one tablet every day during menstruation (9).

Consumption is a form of behavior that is closely influenced by knowledge, but before people behave there is an adoption process that underlies a person's behavior. One of the behavior adoption processes is trial, at this stage, people have tried new behaviors by their knowledge, awareness, and attitude towards the stimulus. If at this trial stage, someone knows but has no awareness of acting, it means that the process of adopting the behavior was not successful. Behavior (Fe tablet consumption) is not only influenced by internal factors which include knowledge, but is influenced by external factors including the environment and other internal factors, namely intelligence, perception, emotions, and motivation which function to process external stimuli. So it can be explained that in the good or sufficient knowledge category, there are female students who do not consume Fe tablets, this could be due to low motivation and awareness so their ability to process external stimuli is also low. Apart from being influenced by behavioral and knowledge factors, the consumption of Fe tablets in adolescents is also influenced by a lack of interest in consuming Fe tablets as a blood-boosting supplement. This is because individuals feel they are not sick and do not need supplementation, the side effects that usually arise from Fe tablet preparations, and the lack of acceptance of the taste and color of Fe tablets. The large number of fortified foods that contain a lot of iron is also one of the triggers for low consumption of Fe tablets in teenagers (10).

Based on a total of 170 respondents, it was found that 73 respondents who did not regularly drink TTD experienced anemia, 9 respondents who regularly drank TTD experienced anemia 77 respondents who did not regularly drink TTD but did not experience anemia, and 77 respondents who regularly drank TTD but did not experience anemia. 88 people did not experience anemia. The results

of the paired test showed a $p\text{-value} = 0.75$ ($p > 0.05$), which means there is no relationship between adherence to drinking routine TTD and Hb levels.

CONCLUSION AND SUGGESTIONS

The results of the research can be concluded that the coverage of anemia cases found in adolescent girls was 88 people (51.7%), the level of knowledge among adolescent girls regarding anemia was mostly found to be poor knowledge, 133 people (80.5%) and good knowledge, 37 people. (19.4%), several factors that influence TTD consumption among young women including lack of parental support (73.5%). The knowledge of parents and young women regarding TTD still needs to be improved, and support and motivation from parents and teachers play an important role in increasing the compliance of young women in consuming TTD.

This research suggests that parents at home can provide support and carry out regular monitoring of adolescent girls' compliance in taking TTD, especially when they are on holiday. Teachers at school can carry out routine activities of drinking TTD together, supervise, and ensure that young women drink on one of the designated days each week so that young women can control drink TTD that has been distributed from the Community Health Center. The Community Health Center can carry out comprehensive checks for all young women in the working area of Pasar Minggu District to see the total prevalence of anemia. Organizing educational programs for parents regarding the need and benefits of consuming TTD for the health of adolescent girls through seminars, workshops, or community activities involving medical personnel. Update educational materials and provide the most effective educational media for parents and young women to increase knowledge and involve promotions on social media as the means most frequently seen by young women. Increase and involve young women in discussions about the benefits, goals, and consequences of TTD consumption for future health.

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RELATIONSHIP BETWEEN HUSBAND'S KNOWLEDGE AND SUPPORT WITH FE TABLET CONSUMPTION COMPLIANCE IN PREGNANT WOMEN IN THE WORKING AREA OF CIRENDEU HEALTH CENTER IN 2022

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ABSTRAK

Menurut data Kementerian Kesehatan RI, prevalensi anemia atau kurang darah pada ibu hamil di Indonesia pada tahun 2019 masih tergolong tinggi yaitu 48,9%. Anemia pada ibu hamil dapat meningkatkan risiko terjadinya kelahiran prematur, perdarahan antepartum, dan perdarahan nifas yang menyebabkan kematian pada ibu dan anak serta penyakit menular. Penelitian ini bertujuan untuk mengetahui hubungan pengetahuan dan dukungan suami dengan kepatuhan konsumsi tablet Fe pada ibu hamil di Wilayah Kerja Puskesmas Cirende. Penelitian ini menggunakan metode analitik kuantitatif dengan desain studi cross-sectional dan teknik purposive sampling. Jumlah responden sebanyak 46 orang ibu hamil di Wilayah Kerja Puskesmas Cirende. Ibu hamil yang mempunyai pengetahuan baik sebanyak 25 orang (54,3%). Terdapat 28 (60,9%) ibu hamil yang mendapat dukungan dari suaminya. Terdapat 26 (56,5%) ibu hamil yang patuh konsumsi tablet Fe. Variabel yang berhubungan dengan Kepatuhan Tablet Fe pada ibu hamil di Wilayah Kerja Puskesmas Cirende adalah Dukungan Suami (P Value 0,025 OR = 5,000). Saran bagi pihak puskesmas yaitu memantau secara rutin kepatuhan ibu hamil dalam mengkonsumsi tablet Fe dan memberikan edukasi kepada suami serta melibatkan edukasi kepada suami dan ibu hamil mengenai pentingnya tablet Fe pada masa kehamilan agar terhindar dari anemia defisiensi besi pada ibu hamil.

Kata Kunci: Kepatuhan, pengetahuan, dukungan suami, tablet Fe

ABSTRACT

According to data from the Indonesian Ministry of Health, the prevalence of anemia or lack of blood in pregnant women in Indonesia in 2019 is still relatively high, namely 48.9%. Anemia in pregnant women can increase the risk of premature birth, antepartum bleeding, and postpartum bleeding which causes death in mother and child and infectious diseases. This study aims to determine the relationship between the husband's knowledge and support with adherence to the consumption of Fe tablets in pregnant women in the Working Area of the Cirende Health Center. This study used quantitative analytic methods with a cross-sectional study design and a purposive sampling technique. The number of respondents was 46 pregnant women in the Working Area of the Cirende Health Center. Pregnant women who have good knowledge are 25 (54.3%). There were 28 (60.9%) pregnant women who received support from their husbands. There were 26 (56.5%) pregnant women who adhered to the consumption of Fe tablets. The variable associated with Fe Tablet Adherence in pregnant women in the Cirende Health Center Work Area was the Husband's Support (P Value 0.025 OR = 5,000). Suggestions for the health center namely monitor routinely the compliance of pregnant women in consuming Fe tablets and provide education to husbands as well as involving the education of husbands and pregnant women regarding the importance of Fe tablets during pregnancy to avoid iron deficiency anemia in pregnant women.

Keywords: Compliance, knowledge, husband's support, Fe tablets

INTRODUCTION

Anemia in pregnancy is common in both developing and developed countries. Data from the World Health Organization (WHO) estimates that the prevalence of anemia in pregnant women

worldwide is 41.8%, and maternal mortality in developing countries related to anemia in pregnancy caused by iron deficiency and acute bleeding is 40% (1) According to data from the Indonesian Ministry of Health, the prevalence of anemia or lack of blood in pregnant women in Indonesia in 2019 is still relatively high, namely 48.9% (2)

The 2013 Basic Health Research (Riskesdas) said that 37.1% of pregnant women were anemic with hemoglobin levels $<11\text{g/dL}$. The prevalence in urban areas is 36.4% while in rural areas it is 37.8% (3) Based on the 2018 Riskesdas, it shows that 48.9% of pregnant women experience anemia. As much as 84.6% of anemia occurs in pregnant women in the age group of 15-24 years (4) This certainly needs special attention because the prevalence of anemia in pregnant women in Indonesia is always increasing.

Pregnant women are very susceptible to anemia because of the increased need for iron and nutrients during pregnancy. Anemia in pregnant women can increase the risk of premature birth, antepartum bleeding, and postpartum hemorrhage which causes death in mother and child and infectious diseases. (5) The impact of anemia on pregnant women is shortness of breath, hypertension, fatigue, sleep disturbances, and increases the risk of bleeding before and during delivery, causing maternal death (6) Based on the Banten Province health profile, in 2021 the number of maternal deaths in childbirth is 74 cases (7)

To overcome the problem of anemia in pregnant women, the Banten Provincial Health Office has a supplementation program for blood-added tablets. The coverage of pregnant women who received 90 Fe tablets in Banten Province in 2019 was 101.5%, but in 2020 the achievement of pregnant women who received Fe tablets decreased to 88.93%. The coverage of pregnant women who received iron tablets as many as 90 tablets, especially in the city of South Tangerang in 2020 was 83.34%, meaning that there were still 16.66% of pregnant women in the city of South Tangerang who had not received Fe tablets (7,8).

Research conducted in (2021) shows that there is a relationship between knowledge and adherence of pregnant women in consuming blood supplement tablets as evidenced by a P-value of 0.019 (9). The research conducted in (2021) showed that there was a significant relationship between the level of knowledge and the mother's compliance in taking blood supplement tablets as evidenced by a P-value of 0.000 (10).

Research conducted by Alvy Nur Hidayati, Sukismato, and Yanan Luthfiyati on the Relationship of Husbands to the Compliance of Pregnant Women Consuming Fe Tablets at the Prambanan Health Center, Sleman Regency, DI Yogyakarta. The results showed that husband support for pregnant women was in the unsupportive category at 54.8% and there was a significant relationship between husband support and adherence of pregnant women to consuming Fe tablets as evidenced by a P-value of 0.019 (11).

Adherence to consuming blood-supplement tablets is the compliance of pregnant women in carrying out recommendations from health workers to consume blood-supplement tablets as measured by the accuracy of the number and method of blood-added tablets consumed (12).

Based on a preliminary study conducted in the working area of the Cireundeu Health Center Posyandu Dahlia III on January 3, 2022. After interviewing 3 pregnant women, it was found that only 1 out of 3 pregnant women regularly took Fe tablets every day but did not know when to take the tablets. The right Fe, then did not know how to take Fe tablets properly, 3 pregnant women stated that they only knew the benefits of Fe tablets to increase blood and did not know the further benefits of taking Fe tablets related to the fetus and could prevent bleeding, and 3 mothers. The pregnant woman stated that her husband had never reminded her to take Fe tablets, and her husband did not give her extra spending money during pregnancy, and she had never even taken them for pregnancy control.

Based on the existing problems, the authors are interested in researching "The Relationship of Husband's Knowledge and Support with Compliance with Fe Tablet Consumption in Pregnant Women in the working area of the Cirendeu Health Center in 2022".

METHOD

This research is a quantitative study with a cross-sectional study design with a purposive sampling technique. This research was conducted on pregnant women in the working area of the Cirendeu Health Center in November-December 2022. The sample in this study was 46 pregnant women in the working area of the Cirendeu Health Center. The independent variable in this study was adherence to consumption of Fe tablets while the dependent variable in this study is husband support and knowledge. Data analysis techniques in this study were carried out in stages including univariate analysis to calculate the frequency distribution, and bivariate analysis to see if there was a relationship between the dependent variable and the independent variable using Chi-Square. Data analysis in this study used software assistance. This research has been declared passed ethical review with No. 10.033.B/KEPK-FKMUMJ/I/2023 by the Health Research Ethics Committee, Faculty of Public Health, University of Muhammadiyah Jakarta.

RESULTS AND DISCUSSION

Based on Table 1 it can be seen the results of the frequency distribution of the characteristics of the respondents, namely, respondents aged 20-35 years were 37 (80.4%), while respondents aged <20 & > 35 years were 9 (19.6%) respondents, education was mostly in 19 (41.3%) respondents graduated from SMA/MA equivalent, and at least 2 (4.3%) graduated from SD/MI equivalent, 9 (19.6%) worked while 37 (80.4%) did not work) respondents, as many as 26 (56.%).

Table 1. Frequency Distribution of Respondent Characteristics Based on Age, Education, Mother's Occupation

Characteristics	Amount	Percentage (%)
Age		
20-35	37	80.4
<20 & >35	9	19.6
Mother's Education		
Graduated from SD / MI equivalent	2	4.3
Graduated from Middle School / MTS	7	15.2
Equivalent	19	41.3
Graduated from SMA/MA equivalent	18	39.1
Graduated PT		
Mother's job		
Doesn't work	37	80.4
Work	9	19.6

Based on Table 2, it can be seen that 26 (56.5%) pregnant women adhered to taking Fe tablets from a total of 46 (100%) respondents, while 20 (43.5%) pregnant women did not adhere to taking Fe tablets. As many as 25 (54.3%) respondents had good knowledge, while 21 (45.7%) respondents had poor knowledge. As many as 28 (60.9%) of respondents received their husband's support, while 18 (39.1%) did not receive their husband's support.

Table 2. Frequency Distribution of Husband's Compliance, Knowledge, and Support Variables

Variable	Amount	Percentage (%)
Obedience		
Obey	26	56.5
Not obey	20	43.5
Knowledge		
Well	25	54.3
Not enough	21	45.7
Husband Support		
Support	28	60.9
Does not support	18	39.1

Based on Table 3, it can be seen from the results of the analysis of the relationship between knowledge and adherence to the consumption of Fe tablets, it is known that in the good knowledge category, 16 (64%) respondents adhered to Fe tablet consumption, and in the poor knowledge category, 10 (47.6%) respondents adhered to Fe tablet consumption. With a P-value of 0.413, it can be concluded that there is no significant relationship between knowledge and adherence to the consumption of Fe tablets. The results of the analysis of the relationship between husband's support and adherence to the consumption of Fe tablets show that the category of husband support supports adherence to consumption of Fe tablets as many as 20 (71.4%) of respondents and in the category of support husbands do not support adherence to consumption of Fe tablets as much as 6 (33.3%) respondent. With a P-value of 0.025, it can be concluded that there is a relationship between the husband's support and adherence to the consumption of Fe tablets.

Table 3. Analysis of the Relationship between Dependent and Independent Variables

Variable	Compliance with Consumption of Fe Tablets				Total		OR (95% CI)	P Value
	Obey		Not obey					
	n	%	n	%	N	%		
Knowledge								
Well	16	64.0%	9	36.0%	25	100%	1.956	0.413
Not good	10	47.6%	11	52.4%	21	100%	(0.599-6.358)	
Husband Support								
Support	20	71.4%	8	28.6%	28	100%	5.000	0.025
Does not support	6	33.3%	12	66.7%	18	100%	(1.393-17.943)	

Based on the results of this study obtained based on the results of the Morisky Medication Adherence Scale (MMAS-8) questionnaire, it is known that 26 (56.5%) of respondents who adhere to consuming Fe tablets, while those who do not adhere to consume 20 (43.5%) of respondents who This means that most pregnant women are obedient in consuming Fe tablets. This is in line with research conducted by (Hamzah SR, 2022) who found that most pregnant women were obedient in consuming Fe tablets (13).

Adherence to consuming Fe tablets is something that needs to be considered by pregnant women who follow the recommendations of health workers and take iron supplements during pregnancy are said to be compliant in taking iron supplements (14). The accuracy of how to take iron tablets, the frequency of consumption per day The accuracy of the number of tablets taken, the correct way to take Fe tablets, and the frequency of daily use are used to measure adherence to Fe tablet consumption (15).

Pregnant women will not experience anemia if the mother consumes enough Fe tablets because it increases the blood reserves in her body to help process the amount of hemoglobin in her blood (16). The program to prevent anemia in pregnant women recommends consuming blood supplement tablets (TTD) of at least 90 tablets during pregnancy (17).

The causes of pregnant women not taking Fe tablets as recommended by health workers are because they often forget, are tired of drinking because of the large number of Fe tablets, and are lazy because of the side effects that can make them nauseous or dizzy causing the mother to disobey taking Fe tablets regardless of the important benefits they get. mother and fetus (18).

Compliance is an effort to manifest attitudes into real behavior and requires supportive conditions. (Efendi & Makhfudi in (Rahmawati and Nurhajjah, 2018) (19) Increasing the compliance of pregnant women needs to be known in advance the factors related to the compliance of pregnant women in consuming Fe tablets, including the husband's knowledge and support which are independent variables in this study.

Based on the results of this study, it was found that respondents who had good knowledge adhered to the consumption of Fe tablets, namely 16 (64%) compared to those with poor knowledge,

namely 10 (47.6%). The results of the chi-square statistical test with the continuity correction test obtained a value of $P = 0.413$, so it can be concluded that there is no significant relationship between knowledge and compliance with Fe tablet consumption. From the analysis results, the value of $OR = 1.956$ (95% CI = 0.599-6.358) is obtained, meaning that good knowledge has a 1.956 greater chance of complying with the consumption of Fe tablets compared to poor knowledge.

This is in line with research conducted by Andiani and Surasno in 2021 (20) states that there is no significant relationship between knowledge and adherence to consumption of Fe tablets with a value of $P = 0.927$, the hypothesis H_a is rejected, meaning that there is no significant relationship between knowledge and adherence to consumption of Fe tablets. Research by Mulyani et al. in 2022 (21) also said that there was no significant relationship between knowledge and adherence to the consumption of Fe tablets expressed by $P = 0.117$.

This is not in line with other studies conducted by Mardhiah and Marlina in 2019 (22) state that there is a significant relationship between knowledge and adherence to the consumption of Fe tablets with $P = 0.036$. Research according to Siregar et al. in 2019 (23) also said that there was a significant relationship between knowledge and adherence to consumption of Fe tablets with a value of $P = 0.003$.

Knowledge is a key component that shapes a person's actions significantly. Knowing leads to knowledge, and knowing occurs as soon as one perceives a particular object. The human senses, including sight, hearing, smell, taste, and touch, are used for sensing. Most of what we know about the world comes from our eyes and ears (24). Knowledge is related to compliance because compliance is an important domain for the formation of behavior (13).

Pregnant women are less aware of the importance of Fe tablets for themselves because they play a role in preventing impaired fetal growth and development in the womb. Pregnant women do not know the impact of iron deficiency and side effects from consuming Fe tablets and taking Fe tablets should be taken together with vitamin C. Accurate information and counseling provided by health workers is very important because more and more people know about pregnant women who are pregnant. Taking Fe tablets the better (25).

Lack of knowledge causes many pregnant women to be unaware that they are deficient in iron. Because many pregnant women stop taking Fe tablets because of the side effects they cause. Therefore, mothers need to be given accurate information and appropriate counseling to increase their knowledge and adherence to Fe tablets (26).

Increasing awareness and knowledge about Fe tablets can be the first step in preventing iron deficiency anemia in pregnant women and preventing babies with low birth weight (LBW) and other impacts that will be caused if there is iron deficiency (27).

Good knowledge can help form habits that help pregnant women meet their need for iron-rich foods. Due to having a thorough awareness of iron deficiency anemia and the steps that must be taken

to prevent it, mothers who know Fe tablets for pregnant women will be less likely to get iron deficiency anemia (16).

Based on the results of this study, it was found that 20 respondents (71.4%) adhered to taking Fe tablets with their husband's support, compared to 6 (33.3%) who did not get support from their husbands. The results of the statistical test of the chi-square test with the continuity correction test obtained a value of $P = 0.025$, so it can be concluded that there is a significant relationship between husband's support and adherence to consumption of Fe tablets. From the results of the analysis, the value of $OR = 5.000$ (95% $CI = 1.393-17.943$), means that respondents who get their husband's support have a 5.000 greater chance of complying with taking Fe tablets than respondents who do not get their husband's support.

This is in line with other research conducted by Hidayati et al. in 2019 (11) states that there is a significant relationship between the husband's support and adherence to consumption of Fe tablets with a value of $P = 0.019$. Then the hypothesis is accepted, meaning that there is a significant relationship between the husband's support and adherence to consumption of Fe tablets. Research by Martina and Susanti in 2019 (28) also said that there was a significant relationship between the husband's support and adherence to the consumption of Fe tablets expressed by $P = 0.000$.

Compliance with consuming Fe tablets in pregnant women serves to prevent the occurrence of iron deficiency anemia in pregnant women, especially in pregnant women in the second trimester and third trimesters because at this time the need for iron in the body increases. This requires the support of the husband as the closest person to pregnant women to increase adherence to consuming Fe tablets. The lack of support provided by the husband will affect the health of pregnant women, one of which is consuming Fe tablets. Because the husband plays an important role in making a decision and his actions in the life of his partner (29).

Support from husbands can motivate pregnant women to continue consuming Fe tablets. To reduce non-adherence to the consumption of Fe tablets, the husband's support can provide encouragement and enthusiasm for pregnant women to adhere to the consumption of Fe tablets (11, 30).

Support from the family, especially the husband, can make pregnant women more enthusiastic despite the changes that occur during pregnancy, such as increasing pregnancy visits and taking iron supplements to maintain a healthy pregnancy. The husband's role is very important in helping pregnant women understand the value of iron (Fe) supplements and their benefits for the mother and fetus, and the husband must be able to provide or explain this information to his wife (30).

Pregnant women who have greater partner (husband) support will be happier, more optimistic, and feel more valued as future mothers. So that pregnant women always maintain the health of both their health and the health of the fetus by consistently taking Fe tablets, eating healthy food, and routinely checking for pregnancies to medical personnel (31).

Husband's support provides benefits and a significant impact on pregnant women's compliance with consuming Fe tablets. The extent of the husband's influence is usually evident in the decisions made about the health of the expectant mother, particularly in terms of finances, transportation, partner communication, emotional support, and the amount of time given to the mother-to-be for such maternity care services. such as pregnancy checks, nutrition, and health care. Thanks to the husband's support, expectant mothers will feel valued and can increase their intake of iron and avoid iron deficiency anemia (32). Therefore, the husband's support is very important to increase pregnant women's compliance in consuming Fe tablets.

CONCLUSION AND SUGGESTIONS

In a study conducted on 46 respondents, it can be concluded that the variable associated with adherence to consumption of Fe tablets in pregnant women in the Working Area of the Cirendeu Health Center is husband's support $P = 0.025$ OR value = 5.000. The variable that is not related to adherence to the consumption of Fe tablets in pregnant women in the Working Area of the Cirendeu Health Center is Knowledge $P = 0.413$ OR value = 1.956.

With this research, the advice that researchers can give to health centers is to routinely monitor the adherence of pregnant women in consuming Fe tablets and to develop effective intervention programs in increasing compliance with Fe tablet consumption in pregnant women by involving the husband's role, such as providing education, social support, as well as messages of effective communication.

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DETERMINANTS OF VISIT TO POSYANDU WOMEN IN CEMPAKA PUTIH VILLAGE, 2022

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ABSTRAK

Cakupan penimbangan balita di Indonesia mengalami penurunan dari 80,8% pada tahun 2014 menjadi 73,0% pada tahun 2015 (Kementerian Kesehatan RI, 2015). Indikator target persentase kabupaten/kota yang melaksanakan pembinaan posyandu aktif pada tahun 2020 adalah sebesar 51%, namun hasil yang diperoleh data per 23 Januari 2021 hanya sebesar 6%. Jika dibandingkan dengan target tahun 2020, persentase kabupaten/kota yang melaksanakan pelatihan Posyandu aktif sebesar 11,76%. Hal ini menggambarkan masih terdapat selisih sebesar 88,24% dari target indikator yang belum terpenuhi pada tahun 2021. Jumlah kabupaten kota yang memenuhi kriteria indikator sebanyak 32 kabupaten kota. Penelitian ini menggunakan pendekatan kuantitatif dengan desain penelitian cross sectional, dimana seluruh variabel baik dependen maupun independen akan diteliti dalam satu waktu dan secara bersamaan untuk melihat ada tidaknya hubungan antara variabel dependen dengan variabel independen dari faktor-faktor yang berhubungan. terhadap perilaku kunjungan ibu balita ke posyandu di RW 04 Kelurahan Cempaka Putih Kota Tangsel. Hasil yang diperoleh dari penelitian ini adalah terdapat hubungan 4 variabel dengan perilaku kunjungan ibu ke posyandu dari 8 variabel yang diteliti. Variabel pendidikan dengan p-value 0,007 menyatakan tidak ada hubungan, namun mempunyai nilai OR sebesar 8,360 (1,971-35,461) yang menyatakan terdapat hubungan secara substansi. Variabel pengetahuan mempunyai hubungan dengan nilai p value sebesar 0,000. Variabel dukungan keluarga juga mempunyai hubungan dengan nilai p value sebesar 0,000 dan yang terakhir adalah variabel dukungan terhadap petugas kesehatan yang menyatakan terdapat hubungan dengan perilaku ibu mengunjungi posyandu dengan nilai p value sebesar 0,002.

Kata Kunci: Kunjungan, posyandu, ibu balita

ABSTRACT

Coverage of under-five weighing in Indonesia has decreased from 80.8% in 2014 to 73.0% in 2015 (Ministry of Health RI, 2015). The target indicator for the percentage of districts/cities implementing active posyandu coaching in 2020 is 51%, but the results obtained by data as of January 23, 2021, are only 6%. When compared to the 2020 target, the percentage of districts/cities implementing active Posyandu training is 11.76%. This illustrates that there is still a difference of 88.24% from the indicator target that has not been met in 2021. The number of urban districts that have met the indicator criteria is 32 urban districts. This study uses a quantitative approach with a cross-sectional research design, in which all variables, both dependent and independent, will be examined at one time and simultaneously to see whether there is a relationship between the dependent variable and the independent variables from factors related to the behavior of visiting mothers under five to the posyandu in RW 04 Cempaka Putih Village, South Tangerang City. The results obtained from this study were that there were 4 variable relationships with maternal behavioral visits to posyandu from the 8 variables studied. The education variable with a p-value of 0.007 states that there is no relationship, but has an OR value of 8.360 (1.971-35.461) which states that there is a relationship in substance. The knowledge variable has a relationship with a p value of 0.000. The family support variable also has a relationship with a p value of 0.000 and the last is the variable support for health workers which states that there is a relationship with the behavior of mothers visiting the posyandu with a p value of 0.002.

Keywords: Visit, posyandu, mother under five

INTRODUCTION

Posyandu is a form of Community-Based Health Efforts (UKBM) that is managed and organized from, by, for, and with the community in implementing health development, to empower the community and provide convenience to the community in obtaining basic health services, primarily to accelerate the reduction of mortality rates. mothers and babies and also monitor the growth and development of children Posyandu visits as an important part of the detection of toddlers by looking at nutritional status. Nutritional status is of particular concern because it has an influence on the process of growth development and intelligence at the age of five. Good nutritional status will support children's development, but vice versa if the nutritional status of toddlers is bad, they will be susceptible to disease. Posyandu is carried out and driven by posyandu cadres. Posyandu is held once a month at a predetermined and agreed time. Posyandu implementation is usually carried out in a place that is easily accessible by the community. The place for this implementation can be carried out at the residents' homes, the yard of the village hall/RT/RW, or a hall provided by the local community. (1)

Posyandu's effectiveness is closely related to the participation of mothers under five. Participation can be in the form of participation in the form of energy, thoughts, or the form of material support. Posyandu activities are said to increase if the active role of mothers under five or higher community participation is realized. in the scope of health programs such as immunization, monitoring the growth and development of toddlers, examinations for pregnant women, and increased family planning. The mother's activeness in every Posyandu activity will certainly affect the nutritional status of her toddler. One of the goals of Posyandu is to monitor the improvement of the nutritional status of the community, especially children under five and pregnant women. To achieve this, mothers who have children under five should be active in posyandu activities so that the nutritional status of their children is monitored properly and the goals of the posyandu can be achieved. After the child turns 1 year old, the number of visits to posyandu will usually decrease. Especially for mothers who feel that their vaccines are complete, they will be reluctant to bring their children to the posyandu. Whereas Posyandu is not only related to vaccination. At the posyandu, children's weight, height, and head circumference are measured to detect early on if unwanted things happen such as malnutrition. Unfortunately, the mindset that is developing is that Posyandu is only for weighing and giving vaccines to children. Until the child is 5 years old, the mother must regularly take him to Posyandu. Because if not, it is feared that the child's growth and development and fulfillment of nutrition cannot be monitored properly.

There are many benefits of posyandu that mothers are not aware of. By regularly coming to the posyandu, the growth and development of children during their golden years (0-5 years) will be monitored properly. Not only are they weighed and their height measured, but children will be given nutritious food intake that is good for growth. Mothers can also consult directly with health cadres and/or health workers there so that various child health problems can be properly resolved immediately. More than that, mothers can also share their experiences with other mothers while at the posyandu. This

will certainly have a very positive impact on the growth and development of children. Since the early 2000s, the government has revitalized Posyandu, by reinforcing the Posyandu program to reduce the number of malnutrition in Indonesia. (Why is it called posyandu revitalization, Because posyandu has been around since 1984, but then some are in a 'dead' condition, so they need to be revitalized). This should receive positive support from the community. Therefore, mothers should raise awareness and realize how important it is to regularly bring their toddlers to the posyandu. (2)

Coverage of under-five weighing in Indonesia has decreased from 80.8% in 2014 to 73.0% in 2015 (Ministry of Health RI, 2015). The target indicator for the percentage of districts/cities implementing active posyandu coaching in 2020 is 51%, but the results obtained by data as of January 23, 2021, are only 6%. When compared to the 2020 target, the percentage of districts/cities implementing active Posyandu training is 11.76%. This illustrates that there is still a difference of 88.24% from the indicator target that has not been met in 2021. The number of urban districts that have met the indicator criteria is 32 urban districts. (3)

Many factors influence the activity of visiting mothers in examining malnourished toddlers to health services. According to previous research conducted by Riski (2011), Suharti (2012), and Nurena (2012) regarding factors related to visits of mothers under five to health services, it was stated that the visiting behavior of mothers under five was influenced by many 5 factors including level of education, knowledge, attitudes, work, mileage, family support, and health worker practices. (4)

Based on the above phenomenon regarding the declining coverage of data on visits to posyandu, the author is interested in researching with the title "Factors Associated with Visits of Mothers Under Fives at Posyandu RW 04 Cempaka Putih Village, South Tangerang City in 2022".

METHOD

This study uses a quantitative approach with a cross-sectional research design, in which all variables, both dependent and independent, will be examined at one time and simultaneously to see whether there is a relationship between the dependent variable and the independent variables from factors related to the behavior of visiting mothers under five to the posyandu in RW 04 Cempaka Putih Village, South Tangerang City. This research was conducted at the Posyandu in the working area of the East Ciputat Health Center, which focused on RW 04, Cempaka Putih Village, and was carried out in October-January 2022.

Sampling was carried out using a total sampling technique, namely When the posyandu activities were carried out at the Teratai Posyandu and the Kenanga Posyandu, the researchers conducted interviews with respondents according to the inclusion criteria. The population in this study were mothers who had toddlers who were registered at the posyandu in the working area of the East Ciputat Health Center, focusing on RW 04, Cempaka Putih Village, South Tangerang City. The total population in this study was 117 toddlers who were registered at the posyandu in the working area of the East

Ciputat Health Center, especially in RW 04, Cempaka Putih Village. There are 84 toddlers registered at the Teratai Posyandu and 33 toddlers registered at the Kenanga Posyandu.

This research has gone through ethical due diligence by the Ethics Commission of the Faculty of Public Health, University of Muhammadiyah Jakarta, and is accompanied by an ethical eligibility letter No.10. 690.B. /KEPK-FKMUMJ/XII/2022 research is carried out by adhering to universal ethical principles.

RESULTS AND DISCUSSION

Based on Table 1, the results show that the frequency of mothers with toddlers who have good behavior in visiting posyandu ≥ 4 times for 6 months in 2022 is 60%. Then for the age of the mother, it was found that the frequency of the age of the mother under five aged ≥ 29 years was 52.5%. Next, for the education variable, it was found that the educational status of the respondents was quite high (university and high school), namely 60%.

For the work variable, it was found that the majority of respondents did not work with a percentage of 67.5%. Next the knowledge variable, knowledge is categorized into two categories, namely insufficient knowledge if $<$ the mean and sufficient knowledge if $\geq$. Based on Table 5.7 above, it was found that the knowledge of respondents in the sufficient category was more than 70%.

The variable number of children showed that the majority of respondents only had 1-2 children with a percentage of 80%. For variables, the results show that the majority of respondents have a fairly close distance to access the posyandu, namely <1 km with a percentage of 90%. Then for the family support variable, there is support from the family given by respondents with a percentage of 62.5%. Finally, the variable support for health workers shows that there is support for health workers given to respondents with a percentage of 60%.

Table 1. Distribution of Frequency of Visits by Mothers Under Five, Age, Education, Occupation, Knowledge, Number of children, Distance, Family Support, and Health Worker Support

Variable	Frequency	Percentage (%)
Visiting Behavior		
Good	24	60
Not Enough	16	40
Mother's Age		
≥ 29 years	21	52.5
< 29 years	19	47.5
Education		
Height	24	60
Low	16	40
Work		
Doesn't work	27	67.5
Work	13	32.5
Knowledge		
Enough	28	70
Not enough	12	30
Number of Children		

Variable	Frequency	Percentage (%)
1-2	32	80
>2	8	20
Child Age		
<24 months	22	55
≥24 months	18	45
Distance		
<1 km	36	90
1-5 km	0	0
>5 km	4	10
Family Support		
There is	25	62.5
There isn't any	15	37.5
Health Worker Support		
There is	24	60
There isn't any	16	40

Based on the results from Table 2, it was found that the proportion of respondents aged <21 years who had good visiting behavior did not exist and for less visiting behavior there was 1 respondent with a percentage of 100%. Then for respondents aged ≥ 21 years, as many as 24 respondents had good visiting behavior with a percentage of 61.5% and it was greater than respondents who had less visiting behavior with a percentage of 38.5%. However, the difference in this proportion is not significant because the p-value obtained is 0.400.

For the education variable, respondents with higher educational status had better visiting behavior (79.2%), which was greater than respondents with lower educational status (31.3%). The difference in this proportion is not significant because it has a value of $p = 0.007$.

For occupational variables, respondents who did not work tended to have better visiting behavior (66.7%) than respondents who worked (46.2%). Then respondents who do not work have low visiting behavior (33.3%) and respondents who work have low visiting behavior (53.8%). The difference in this proportion is not significant because it has a value of $p = 0.370$.

For the knowledge variable, respondents who had sufficient knowledge (82.1%) tended to have good visiting behavior and it was higher than less visiting behavior (8.3%). This difference in proportion is significant because it has a value of $p = 0.000$.

The variable number of children, the proportion of respondents who have 1-2 children who have good visiting behavior (62.5%) is greater than mothers with >2 children who have good visiting behavior (50%). The difference in this proportion is not significant because it has a value of $p = 0.690$.

Variable age of children under five, mothers of toddlers who have toddlers aged <24 months (13 respondents) tend to have good behavior compared to mothers with toddlers aged ≥ 24 months (11 respondents) because usually toddlers who are aged <24 months will get basic health services such as complete immunization. The difference in this proportion is not significant because it has a value of $p = 0.578$.

Next for the distance variable, the proportion of respondents who had a distance of <1 km to the posyandu and had good visiting behavior (55.6%) was more compared to respondents who had a distance of <1 km but had poor visiting behavior (44.4%). The difference in this proportion is not significant because the value of $p = 0.136$.

Then for the family support variable, it was found that respondents who received family support and had good visiting behavior (88.0%) were greater than respondents who did not get family support but had good visiting behavior (13.3%). this difference in proportion has a meaning where the value of $p = 0.000$.

The last variable, namely support from health workers, showed that respondents who received support from health workers and had good behavior (88.9%) were higher than respondents who did not get support from health workers and had good visits (36.4%). This difference in proportion has meaning because it has a value of $p = 0.002$.

Table 2. Relationship between visits by Mothers Under Five with Age, Education, Occupation, Knowledge, Number of Children, Distance, Family Support, and Support from Health Workers

Variable	Visit				OR (CI 95%)	P Value
	Good		Not Enough			
	n	%	n	%		
Mother's Age						
≥ 29 years	12	57.1	9	42.9	0.778 (0.218-2.773)	0.948
< 29 years	12	63.2	7	36.8		
Education						
Height	19	79.2	5	20.8	8.360 (1.971-35.461)	0.007
Low	5	31.3	11	68.8		
Work						
Doesn't work	18	66.7	9	33.3	2.333 (0.603-9.023)	0.370
Work	6	46.4	7	53.8		
Knowledge						
Enough	23	82.1	5	17.9	50.600 (5.259-486.880)	0.000
Not enough	1	8.3	11	91.7		
Number of Children						
1-2	20	62.5	12	37.5	1.667 (0.350-7.930)	0.690
>2	4	50	4	50		
Toddler Age						
<24 months	13	59.1	9	40.9	0.919 (0.257-0.283)	0.578
≥24 months	11	61.1	7	18		
Distance						
<1 km	20	55.6	16	44.4	(0.415-0.744)	0.136
1-5 km	0	0.0	0	0.0		
>5 km	4	100	0	0.0		
Family Support						
There is	22	88.0	3	12.0	47.667 (7.016-323.857)	0.000
There isn't any	2	13.3	13	86.7		
Health Worker Support						
There is	16	88.9	2	11.1	14.000 (2.539-77.208)	0.002
There isn't any	8	36.4	14	63.3		

Based on Table 1 above, it was found that the frequency of mothers with children under five who had good behavior visiting the posyandu ≥ 4 times for 6 months in 2022 was 60%. In a study conducted by Ayu Idaningsih (2016), the results showed that 66.5% of mothers of toddlers regularly came to posyandu. Then based on the Ministry of Health regulations regarding posyandu, mothers must bring their children under five to visit the posyandu regularly for once a month in a row (Ministry of Health). Routine visits will have a good impact on the growth and development of children in the future. Conversely, visits that are low and irregular will also hurt children under five. Toddlers who are not regularly brought to the posyandu will not monitor their growth and development properly. Problems that may occur will not be detected properly. Services at the posyandu are not only about measuring weight and height, there are also immunization services, distribution of PMT, distribution of vitamin A, and health education provided by the health workers there. If children under five do not regularly come to the posyandu, they will miss several benefits, such as immunization services to prevent disease and build immunity, then the distribution of vitamin A which is only given twice a year, namely in February and August, which has many benefits, especially for eye health. The distribution of PMT is also important to meet the nutritional needs of children under five so that they are well-sufficient as well as health education that can change new behaviors for mothers and their families to improve their health status. (5)

The results of this study obtained the results of the chi-square statistical test with the result $p = 0.400$ which means there is no relationship between the age of the mother and the behavior of visiting the posyandu. With a 95% CI value of 0.259-0.572. Visits to posyandu are one of the efforts to suppress nutritional problems, especially stunting in children under five, and also as a reservoir of basic services that can be utilized by the community, especially mothers. Mother's age is a factor that has something to do with parenting patterns, where the mother's age can usually be used to estimate the mother's experience and knowledge. In this study, it was found that out of 40 respondents, 39 were mothers who were >21 years old and only 1 were mothers who were <21 years old. This indicates that the majority of mothers are of a mature age and are ready to have children according to the recommendations of the BKKBN.

This research is in line with research conducted by Ayu (2016) which found that there was no relationship between the mother's age and the behavior of visiting mothers under five to posyandu with a p-value of 0.014 which stated that there was no relationship between the mother's age and visit behavior to posyandu in the region. the work of the Munjul Public Health Center, Majalalengka with a p-value of 0.014. (6)

The results of this study obtained the results of the chi-square statistical test with the result $p = 0.007$ which means there is no relationship between the educational status of the mother and the behavior of visiting mothers under five to posyandu. However, with an OR = 8.360 and a 95% CI value of 1.971-35.461, educational status is said to have a relationship with the visiting behavior of mothers

under five in substance. means that respondents with higher educational status have 8.360 times greater odds of good visiting behavior than respondents with low education. The educational status of the respondents here is quite good because as many as 60% of mothers have a high level of education consisting of tertiary and high school categories so they have good awareness and willingness to bring their toddlers to visit the posyandu.

This research is in line with research conducted by Yetty et al. (2019) which found that there was a relationship between the educational status of mothers and the behavior of visiting mothers under five to Posyandu Cermai 3 Rajabasa Batanghari village with a p-value of 0.005. (7) . Yetty's research (2019) is also in line with Rina's research (2018) which obtained the results of the chi-square test with a p-value of 0.000, which means there is a relationship between education and visiting behavior of mothers under five in the working area of the Salido Health Center. (8)

The results of this study obtained the results of the chi-square test with the result $p = 0.370$ which means there is no relationship between the mother's occupation and the behavior of visiting the posyandu. With OR value: 2.333 and 95% CI: 0.603-9.023. This indicates that respondents who do not work have a 2.333 times greater chance of having good visiting behavior than mothers who do not work. Work is an activity that aims to earn income. Even though several respondents worked in RW 04, there were also quite a few who did not relinquish their responsibilities as mothers to take their children to visit the posyandu. Some mothers spend time in the middle of work to take their children to the posyandu and some mothers who rely on caregivers to help bring their children to the posyandu if work matters cannot be left behind.

This research is in line with research conducted by Muhlisin (2018) which found that there was no relationship between mother's work and visiting behavior of toddler mothers at the Posyandu, Beji Village, Depok City with a p-value of 0.784. (9) Muhlisin's research is also in line with research conducted by Yetty (2019) which found that there was no relationship between the educational status of the mother and the visiting behavior of mothers under five to Posyandu Cermai 3 Rajabasa Batanghari village with a p-value of 0.048.

The results of this study obtained the results of the chi-square test with the result $p = 0.000$, which means there is a relationship between mother's knowledge and visiting behavior at posyandu. With OR values: 50,600 and 95% CI: 5,259-486,880. this indicates that respondents who are knowledgeable enough have a 50,600 times greater chance of good visiting behavior than mothers who have less knowledge. Knowledge can be obtained from anywhere such as information obtained from social media, information from closest relatives, reading books, and others.

This research is in line with research conducted by Alfrida (2019) which found that there was a relationship between mother's knowledge and behavior at posyandu visits in the North Jakarta area with a p-value of 0.001. (10) Alfrida's research (2019) is also in line with research conducted by Arum

(2019) which found that there was a relationship between mother's knowledge and visiting behavior of toddler mothers at Posyandu Nusa Indah V, Sambau Village with a p-value of 0.000. (11)

The results of the study obtained the results of the chi-square test with a p-value = 0.690 which means there is no relationship between the number of children and the behavior of mothers visiting the posyandu. With OR value: 1.167 and 95% CI: 0.350-7.930. This indicates that mothers who have 1-2 children have the opportunity to have good visiting behavior than mothers who have >2 children. Respondents here mostly have 1-2 children so their time is not too divided between their children's activities and can make time to visit the posyandu for their toddlers. This research is in line with research conducted by Arum et al. (2019) which found that there was no relationship between the number of children and the visiting behavior of mothers under five at Posyandu Nusa Indah V, Sambau Village with a p-value of 0.590. (12)

The results of this study were based on the results of bivariate tests on the child's age variable. It was found that the proportion of children aged <24 months who had good visiting behavior was 59.1% greater than those aged ≥ 24 months who had less visiting behavior, 18%. The difference in this proportion is not significant because the results of *Fisher's exact test* have a value of $p = 0.578$. This research is in line with research conducted by Hesti (2012) which found that there was no relationship between the age of the child and the behavior of visiting mothers under five to posyandu at the Kemiri Health Center in Depok City with a p-value = 0.487 (Suryaningsih, 2012).

The results of this study obtained the results of the chi-square test with a p-value = 0.136, which means there is no relationship between distance and visiting behavior of mothers under five to posyandu. With a significance level of 95 % CI: 0.415-0.744. The distance from the respondent's house to the posyandu is very close and easy to reach. The majority of respondents only walk to get to the posyandu. The location of this posyandu itself is in the middle and strategic to visit because it is in the hall of the mosque which all people know and can look after. For respondents who have a distance of > 5 km, the respondent goes to the Posyandu by riding a motorbike and is accompanied by his family to be able to come to visit the Posyandu.

This research is in line with research conducted by Vina et al. (2022) which found that there was no relationship between distance and visiting behavior of mothers under five to Posyandu Camar, Sialingan Village, Muara Enim Regency with a p-value of 0.039. (13) This research was strengthened by research conducted by Achmad (2017) who found that there was no relationship between distance and the behavior of visiting mothers under five to posyandu in the working area of the Way Panji health center, Lampung Regency with a p-value of 0.051. (14)

The results of this study obtained the results of the chi-square test with a value of $p = 0.000$, which means there is a relationship between family support and visiting behavior of mothers under five to posyandu. With OR value: 47.667 and 95% CI: 7.016-323.857. This indicates that respondents who received support from their families had a 47.667 chance of having good visit behavior compared to

respondents who did not receive support from their families. Most of the family support provided by the respondents here was provided by their mothers or parents-in-law, by reminding them and even taking them to the posyandu. This research is in line with research in a literature review conducted by Endra in Wahyuni (2021) which found that there was a relationship between family support and the behavior of mothers visiting the posyandu in Tanjung Pauh Village, Payakumbuh City with a p-value of 0.001. (15)

The results of this study obtained the results of the chi-square test with a value of $p = 0.002$, which means that there is a relationship between the support of health workers and the behavior of visiting mothers under five to posyandu. With OR value: 14,000 and 95% CI: 2,539-77,208. this indicates that respondents who receive support from health personnel have a 14,000 greater chance of having good visiting behavior than respondents who do not receive support from health personnel. Health workers who often provide support are midwives, nutritionists, and cadres who are on duty at the posyandu. After weighing, mothers under five are usually given counseling to come again the following month to take another measurement of their toddler.

This research is in line with research conducted by Nillaeriza (2017) which stated that there was a relationship between the support of health workers and the behavior of mothers visiting the posyandu in Melangi Hamlet, Sleman Regency with a p-value of 0.004. (16) This research was strengthened by research conducted by Rina (2018) which found that there was a relationship between the support of health workers and the behavior of mothers visiting the posyandu in the Salido Health Center work area with a p-value of 0.004.

CONCLUSION AND SUGGESTIONS

Based on the questionnaire that was distributed with a sample of 40 respondents, it was found that mothers under five in RW 04, Cempaka Putih Village had good visiting behavior at the posyandu with a percentage of 60%. This study consisted of several factors, including predisposing factors (age, education, occupation, knowledge, number of children), enabling factors (distance), and reinforcing factors (family support and support from health workers). The percentage of mothers aged >21 years is 60%, mothers with high education are 60%, mothers who do not work are 67.5%, mothers with adequate knowledge are 70%, mothers with 1-2 children are 80%, mothers with distance to posyandu < 1 km is 90%, family support is 62.5%, and health worker support is 60%. The description of the age factor in this study resulted in no relationship because the value of $p = 0.400$. The description of the educational status factor in the study produced no relationship because the value of $p = 0.007$. The description of work factors in the study produced no relationship because the value of $p = 0.370$. The description of the knowledge factor in this study showed that there was a relationship between knowledge and the behavior of visiting mothers with a value of $p = 0.000$. The description of the number of children in this study resulted in no relationship because the value of $p = 0.690$. The description of the distance factor

in this study resulted in no relationship because the value of $p = 0.136$. The description of family support factors in the research results is that there is a relationship between family support and the behavior of mothers visiting the Posyandu with a value of $p = 0.000$. The description of the factors of support for health workers in this study found that there was a relationship between the support of health workers and the behavior of mothers visiting the posyandu with $p = 0.002$.

It is hoped that mothers of toddlers will be more proactive in increasing their knowledge in the health sector, especially regarding the importance of bringing their toddlers to visit the posyandu regularly so they can monitor their child's growth and development to the fullest. It is hoped that mothers of toddlers will be more aware of responding to family support to bring their toddlers to posyandu regularly. It is hoped that mothers of toddlers will consult or inquire about the growth and development of toddlers more often from health workers and carry out visits to posyandu by the support provided by health workers.

It is hoped that the families of mothers with toddlers will also increase their knowledge about the importance of visiting the posyandu so that they are more active in providing support to mothers with toddlers to come to the posyandu. It is also hoped that families of mothers with toddlers who are not yet in school or currently in education will be more active in their studies so that they can have a lot of knowledge, especially in the health sector. It is hoped that the families of toddler mothers will be more diligent in providing support for toddler mothers so that toddler mothers can come regularly to the posyandu to monitor their child's growth and development. It is also hoped that families of mothers with toddlers will remind mothers of toddlers more often to consult health cadres or health workers and remind them to carry out support from health workers regarding the importance of visiting the posyandu.

It is hoped that the cadres and health workers will broaden their knowledge about the importance of visiting the posyandu regularly so that they can provide continuous support to mothers with toddlers to come to the posyandu. It is hoped that the cadres and health workers will work closely with the families of mothers with toddlers to provide full support for mothers with toddlers to come regularly to the posyandu. It is hoped that cadres and health workers will be more aggressive in providing health promotion or approaches to mothers of toddlers to routinely visit the posyandu.

4. For other researchers

It is hoped that other researchers who want to research similar topics will further broaden their knowledge of what should be in this research, be able to cover other areas more broadly, and of course with more respondents, also with more varied variables that may not yet exist. in this research. It is hoped that other researchers can also examine the level of education in more detail to see the link between education and the behavior of mothers under five during visits to posyandu. It is hoped that other researchers will be able to dig deeper regarding the family support given to mothers of toddlers coming to the posyandu so they can see. It is hoped that other researchers will also be able to explore

and find out what kind of support from health workers is provided to raise awareness for mothers with toddlers to come to the posyandu regularly.

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FACTORS RELATED TO THE INCIDENCE OF EYE FATIGUE TO COMPUTER EXPOSURE IN WORKERS AT PT. A. W FABER-CASTELL INDONESIA BEKASI IN 2022

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ABSTRAK

Penggunaan komputer berguna sebagai alat komunikasi, mempermudah pekerjaan. Penggunaan komputer yang berlebihan dapat menyebabkan penyakit pada mata, badan, atau kepala. Secara global, sekitar 45-70 juta orang menghabiskan waktu menonton video. Riset kesehatan dasar tahun 2018, proporsi cedera mata akibat kejadian atau kecelakaan pada usia produktif 15-45 tahun sebesar 2,6%. Sedangkan untuk jenis pekerjaan pegawai cedera mata mempunyai proporsi sebesar 0,5%. Tujuan penelitian ini adalah untuk mengetahui faktor-faktor yang berhubungan dengan kejadian kelelahan mata akibat paparan komputer pada pekerja di PT. AW Faber-Castell Indonesia Bekasi Tahun 2022. Jenis penelitian ini menggunakan penelitian analitik dengan pendekatan cross sectional dengan jumlah sampel sebanyak 50 orang pekerja di PT. AW Faber-Castell Indonesia. Teknik pengambilan sampel menggunakan Total Populasi. Data dianalisis secara univariat dan bivariat dengan uji Chi Square. Hasil penelitian ini menunjukkan pekerja yang mengalami kelelahan mata (74%). Jenis kelelahan mata yang paling umum adalah penglihatan kabur (42%), sakit mata (32%), dan kesulitan fokus melihat (30%). Pada penelitian ini tidak terdapat variabel yang mempunyai hubungan signifikan yaitu jarak menatap layar monitor dengan p-value = 0,303, istirahat mata P-value = 0,886 (p-value>0,05) OR = 0,735 (95% CI = 0,202 -2,674), durasi penggunaan komputer p-value = 1000, masa kerja p-value = 0,707, pencahayaan p-value = 1000. Banyak keluhan kelelahan mata dan durasi penggunaan komputer melebihi 4 jam/hari. Oleh karena itu, disarankan untuk mewaspadai risiko terjadinya kelelahan mata dengan melakukan peregangan untuk mengistirahatkan mata bekerja dengan pencahayaan yang sesuai dengan jenis benda kerja, dan melakukan perawatan.

Kata Kunci: Kelelahan mata, komputer, pekerja

ABSTRACT

The use of computers is useful as a communication tool, facilitating work. Excessive use of computers can cause eye disease, body, or head. Globally, around 45-70 million people spend time watching videos. basic health research in 2018, the proportion of eye injuries caused by an event or accident in the productive age of 15-45 years was 2.6%. As for the type of employee work, eye injuries have a proportion of 0.5 %. The purpose of this study was to determine the factors associated with the incidence of eye fatigue due to computer exposure among workers at PT. AW Faber-Castell Indonesia Bekasi Year 2022. This type of research uses analytic research with a cross-sectional approach with a total sample of 50 workers at PT. AW Faber-Castell Indonesia. The sampling technique uses the Total Population. Data were analyzed univariately and bivariately with the Chi Square test. The results of this study indicate workers who experience eye fatigue (74%). The most common types of eye fatigue are blurred vision (42%), sore eyes (32%), and difficulty focusing to see (30%). In this study, there were no variables that had a significant relationship, namely the distance on the monitor screen with a p-value = 0.303, eye rest P- value = 0.886 (p-value>0.05) OR = 0.735 (95% CI = 0.202-2.674), duration of computer uses p-value = 1000, work period p -value = 0.707, lighting p -value = 1000. There were many complaints of eye fatigue and duration of computer use that exceeded 4 hours/day. So, it is recommended to pay attention to the risk of eye fatigue by stretching to rest the eyes work with lighting appropriate to the type of work object, and carry out maintenance.

Keywords: Eye fatigue, computer, workers

INTRODUCTION

Computers have become a part of almost all lines of human life, so they cannot be separated. In today's modern era, it can be said that the function of computers and the use of the internet has become very large and well-known, causing workers to spend excessive time in front of the computer. The use of computers is useful as a communication tool, facilitating work. Although the use of computers is beneficial, excessive use of computers can cause eye, body, or head diseases. (Permana et al, 2015). The American Optometric Association (AOA) (2017) states that it is not uncommon for office workers to experience eye fatigue due to being too long in front of the computer and this level of discomfort will continue to increase with the length of time they have been using the computer.

The eye is an organ of vision that has sensitivity to light because the eye has photoreceptors, and nerve impulses from photoreceptor stimulation which will be carried to the brain in the occipital lobe in the cerebrum (Guyton & Hall 2021). Tired or strained eyes are a disorder experienced by the eyes because the muscles are forced to work hard, especially when looking at close objects for a long time. Symptoms of tired eyes usually appear after several hours of work.

Based on Riskesdas (2018) office workers work an average of approximately 8 hours a day and it is known that 94.6 % of workers experience eye fatigue. Eye fatigue in office workers can increase the risk of injury due to negligence/accident. In line with the use of computers around the world which continues to increase, complaints about vision caused by exposure to computers are increasing. Some of the complaints that are often felt include red eyes, feeling sore/itchy, watery, drowsy, blurred vision, and headaches, in the neck, and shoulders.

According to the Association of Indonesian Internet Service Providers (APJII) in 2018, in a day as many as 26.48% of Internet users in Indonesia access the Internet for more than 7 3 hours, 29.63% for 4-7 hours and 1-3 hours in a day reaching 43 .89%. Meanwhile, during the week, half of internet users in Indonesia every day reached 65.98%. The duration of computer use that is too long will certainly cause eye health problems, one of which is computer vision syndrome. Research that supports this theory is data according to basic health research in 2018, the proportion of eye injuries caused by an event or accident at the productive age of 15-45 years is 2.6 %. As for the type of employee work, eye injuries have a proportion of 0.5 % (Ministry of Health of the Republic of Indonesia, 2019).

Previous research conducted by Febrianti, et al. (2018), stated that nursing students at Syiah Kuala University used computers for ≥ 2 hours experiencing tired eyes in 324 people (77.7%) and watery eyes in 196 respondents (47%). Another study conducted by Talitha, et al. (2022), stated that lecturers at the medical faculty of the Islamic University of Bandung, as many as 40 respondents (44%) experienced tired eyes and 24 respondents experienced watery eyes and itchy eyes (31%) due to computer use ≥ 5 hours.

PT. AW Faber-Castell Indonesia is a company engaged in the manufacturing industry located in Bekasi, including the manufacture of writing instruments such as pencils. To support this work, of course, the use of computers as a work tool is something that is always done every day, so workers using computers for a long-time lead to eye health problems. Until now there has never been a research activity on the health of workers related to the occurrence of eye health problems, especially eye fatigue from computer use. For this reason, researchers are interested in researching the factors associated with the incidence of eye fatigue on computer exposure at PT. AW Faber-Castell Indonesia Bekasi Year 2022.

METHOD

This research is an analytical research using a cross-sectional approach. The population in this study were computer users who in their daily work activities always looked directly at the monitor screen with a total of 50 people. The sample in this study is the entire population (Total Population), namely 50 people. This research was conducted at PT. AW Faber-Castell Indonesia in December 2022.

The analysis in this study was carried out using statistical software with two stages, namely univariate analysis to determine the distribution of the dependent variable (events of eye fatigue) and independent variables (Distance on the Monitor Screen, Eye Rest, Duration of Computer Use, Working Period, Illumination), and the second is bivariate analysis to determine the relationship between the independent variables on the dependent variable. Bivariate analysis was performed using the chi-square test (X^2). This research was conducted by collecting primary data by distributing Google Forms (Questionnaire) to respondents and collecting secondary data by taking lighting measurement data and several other documents from researchers from the administration section of PT. AW Faber-Castell Indonesia.

RESULTS AND DISCUSSION

Based on table 1, the majority of employees with high insecure behavior were 62 (57.4%) but not much different from those with low insecurity behaviors, 46 (42.6%). There were 68 (63.0%) employees aged ≤ 30 and 40 (37.0%) at age ≥ 30 . There are 22 low-educated workers (20.4%) and 86 (79.6%) with higher education. It is known that the workers behaved less than 66 (61.1%), while the workers were 42 (38.9%). It was found that the low-skilled workers were 23 (21.3%), while the high-skilling workers were 85 (78.7%). It is known that the workers based on supervision are fewer and those based on good supervision have the same presentation value of 54 (50.0%). According to Table, 45 (41.7%) workers did not comply with the APD, while 65 (58.3%) were employees who did.

Table 1. Analysis Univariate

Variable	Frequency	Percentage (%)
Unsafe Action		
High	62	57.4
Low	46	42.6
Age		
≤ 30 years	68	63.0
> 30 years	40	37.0
Education		
Low	22	20.4
Heigh	86	79.6
Attitude		
Less	66	61.1
Good	42	38.9
K3 Knowledge		
Low	23	21.3
High	85	78.7
Surveillance		
Less	54	50.0
Good	54	50.0
APD Usage		
Disobedience	45	41.7
Obey	65	58.3

Based on the analysis of the study. workers mostly perform highly unsafe actions in the young age group ≤ 30 years 34 (50.0%). compared with the age group > 30 years 22 (55.0%). which means workers who are less than 30 years of age are 0.818 times more likely to be at risk of unsafe actions than they are in age > 30. Based on the Chi-Square test results it is known that $p\text{-value} = 0.692 > 0.05$ so it can show that there is no significant relationship between age and unsafe action. Thus, the hypothesis that can be concluded is that there is no meaningful relationship between age and unsafe actions.

Table 2. Relationship between Independent Variables and Unsafe Action PT. Jaya Kencana South Quarter Project 2022

Variable	Unsafe Action				OR	p-value
	High		Low			
	n	%	n	%		
Age						
≤ 30 years	34	50.0	34	50.0	0.818 (0.374-1.791)	0.692
>30 years	22	55.0	18	45.0		
Education						
Low	13	59.1	9	40.9	0.818 (0.374-1.791)	1.000
Heigh	49	57.0	37	43.0		
Attitude						
Less	50	75.8	16	24.2	7.813 (3.258-18.753)	0.042
Good	12	28.6	30	71.4		
Knowledge						
Low	4	84.6	19	15.4	0.098 (0.030-0.316)	0.000
Heigh	58	16.3	27	83.7		
Surveillance						
Less	47	87.0	7	13.0	17.457 (6.470-47.100)	0.000
Good	15	27.8	39	72.2		

Variable	Unsafe Action				OR	p-value
	High		Low			
	n	%	n	%		
APD Usage						
Disobedience	38	84.4	7	15.6	8.821 (3.401-22.881)	0.032
Obeys	24	38.1	39	61.9		

This research is in line with the research carried out by (Sangaji, 2018) (1) which stated that there was no relationship between age and unsafe action obtained $p\text{-value} = 0.504 > 0.05$ which means no significance between age with unsafe actions. This study is inconsistent with the research carried out (2) The $p\text{-value} = 0.004 > 0.05$ indicates that there is a significance between age and unsafe behavior.

Age is only one of the factors that can influence a worker's insecure behavior. therefore many other factors may influence the insecurity of a worker. Insecure actions can be performed by the labor force that has a young age. it is because if at a young age tends to be more negligent and less careful in doing his job when compared to that older age. then he will be at risk of behaving unsafe (3).

An analysis of the relationship between education and unsafe actions showed that unsafe action was 4 (84.6%) lower in low-skilled workers than those with higher education. which is 58 (16.3%). meaning that workers with higher education had a 0.098 times higher risk of committing unsafe activity compared to workers with low education. Based on the results of the Chi-Square test it is known that $P\text{ Value} = 1.00 > 0.05$ so it can show that there is no significant relationship between education and acts of unsafe behavior. Thus. the hypothesis that can be concluded is that there is no meaningful relationship between education and acts of unsafe behavior.

This research is in line with the research (Nahrisah dkk., 2021) (4) The statistical test results obtained a $p\text{-value} = 0.622 > 0.05$ which means no influence of education with actions of unsafe behavior. This research is not in line with the research (Ramadhany, 2018) (3) The results of the Chi-Square test obtained $p\text{ value} = 0.970$ so it can be concluded that there is no significant relationship between the level of education and the acts of unsafe behavior. (unsafe action).

A person with a higher education can also behave unsafely. it can be seen from the results of research that higher education in the lower category is more than lower education. and the education of a person influences one's mindset in the face of the job entrusted to him. In addition. education also affects the level of absorption of training given in the performance of work or occupational safety and health (K3) (5).

The results of the analysis of the relationship between attitude and insecure action showed that unsafe action in workers mostly unsecured action in employees who behaved less than 50 (75.8%) was greater than in workers who were well-being 12 (28.6%). The statistics of the chi-square test obtained $p\text{-value} = 0.042 > 0.05$ meaning there was a significant correlation between attitudes and unsafe action. Thus. the hypothesis that can be concluded is that there is a meaningful relationship between attitudes and unsafe actions.

This research is in line with the research (Larasatie dkk., 2022) (6) An analysis of the relationship between attitude and unsafe action resulted in a p-value of 0.000 which means the significance of attitude with unsafe actions.

This is because many factors influence the formation of attitudes and attitudes that make employees have negative and positive attitudes (3). Attitudes can be influenced internally and externally. and these attitudes are considered a form of communication of danger. Therefore. employees will be careful at work (7)

The results of the analysis of the relationship of knowledge with unsafe action showed that unsafe actions in workers were mostly unsafe acts in workers with low knowledge which is 4 (84.6%) smaller than workers with high knowledge which is 58 (16.3%). The statistics of the chi-square test obtained p-value = 0.000 > 0.05 that it can be concluded that there is a significant relationship between K3 knowledge and unsafe action. Thus. the hypothesis that can be concluded is that there is a meaningful relationship between knowledge and unsafe action.

Results of research conducted by (Irkas, 2020) (8) stated that there was a link between knowledge and unsafe behavior because the majority of respondents who had experienced an accident at work had a lower level of knowledge compared to the level of good knowledge. The result was obtained using a chi-square test showing a relationship between K3's knowledge of work accidents. which was proved with p-value=0.016 (<0.05).

When a person lacks knowledge. it will cause danger around him. and does not do the work according to the terms and is not aware of the risks that will be accepted. When a person is knowledgeable. will act well and can avoid accidents at work (8).

The analysis of the relationship between surveillance and unsafe action shows that unsafe actions in workers are mostly unsafe activities in workers with less vigilance which is 47 (87.0%) compared to workers with good monitoring which is 15 (27.8%). Thus. the hypothesis that can be concluded is that there is a meaningful relationship between surveillance and acts of unsafe behavior.

Results of the research carried out (3) stated that there was a link between surveillance and unsafe actions. The result of the relationship between surveillance and unsafe actions in employees of PT Lestari Banten Energy was obtained that as many as 8 people (40.0%) respondents who had good surveillance but often performed unsafe activities. while those who had less good surveil and frequently performed unsafe actions. as much as 6 people (20.0%). Chi-Square test results obtained p value = 0.258 so it can be concluded that there is no significant relationship between surveillance and unsafe action.

Supervision is useful in the management of activities so that they can be carried out as expected so that the objectives of the activities can be achieved in a maximum and efficient manner. In the realization of occupational safety and health. intensive supervision of various parties. both internal and external. must be carried out (9).

The results of the analysis of the relationship between the use of APD and unsafe action showed

that unsafe actions in employees who did not comply with compliance with APD use were 38 (84.4%) greater than in workers who did use the APD 24 (38.1%). The statistics of the chi-square test obtained $p\text{-value} = 0.032$ that it can be concluded that there is a significant relationship between education and safe action.

This research is in line with the research (Sebrina, 2021) (10). This is demonstrated by the results of bivariate analysis on the APD usage variable showing that there is a relationship between the use of APD with unsafe action on workers of the production part in CV X district of Kendal with $p\text{-value} = 0.023 < 0.05$. While the research was carried out (Ashari, 2019) (11) there is a relationship between the use of APD with the action of unsafe behavior and obtained $p\text{-value}$ of 0.002 (< 0.05).

This is because most workers do not use APD due to a lack of understanding of the importance of using APD at work. Most workers consider that it is not necessary to use APP at work because of the discomfort factor so it is considered to interfere with the productivity of work. besides. the lack of APD in the workplace causes unusual workers to use the APD during work (12).

CONCLUSION AND SUGGESTIONS

The conclusion in this study on the variable is that there is a significant relationship between acts of unsafe behavior i.e. attitude. K3 knowledge. surveillance. and compliance with APD use with $p\text{-value} \leq 0.05$. And counsel for workers to be even more careful to prevent the occurrence of unsafe acts that cause accidents at work. Workers should warn each other about unsafe behavior. employees should use Self-protection Tools to prevent accidents.

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ANALYSIS OF THE IMPACT OF CLIMATE CHANGE ON THE MENTAL HEALTH OF CHILDREN IN THE STATE ELEMENTARY SCHOOLS IN SOUTH TANGERANG CITY IN 2022

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ABSTRAK

Perubahan iklim adalah fenomena lingkungan yang mengancam kesehatan global, yang memiliki dampak pada kesehatan mental dan kesejahteraan emosional. Menurut Riskesdas 2018 prevalensi gangguan kesehatan mental di Indonesia pada usia ≤ 15 tahun yang mengalami masalah kesehatan mental seperti gejala depresi dan kecemasan meningkat dari 6% menjadi 9,8%. Tujuan penelitian ini untuk mengetahui gambaran dampak perubahan iklim terhadap kesehatan mental anak di SD Negeri Setu Kota Tangerang Selatan Tahun 2022. Metode yang digunakan bersifat deskriptif, dengan menyajikan variabel yang diteliti tanpa membandingkan antar variabel dengan sampel 76 responden di SD Negeri Setu yang dilaksanakan dari bulan Desember 2022 sampai Januari 2023. Hasil penelitian ini menunjukkan ada gambaran perubahan iklim terhadap kesehatan mental, yang mengalami gangguan kesehatan mental sebesar 75%, mengalami gangguan kognitif sebesar 27.6%, gangguan cemas sebesar 32.9%, gangguan depresi dan somatik 26.3%, gangguan penurunan energi sebesar 19.7% dari 76 responden. Ada gambaran dampak perubahan iklim terhadap kesehatan mental anak di SD negeri setu, dan sebagian siswa/i mengalami gangguan kognitif, gangguan cemas, gangguan depresi, gangguan somatik dan gangguan penurunan energi berdasarkan distribusi frekuensi. Saran yang dapat diberikan peneliti diharapkan siswa/i dapat menjaga dan mengatasi berbagai ancaman kesehatan mental dan lebih paham akan perubahan iklim dan dampaknya terhadap kesehatan mental, bagi sekolah diharapkan memberikan pendidikan karakter, Bimbingan Konseling dan edukasi dampak perubahan iklim.

Kata Kunci: Perubahan iklim, kesehatan mental, anak

ABSTRACT

Climate change is an environmental phenomenon that threatens global health, impacting mental health and emotional well-being. According to Riskesdas 2018, the prevalence of mental health disorders in Indonesia at the age of ≤ 15 years who suffer from mental illnesses such as symptoms of depression and anxiety has increased from 6% to 9.8%. This study aims to find out the impact of climate change on child mental health in the Setu State Department of Southern Tangerang City in 2022. The method used is descriptive, presenting the variable studied without comparing variables with a sample of 76 respondents in the Sotu State Department implemented from December 2022 to January 2023. The results of the study showed that there was a picture of climate change on mental health, with 75 percent mental health disorders, 27.6 percent cognitive impairment, 32.9 percent anxiety, 26.3 percent depressive and somatic disorder, and 19.7 percent energy loss disorder out of 76 respondents. There is an overview of the impact of climate change on children's mental health in the state of Setu, and some students suffer from cognitive impairment, anxiety disorder, depression, somatic disorder, and energy depletion disorder based on frequency distribution. Researchers are expected to advise students to maintain and address various mental health threats and better understand climate change and its impact on mental health, for schools to provide character education, counseling guidance, and climate impact education.

Keywords: Climate change, mental health, children

INTRODUCTION

Climate change is climate change that refers to changes in long-term temperature and weather patterns. The World Health Organization (WHO) has described climate change as "the greatest challenge of the 21st century, threatening every aspect of society around the world". According to the report of the Intergovernmental Panel on Climate Change (IPPC) Working Group-2 published in February 2022, the world is facing a variety of climate hazards that are inevitable with global warming of 1.5o (2,7oF) over the next 20 years. (1)

Mental health is a condition in which a person has real well-being, can fulfill his or her potential, is capable of withstanding the normal stresses of life in various life situations, can work productively and effectively, and participates with his or his community. Climate change and mental health are an emergency facing people all over the world. The impact of climate change on mental health in the world is felt and has become a reality. (2)

The impact of climate change causes many environmental problems that affect human health including mental health. One of the effects is extreme weather, which affects human mental health, for example, a prolonged increase in rainfall will cause flooding if the land is not ready to accommodate large water spills. With such conditions of disaster, many humans are affecting their survival, such as causing deaths and loss of property that will cause post-traumatic stress disorder (PTSD) and acute stress disorders, depression, anxiety disorder, and sleep disorders in every individual. (3–9)

According to the Basic Health (Risk) Research records of the Ministry of Health of the Republic of Indonesia 2018, the prevalence of emotional mental disorders among Indonesians is 9.8%. This indicates the high level of mental health problems in Indonesia. The highest prevalence was at age >75 at 15.8 percent and the lowest was at age 25-24 at 8.5 percent. Based on sex, the prevalence among women was higher by 12.1 percent compared to 7.6 percent among men. (10) The prevalence of mental health disorders in Indonesia was obtained through measurement of ≤ 15 years of age suffering from mental illnesses such as symptoms of depression and anxiety increased from 6% or 37,728 cases in 2013 to 9.8% and the prevalence for depression was 6.1% in 2018. (11)

Setu district is one of the districts in Southern Tangerang City, which is frequently flooded by the flooding of Kali Cisadane, which can cause various mental health disorders. The mental health of primary school children (SD) is an important thing to take care of, because a mentally healthy child will have a good quality of life, and can adapt well, as well as a healthy child has good thinking abilities, where at an early age, the child's brain develops rapidly. This prompted researchers to conduct a study on, "Analysis of the Impact of Climate Change on Children's Mental Health in the State Elementary School of Setu City Southern Tangerang 2022."

METHOD

This research is a quantitative study using descriptive methods, by presenting the variables studied without comparing between variables. The population in this study is the children of students of grades 4, 5, and 6 SD State Setu City Tangerang South. The study was conducted in December 2022, with a population of 222 children. The sample size of this study was 76 respondents. The research has been approved and ethically validated by the Health Research Ethics Commission under No.10.010.B/KEPK-FKMUMJ/I/2023.

RESULTS AND DISCUSSION

Based on table 1, it can be seen that the majority of the male genus is 39 children (51.3%). The majority of Setu State SD students suffered from mental health disorders due to the impact of climate change 57 children (75%), and of some children with cognitive impairment 21 children (27.6%), children with anxiety disorder 25 children (32.9%), depression and somatic disorder 20 children (26.3%), and climate-related energy loss disorder 15 children (19.7%).

Table 1. Distribution of Frequency of Mental Health of Children of the State of Setu City of Tangerang South

Variable	Frequency	Percentage (%)
Gender Type		
Male	39	51.3
Female	37	48.7
Mental Health		
Not Interrupted	19	25.0
Interrupted	57	75.0
Cognitive Impairment		
Yes	21	27.6
No	55	72.4
Anxiety Disorder		
Yes	25	32.9
No	51	67.1
Depressive Disorder		
Yes	20	26.3
No	56	73.7
Somatic Disorder		
Yes	20	26.3
No	56	73.7
Energy Decrease Disorder		
Yes	15	19.7
No	61	80.3
Total	76	100

Natural disasters such as floods, droughts, and landslides can have psychological effects such as anxiety, depression, cognitive, somatic, energy loss, posttraumatic stress disorder, and other mental health disorders. (3) Climate change has the effects of extreme weather, i.e. rising temperatures. Higher temperatures can worsen a variety of health issues associated with mental health and psychosocial well-being, from emotional stress to anxiety, stress, and posttraumatic stress disorders. (9)

Compared to adults, children's ability to adapt to heat is weaker in the face of the rising threat of climate change. At the age of children have underlying health conditions, which are susceptible to mental health risks due to the effects of climate change. In addition, 85% of the world's children live in developing countries (United Nations Children's Fund Office of Research, 2014), which are most vulnerable to the threat of climate change due to their geographical location and resource constraints that make it difficult to adapt. (12)

It is consistent with the results of a study with the 1994 WHO SRQ-20 questionnaire that students of 4th grade, 5th and 6th grade of the State Department of Health in Southern Tangerang City, out of 76 children, 75% had mental health disorders and 25% had no mental health disturbances, and for the classification of mental health troubles as a cognitive disorder there were 27.6% of children having the disorder, 32.9% of children with anxiety, 26.3% had depressive and somatic disorder and 19.7% had depleted energy disorder.

CONCLUSION AND SUGGESTIONS

Based on the results of the above study, it can be concluded that there is a picture of climate change on the mental health of children. Children with mental health disorders are 75%, and some children have cognitive impairment 27%, followed by anxiety disorder 32.9%, depressive and somatic disorder 26.3%, and some kids have climate-related energy depletion disorder 19.7%.

Students are expected to be able to preserve and cope with various mental health threats, and children are also expected to become more aware and aware of climate change and its impact on mental health. The school is expected to provide character education and maximize it by providing counseling guidance to be able to listen to the problems faced by its students and provide encouragement, and solutions to prevent students from developing mental health disorders as well as providing education on the impact of climate change on mental health so that students can adapt and be ready for the future.

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EMPLOYEE PERFORMANCE ANALYSIS OF PERMATA PAMULANG HOSPITAL ADMISSION UNIT IN 2022

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ABSTRAK

Sumber daya manusia memainkan peran penting dalam sebuah perusahaan karena merupakan faktor utama dalam mengelola tujuan perusahaan. Dalam melaksanakan tugas perusahaan, membutuhkan karyawan yang berkinerja tinggi. Penilaian kinerja adalah salah satu penilaian kemampuan karyawan untuk melaksanakan otoritasnya. Hal-hal yang dapat mempengaruhi kinerja karyawan yang baik termasuk motivasi, disiplin kerja karyawan, pengawasan, gaya kepemimpinan, dan lainnya. Tujuan dari studi ini adalah untuk melihat bagaimana peran Sumber Daya Manusia (HR) dalam mengembangkan kinerja karyawan di Unit Pendaftaran Rumah Sakit Permata Pamulang. Studi ini menggunakan pendekatan kualitatif dengan metode deskriptif. Penelitian ini dilakukan untuk memahami lebih dalam dan menjelaskan pengalaman yang dialami oleh individu melalui wawancara mendalam. Pengolahan data penelitian ini menggunakan triangulasi sumber dan metode. Para informan dalam penelitian ini adalah 5 orang yang merupakan informan kunci, informan utama, dan informan pendukung. Penelitian ini dilakukan di Rumah Sakit Permata Pamulang dari Oktober 2022 hingga Januari 2023. Hasil studi ini menyatakan bahwa kinerja karyawan di Unit Pendaftaran adalah baik, bagi karyawan itu hampir disiplin tetapi masih ada karyawan yang kurang disiplin. Pekerjaan karyawan juga membutuhkan motivasi dari atasan mereka sehingga kinerja mereka lebih baik. Motivasi sangat diperlukan karena motivasi karyawan dapat bekerja lebih baik dan antusiasme dalam kinerja mereka. Selain itu, disiplin kerja karyawan di Unit Pendaftaran Rumah Sakit Permata Pamulang cukup baik, karena karyawan sudah memahami tanggung jawab satu sama lain.

Kata Kunci: Motivasi kerja, disiplin kerja, prestasi karyawan

ABSTRACT

Human resources play an important role in a company because they are a key factor in managing the company's goals. Performance assessment is one of the assessments of an employee's ability to exercise his authority. Things that can affect good employee performance include motivation, employee work discipline, supervision, leadership style, and more. The objective of this study is to see how the role of Human Resources (HR) in developing the performance of employees in the Registration Unit of the Jewelry Pamulang Hospital. The study uses a qualitative approach with descriptive methods. This research was conducted to understand more deeply and explain the experiences experienced by individuals through in-depth interviews. The data processing of this research uses triangulation of sources and methods. The informants in this study are five people who are key informants, primary informants, and supportive informants. The study was conducted at the Pamulang Jewelry Hospital from October 2022 to January 2023. The results of this study indicate that the performance of employees in the Registration Unit is good, for employees, it is almost disciplined but still, there are employees who are less disciplined. Employees' work also requires motivation from their superiors so that their performance is better. Motivation is essential because employees' motivation can work better and enthusiasm in their performance. Besides, the employee's work discipline at the Yellow Pamulang Hospital Registration Unit is quite good, because employees already understand each other's responsibilities.

Keywords: Work motivation, work discipline, employee achievement

INTRODUCTION

In the current era of globalization, the health sector has greatly increased in quality and quantity. At the time of the development of increasingly modern science and technology. This can make parties related to the health sector, one of which is hospitals, grow rapidly (1). The existence of developments in science and technology that are running quite rapidly can make organizations adapt well to changes, both from within and outside.

Human resource management plays an important role in the organization to manage, organize, administer, and use available human resources so that they can function effectively and efficiently. In an organization, human resources play an important role in the need for good management and maintenance. This is because human resources affect other resources in an organization. Human resources plays a major role in a company because it is a major factor in managing company goals. The existence of human resource management will later play an important role in a company or organization in terms of managing, managing, managing, and using the maximum available human resources so that they can function effectively and efficiently as expected (2).

The need for quality public health services and support from the government in the form of allocation of funds, the hospital needs to pay attention to employee performance so that it is achieved in providing quality health services for the community. To achieve this goal, good performance from hospital employees greatly affects the quality of hospital services. The role of Human Resources (HR), which plays a role in assessing staffing, is tasked with managing, improving employee performance and assessing activities, and being able to meet the needs of employees in hospitals to create a harmonious atmosphere in the work environment (1).

The results of observations made by researchers at Permata Pamulang Hospital in the Admission unit related to employee performance in discipline, responsibility, customer service in registration services, ability, honesty, and relationships with colleagues. In this performance appraisal, there are still several employees who are not disciplined and are still lacking in ability, so they still need monitoring from the chair in the Admissions unit.

In improving employee performance, a high level of employee motivation is required. With this motivation, it can provide reasons for an employee to do well by established procedures, standards, and goals. Motivation is someone's encouragement to work, such as high salaries, nurturing leaders, adequate work facilities, a comfortable work environment, and pleasant co-workers and others. Psychologically this can show that the encouragement and enthusiasm possessed by an employee in doing his work is greatly influenced by the motivation that drives him (3). Therefore, researchers want to take this title aiming to see what the Role of Human Resources (HR) in Developing Employee Performance at the Admission Unit of Permata Pamulang Hospital in 2022.

METHOD

This research uses a qualitative approach with descriptive methods. This research was conducted to understand more deeply and explain the experiences experienced by individuals through in-depth interviews. This in-depth interview method was carried out so that the researcher obtained verbal information from the informant, for the information needed in the informant's research, to obtain more specific answers. This research was conducted to obtain more in-depth information regarding the performance of employees in the Admission Unit at Permata Pamulang Hospital. The research location taken was the admission unit of Permata Pamulang Hospital.

RESULTS AND DISCUSSION

Table 1. Interview Results Regarding Work Motivation

Informant 1	Informant 2	Informant 3	Informant 4	Informant 5	Conclusion
Based on the results of the interviews it can be concluded that in doing work employees need motivation. In addition, the increase in salary from the hospital can also increase motivation for workers.	Based on the results of the interviews it can be concluded that all employees need motivation. Examples of motivation such as dependents or life goals for the future. In addition, what can motivate employees is salary increases or incentives and awards. However, to deal with employees who have not experienced improvement at work, it is necessary to continue to motivate them so that these employees can increase their motivation at work.	Based on the interview results, it can be concluded that motivation is very necessary, such as a salary increase. In addition, employees whose performance is good will receive a charter or perhaps an incentive from the hospital.	Based on the results of the interviews it can be concluded that employees need motivation to improve performance. Examples of motivation given are salary increases and incentives.	Based on the interview results it can be concluded that as an HRD it is necessary to provide motivation such as internal training. For this motivation, it is necessary to have a target, because having a target can motivate employees to get rewards. The reward is in the form of a salary increase. Whereas for employees who do not experience an increase in work, the employee will be called on and continue to be given motivation.	From the results of interviews regarding work motivation at the Admission Unit at Permata Pamulang Hospital, work motivation is needed by anyone, because with motivation employees will be more diligent in carrying out their duties. If the employee performs well, he will receive an award. The award from the hospital is in the form of a salary increase or incentive, given a prize from the Admission unit.

Table 2. Interview Results Regarding Work Discipline

Informant 1	Informant 2	Informant 3	Informant 4	Informant 5	Conclusion
Based on the results of the interviews, it can be concluded that in the admissions unit, the employees are disciplined, because each employee understands their respective responsibilities. Employees in this admissions unit also never delay work because it will add more work for employees on the next shift. For discipline, a few years ago there was a sanction for employees who were > 15 minutes late and would be subject to a fine of Rp. 5000 and the fine will be used for common purposes.	Based on the interview results, it can be concluded that the employees in the admission unit are disciplined. However, if there are employees who are late, they need to provide clear reasons to get tolerance. There have never been any employees in the admissions unit who procrastinate, but maybe there are those who still like to postpone work because they are still in the learning stage.	Based on the interview results, it can be concluded that the employees in the admission unit are disciplined. No one ever delays work because it's a pity for patients who have to wait a long time. In addition, employees who are late will be subject to sanctions.	Based on the results of the interviews, it can be concluded that the employees are disciplined and come on time. If there are employees who are late, they will be subject to sanctions. Then when working, the employees in the admissions unit never procrastinate because the work is being pursued by deadlines, so they cannot postpone it.	Based on the results of the interviews, it can be concluded that the employees in the admissions unit are disciplined, however, employees who are not yet disciplined will be given a warning by the coordinator in the unit and if there are no changes then it will be handed over to HR to give a warning to the employee. for work, it is good no one is delaying it. Regarding discipline as an HR, it is necessary to set a good example so that his subordinates can follow him.	From the results of the interviews, it was found that the admissions unit employees were disciplined and never procrastinated. Meanwhile, to improve the discipline of a superior, it is necessary to provide sanctions so that the employee can be disciplined.

Table 3. Interview Results Regarding Employee Performance

Informant 1	Informant 2	Informant 3	Informant 4	Informant 5	Conclusion
Based on the results of the interviews, it can be concluded that the performance of the employees in this admissions unit is good. In improving the quality of work that is with motivation, while increasing the performance capabilities of employees need to	Based on the results of the interviews, it can be concluded that the results of this performance appraisal are satisfactory, but further improvement is needed. Employees in this admission unit are to	Based on the results of the interviews, it can be concluded that the results of the performance appraisal are satisfactory. This performance appraisal is carried out once a month and at the same time, an evaluation is	Based on the results of the interviews, it can be concluded that the results of the performance have been satisfactory. For this work assessment is carried out once a month and an evaluation meeting is held which is given	Based on the results of the interviews, it can be concluded that some of the performance results in this hospital have been satisfactory and some have not been satisfactory. However, for the admission	From the results of interviews regarding employee performance, it was found that the performance of the Admission unit employees was satisfactory. This employee performance appraisal is carried out once a month which is given from HRD to the Admissions unit coordinator. In addition, every month there will be an evaluation. To improve the quality of good work, employees need motivation from themselves and their superiors.

Informant 1	Informant 2	Informant 3	Informant 4	Informant 5	Conclusion
learn new things. For performance appraisal, namely by giving a questionnaire from HRD, this assessment is carried out once a month, as well as providing an evaluation to its employees. In this performance, the effort that needs to be made to be even better is to correct the mistakes that have been made.	improve the quality of work with motivation. This performance appraisal method is in the form of assessment and appreciation which is carried out once a month and there is an evaluation carried out by the choir to improve performance appraisal.	held with the coordinator. Besides that, to improve work quality performance, self-motivation is needed, while to improve performance ability, namely by holding trainings that are held once a month. For this reason, the way to evaluate employee performance is by taking a questionnaire every month and evaluating it.	by the coordinator.	unit, this is quite satisfying. The performance appraisal is also quite good and this assessment is carried out once a month as well as holding an evaluation meeting.	

The close effect of work motivation on employee performance must receive special attention from management. Good employee performance can also be one of the factors in increasing hospital performance because employees are the main door to health services in the community. High work motivation makes employees have a high enthusiasm to provide the best service for patients so that patients feel satisfied with the services provided (4).

In Sibarani's research (2018), that if the company pays attention to employees by providing good motivation including encouragement and training, which is part of the company's motivation to employees, employees will feel satisfied with what is given, making employees continue to improve their performance (5).

The results of the study show that the provision of motivation is very important because this motivation can support employee performance. The motivation given by the Permata Pamulang Hospital is in the form of awards, salary increases, and incentives to motivate employees who perform well as a form of appreciation from the hospital.

Motivating the Permata Pamulang Hospital Admission Unit is very important to employees for their performance. There are several ways to improve employee performance capabilities such as attending training every month and also need to learn new things so that employees can be assigned to any part. With good performance capabilities, it can improve the image of the hospital. As for some ways to interpret employee performance as good or not, namely based on the indicators of success that have been determined by the Permata Pamulang Hospital. According to Dessler (2015), has several benefits, namely most salaries based on work, promotional and retention decisions on employee

assessments, and assessments allow managers and subordinates to develop plans to correct deficiencies and increase subordinate strength. Therefore, the way to evaluate it is to hold a monthly meeting and provide a reprimand for employees who are still in violation (6).

Discipline in work, as one of the nurse performance appraisal indicators, is also used as a liaison between nursing managers to communicate with their subordinates to build good behavior increase awareness, and comply with organizational regulations and applicable social norms. Discipline indicators in this study include the presence of official time, compliance with regulations, obedience to work standards, and ethical work (7).

From the results of previous studies entitled *The Effect of Physical Work Environment, Work Stress and Work Discipline on Employee Performance of the Production Section of PT. Kimia Fama, Tbk Semarang* with the results of work discipline significantly affects employee performance, with a simple linear regression test of work discipline has a positive influence on performance variables, so that the higher the work discipline of employee eating will be better, on the contrary, the lower employee work discipline the worse is too. Employee Performance (8).

Work discipline for employees in the Permata Pamulang Hospital Admission Unit has implemented working hours. If employees come late for more than 15 minutes, they will be subject to sanctions, so when working hours have been applied by employees the coordinator must come on time. If there are still employees who are late for work, a coordinator follows up on employees who violate the rules, because it can reduce the indiscipline of employees.

The rules that have been set by the coordinator in the Permata Pamulang Hospital Admission Unit for those who violate the rules or arrive late will be subject to sanctions in the form of a fine of Rp. 5,000 which will later be put into cash and will be used for the needs of the Admission Unit. If the employee is still repeating his mistakes, a reprimand or SP warning will be given, and sanctions will be given so that the employee does not abuse the rules set by the coordinator.

Work discipline is proven to have an important role in improving employee performance. Discipline at work is an important factor that must be possessed by an employee who wants to achieve his best performance. Work discipline can be in the form of working on time, including obedience in doing the tasks given to him. The paradigm that is developing at this time, most companies need employees with discipline in their work. The company hopes to recruit employees who have high enthusiasm, comply with the rules set by the company, and can take advantage of the company's facilities well so that it can compete both nationally, regionally, and internationally. In addition, with high work discipline, an employee will master the work that has been done and will achieve maximum performance (9).

CONCLUSION AND SUGGESTIONS

Based on the results of the discussion above regarding the role of Human Resources (HR) in developing an employee's performance at the admission unit of Permata Pamulang Hospital, it can be concluded that motivation is needed because with motivation employees can work better and have enthusiasm in their performance. In the admission unit, employee performance can be said to be good if the employee's performance is satisfactory and can improve the good name of the hospital. In addition, the work discipline of the employees at the admission unit at Permata Pamulang Hospital is quite good, because these employees understand their respective responsibilities. If you are not disciplined, you will be given a sanction, a warning, or an SP.

Hospitals, hospitals are expected to provide motivation and work discipline to employees so that they can be further improved. Employees, employees are expected to be able to improve employee performance to maximize work and comply with the rules that have been set at the admission unit of Permata Pamulang Hospital.

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THE RELATIONSHIP BETWEEN KNOWLEDGE OF STREET FOODS AND THE INCIDENCE OF DIARRHEA IN STUDENTS AT SD NEGERI SETU, SOUTH TANGERANG CITY

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ABSTRAK

Diare merupakan penyakit menular dan ditandai dengan gejala berupa perubahan bentuk dan konsistensi feses menjadi lunak hingga cair dengan frekuensi 3 kali atau lebih buang air besar disertai muntah. Berdasarkan data UNICEF (2013) jika dilihat secara global kejadian diare ini merupakan penyakit dengan derajat kesakitan dan kematiannya tinggi terutama di negara berkembang, diare juga salah satu dari 3 penyebab utama kematian anak secara mendunia. Di Tangerang Selatan dalam data Laporan Kinerja Instansi Pemerintah (LKIP) jumlah penderita diare pada tahun 2020 mencapai 22.539 kasus dengan peringkat 5 besar. Tujuan penelitian ini untuk mengetahui hubungan antara pengetahuan dan perilaku konsumsi makanan jajanan dengan kejadian diare di SDN Setu Kota Tangerang Selatan. Metode Penelitian menggunakan penelitian kuantitatif dengan menggunakan pendekatan *Cross Sectional* dengan 72 responden. Hasil penelitian ini menunjukkan tidak ada hubungan yang signifikan antara pengetahuan dengan kejadian diare dengan hasil uji chi-square di dapatkan p-value 0,848 ($p > 0,05$) dan tidak ada hubungan yang signifikan terhadap perilaku dengan kejadian diare dengan hasil uji chi-square di dapatkan p value 0,164 ($p > 0,05$). Dapat disimpulkan bahwa tidak ada hubungan yang signifikan antara pengetahuan dan perilaku dengan konsumsi makanan jajanan terhadap kejadian diare pada anak di Sekolah Dasar Negeri Setu Kota Tangerang Selatan. Saran yang dapat diberikan peneliti untuk Sekolah yaitu disarankan untuk mengadakan edukasi terkait diare, dan cuci tangan pakai sabun dengan 7 langkah. Serta pembuatan kantin didalam sekolah atau kantin sehat.

Kata Kunci: Diare, anak, makanan jajanan

ABSTRACT

Diarrhea is an infectious disease and is characterized by symptoms such as changes in the shape and consistency of stools to become soft to liquid with a frequency of 3 times or more urination accompanied by vomiting. According to UNICEF data (2013), if viewed globally, diarrhea is a disease with a high degree of pain and mortality, especially in developing countries, and is also one of the three leading causes of child death globally. In Tangerang South in the data of the Performance Report of Government Institutions (LKIP), the number of patients suffering from diarrhea in 2020 reached 22.539 cases with the top 5 rank. The purpose of this research is to know the relationship between knowledge and behavior of food consumption and the occurrence of diarrhea in SDN Setu City Tangerang South. The Research Method uses quantitative research using the Cross-Sectional approach with 72 respondents. The results of this study show no significant relationship between knowledge with diarrhea occurrence with chi-square test results at get p-value 0.848 ($p > 0,05$) and no significant relation to behavior with diary occurrence in get p-value 0.164 ($p > 0,05$). It can be concluded that there is no significant link between knowledge and behavior with euthanasia food consumption to the occurrence of diarrhea in children at the State School of Setu City Tangerang South. The advice that the researchers can give to the school is that it is recommended to organize diarrhea-related education and wash hands with soap with 7 steps. As well as making a canteen in a school or a healthy cantina.

Keywords: Diarrhea, child, street food

INTRODUCTION

Diarrhea is an infectious disease characterized by symptoms of changes in the shape and consistency of stools to become soft to liquid with a frequency of 3 times or more of passing accompanied by vomiting. Diarrhea can cause the occurrence of dehydration or loss of large amounts of fluid even cause death. (1)

According to UNICEF data (2013), if viewed globally, the incidence of diarrhea is a disease with a high degree of pain and mortality, especially in developing countries, diarrhea is also one of the 3 main causes of child death globally. Of all child deaths from diarrhea, 78% occurred in Africa and Southeast Asia. (2).

The results of the morbidity study conducted by Subdit Diare and the ISP, the Ministry of Health showed that the rate of painful diarrhea for all ages in 2012 was 214/1.000 of the population of all ages and the number of diarrhea pain in the news is 900/1000 news (3). When viewed from the years of life adjusted to the number of years lost due to disease or death due to diarrhea (Daily Adjusted Life Years Lost/ DALY lost), of the 10 most lost DALY diseases in 1990 and 2017, diarrhea is still ranked 3rd in 1990, and 7th in 2017. Although there is a decline, it is still the most prevalent disease. Based on BPJS data, it is known that there were 344,528 cases of diarrhea in 2017 and 243,983 cases in 2018. (Ministry of Health RI, 2019) Diarrhea cases in Banten Province in 2015 reached 83,758 (0,73%) in health facilities and can be treated about 59,694 cases (71,3%) (Kemenkes RI, 2016). Diarrhea is still a frequent occurrence with a large number of suffering and deaths. In Southern Tangerang, the prevalence of diarrhea was 2.6% and prevalence in the same period was 4.7%. In the Government Instances Performance Report (LKIP) data, the number of patients suffering from diarrhea in 2020 reached 22.539 cases with the top 5 rankings (4)

Some factors causing diarrhea are bacteria that are transmitted through contaminated foods and drinks, feces, and/or direct contact with an infected person (5). Furthermore, the main causes of diarrhea are water, food hygiene, household water, and water supplies.

School-age children are vulnerable to nutrition and diseases, mainly infectious diseases. Epidemiologically, the spread of environmental-based diseases among schoolchildren in Indonesia is still high, especially in cases of infections such as diarrhea (6). The habit of eating free food, and the child's not washing hands before eating makes it easier for many types of germs and bacteria to enter the body and cause disease(7)

Environmental-based diseases such as diarrhea still dominate health problems and can occur due to interactive relationships between humans and their behavior as well as environmental components that have the potential for disease. A large number of food vendors are not free from competition, thus making sellers pay less attention to the quality, quality, and quality of the goods they sell. Especially if schoolchildren who are in the middle of school age are to clean the food they eat (8). They're thinking more about profit without paying attention to the security and security aspects of the

buyer. The same goes for school-age buyers who don't pay much attention to quality and quality. Buyers usually tend to choose cheap prices so they don't get the most out of the bidding. It became one of the factors that caused problems with diarrhea symptoms in elementary school children. Unhygienic food management processes, preservative mixtures, etc. may pose a risk of diarrhea. (9)

According to the observations of researchers at the State Basic School of Setu City of Southern Tangerang, there was insufficient existence of a canteen inside the school which resulted in students and pupils buying foods outside the school that are at risk for health based on interviews with SDN teacher Setu there was a case of diarrhea caused by foods. Based on the above issues, the researchers would like to know "The relationship between the knowledge of Jajanan food and the occurrence of diarrhea in the State SD students of the city of Tangerang South."

METHOD

This research is done to find out the relationship between two variables namely independent variables and dependent variables. This research is a quantitative study using the cross-sectional approach. The population in this study is the children of the students of the 4th grade SD State Setu City Tangerang South. The study was conducted in December 2022, with a population of 84 children. The sample size in this study was 72 respondents.

RESULTS AND DISCUSSION

Results are based on Table 1. gender distribution of 72 respondents, with 38 female respondents (52.8%) and 34 male respondents (47.2%), age distribution with 72 respondents, 9-year-old respondents 39 (54.2%) and 10-year-old 34 (45.8%), diarrhea incidence distribution for 72 respondent, diarrhea incidence of 47 respondents (65.3%), while non-diarrheal respondents were 25 (34.7%), and knowledge distribution from food consumption knowledge from a total of 72 Respondents, the majority of respondents had good knowledge about choosing food for 45 people (62.5%) while the poor knowledge of chooses food for 27 people (37.5%), as well as good behavior in Choosing Food for 34 people (47.2%) and respondents who had bad behavior in choosing food for 38 (52.8%).

Table 1. Analysis Univariate

Variable	Frequency	Percentage (%)
Gender		
Female	38	52.8
Male	34	47.2
Age		
9 years	39	54.2
10 years	34	45.8
Incidence of Diarrhea		
Diarrhea	47	65.3
No Diarrhea	25	34.7
Knowledge		
Good	45	62.5
Not Good	27	37.5

Variable	Frequency	Percentage (%)
Behavior		
Good	23	21.3
Not good	85	78.7
Total	72	100

Based on table 2, the number of respondents who suffered from diarrhea with good knowledge was 29 (64.4%) and those with poor knowledge were 18 (66.7%). Chi-Square test results with a significant rate of 5% obtained a p-value of 0.848 because $p = 0.828 > 0.05$ then H_0 was rejected. That means there is no significant link between the knowledge of food and the occurrence of diarrhea in SDN Setu City of Southern Tangerang.

Table 2. Bivariate Analysis Results

Variable	Street Food				OR (95%-CI)	P Value
	Diarrhea		No Diarrhea			
	n	%	n	%		
Knowledge						
Not good	18	66.7	9	33.3	1.103 (0.403-3.019)	0.848
Good	29	64.4	16	35.6		
Behavior						
Not good	22	57.9	16	42.1	0.495 (0.183-1.342)	0.164
Good	25	73.5	9	25.6		
Total	47	65.3	25	34.7		

It can be seen from the above table most of the respondents who experienced diarrhea with good behavior challenged eating food consumption 25 (73.5%) while with bad behavior about eating food 22 people (57.9%). The result of the test chi-square with a significant rate of 5% obtained a p-value of 0,164 because $p = 0,164 > 0,05$ then H_0 was rejected. This means that there is no significant link between eating behavior and diarrhea in SDN Setu City of Southern Tangerang.

The results of the analysis of the relationship between knowledge variables with the occurrence of diarrhea in primary school children in SDN Setu City of South Tangerang using the chi-square test showed that there was no significant relationship between the determination of n regarding the consumption of food and diarrhea ($p\text{-value} = 0.848 > 0.05$). The cognitive factor is one of the factors that influence the occurrence of diarrhea. Good knowledge of personal hygiene and the environment, how to cook food properly, and how to deal with and prevent diarrhea can help prevent the occurrence of diarrhea. Probably good knowledge is not applied in dietary selection and other factors influence diarrhea. Like poor sanitation.

The results of the analysis of the relationship between the variable behavior of the eggplant food to the occurrence of diarrhea in primary school children in Setu City of South Tangerang SDN using a chi-square test showed that there was no significant relationship between eating behavior and diarrhea ($p\text{-value} = 0.164 > 0.05$). Despite conducting clean behaviors such as keeping hands and environment clean, choosing quality food and water, and paying attention to food safety, there is still a

chance of developing diarrhea. This is because diarrhea can be caused by many factors, such as viruses, bacteria, parasites, and toxins. Even people who practice clean behavior can be exposed to infection through contaminated water and food. In addition, environmental conditions such as drinking water quality, and sanitation, can affect a person's susceptibility to diarrhea. Therefore, conducting a clean behavior alone does not always guarantee a person does not get diarrhea, but it does help prevent and minimize the risk of developing diarrhea. (10)

CONCLUSION AND SUGGESTIONS

Based on the results of the above research, it can be concluded that the number of cases of diarrhea in Setu City of Southern Tangerang in 2022 indicates that there were 47 people (65.3%), there is no significant relationship between the knowledge of food consumption and diarrhea in the Setu Town of Souther Tangerang in 2022 with the results from the chi-square test obtained $p\text{-value } (0,848) > \alpha = 0.05$, and there is not a significant relationship among the behavior of consumptions of food with diarrhea in Sety City of southern Tangerang in 2022, with the result of the chi-square test obtaining $p\text{-value } (0,164) > \alpha = 0.05$

Recommendation for SDN Setu City South Tangerang because the incidence of diarrhea is quite high so it is recommended to organize education on students related to diarrhea, and wash hands with soap with 7 steps. As well as making a canteen in a school or a healthy cantina.

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RELATIONSHIP ATTITUDE AND NURSE KNOWLEDGE ABOUT THE COMPLIANCE OF THE USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE) IN OUTPATIENT INSTALLATION AT TANGERANG SELATAN HOSPITAL

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ABSTRAK

Hasil dari laporan Dewan Keamanan Nasional menunjukkan bahwa kejadian kecelakaan kerja di rumah sakit 41% lebih tinggi dibandingkan dengan pekerja industri lainnya. Kasus yang sering terjadi adalah jarum jarum, goresan, dan penyakit menular. Implementasi K3RS tentu saja ditentukan oleh kebijakan oleh rumah sakit oleh hukum dan peraturan yang berlaku. Tujuan dari penelitian ini adalah untuk melihat bahwa ada hubungan antara pengetahuan dan sikap dengan kepatuhan terhadap penggunaan PPE. Studi ini menggunakan metode analisis kuantitatif dengan desain studi cross-sectional. Penelitian ini dilakukan pada bulan November-Januari di Rumah Sakit Tangerang Selatan. Populasi dari sumber penelitian ini adalah semua Pekerja Rumah Sakit Tangerang Selatan, populasi sasaran adalah perawat di Rumah sakit Tangerang Selatan. Ukuran sampel penelitian ini adalah 100 sampel. Mengambil sampel dengan menggunakan teknik random sampling. Analisis data penelitian menggunakan chi-square. Berdasarkan analisis, ditemukan bahwa semua variabel independen terkait dengan variabel tergantung. Termasuk, pengetahuan p-value 0.000 dan sikap dengan p-value 0.000. Diperkirakan bahwa rumah sakit akan melakukan sosialisasi rutin penggunaan PPE untuk perawat. Perawat Harus Lebih Mematuhi Penggunaan PPE.

Kata Kunci: Kepatuhan, pengetahuan, sikap, perawat, PPE

ABSTRACT

Results from the National Safety Council report show that the incidence of workplace accidents in hospitals is 41% higher compared to other industrial workers. Frequent cases are needle needles, scratches, and infectious diseases. The implementation of K3RS is of course determined by policy by the hospital by applicable laws and regulations. The purpose of this study was to see that there is a relationship between knowledge and attitudes with adherence to PPE use. This study used quantitative analysis methods with a cross-sectional study design. This study was conducted in November-January at South Tangerang Hospital. The population of this research source is all South Tangerang Hospital Workers, the target population is nurses at South Tangerang Hospital. The sample size of this study was 100 samples. Take samples using random sampling techniques. Analysis of research data using chi-square. Based on the analysis, it was found that all independent variables are related to dependent variables. Including, knowledge p-value 0.000 and attitude with p-value 0.000. It is estimated that the hospital will conduct routine socialization of the use of PPE for nurses. Nurses should be more compliant with the use of PPE.

Keywords: Compliance, knowledge, attitudes, nurses, PPE

INTRODUCTION

Disobedient behavior or disobedience while at work is a form of unsafe act by workers. According to the Domino Theory by Heinrich, unsafe actions from humans (unsafety acts) can endanger the workers themselves and other people around them and can end in accidents, one of which is workers who do not use safety equipment while working (1). The implementation of K3RS is of course

determined by the policy of the hospital by the applicable laws and regulations. It is necessary to convey the latest information that must be known by nurses in controlling patient safety with the increasing progress of technology today. Based on the results of the National Safety Council report showing that the occurrence of work accidents in hospitals is 41% greater than other industrial workers. Cases that often occur are needle sticks, scratches, and infectious diseases. In a study conducted at a hospital in Cianjur, it was stated that the number of nurses who had needle stick injuries and other sharp objects was quite high, namely 61.34% (2).

Based on data from the International Labor Organization (ILO), Indonesia ranks second lowest in the world in implementing OSH, which ranks 152 out of 153 countries. It is known that out of 15,043 large-scale companies in Indonesia, only about 317 companies (2.1%) apply SMK3 and work safety standards (3).

The use of PPE in nurses is still categorized as lacking in its implementation and application. Based on research that has been conducted (Siburian, 2012) it is explained that there is still a lack of attitude among health workers, especially nurses using PPE when serving patients, explained by the number 53.30% of nurses with a negative attitude. Another research conducted (Ningsih, 2014) Knowledge in the use of personal protective equipment in the workforce aims to find out all the impacts that occur if a worker does not use Personal Protective Equipment (PPE). Good knowledge will also have a good impact, on the contrary, if a worker does not understand the use of personal protective equipment it will have a bad impact on the worker (4).

Based on the results of observations made by researchers at RSU Tangerang Selatan, researchers assess that there are still many nurses or hospital staff who do not prioritize the correct use of PPE and apply it properly. The visits I conducted in several rooms such as the Emergency Room, ICU, PICU, NICU, and Poly Clinic found that nurses showed an attitude of not caring about wearing the correct PPE such as using masks that are always not worn when going in and out of the room, using protective clothing (gown) which not all nurses wear when in the outpatient installation room and protective shoes that only wear ordinary sandals. Based on the background and observations above, the researcher is interested in researching "The Relationship between Attitudes and Knowledge of Nurses on Compliance with the Use of Personal Protective Equipment (PPE) in Outpatient Installations at South Tangerang Hospital".

METHOD

This research is a quantitative study with a cross-sectional study design. This research was conducted from November 2022 to January 2023 at the South Tangerang Regional General Hospital. The source population is all workers at the South Tangerang Regional General Hospital, the target population is nurses at the South Tangerang Regional General Hospital.

The sample size in this study was 100 samples with a sampling technique, namely Simple Random Sampling. The dependent variable in this study was Compliance with the use of Personal Protective Equipment (PPE) as measured by questions regarding compliance with the use of PPE. The independent variables of this study are attitudes, knowledge, and gender. Which is measured by a questionnaire instrument, with several questions regarding attitudes, and knowledge, This instrument has been tested for validity and reliability.

The data that has been collected is then processed and analyzed descriptively by analytic univariate, and bivariate. Descriptive analysis looks at the proportion, mean, and median, while the analysis looks at the chi-square, to see if the strength of the relationship is measured by the odds ratio. This research has received ethical clearance from the Health Research Ethics Committee, Faculty of Public Health, Muhammadiyah University, Jakarta with the number listed.

RESULTS AND DISCUSSION

The results of the univariate analysis of gender variables showed that 30 (40%) were male nurses while 45 (60%) were female nurses. it is known that nurses at the age of < 17-25 are 59 (78.7%). While nurses aged > 26-35 were 16 (21.3%) nurses. most of the nurses complied with the use of PPE as many as 43 (57.3%) nurses and quite far with nurses who did not comply with the use of PPE as many as 32 (42.7%). nurses with good knowledge were 36 (48%). While nurses with poor knowledge were 39 (52%). nurses who behaved well were 42 (63%). While nurses who behave not well are 33 (37%).

Table 1. Frequency Distribution

Variable	Category	Frequency	Percentage
Gender	Man	45	60.0
	Women	30	40.0
Age	<17-25	59	78.7
	>26-35	16	21.3
PPE Use Compliance	Obey	43	57.3
	Not obey	32	42.7
	Good	36	48.0
Knowledge	Not good	39	52.0
	Good	42	63.0
Attitude	Not good	33	37.0

Based on the bivariate results, it was found that there was a significant relationship between knowledge and compliance with the use of PPE with a P value of 0.000. From the analysis, the OR value = 135.625 (95% CI = 16.048-1146.205) was obtained, meaning that nurses with good knowledge had a 0.000 times greater chance of being compliant with the use of PPE compared to nurses with poor knowledge. Based on the bivariate results obtained there is a significant relationship between attitude and compliance with the use of PPE with a P value of 0.000. From the results of the analysis obtained an OR value = 33.300 (95% CI = 9,200-120,528), meaning that nurses who have a good attitude have

a 0.042 times greater chance of being compliant with the use of PPE compared to nurses who are not good.

Table 2. Distribution of The Relationship between The Independent Variables and The Dependent Variable

Variable	p-value	Description
Knowledge	0.000	There is a relationship
Attitude	0.000	There is a relationship

The results of the analysis showed a relationship between attitude and compliance with the use of PPE. most of them were compliant with the use of PPE in nurses who had a good attitude, namely 37 (88.1%), compared to nurses who were not good, namely 6 (18.2%). From the results of the analysis obtained an OR value = 33.300 (95% CI = 9,200-120,528), meaning that nurses who have a good attitude have a 0.000 times greater chance of being compliant with the use of PPE compared to nurses who are not good.

The results of research conducted by Gladys A., et al (2016), that respondents who have more negative attitudes (62.5%) respondents have negative behavior in using PPE, compared to respondents who behave positively (37.5%). Meanwhile, there were more respondents with a positive attitude (82.6%) of whom had good behavior in using PPE, compared to respondents who behaved less (17.4%) in use. So it can be seen that there is a very significant relationship between attitude and behavior in using PPE in health workers at Banjarbaru Hospital with the Fisher's Exact statistical test results obtained value (p-value = 0.0001).

The results of the analysis of the relationship between knowledge and compliance with the use of PPE show that nurses with good knowledge are 35 (97.2%), compared to nurses with poor knowledge, namely 8 (20.5%). The results of the analysis obtained an OR value = 135.625 (95% CI = 16.048-1146.205), meaning that nurses with good knowledge have a 0.000 times greater chance of being compliant with the use of PPE compared to nurses with poor knowledge. The results of this study are in line with the research of Saputro (2015), it is known that there is a relationship between knowledge and the use of PPE (p-value = 0.002). However, in Putra's research (2012), it was found that there was no relationship between knowledge and the use of personal protective equipment (p = 0.465) (5).

CONCLUSION AND SUGGESTIONS

There is a significant relationship between knowledge and adherence to the use of PPE in nurses at Tangerang Selatan Hospital in 2023. There is a significant relationship between attitudes and adherence to the use of PPE in nurses at the Tangerang Selatan Hospital in 2023.

Suggestions, Carry out regular socialization of the use of PPE and provide education regarding the risks that occur to create nurses who have good knowledge and adherence to the use of PPE. Nurses

must be more compliant with the use of PPE by participating in OSH training on the use of PPE that has been provided by the hospital.

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FACTORS RELATED TO SEXUAL HARASSMENT ON PUBLIC TRANSPORTATION IN JABODETABEK IN 2022

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ABSTRAK

Komnas Perempuan mendefinisikan pelecehan seksual sebagai tindakan seksual melalui sentuhan fisik atau non-fisik dengan organ seksual atau seksualitas korban yang mereka derita, termasuk tindakan berbisik, menggoda, berbicara secara seksual, menampilkan pornografi dan hasrat seksual, menyentuh atau sentuhan tubuh, gerakan atau gerakan dari sifat seksual yang mengakibatkan ketidaknyamanan, penghinaan, merasa degradasi, dan mungkin sampai menyebabkan masalah kesehatan dan keselamatan. Salah satunya adalah (55,7%) responden yang mengalami pelecehan seksual di transportasi umum. Sebagian besar responden yang terkena pelecehan seksual adalah wanita (75,2%). Pelecehan paling sering terjadi di KRL (19,5%). Penyalahgunaan yang paling sering adalah penyalahgunaan verbal (47,7%). Jenis pelecehan verbal yang paling umum adalah seseorang yang menyebutnya indah/manis, dll (42,3%). Sebagian besar pelaku adalah penumpang lain (36,9%). Tujuan penelitian ini adalah untuk menentukan pengalaman pelecehan seksual pada pengguna transportasi umum di Jabodetabek pada tahun 2022. Metode yang digunakan Penelitian ini adalah jenis penelitian kuantitatif dengan pendekatan observasi deskriptif dengan desain studi *cross sectional*. Pengumpulan data dilakukan primer menggunakan kuesioner dengan sampel dari 149 responden yang diambil dengan teknik sampling khusus. Saran setiap petugas transportasi umum adalah untuk memberikan perlindungan yang ketat sehingga tidak ada lagi pelecehan seksual.

Kata Kunci: Pelecehan seksual, transportasi umum, Jabodetabek

ABSTRACT

Komnas Perempuan defines sexual harassment as sexual acts through physical or non-physical touch with the sexual organs or sexuality of the victims they are subjected to, including acts of whistling, flirting, sexually suggestive speech, displaying pornography and sexual desires, touching or touching the body, gestures or gestures of a sexual nature that result in discomfort, offense, feeling degraded, and possibly to the point of causing health and safety issues. One of them was (55.7%) of respondents who had experienced sexual harassment on public transport. The most respondents who were exposed to the most sexual harassment were women (75.2%). The most frequent harassment was in the KRL (19.5%). The most frequent abuse was verbal abuse (47.7%). The most common type of verbal abuse is someone who calls beautiful/handsome sweet etc. (42.3%). The most perpetrators were other passengers (36.9%). The purpose of this study is that this research was conducted to determine the experience of sexual harassment in general transportation users in Jabodetabek in 2022. The method used This research is a type of quantitative research with a descriptive observational approach with a cross-sectional study design. Data collection was carried out primer using a questionnaire with a sample of 149 respondents taken by purposive sampling technique. The advice of every public transport officer is to provide strict protection so that there is no more sexual harassment.

Keywords: Sexual harassment, public transportation, Jabodetabek

INTRODUCTION

Sexual harassment can be said to be the act of any form of harassing or degrading behavior related to sexual impulses, harming or displeasure the person who gets the behavior. Sexual harassment is speech, gestures, and actions that are not desired and imposed on someone without their permission

and are directed at all genders, regardless of gender. These forms of harassment in public spaces or streets are quite often encountered in everyday life, for example, catcalling, whistling, Dickson, pecking/kissing sounds, "shhh" sounds, flirting, vulgar acts, sexist comments, racist, sexual comments, body comments, disability comments, being followed/stalked, blocked, held/touched, or aggressive questions/solicitations (1).

In terminology, the definition of transportation is a tool to carry out work or the process of moving people or goods from one place to another using land, sea (water), or air vehicle aid, both public and private using a machine or not using a machine. Public transportation has an important role in economic development, to achieving the sustainability of public transportation requires serious handling.

Transportation is an important element in the economy because it is related to the distribution of goods, services, and labor, and is the core of the economic movement in the city. Various forms of public transportation modes with the characteristics and level of services provided color the development of the city public transportation system which should be oriented towards comfort and safety so that it can compete with private transportation. Public transportation urban is one of the backbones of an urban economy where a "good" and "healthy" city can be characterized by looking at the condition of its urban public transport system (2). Transportation is a means to move people and or goods from one place to another. The goal is to help people or groups of people reach various desired places or deliver goods from their place of origin to their destination. The process can be done using transportation facilities in the form of public vehicles. Passengers are passenger transportation using public transportation which is carried out with a rental or pay system. Included in the definition of passenger public transportation are city transportation (buses, minibusses, angkot), trains, water transportation, and air transportation (3). Public transport (also known as public transport or mass transportation) is a shared passenger transport service available for use by the general public, in contrast to modes of transportation such as taxis, buses that can be rented, and online transportation network companies, which is inaccessible to the general public without self-booking. Public transportation modes include city buses, trams (or small trains) trains, high-speed trains (subways, LRT, etc.), and ferries. Intercity public transport is dominated by airlines, intercity buses, trains, and intercity trains (4).

Komnas Perempuan defines sexual harassment as sexual acts through physical or non-physical touching with the sexual organs or sexuality of the victims they are subjected to, including acts of whistling, flirting, sexually suggestive speech, displaying pornography and sexual desires, touching or touching the body, movements or gestures that are sexual that result in discomfort, offense, feeling degraded, and possibly to the point of causing health and safety problems (5).

In Law Number 12 of 2022 in Article 4, the criminal act of sexual violence consists of non-physical sexual harassment and physical sexual harassment, therefore all acts of sexual harassment can

be prosecuted, should all people who experience sexual harassment should not be afraid to speak out because of the existence of the article, acts of sexual harassment are biased in the case (6).

METHOD

This research is a type of quantitative research with a cross-sectional study design, to see the relationship between dependent and independent variables at one time. In this study, what was included in the dependent variable was sexual harassment. Age, Gender, Occupation, Education, Marital Status, Location of Residence, Location of Place of work/school/college, type of transportation, frequency of use of transportation, density of transportation, and the time of use of transportation are independent variables. The sample used was a transportation user in Jabodetabek with a total of 149, which was taken by purposive sampling technique. The data collection tool is in the form of a questionnaire. The analysis in this study was carried out using statistical software with one stage, namely univariate analysis to determine the frequency distribution, and has received ethical clearance from the Health Research Ethics Committee of the Faculty of Public Health, Muhammadiyah University of Jakarta with a number: 10.024.B/KEPK-FKMUMJ/I/2023.

RESULTS AND DISCUSSION

The results of the univariate analysis of gender variables showed that 30 (40%) were male nurses while 45 (60%) were female nurses. it is known that nurses at the age of < 17-25 are 59 (78.7%). While nurses aged > 26-35 were 16 (21.3%) nurses. most of the nurses complied with the use of PPE as many as 43 (57.3%) nurses and quite far with nurses who did not comply with the use of PPE as many as 32 (42.7%). nurses with good knowledge were 36 (48%). While nurses with poor knowledge were 39 (52%). nurses who behaved well were 42 (63%). While nurses who behave not well are 33 (37%).

Table 1. Frequency Distribution

Variable	Category	Frequency	Percentage
Sexual Harassed	No	66	44.3
	Yes	83	55.7
Age	≥ 40	23	15.2
	< 40	127	84.1
Marital Status	Married	49	32.9
	Divorced	3	2.0
	Unmarried	97	65.1
Age	Man	37	24.8
	Woman	112	75.2
Attitude	Good	42	63.0
	Not good	33	37.0

Based on the bivariate results, it was found that there was a significant relationship between knowledge and compliance with the use of PPE with a p-value of 0.000. From the analysis, the OR value = 135.625 (95% CI = 16.048-1146.205) was obtained, meaning that nurses with good knowledge had a 0.000 times greater chance of being compliant with the use of PPE compared to nurses with poor knowledge. Based on the bivariate results obtained there is a significant relationship between attitude and compliance with the use of PPE with a p-value of 0.000. From the results of the analysis obtained an OR value = 33.300 (95% CI = 9.200-120.528), meaning that nurses who have a good attitude have a 0.042 times greater chance of being compliant with the use of PPE compared to nurses who are not good.

Table 2. Distribution of The Relationship between The Independent Variables and The Dependent

Variable		
Variable	p-value	Description
Knowledge	0.000	There is a relationship
Attitude	0.000	There is a relationship

The results of the analysis showed a relationship between attitude and compliance with the use of PPE. most of them were compliant with the use of PPE in nurses who had a good attitude, namely 37 (88.1%), compared to nurses who were not good, namely 6 (18.2%). From the results of the analysis obtained an OR value = 33.300 (95% CI = 9.200-120.528), meaning that nurses who have a good attitude have a 0.000 times greater chance of being compliant with the use of PPE compared to nurses who are not good.

The results of research conducted by Gladys A., et al (2016)(7), that respondents who have more negative attitudes (62.5%) respondents have negative behavior in using PPE, compared to respondents who behave positively (37.5%). Meanwhile, there were more respondents with a positive attitude (82.6%) of whom had good behavior in using PPE, compared to respondents who behaved less (17.4%) in use. So it can be seen that there is a very significant relationship between attitude and behavior in using PPE in health workers at Banjarbaru Hospital with the Fisher's Exact statistical test results obtained value (p-value = 0.0001).

The results of the analysis of the relationship between knowledge and compliance with the use of PPE show that nurses with good knowledge are 35 (97.2%), compared to nurses with poor knowledge, namely 8 (20.5%). The analysis results obtained an OR value = 135.625 (95% CI = 16.048-1146.205), meaning that nurses with good knowledge have a 0.000 times greater chance of being compliant with the use of PPE compared to nurses with poor knowledge. The results of this study align with the research of Saputro (2015) (8), it is known that there is a relationship between knowledge and the use of PPE (p-value = 0.002). However, in Putra's research (2012), it was found that there was no relationship between knowledge and the use of personal protective equipment (p-value = 0.465) (9).

CONCLUSION AND SUGGESTIONS

There is a significant relationship between knowledge and adherence to the use of PPE in nurses at Tangerang Selatan Hospital in 2023. There is a significant relationship between attitudes and adherence to the use of PPE in nurses at the Tangerang Selatan Hospital in 2023. Carry out regular socialization of the use of PPE and provide education regarding the risks that occur to create nurses who have good knowledge and adherence to the use of PPE. Nurses must be more compliant with the use of PPE by participating in OSH training on the use of PPE that has been provided by the hospital.

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RELATIONSHIP BETWEEN DIET AND STRESS WITH A HISTORY OF GASTRITIS IN ADOLESCENTS AT MADRASAH ALIYAH NEGERI 2 CIPONDOH TANGERANG CITY IN 2023

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ABSTRAK

Gastritis dikalangan masyarakat dikenal dengan sebutan sakit maag atau sakit maag yang datang secara tiba-tiba. Di negara berkembang, angka kejadian maag paling banyak terjadi pada kelompok usia muda dan didominasi oleh usia ≤ 20 tahun yaitu 78,6% dari usia tersebut adalah remaja yang disebabkan oleh faktor internal yaitu kondisi yang dapat memicu sekresi asam lambung yang berlebihan dan faktor eksternal yang dapat menyebabkan penyakit maag. menyebabkan iritasi dan infeksi. Tujuan penelitian ini adalah untuk melihat apakah ada hubungan antara frekuensi makan, jenis makanan, ukuran porsi, dan stres dengan riwayat penyakit maag. Penelitian ini menggunakan metode Analitik Kuantitatif dengan desain studi cross-sectional. Penelitian ini dilaksanakan pada bulan Oktober-Desember di Madrasan Aliyah Negeri 2 Cipondoh Kota Tangerang. Populasi penelitian ini adalah seluruh siswa MAN 2 Cipondoh, populasi sasarannya adalah siswa kelas 11-12 MAN 2 Cipondoh. Besar sampel penelitian ini adalah 93 siswa Madrasah Aliyah 2 Cipondoh. Sedangkan pengambilan sampel menggunakan teknik Simple Random Sampling. Analisis data penelitian menggunakan chi-square. Berdasarkan analisis diketahui bahwa seluruh variabel independen berhubungan dengan variabel dependen. Meliputi, frekuensi makan dengan p.value 0,000, jenis makan dengan p.value 0,000, porsi makan dengan p.value 0,034, dan stres dengan p.value 0,000. Siswa MAN 2 Cipondoh diharapkan lebih memperhatikan pola makannya mengingat hampir separuh responden memiliki frekuensi makan yang lebih sedikit, mengonsumsi jenis makanan yang mengganggu, dan porsi makan yang lebih sedikit.

Kata Kunci: Gastritis, diet, stres

ABSTRACT

Gastritis is known among people as stomach ulcers or heartburn that comes suddenly. In developing countries, the incidence of gastritis mostly occurs in the young age group and is dominated by ≤ 20 years, namely 78.6% of this age is a teenager caused by internal factors, namely conditions that can trigger excessive gastric acid secretion and external factors that cause irritation and infection. The purpose of this study was to see if there was a relationship between eating frequency, type of meal, portion size, and stress with a history of gastritis. This study used the Quantitative Analytic method with a cross-sectional study design. This research was conducted in October-December at Madrasan Aliyah Negeri 2 Cipondoh, Tangerang City. The population of this research is all students of MAN 2 Cipondoh, the target population is students of grades 11-12 of MAN 2 Cipondoh. The sample size of this study was 93 students of Cipondoh 2 Madrasah Aliyah. While taking samples using the Simple Random Sampling technique. Analysis of the research data is using chi-square. Based on the analysis, it was found that all independent variables were related to the dependent variable. Includes, frequency of eating with a p-value of 0.000, types of eating with a p-value of 0.000, portions of food with a p-value of 0.034, and stress with 0.000. It is hoped that the students of MAN 2 Cipondoh will pay more attention to their diet considering that almost half of the respondents have less frequency of eating, consume irritating types of food, and have fewer food portions.

Keywords: Gastritis, diet, stress

INTRODUCTION

Gastritis is a condition that affects the inflamed lining of the stomach (1). Gastritis is known among the public as heartburn or heartburn that comes suddenly (2). Gastritis is a disease of the digestive tract with clinical manifestations including abdominal pain, flatulence, acid regurgitation, nausea, belching, loss of appetite, and other symptoms, and attacks that often bring great harm to the sufferer's daily life (3). Gastritis is a non-communicable disease and interferes with activities (4). In developing countries, the incidence of gastritis mostly occurs in the young age group and is dominated by ≤ 20 years, namely 78.6% of this age is a teenager caused by internal factors, namely conditions that can trigger excessive gastric acid secretion and external factors that cause irritation and infection (5).

WHO conducted several reviews in various countries in the world related to the incidence of gastritis and the results showed that the incidence of gastritis in England was 22%, China at 31%, Japan at 14.5%, Canada at 35%, and France at 29.5% (6). In the world there are around 1.8 - 2.1 million gastritis cases in the population each year, in Southeast Asia there are around 583,635 cases of the population each year. According to WHO in Indonesia, gastritis cases are quite high with a prevalence of 274,396 cases out of 238,452. 952 inhabitants or 40.8% (7). According to the Tangerang City Service Health Profile In 2014 the incidence of gastritis in Tangerang City was 11% and decreased in 2015 gastritis in Tangerang City (8). Based on data from the Tangerang City Health Office Gastritis is included in the 10 most common diseases in Puskesmas and hospitals in Tangerang City (9).

The impact of gastritis is that it interferes with a person's activities and nutritional status (10). Gastritis if not treated or underestimated can cause several complications, such as stomach ulcers, stomach bleeding, and stomach cancer (11). Gastritis sufferers can also experience anemia, this is because erosive gastritis is believed to cause chronic bleeding and make sufferers experience anemia (12).

Based on preliminary studies on several teenagers who are at MAN 2 Cipondoh Tangerang City, on average, teenagers in grades 11-12 attend extracurriculars and some tutoring outside of school, especially grade 12 who wish to continue their education at State Universities, so they have a risk of developing gastritis due to stress. and eating patterns that are not good for teenagers because they want to continue their education at state universities, Apart from that around the MAN 2 Cipondoh school environment some sellers sell some foods that can trigger gastritis incidents and also the behavior of some teenagers doing things that can trigger gastritis incidents. Based on the description of the problem, the researcher is interested in conducting a study entitled "The Relationship between Diet and Stress Levels with a History of Gastritis in Adolescents MAN 2 Cipondoh, Tangerang City".

METHOD

This research is a quantitative study with a cross-sectional study design. This research was conducted from November 2022 to January 2023 at Madrasah Aliyah Negeri 2 Cipondoh. The source population is all students of MAN 2 Cipondoh, the target population is students of grades 11-12 MAN 2 Cipondoh.

Inclusion criteria in this study were students in grades 11 and 12 who were active and registered at MAN 2 Cipondoh, willing to become respondents, being in their teens. Exclusion criteria were grade 10 students enrolled at MAN 2 Cipondoh. The sample size in this study was 93 samples with the sampling technique of simple random sampling.

The dependent variable in this study was the history of gastritis as measured by the question History of gastritis diagnosed by a doctor in the last 5 months. The independent variables of this study are meal frequency, type of meal, portion size, and stress. What is measured by the questionnaire instrument is some questions regarding meal frequency, type of meal, and meal portion. The instrument has been tested for validity and reliability.

The data that has been collected is then processed and analyzed in a descriptive-analytic univariate Bivariate manner. Descriptive analysis is done by looking at the proportion, mean, and median, while analytic by looking at the chi-square, to see if the strength of the relationship is measured by the odds ratio. This research has received ethical clearance from the Health Research Ethics Committee, Faculty of Public Health, Muhammadiyah University, Jakarta with the number listed: No.10.713.B/KEPK-FKMUMJ/XII/2022.

RESULTS AND DISCUSSION

The results of the univariate analysis of the sex variable revealed that 38.7% of the respondents were male, while 61.3% of the respondents were female. As many as 19.4% of respondents aged 16 years, as many as 58.1% of respondents aged 17 years, and as many as 22.6% of respondents aged 18 years. 49.5% of respondents had a history of gastritis, while 50.5% of respondents did not have a history of gastritis. As many as 54.8% of respondents have a lower frequency of eating, while as many as 45.2% of respondents do not have a good frequency of eating. 55.9% of respondents consumed irritating foods, while 44.1% of respondents did not consume irritating foods. As much as 39.8% of respondents consume fewer food portions in a day, while as many as 60.2% of respondents consume good food portions in a day. 47.3% of respondents experienced stress, while 52.7% of respondents did not experience stress.

Table 1. Frequency Distribution

Variable	Category	Frequency	Percentage
Gender	Man	36	38.7
	Women	57	61.3
Age	16	18	19.4
	17	54	58.1
	18	21	22.6
History of Gastritis	Gastritis	46	49.5
	No gastritis	47	50.5
Meal Frequency	Not enough	51	54.8
	Good	42	45.2
Eating type	irritate	52	55.9
	not irritating	41	44.1
Meal portion	Not enough	37	39.8
	Good	56	60.2
Stress	Stress	46	47.3
	No stress	49	52.7

Based on the analysis, it was found that all independent variables were related to the dependent variable. Includes, frequency of eating with a p-value of 0.000, types of eating with a p-value of 0.000, portions of food with a p-value of 0.034, and stress with 0.000

Table 2. Distribution of The Relationship between The Independent Variable and The Dependent Variable

Variable	p-value	Description
Meal Frequency	0.000	There is a relationship
Eating type	0.000	There is a relationship
Meal portion	0.034	There is a relationship
Stress	0.000	There is a relationship

The results of the bivariate analysis in this study showed a significant relationship between the variable history of gastritis and eating frequency. The odds of this study are 0.020, which means that someone who has less frequency of eating is 0.020 times more at risk of having a history of gastritis compared to a good frequency of eating, which can also be called a protecting factor or a factor preventing gastritis. This research is in line with this research, namely research conducted by Widia in 2020 which stated that there was a significant relationship between eating frequency and a history of gastritis with a p-value of 0.05. The frequency of eating a person does not directly cause gastritis, there are other factors such as the quality and quantity of food consumed, *Helicobacter pylori* infection, and stress (13).

Based on the bivariate results carried out with a p-value of 0.000, which means that there is a significant relationship between the type of food and a history of gastritis, with an odds of 19.444 which means that someone who has a type of food that irritates is 19.444 times more at risk compared to a type of food that does not irritate. The results of this study are in line with research conducted by Mutmainah in 2018 which revealed that the type of food with a history of gastritis had a p-value of 0.023 which meant that there was a significant relationship between the type of food and a history of

gastritis. Foods and drinks that are irritating can increase gastric acid secretion and infect *Helicobacter pylori*. Types of irritating foods can also carry *Helicobacter pylori* via the fecal-oral route, thereby irritating the stomach and causing gastritis (14).

From the results of the bivariate analysis obtained by looking at the p-value, which is equal to 0.034, which means that there is a significant relationship between meal portions and a history of gastritis, with an odds value of 0.077, which means that someone who eats less is 0.077 times more at risk than eating portions. A good one can also be called a protective or preventive factor for the occurrence of gastritis. The results of this study are in line with research conducted by Emiliana which states that there is a significant relationship between food portions and the incidence of gastritis with a p-value of 0.000 (15).

From the results of the bivariate analysis obtained by looking at the p-value, which is equal to 0.000, which means that there is a significant relationship between the level of stress and a history of gastritis with an odds value of 6.667 which means that someone who is experiencing stress is 6.667 times more at risk than a good portion of food, can also be called a risk factor for gastritis. The results of this study are in line with research conducted by Rizkiana in 2018 which stated that there was a significant relationship between stress and gastritis with a p-value of 0.000 (8). According to Hidayat (2010) said that the stress experienced by a person can cause a reaction in the body. Gastrointestinal reactions can cause disturbances such as abdominal swelling, nausea, and increased pain due to stomach acid (gastritis) (16).

CONCLUSION AND SUGGESTIONS

Almost half of the respondents had a history of gastritis, namely as much as 49.5%. Most of the respondents were female, namely 61% and 17 years old 58.1%. As many as 54.8% of respondents had less frequency, 55.9% of respondents had irritating types of food, and respondents had fewer food portions, as many as 39.8%. There is a relationship between eating frequency and a history of gastritis with a p-value of 0.000. There is a relationship between the type of food and a history of gastritis with a p-value of 0.000. There is a relationship between food portions and a history of gastritis with a p-value of 0.034. There is a relationship between stress and a history of gastritis with a p-value of 0.000.

It is expected that respondents will pay more attention to diet considering that almost half of the respondents have less frequency of eating, consume irritating types of food, and have fewer food portions. Respondents should increase their awareness of the causes of stress they are experiencing because stress, apart from causing gastritis, can also interfere with other activities. It is hoped that readers can apply gastritis prevention efforts to avoid gastritis/ulcer.

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RELATIONSHIP BETWEEN ENVIRONMENTAL SANITATION AND THE INCIDENCE OF DIARRHEA IN TODDLERS IN THE WORK AREA OF THE CIRENDEU HEALTH CENTER, SOUTH TANGERANG CITY IN 2022

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ABSTRAK

Menurut Organisasi Kesehatan Dunia (WHO) setiap tahun diare menyebabkan 525.000 kematian pada balita dan mengakibatkan 1,7 juta anak di dunia menderita penyakit diare. Hasil Riskesdas tahun 2018 menunjukkan prevalensi diare pada semua umur sebanyak 8%, pada balita sebanyak 12,3%, dan pada bayi sebanyak 10,6%. Cakupan pelayanan diare tahun 2021 pada semua umur sebesar 33,6% sedangkan pada balita sebesar 23,8%. Penelitian ini merupakan jenis penelitian kuantitatif dengan desain studi cross-sectional yang menggunakan teknik purposive sampling. Penelitian ini dilakukan pada ibu yang mempunyai balita di Wilayah Kerja Puskesmas Cirende Tahun 2022. Sampel dalam penelitian ini sebanyak 77 responden. Teknik analisis data pada penelitian ini adalah univariat dan bivariat dengan menggunakan uji Chi-square. Hasil uji bivariat menggunakan uji Chi-Square dengan $\alpha = 0,005$ ditemukan hasil Ada hubungan antara sanitasi lingkungan dengan kejadian diare pada balita di Wilayah Kerja Puskesmas Cirende Tahun 2022 dengan ($p\text{-value} = 0,003 \leq \alpha = 0,05$) dan nilai Odds ratio sebesar 6,042. Berdasarkan hasil penelitian, penelitian ini menyatakan bahwa terdapat hubungan antara sanitasi lingkungan dengan kejadian diare pada balita di Wilayah Kerja Puskesmas Cirende Tahun 2022. Memberikan edukasi pentingnya tempat sampah yang tertutup dan tertutup rapat.

Kata Kunci: Diare, sanitasi lingkungan, balita

ABSTRACT

According to the World Health Organization (WHO) each year diarrhea causes 525,000 deaths in toddlers and results in 1.7 million children in the world suffering from diarrheal diseases. Riskesdas results in 2018 showed the prevalence of diarrhea in all ages as much as 8%, in toddlers as much as 12.3%, and in infants as much as 10.6%. Sample Registration System The coverage of diarrhea services in 2021 at all ages was 33.6% while in toddlers it was 23.8%. This research is a type of quantitative research with a cross-sectional study design that uses purposive sampling techniques. This research was conducted on mothers who have toddlers in the Cirende Health Center Working Area in 2022. The sample in this study was 77 respondents. The data analysis technique in this study was univariate and bivariate using the Chi-square test. Bivariate test results using the Chi-Square test with $\alpha = 0.005$ found results There is a relationship between environmental sanitation and the incidence of diarrhea in toddlers in the Cirende Health Center Working Area in 2022 with ($p\text{-value} = 0.003 \leq \alpha = 0.05$) and a Odds ratio value of 6.042. Based on the results of the study, this study states that there is a relationship between environmental sanitation and the incidence of diarrhea in toddlers in the Cirende Health Center Working Area in 2022. Provide education on the importance of trash cans that are closed and tightly closed.

Keywords: Diarrhea, environmental sanitation, toddlers

INTRODUCTION

Environmental conditions are very influential on health both individually and in the wider community (1). Health problems that exist in the community can arise from the lack of clean water,

which can lead to poor personal hygiene and environmental sanitation so it becomes the beginning of the development of infectious diseases (2). Risk factors that influence the incidence of diarrhea in toddlers include environmental sanitation (the use of clean water facilities, family latrines, and garbage disposal) (3).

Sanitation is a condition that can affect the condition of health problems related to human feces and infections that are directly related to drainage, and removal of feces and garbage from households (4). Poor environmental sanitation can cause the incidence of diarrhea to increase, on the contrary, if the environmental sanitation is very good, it can reduce the incidence of diarrhea (5).

Diarrhea is a condition when a person or toddler experiences a liquid and frequent bowel movement in a short time with a frequency of defecation three or more times in the last three months (6). Diarrheal diseases have several related factors, including the absence of clean water, water that has been polluted with feces, and a less-than-optimal environment. If the environment is unhealthy and has been polluted by diarrhea germs, the transmission of diarrhea is easier (7).

Diarrhea is a disease caused by infection with microorganisms present in the environment. This diarrheal disease is related to the mouth and is spread almost all over the world (8). In children, diarrhea can be caused by bacterial infections such as microscopic worms (9). In Indonesia, diarrhea is still a dilemma problem that often causes klb (extraordinary events). Factors that can trigger the incidence of diarrheal outbreaks are very poor environmental sanitation factors (10). Diarrhea is also declared a deadly second disease affecting children and toddlers (11).

In children and toddlers, the type of disease and cause of death is caused by germs that enter the mouth through food, water, and unclean hands. Poor hygiene and environmental health including clean water supplies can cause 88% of deaths in children and toddlers worldwide due to diarrheal diseases (12). In living daily life cleanliness is very important and needs to be considered, because hygiene can affect a person's health and psychic (13). In addition, education also has a significant influence (14).

According to the World Health Organization (WHO), diarrhea is still a major problem in all age groups including toddlers. Diarrhea is ranked second as the leading cause of death for toddlers in the world, although it can be cured and treated (15). Annually diarrhea causes 525,000 deaths in children under five and results in 1.7 million children in the world suffering from diarrheal diseases (16). The results of a study uploaded by the Lancet in 2016 showed that diarrhea was the 8th cause of death at all ages and ranked 5th as the cause of death in toddlers (17). In developing countries, diarrhea occurs a lot, in countries that have low incomes. Of all under-five deaths due to diarrheal diseases, 78% occurred in Africa and Southeast Asia (18).

Riskesdas results in 2018 showed the prevalence of diarrhea in all ages as much as 8%, in toddlers as much as 12.3%, and in infants as much as 10.6%. *Sample Registration System* The coverage

of diarrhea services in 2021 at all ages was 33.6% while in toddlers it was 23.8%. The disparity in diarrhea service coverage at all ages in North Sumatra province is 6.7% and in Banten province 68.6%. Furthermore, the disparity in diarrhea service coverage for toddlers in North Sumatra province is 3.3% and for Banten province 55.3% (19).

The results of the research were conducted by conducting a study on the relationship between clean water facilities and the incidence of diarrhea in toddlers in the Karanganyar Puskesmas Work Area. The results shown were the relationship between clean water facilities and the incidence of diarrhea in toddlers. Because respondents who do not have the physical quality of clean water will be easily infected with diarrheal diseases. The people who were respondents to the study used wells as their source of clean water. The well they used was outside the house without a cover or roof that closed the well (20).

Based on the results of a preliminary study conducted by researchers at the research site at posyandu Dahlia 3 to mothers who have toddlers, it shows that there is still low maternal knowledge about diarrhea in toddlers and the lack of proper sanitation that exists, this is because when toddlers experience diarrhea, they do not immediately get the help of doctors but are given stall medicine. In addition, the quality of the water in their homes is not good which requires them to buy gallons of water for consumption, the condition of the trash cans they have is also there that does not have a lid so the garbage is covered with flies, the cleanliness of their latrines is sometimes still not considered because it is rarely cleaned.

Based on the existing problems, researchers are interested in conducting a study entitled "The Relationship between Environmental Sanitation and the Incidence of Diarrhea in Toddlers in the Cireundeu Health Center Work Area".

METHOD

This research is a type of quantitative research with a *cross-sectional* study design that uses *purposive sampling* techniques. This research was conducted on mothers who have toddlers in the Cireundeu Health Center Working Area in 2022. This study was conducted by collecting data on respondents' characteristics, environmental sanitation, and the incidence of diarrhea in toddlers using questionnaires. The sample in this study was 77 respondents. The dependent variable in this study is the incidence of diarrhea, while the independent variable in this study is environmental sanitation. This research has gone through an ethics review process and obtained the feasibility of research ethics by the ethics commission of the Faculty of Public Health with ethics number No.10.034.B/KEPK-FKMUMJ/I/2023. Data analysis techniques in this study were carried out by gradually including univariate analysis to calculate frequency distribution, and bivariate analysis to see the relationship between dependent variables and independent variables using *Chi-square*. Data analysis in this study used the help of *software*.

RESULTS AND DISCUSSION

Based on table 1. It is known that as many as 77 respondents, there were 59.7% of mothers aged 26-35 years. Meanwhile, as many as 9.1% of mothers have the age of 17-25 years. There were 26.0% of working mothers, while 74% showed the results of unemployed mothers. There were 50 respondents (64.9%) who had a high school education. While as many as 4 respondents (5.2%) the least had an education after elementary school, there were 40 (51.9%) toddlers aged 1-4 years. Meanwhile, toddlers aged 5-6 years were 3 (3.9%) toddlers, and as many as 36 (46.8%) respondents were male. Meanwhile, as many as 41 (53.2%) respondents were female. It can be seen that as many as 24 (57.1%) respondents have diarrhea in toddlers, while as many as 53 (68.8%) respondents do not have diarrhea in toddlers. Respondents who had an unqualified state of environmental sanitation were 44 (57.1%), while respondents who had an eligible environmental sanitation state were 33 (42.9%).

Table 1. Frequency Distribution

Characteristic	Sum	Percentage (%)
Mother's Age		
17-25	7	9.1
26-35	46	59.7
36-45	24	31.2
Work		
Work	20	26.0
Not Working	57	74.0
Education		
Finished Sd	4	5.2
Finished junior high school	12	15.6
Graduated from high school	50	64.9
Finished PT	11	14.3
Toddler Age		
0-2	34	44.2
1-4	40	51.9
5-6	3	3.9
Toddler Gender		
Man	36	46.8
Woman	41	53.2
Incidence of Diarrhea		
Diarrhea	24	31.2
No Diarrhea	53	68.8
Environmental Sanitation		
Ineligible	44	57.1
Qualify	33	42.9

The results of the analysis of the relationship between environmental sanitation and diarrhea incidence were 20 (45.5%) respondents who had an environmental sanitation state were not eligible to experience diarrhea events, while as many as 29 (87.9%) respondents who had environmental sanitation conditions were eligible not to experience diarrhea events. After being tested statistically using the *chi-square* test with a *continuity correction* test, a p-value of 0.003 was obtained. From the results of the analysis, an OR value of 6.042 was obtained, meaning that the incidence of diarrhea that meets the

environmental sanitation requirements at the Cireundeu Health Center has a 6.042 times chance of avoiding diarrheal diseases compared to people who have an unqualified environmental sanitation condition.

Table 2. Distribution of The Relationship between The Independent Variable and The Dependent Variable

Variable	p-value	Description
Environmental Sanitation	0.003	There is a relationship

Diarrhea is a condition when a person or toddler experiences a liquid and frequent bowel movement in a short period with a frequency of defecation three or more times in the last three months. (6). Diarrhea is also known as a common symptom in digestive system disorders caused by a wide variety of pathogens such as viruses, bacteria, and parasites (21).

According to the *World Health Organization* (WHO), diarrheal disease is still the main cause of problems in all age groups, including toddlers. Diarrhoeal disease is ranked second as the leading cause of death for toddlers in the world, as many as 525,000 every year toddlers die from diarrheal diseases. 78% of under-five deaths from diarrhea occur in Southeast Asia and Africa (17).

At the age of toddlers, their health conditions are still not balanced, making it easier for toddlers to develop infectious diseases such as diarrhea (22). In Indonesia, diarrheal disease is still a bad problem because it can cause klb (extraordinary events) factors that can cause klb in diarrheal disease, one of which is poor environmental sanitation (11).

Environmental sanitation is one way to carry out disease prevention which is carried out by controlling environmental, physical, chemical, biological, and social risk factors (23). According to Agustina, environmental sanitation is an effort per individual or community to pay attention to and control the environment to avoid health problems caused by environmental factors (24).

Poor environmental sanitation conditions can cause diarrhea events to increase, while if the environmental sanitation conditions are very good, it will reduce the incidence of diarrhea (5). Diarrheal disease is an environmental-based disease, Several factors that can be related to environmental sanitation and the incidence of diarrhea are the lack of clean water available, water that has been polluted with feces, and an inadequate environment. An unhealthy environment contaminated with diarrheal germs can cause easier transmission of diarrhea (7).

According to Agustina, family trash cans have a significant relationship to diarrheal diseases. If the family does not have a good trash can, flies will easily perch and make a breeding ground that can contaminate the food consumed by toddlers and cause diarrhea (24).

Based on the results of this study Based on the results, it can be seen that 20 (45.5%) respondents have an environmental sanitation state that is not eligible to experience diarrhea events, while as many as 29 (87.9%) respondents who have an environmental sanitation condition are eligible not to experience diarrhea events.

After being tested statistically using the *chi-square* test with a *continuity correction* test, a *p*-value of 0.003 was obtained. Based on these results, it can be concluded that there is a relationship between environmental sanitation and the incidence of diarrhea at the Cireundeu Health Center in 2022.

From the results of the analysis, an OR value of 6,042 was obtained, meaning that the incidence of diarrhea that meets the environmental sanitation requirements at the Cireundeu Health Center has a 6,042 times chance of avoiding diarrheal diseases compared to people who have an unqualified environmental sanitation condition.

The results of the study conducted by Isramilda are in line with this study which shows that there is a significant relationship between environmental sanitation and the incidence of diarrhea in toddlers. Based on the results of research conducted using the *chi-square* test, a *p*-value of 0.030 was obtained (25). This is also in line with other studies conducted by Zakiyah which said that environmental factors such as drinking water sources, types of fecal dumps, and landfills are related to the incidence of diarrhea in toddlers with statistical test results getting a *p*-value of 0.028 (26).

Based on the results of the hypothesis, it show that there is a relationship between environmental sanitation and the incidence of diarrhea in toddlers in the Cireundeu Health Center Work Area in 2022. This shows that the state of environmental sanitation which is increasingly qualified, has a greater chance of avoiding diarrheal diseases.

CONCLUSION AND SUGGESTIONS

Based on the results of a study conducted on 77 respondents in the Cireundeu Puskesmas Working Area, it can be concluded that there is a relationship between environmental sanitation and the incidence of diarrhea in toddlers. With a *p-value* of 0.003 and an OR value of 6.042. Based on the conclusions, the suggestions that can be given by the investigator are as follows: Conduct a survey on the condition of environmental sanitation in the Puskesmas work area, including access to clean water, garbage disposal, and sanitation facilities and providing education about the importance of trash cans that have closed and closed tightly.

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ANALYSIS OF THE RECRUITMENT AND SELECTION PROCESS OF HUMAN RESOURCES (HR) AT PERMATA PAMULANG HOSPITAL

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ABSTRAK

Kebutuhan Sumber Daya Manusia sangat diperlukan untuk mengisi jabatan-jabatan yang dibutuhkan suatu fasilitas pelayanan kesehatan baik lingkup pegawai, tenaga medis, pimpinan, dan pekerja lainnya. Dalam mendapatkan pegawai yang berkualitas, pihak rumah sakit akan menyeleksi pelamar ketika rekrutmen telah selesai. Seleksi sendiri merupakan kegiatan memisahkan pelamar menjadi dua bagian antara diterima dan tidak diterima. Penelitian ini bertujuan untuk melihat gambaran proses seleksi atau rekrutmen sumber daya manusia (SDM) RS Permata Pamulang pada tahun 2022. Penelitian ini menggunakan pendekatan kualitatif dengan metode deskriptif. Penelitian ini dilakukan dengan menggunakan wawancara mendalam terhadap informan tentang pandangan, keyakinan, pengalaman, dan pengetahuan perilaku informan mengenai suatu hal secara keseluruhan. Informan dalam penelitian ini berjumlah 3 orang yaitu informan kunci, informan utama, dan informan pendukung. Penelitian ini dilakukan di RS Permata Pamulang pada bulan Oktober 2022 hingga Februari 2023. Hasil penelitian ini menyatakan bahwa perencanaan rekrutmen akan dimulai ketika suatu unit meminta penambahan pegawai karena adanya beban kerja. Setelah perencanaan, RS Permata Pamulang akan mulai merekrut dan menyeleksi sumber daya manusia yang diinginkan. RS Permata Pamulang melakukan seleksi lamaran yang dilakukan oleh pejabat tinggi seperti HR, koordinator, dan user dari unit yang membutuhkan pegawai baru.

Kata Kunci: Rekrutmen, seleksi, sumber daya manusia

ABSTRACT

The need for Human resources is needed to fill the positions needed by a health service facility for the scope of employees, medical personnel, leaders, and other workers. In getting qualified employees, the hospital will select applicants when the recruitment is complete. Selection itself is an activity of separating applicants into two parts between being accepted and not being accepted. This research aims to look at the description of the selection or recruitment process for human resources (HR) at Permata Pamulang Hospital in 2022. This research uses a qualitative approach with a descriptive method. This research was conducted using in-depth interviews with informants about the views, beliefs, experiences, and knowledge of the informants' behavior regarding a matter as a whole. 3 informants in this study were key informants, main informants, and supporting informants. This research was conducted at Permata Pamulang Hospital from October 2022 to February 2023. The results of this study stated that recruitment planning would begin when a unit requested additional employees due to workload. After planning, Permata Pamulang Hospital will begin recruiting and selecting the desired human resources. Permata Pamulang Hospital conducts a selection of applications made by high-ranking officials such as HR, coordinators, and users from units that require new employees.

Keywords: Recruitment, selection, human resources

INTRODUCTION

Various fields and parts of human life have changed in the current era of globalization. The most frequent change is the importance of human needs. All agencies, especially healthcare facilities, also need human resources (HR) that must be met (1). The need for human resources is needed to fill

the positions needed by a health service facility both for the scope of employees, medical personnel, leaders, and other workers (2).

Available human resources also determine the success of a health service facility. In addition, human resources who have good personal qualities, have broad insight, and are productive and healthy are the most valuable assets in healthcare facilities (3). Because without human resources health service facilities cannot run as they should (4).

In activities related to human resources, an administration is needed which is referred to as human resource management (HRM). Human resource management in every healthcare facility, especially hospitals, has an important role in managing the available human resources. In addition to managing human resource management, it also has a role in planning, managing, controlling, ensuring the availability of human resource needs, providing special training, and providing good motivation so that available human resources can create quality services (3).

In meeting HR needs, the hospital will usually carry out recruitment activities. Recruitment is a series of activities carried out to fill the required position by looking for applicants who have the ability and have passed the selection. Recruitment activities themselves have the aim of providing advice in increasing human resources to receive prospective applicants who are professional and can make many contributions to hospitals (5).

In Government Regulation No. 32 Article 3 of 1996 regarding health workers, health workers must have knowledge and skills in the health sector as stated by a diploma from an educational institution. Whereas Article 21 paragraph (1) states that every health worker in carrying out their duties is obliged to comply with the professional standards of health workers. Based on this government regulation, the human resources needed by a hospital are human resources who have the ability and quality which includes skills and level of education, because in carrying out their responsibilities they are required to comply with applicable standard operating procedures (SOP) (6).

However, before carrying out recruitment and selection, a hospital will usually carry out recruitment planning in advance. Recruitment planning is usually done to meet future human resource needs in hospitals. Recruitment planning is done by calculating the number of human resources and types of staff needed by a hospital (7). When a hospital has sufficient human resources, this human resource adequacy can reduce the workload that causes employee fatigue. In addition, the adequacy of human resources can also improve the quality of services provided at the hospital. To meet HR needs, recruitment is needed (6).

The Permata Pamulang Hospital is a privately owned public hospital located in the Pamulang area that operates in the health service sector. Based on the results of observations, Permata Pamulang Hospital in fulfilling HR needs is carried out by the HR and General Affairs units. Apart from that, in distributing information on job vacancies at Permata Pamulang Hospital, they only spread it through

the website and there is no other dissemination via social media, but there is talk of job vacancies by word of mouth.

METHOD

This research uses a qualitative approach with descriptive methods. This research was conducted to understand more deeply and explain the experiences experienced by individuals through in-depth interviews. This in-depth interview method was carried out so that the researcher obtained verbal information from the informant, for the information needed in the informant's research, to obtain more specific answers. In determining The informants in this study were determined by the purposive sampling method. The selection of informants was chosen with certain considerations (Hadi, 2021). Based on this principle, the informants in the study were divided into 3, namely key informants, main informants, and supporting informants. The key informant in this study was the HR coordinator at Permata Pamulang Hospital. The main informants were HR employees at Permata Pamulang Hospital and the supporting informants were coordinators at Permata Pamulang Hospital.

RESULTS AND DISCUSSION

Before carrying out recruitment activities at Permata Pamulang Hospital, planning was carried out in advance, but planning was carried out only when there was a request from a unit that needed new employees. In this plan, the hospital chose to find applicants who were able to use the medical devices available at Permata Pamulang Hospital. Apart from that, in this planning stage, Permata Pamulang Hospital is also looking for applicants who are disciplined, enterprising, and full of innovation, as well as work experience.

According to Priyono, this is also said when planning, there is an HR assessment that includes skills, competence, performance, and work experience (8). In addition, according to Setiyati & Hikmawati, planning is carried out when there is an employee request. Based on this, it can be said that Permata Pamulang Hospital has carried out a recruitment plan according to existing theory, but this planning is only done when a request occurs, not in a fixed time, like research conducted at Stella Maris Hospital.

Table 1. Interview Results Regarding Recruitment Planning

Informant 1	Informant 2	Informant 3	Conclusion
Based on the results of interviews with informant 1, it can be concluded that Permata Pamulang Hospital carried out recruitment planning when there was one unit that requested additional employees. In this planning, the skills	Based on the results of interviews with informants 2, it can be concluded that the planning was carried out depending on requests from units that needed it. Meanwhile, in terms of skills, it is hoped that they can master the	Based on the results of interviews with informants 3, employee planning is usually carried out when the patient is already overloaded and the applicants are expected to have the abilities and	The conclusions obtained are based on the three informants, Recruitment planning at Permata Pamulang Hospital will be carried out when a unit requests additional employees.

Informant 1	Informant 2	Informant 3	Conclusion
that must be possessed by applicants are the position applied for and a strong character, willingness to fight, tenacity, and most importantly the same vision and mission.	technology and knowledge they have in the position they have registered for.	skills according to the unit.	

For the recruitment analysis process carried out at Permata Pamulang Hospital, there is an explanation between the applicant and the interviewer regarding the job analysis where the discussion is carried out to explain what they will do while working and how the work system is at Permata Pamulang Hospital.

This is also said in Stewart & Brown's theory of job analysis, namely determining the tasks that must be carried out, the tools and equipment that will be needed to carry out these tasks, and the conditions under which they are required to work (9).

Based on this explanation, Permata Pamulang Hospital has conducted a job analysis to obtain the required human resources. However, in practice, the job description at Permata Pamulang Hospital has not been fully carried out as it should, such as including determining job duties, obligations, and responsibilities, as well as knowledge, abilities, and skills. Because the purpose of the job analysis itself is to place the workforce according to ability and create a positive working environment and conditions (10).

Table 2. Interview Results Regarding Recruitment Analysis

Informant 1	Informant 2	Informant 3	Conclusion
Based on the results of interviews with informant 1, it can be concluded that there is a job analysis regarding the job between the applicant and the recruiter.	Based on the results of interviews with informant 2, it can be concluded that there was a discussion between the applicant and the recruiter regarding the analysis of the job being applied for.	Based on the results of interviews with informants 3, it was found that there was an analysis of the work system that occurred at Permata Pamulang Hospital.	The conclusions obtained are based on the three informants, job analysis before the recruitment process at Permata Pamulang Hospital

As for the job description, an explanation of the job description is also given, but in this discussion, it is only explained about the series of tasks in general, the details will be seen when starting the job because from the discussion regarding the elaboration there will be several descriptions of the series of tasks that were previously given. An explanation of the job description is done to make it easier for applicants to understand the job. The job description describes the qualifications required. Because without a job description, HR practitioners cannot filter existing applications (8).

When compared to this explanation, Permata Pamulang Hospital has not done well regarding job descriptions, because during discussions between applicants and recruiters, it was only explained in

general, not in detail. This will make applicants feel confused about the work they will do. The discussion regarding job descriptions at Permata Pamulang Hospital was not explained in detail because the unit requiring new employees expects the prospective employee to be able to do all the work related to the unit that needs it.

Table 3. Interview Results Regarding Job Descriptions

Informant 1	Informant 2	Informant 3	Conclusion
Based on the results of interviews with informant 1, it can be concluded that there is an explanation regarding job descriptions, but only in general terms.	Based on the results of interviews with informant 2, it can be concluded that there was an explanation of the job description twice, namely during the selection process and after being accepted as an employee.	Based on the results of interviews with informants 3, it was found that there was an explanation regarding the job description, but only in general terms.	The conclusions obtained are based on the three informants where there is an explanation regarding the job description to the applicant, but it is not explained in detail.

For staff specifications in recruiting, there is a minimum requirement for age and education, namely 21 years. This is because 21 years is the age where the minimum education requirements are met, namely graduating from DIII. In addition, 21 years old is the age when the applicant is still energetic and has a lot of innovation and work experience is only seen for certain positions.

Job specifications describe a statement of qualifications or requirements needed such as age, education, level of experience, and skills to do a job (11). This is needed to make it easier for HR practitioners to filter existing applications. Based on the explanation above, Permata Pamulang Hospital has minimum requirements regarding age and education for each existing position, and work experience is also something that is highly considered by Permata Pamulang Hospital.

Table 4. Interview Results Regarding Power Specifications

Informant 1	Informant 2	Informant 3	Conclusion
Based on the results of interviews with informant 1, it can be concluded that Permata Pamulang Hospital has a minimum requirement of 21 years of age, and a minimum DIII education for service, while other positions have different requirements.	Based on the results of interviews with informant 2, it can be concluded that Permata Pamulang Hospital has different minimum requirements regarding age, education, and work experience for certain positions	Based on the results of interviews with informants 3, it was found that Permata Pamulang Hospital had different minimum requirements for age, education, and work experience for different positions.	The conclusions obtained are based on the three informants at Permata Pamulang Hospital having different minimum requirements for each existing position.

According to research conducted by Sitanggang, the recruitment methods used in companies are external and internal. Prospective applicants can find out about job vacancies at the company because the company posts job vacancy announcements. Internal recruitment is also possible if the employee to be appointed is considered capable of filling the vacant position (12).

Based on this research, Permata Pamulang Hospital also does the same thing because Permata Pamulang Hospital gets prospective applicants through social media such as Instagram, LinkedIn, or its website pages, The hospital also distributes it through associations or universities in collaboration with Permata Pamulang Hospital. The method used is the open and closed method because Permata Pamulang Hospital disseminates job vacancies through social media and makes it possible to disseminate only internally if there are employees to be reassigned.

Table 5. Interview Results Regarding Recruitment

Informant 1	Informant 2	Informant 3	Conclusion
Based on the results of interviews with informant 1, it can be concluded that the recruitment process at Permata Pamulang Hospital is carried out openly and closely because recruiting is carried out through social media and internally.	Based on the results of interviews with informants 2, it can be concluded that internal recruitment methods take precedence when compared to applicants who register through social media	Based on the results of interviews with informants 3, it was found that recruitment sources at Permata Pamulang Hospital were obtained through social media or universities in collaboration with universities	The conclusions obtained are based on the three informants at Permata Pamulang Hospital getting applicants from various candidates and using recruitment methods depending on the position needed.

According to the theory of build, the selection process is divided into several stages, namely, receiving job applications, preliminary interviews, psychological tests, reference checks, selection interviews, approval of direct superiors, medical examination tests, and orientation (13).

When compared with the theory of waking, during the selection process at Permata Pamulang Hospital several tests were carried out such as psychological tests, interview tests, and medical tests. This psychological test is carried out to find out the character possessed by the applicant and for an interview test conducted to see his ability to communicate his knowledge and his abilities. Based on this aspect, there is a minimum score that must be obtained to be accepted by Permata Pamulang Hospital, which is 70. Meanwhile, medical tests, physical checks, radiology tests, and laboratory tests are carried out, but Permata Pamulang Hospital does not have a narcotics test. During the selection process, there were also obstacles. Obstacles that often occur are usually in the form of a long distance from their house, however, the Permata Pamulang Hospital will first discuss these obstacles with applicants.

Table 6. Interview Results Regarding Selection

Informant 1	Informant 2	Informant 3	Conclusion
Based on the results of interviews with informant 1, it can be concluded that the selection that took place consisted of several stages including	Based on the results of interviews with informant 2, it can be concluded that before the recruitment process, the application files had to be selected. For	Based on the results of interviews with informants 3, it was found that there were several stages of selection in obtaining human resources	The conclusions obtained are based on the three informants, The selection at Permata Pamulang Hospital has several stages and obstacles in the selection

Informant 1	Informant 2	Informant 3	Conclusion
psychological tests which were used to find out details of personality, interview tests to determine communication skills to knowledge until medical tests were carried out to obtain quality human resources. Meanwhile, the obstacle that often occurs is the distance to the Permata Pamulang Hospital	assessment standards. And the obstacles that often arise are problem no. hard-to-reach phone.	according to what was needed. As well as the distance between the house and the hospital	process, but all of them can be overcome.

The main objective of any recruitment effort is to fill the vacant positions with the most suitable candidates to perform the tasks involved (4). Based on Hidayatullah's research, the recruitment and selection process has produced satisfactory results, namely obtaining the human resources needed by the hospital by the requirements that have been given (2).

Based on this explanation, Permata Pamulang Hospital has the most important aspect of the desired *output*, namely *skills*. Apart from that, the hope that Permata Pamulang Hospital wants in this recruitment and selection activity is to fulfill the positions needed according to their abilities and to be able to work together in advancing Permata Pamulang Hospital.

Table 7. Interview Results of Recruited HR

Informant 1	Informant 2	Informant 3	Conclusion
Based on the results of interviews with informant 1, it can be concluded that Permata Pamulang Hospital has succeeded in meeting the needs of the vacant positions as desired, taking into account important aspects such as education and skills.	Based on the results of interviews with informant 2, it can be concluded that Permata Pamulang Hospital has succeeded in meeting the needs of vacant positions by paying attention to basic skills	Based on the results of interviews with informants 3, it was found that Permata Pamulang Hospital was successful in fulfilling the required human resources by paying attention to abilities.	The conclusions obtained are based on the three informants at Permata Pamulang Hospital who managed to get the desired human resources by looking at aspects of education and skills.

CONCLUSION AND SUGGESTIONS

From the results of research that has been done based on the analysis above, it can be concluded as follows: Permata Pamulang Hospital has planned recruitment before recruitment by evaluating skills, competencies, performance, and work experience, Permata Pamulang Hospital has carried out a job analysis to get the desired human resources, even though the job analysis was not carried out in detail, Permata Pamulang Hospital has carried out a job description, but it's just not done in detail, Permata Pamulang Hospital has several requirements such as age, education, and work experience which will be considered based on the position needed, The recruitment process carried out by Permata Pamulang

Hospital is internal and external, Permata Pamulang Hospital has several stages of selection such as interview tests, psychological tests, to medical tests to find employees who are as expected, Permata Pamulang Hospital managed to get the human resources needed through the aspects provided by the hospital.

Based on the research, the authors provide suggestions that are expected to be useful for the hospital: Permata Pamulang Hospital is expected to further expand cooperation with universities and other associations to obtain more quality human resources, Permata Pamulang Hospital is expected to carry out recruitment planning regularly to make it easier to evaluate employee performance, Permata Pamulang Hospital is expected to be able to provide more detailed job descriptions to applicants to make it easier for applicants to understand the tasks they will be carrying out.

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FACTORS ASSOCIATED WITH THE INCIDENCE OF LOW BACK PAIN BASED ON THE NUMERIC PAIN RATING SCALE IN DAILY WORKERS AT THE BBPPT KOMINFO DEPOK PROJECT

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ABSTRAK

Low Back Pain (LBP) adalah nyeri yang dirasakan di area punggung bawah dan berasal dari tulang belakang, otot, saraf, atau struktur lain di sekitar area tersebut. Angka prevalensi LBP di Indonesia pada tahun 2016 sebesar 59,25%. Penelitian ini bertujuan untuk mengetahui faktor-faktor yang berhubungan dengan kejadian nyeri pinggang pada pekerja harian proyek BBPPT Kominfo Depok. Penelitian kuantitatif dengan desain studi cross-sectional. Populasinya adalah pekerja lapangan harian yang berjumlah 70 orang dan teknik pengambilan sampelnya adalah total sampling. Pengumpulan data dilakukan pada bulan Januari 2023. Analisis data menggunakan uji chi-square $\alpha = 0,05$. Dari hasil penelitian diperoleh p-value masing-masing variabel yaitu: Usia (p-value 0,071 artinya tidak ada hubungan yang signifikan antara usia dengan kejadian LBP), Indeks Massa Tubuh (BMI) (p-value 1,000 artinya tidak ada hubungan yang signifikan antara BMI dengan kejadian LBP), Kebiasaan Merokok (p-value 0,044 artinya ada hubungan yang signifikan antara kebiasaan merokok dengan kejadian LBP), Massa Kerja (p-value 0,042 artinya ada terdapat hubungan yang signifikan antara massa kerja dengan kejadian LBP), Waktu Kerja (p-value 0,017 artinya ada hubungan yang signifikan antara waktu kerja dengan kejadian LBP) dan Angkat Berat (p-value 0,013 artinya ada hubungan yang signifikan hubungan antara angkat beban dengan kejadian LBP). Kebiasaan merokok, masa kerja, masa kerja, dan angkat beban mempunyai hubungan dengan kejadian LBP. Mengurangi lama kerja pekerja harian agar pekerja harian mendapatkan waktu istirahat yang cukup, dan menyediakan alat bantu dalam jumlah yang cukup agar pekerja tidak mengangkat benda atau material secara manual.

Kata Kunci: Low back pain, pekerja harian, faktor

ABSTRACT

Low back pain (LBP) is pain that is felt in the lower back area and originates in the spine, muscles, nerves, or other structures around the area. The prevalence rate of LBP in Indonesia in 2016 was 59.25%. This study aims to determine the factors associated with the incidence of low back pain in daily workers at the BBPPT Kominfo Depok project. Quantitative research with a cross-sectional study design. The population is daily field workers with a total of 70 people and the sampling technique is total sampling. Data collection was carried out in January 2023. Data analysis used the chi-square test $\alpha = 0.05$. From the study results, the p-value of each variable was obtained, namely: Age (p-value 0.071 meaning that there is no significant relationship between age and the incidence of LBP), Body Mass Index (BMI) (p-value 1.000 meaning there is no significant relationship between BMI with the incidence of LBP), Smoking Habit (p-value 0.044 means that there is a significant relationship between smoking habits and the incidence of LBP), Working Mass (p-value 0.042 means that there is a significant relationship between working mass and the incidence of LBP), Working Time (p-value 0.017 means that there is a significant relationship between working time and the incidence of LBP) and Lifting Weight (p-value 0.013 means that there is a significant relationship between the lifting weight and the incidence of LBP). Smoking habits, years of service, length of work, and weight of lifting have a relationship with the incidence of LBP. Reducing the length of work for daily workers so that daily workers get sufficient rest time, and providing an adequate number of assistive devices so that workers do not lift objects or materials manually.

Keywords: Low back pain, daily worker, factors

INTRODUCTION

The implementation of Occupational Health and Safety aims to protect the safety of workers/laborers for optimal work efficiency. Occupational safety and health efforts in question are to provide safety guarantees and improve the health status of workers or laborers by taking measures to prevent accidents and occupational diseases, taking measures to control hazards in the workplace environment, carrying out health promotion, and curative and rehabilitative actions. Every construction project has a hazard that has the potential to cause occupational diseases, one of which is PT. PP (Persero) BBPPT Kominfo Depok project, especially for daily field workers. Occupational Disease is a disease caused by work and work environment. Low Back Pain (LBP) is an occupational disease that is often referred to as Lower Back Pain (LBP) which belongs to the physiological group.

Based on data from WHO in 2013 in Duthey B., in 2014 the highest low back pain was the age of 45-59 years whose sufferers reached approximately 9.1 million and aged 50-54 years with a total of 8.8 million sufferers. This data shows that the productive age range is at high risk of developing low back pain. ⁽¹⁾ Low Back Pain (LBP) in Indonesia is a real health problem. Lower Back Pain (LBP) is the second disease in humans after influenza. Data for the number of Low Back Pain (LBP) sufferers in Indonesia is not known with certainty, but it is estimated that low back pain sufferers in Indonesia vary between 7.8% to 37% of the total population in Indonesia, the prevalence of low back pain is 59.25 % of sufferers of low back pain in 201. ⁽²⁾

In general, the physical abilities of humans, such as vision, and reaction speed will decrease at the age of 30 years or more so that this age group generally experiences severe work accidents and even death compared to the younger age group. ⁽³⁾ Based on research conducted by Made *et al.*, (2019) on 20 batik craftsmen in Pejeng Village, Gianyar showed that more batik craftsmen were aged 40-54 years. From the Fisher test conducted on age with low back pain complaints, it was found that $p\text{-value} = 0.001$, so there is a relationship between age and lower back pain in batik craftsmen. ⁽⁴⁾

Nutritional status has a relationship with complaints of low back pain. People who have more nutritional status or are overweight will easily experience back pain due to supporting excess fat loads (Septiawan, 2013). Based on the results of a study conducted by Septiawan (2013) on 49 construction workers at PT Mikroland Property Development Semarang and obtained results the Body Mass Index (BMI) has a relationship with complaints of low back pain. From the Chi-Square test conducted on Body Mass Index (BMI), it was found that out of 23 respondents who had a BMI at risk 13 respondents experienced low back pain and obtained a $p\text{-value} = 0.030$, so there was a relationship between Body Mass Index (BMI) of the construction workers with incidents of low back pain. ⁽⁵⁾

Smoking habits can reduce lung capacity which results in a lack of ability to consume oxygen which leads to a decrease in one's body fitness level. Research conducted by Noviyanti (2021) on 58 workers in the Welding section at PT X showed that there was a relationship between smoking habits and complaints of lower back pain with a $p\text{-value} = 0.000$. ⁽⁶⁾

The working period has a close relationship with the occurrence of musculoskeletal complaints. Low back pain is a chronic disease that takes a long time to develop and be felt by someone (Andini, 2015). Research conducted by Noviyanti (2021) obtained the results that there was a relationship between the length of work and complaints of lower back pain in welding workers. Workers who have worked for ≥ 5 years experiences more complaints of low back pain with a p-value of 0.000, which means there is a relationship between the length of work and complaints of low back pain in welding workers at PT X Kota Batam. ⁽⁶⁾

The length of work for a person determines his efficiency and productivity. The working time that exceeds the ability of workers and is not accompanied by high efficiency can result in decreased productivity, and there is a tendency for excessive fatigue, work-related illnesses, and work-related accidents. This is in line with research conducted by Bilondatu (2018) on the operator PT. Makassar Container Terminal from the results of the bivariate test obtained a p value of 0.018, which means H_0 that the length of work has a relationship with low back pain in Operator PT. Makassar Container Terminal Year 2018. ⁽⁸⁾

Work with heavy loads resulting in excessive exertion and wrong posture such as bending and carrying loads is a risk for musculoskeletal complaints. This is in line with research conducted by Susanto *et al.*, (2013) on 32 carrying workers at the Bandungan Market, Semarang Regency, obtained bivariate test results with a p-value of 0.000, which means that there is a relationship between the weight of the lifting load and the incidence of low back pain which divides two groups of heavy lifting loads, workers who carry loads of more than 40 kg tend to experience severe back pain while workers who carry loads of less than 40 kg experience mild low back pain. From the results of the research above it is known that if the carrying load is more than 40 kg and the activity is carried out repeatedly it results in a risk of musculoskeletal complaints. ⁽⁹⁾

Based on the results of an observational preliminary study conducted by researchers at the BBPPT Kominfo Depok project, it was found that there were daily field workers who experienced low back pain. Of the 10 daily field workers, 8 (80%) of them complained of low back pain in the last seven days. Based on the description above, the researcher is interested in researching "Factors Associated with the Incidence of Low Back Pain in Daily Field Workers at the BBPPT Kominfo Depok Project."

METHOD

This research is a type of descriptive quantitative research using cross-sectional. This research was conducted at the BBPPT Kominfo Depok project in January 2023. This research used total sampling so that the research sample was all daily field workers (project workers), totaling 70 people. This study aims to look at the relationship between the independent variables (age, body mass index, smoking habits, years of service, length of work, and lifting weights) with the dependent variable (low back pain). This study used a questionnaire as a measuring tool for the independent variable while for the

measurement of the dependent variable it used the Numeric Pain Rating Scale (NPRS). In this study, data were collected from respondents using a survey method using a questionnaire on daily field workers at the BBPPT Kominfo Depok Project.

RESULTS AND DISCUSSION

Table 1 shows the results of the univariate analysis recapitulation, It can be seen that out of 70 respondents, there were 46 (65.7%) respondents who experienced low back pain, and 24 (34.4%) respondents did not experience low back pain. There were 45 (64.3%) respondents aged <35 years and there were 25 (35.7%) respondents aged ≥35 years. There were 64 (91.4%) respondents who had BMI normal and there were 6 (8.6%) respondents who had BMI Abnormal (Obesity). There were 65 (92.9%) respondents who smoked and there were 5 (7.1%) who did not smoke. There were 39 (55.7%) respondents who had worked ≥ 5 years and there were 31 (44.3%) respondents who had worked < 5 years. There were 46 (65.7%) respondents who had a category of working duration > 8 hours and there were 24 (34.4%) respondents who had a category of working time of 8 hours. There were 49 (70.0%) respondents who had a lifting weight category of > 40 Kg and there were 21 (30.0%) respondents who had a lifting weight category of ≤ 40 Kg.

Table 1. Univariate Analysis Results

Variable Name	n	%
Low Back Pain (LBP)		
Yes	46	65.7
No	24	34.3
Age		
≥35 years	25	35.7
<35 years	45	64.3
Body Mass Index (BMI)		
Abnormal (Obesity)	6	8.6
Normal	64	91.4
Smoking Habits		
Smoke	65	92.9
Do not smoke	5	7.1
Years of service		
≥ 5 years	39	55.7
< 5 years	31	44.3
Length of Work		
> 8 hours	46	65.7
8 hours	24	34.4
Weight of Lifting		
>40 Kg	49	70.0
≤40 Kg	21	30.0

Table 2 shows the results of the bivariate analysis recapitulation, based on the table it is known that there is a relationship between smoking habits and the incidence of low back pain based on the results of statistical tests using chi-square, obtained a P value of 0.044 with an odds ratio = 9,000, 95% CI = 1,821 – 28,638 respondents in the non-smoking category were 9,000 times higher not to experience LBP events than respondents who smoked. There is a relationship between years of service and the

incidence of low back pain based on the results of statistical tests using chi-square, which obtained a P value of 0.042 with an odds ratio = 3.125, 95% CI = 1.121 – 8.712, which means that respondents with a category of working period <5 years 3.125 times higher not to experience LBP events than respondents who have worked ≥ 5 years. There is a relationship between the length of work and the incidence of low back pain based on the results of statistical tests using chi-square, obtained a P value of 0.017 with an odds ratio = 3.760, 95% CI = 1.315 – 10.752, which means that respondents with 8 hours of working time category 3.760 times higher for not experiencing LBP events than respondents who have worked > 8 hours. There is a relationship between the weight of lifting weights and the incidence of low back pain based on the results of statistical tests using chi-square, obtained a P value of 0.013 with an odds ratio = 4.111, 95% CI = 1.393 – 12.131, which means that respondents in the category of lifting weights ≤ 40 Kg 4.111 times higher for not experiencing complaints of LBP events than respondents who have a lifting weight category > 40 Kg. There is no relationship between age and body mass index (BMI) with the incidence of low back pain. This is indicated by the P value of age ($p = 0.071 > 0.05$) and length of work ($p = 1.000 > 0.05$).

Table 2. Bivariate Analysis Results

Table 2: Bivariate Analysis Results								
Variable	Low Back Pain (LBP)						p-value	OR (95% CI)
	Yes		No		Total			
	n	%	n	%	n	%		
Age								
≥35 years	20	80.0	5	20.0	25	100.0	0.071	
<35 years	26	57.8	19	42.2	45	100.0		
Body Mass Index (BMI)								
Abnormal (Obesity)	4	66.7	2	33.3	6	100.0	1.000	
Normal	42	65.6	22	34.4	64	100.0		
Smoking Habits								
Smoke	45	70.8	20	29.2	65	100.0	0.044	9.000 (1.821 – 28.638)
Do not Smoke	1	20.0	4	80.0	5	100.0		
Years of service								
≥5 years	30	76.9	9	23.1	39	100.0	0.042	3.125 (1.121 – 8.712)
<5 years	16	51.6	15	48.4	31	100.0		
Length of Work								
>8 hours	35	76.1	11	23.9	46	100.0	0.017	3.760 (1.315 – 10.752)
8 hours	11	45.8	13	54.2	24	100.0		
Weight of Lifting								
>40 Kg	37	75.5	12	24.5	49	100.0	0.013	4.111 (1.393 – 12.131)
≤40 Kg	9	42.9	12	57.1	21	100.0		

The results of the analysis of the relationship between age and the incidence of low back pain showed that out of 46 respondents who experienced low back pain in the age category <35 years, 26 respondents (57.8%) and in the age category ≥ 35 years, 20 respondents (80.0%). Meanwhile, 19 respondents (42.2%) did not experience low back pain in the <35 years age category, and 5 respondents (20.0%) in the ≥ 35 years age category. The results of data analysis using chi-square obtained a p-value of 0.071 ($p > 0.05$), this means that H_0 is accepted, and it can be concluded that age has no relationship with the incidence of low back pain in daily field workers at the BBPPT Kominfo Depok Project.

The results of this study are in line with research conducted by Umboh et al., (2017) who researched the relationship between individual characteristics and complaints of low back pain in nurses in the inpatient room of RSU GMIM Pancaran Kasih Manado using the chi-square test showing a p-value of 0.194, meaning that there is no relationship between age and complaints of low back pain in nurses in the inpatient room of RSU GMIM Pancaran Kasih Manado. ⁽¹⁰⁾

The results of the analysis of the relationship between Body Mass Index (BMI) and the incidence of low back pain show that out of 46 respondents who experienced low back pain in the BMI category of Normal, 42 respondents (65.6%) and in the BMI category Abnormal (Obesity) as many as 4 respondents (66.7%). Meanwhile, 22 respondents (34.4%) did not experience low back pain in the BMI category of Normal and 2 respondents (33.3%) in the BMI category Abnormal (Obesity). The results of data analysis using chi-square obtained a p-value of 1.000 ($p > 0.05$), this means that H_0 is accepted, and it can be concluded that Body Mass Index (BMI) has no relationship with the incidence of low back pain on daily field workers at the BBPPT Kominfo Depok Project.

Nutritional status is the condition of the body as a result of food consumption and use of nutrients. Abnormal nutritional status indicates poor body condition. These body conditions can affect workers at work and can cause work fatigue. For someone who is overweight, the fat will be distributed to the abdominal area and hoarding can occur. The accumulation of fat in the area makes the pressure increase because of the extra burden, thereby increasing the risk of low back pain. ⁽¹¹⁾ Nutritional status in this study can be described by calculating Body Mass Index (BMI) which is categorized into 2, namely daily field workers with normal nutritional status if the results of BMI measurements are between 18.5 kg/m² – 25.0 kg/m² and daily field workers with abnormal nutritional status if the results of BMI measurements are <18.5 kg/m² and >25.0 kg/m².

The results of this study are also in line with those carried out by Bilondatu (2018) on the operator PT. Makassar Container Terminal in 2018 Based on statistical tests, it obtained a value of $p = 0.715$ ($p < 0.05$), which means there is no relationship between nutritional status and low back pain (Bilondatu, 2018). This is not in line with research conducted by Ilma *et al.*, (2021) on 122 employees of the Plywood Line Section of PT. Sumber Graha Sejahtera Luwu 2021 found that there is a relationship between Body Mass Index (BMI) and complaints of low back pain with a p-value of 0.000. ⁽¹²⁾

The results of the analysis of the relationship between smoking habits and the incidence of low back pain showed that out of 46 respondents who experienced low back pain in the smoking category, 45 respondents (70.8%) and in the non-smoking category, 1 respondent (20.0%). Meanwhile, there were 20 respondents (29.2%) who did not experience low back pain in the smoking category and 4 respondents (80.0%) in the non-smoking category. The results of data analysis using chi-square obtained a p-value of 0.044 ($p < 0.05$), this means that H_0 is rejected, and it can be concluded that smoking habits have a relationship with the incidence of low back pain in daily field workers at the

BBPPT Kominfo Depok Project. From the results of the analysis, the value of OR = 9,000 was also obtained, meaning that respondents in the non-smoking category were 9,000 times more likely to not experience LBP than respondents who smoked.

Smoking habits can reduce lung capacity which results in a lack of ability to consume oxygen which leads to a decrease in one's body fitness level. If workers have to perform tasks that require exertion, the burning of carbohydrates is hampered and the buildup of lactic acid occurs which causes muscle pain. This is in line with research conducted by Nurzannah *et al.*, (2015) on Loading and Unloading Workers (TKBM) in chi-square obtained a p-value of 1,000 meaning that p-value > 0.05 indicates no significant relationship with the proportion of TKBM experiencing low back pain in TKBM with those who smoke compared to TKBM who do not smoke. The magnitude of the difference can be seen from the OR which is 0.724 (0.148 ± 3.531), meaning that the risk of developing low back pain in TKBM who have smoking habits is 0.724 times greater than in TKBM who do not smoke. ⁽¹³⁾

The working period has a close relationship with the occurrence of musculoskeletal complaints. Low back pain is a chronic disease that takes a long time to develop and be felt by someone (Andini, 2015). Working for more than 5 years there is an increased risk of experiencing low back pain complaints compared to workers who work for less than 5 years, with an increase rate that varies between 2 to 3 times depending on the increase in years of service. The increased risk of low back pain complaints is caused by the narrowing of the disc cavity and spinal generation.

The results of the analysis of the relationship between years of service and the incidence of low back pain showed that out of 46 respondents who experienced low back pain in the < 5-year service category, 16 respondents (51.6%) and in the ≥ 5-year service category, 30 respondents (76, 9%). Meanwhile, 15 respondents (48.4%) did not experience low back pain in the < 5-year service category, and 9 respondents (23.1%) in the ≥ 5-year service category. The results of data analysis using chi-square obtained a p-value of 0.042 (p < 0.05), this means that H₀ is rejected, and it can be concluded that work period has a relationship with the incidence of low back pain in daily field workers at the BBPPT Kominfo Depok Project. From the analysis results, the value of OR = 3.125 was also obtained, meaning that respondents with a service period of < 5 years were 3.125 times more likely not to experience LBP events than respondents who had a service period of ≥ 5 years.

The results of this study are in line with research conducted by Mulfianda *et al.*, (2021) who conducted a study on 59 employees at the Aceh Regional PLN Office and found that tenure has a relationship with the incidence of low back pain. From the Chi-Square test conducted on the years of service of employees, it was found that of the 36 respondents who had worked > 5 years, 29 respondents experienced low back pain and obtained a p-value = 0.000, so there is a relationship between the years of service of office employees and incidence of low back pain. ⁽¹⁴⁾ This research is also in line with the research conducted by Tristiawan *et al.*, (2019) on 33 workers in the engineering section, using the chi-

square test the results obtained a p-value of 0.017 which indicates a relationship between the tenure of office employees and the incidence of low back pain. ⁽¹⁵⁾

The length of work for a person determines his efficiency and productivity. The working time that exceeds the ability of workers and is not accompanied by high efficiency can result in decreased productivity, and there is a tendency for excessive fatigue, work-related illnesses, and work-related accidents.

The results of the analysis of the relationship between the length of work and the incidence of low back pain showed that out of 46 respondents who experienced low back pain in the 8-hour-long category, 11 respondents (45.8%) and in the > 8-hour category, 35 respondents (76.1%). Meanwhile, there were 13 respondents (54.2%) who did not experience low back pain in the 8-hour-long working category and 11 respondents (23.9%) in the > 8 hours-long working category. The results of data analysis using chi-square obtained a p-value of 0.017 ($p < 0.05$), this means that H_0 is rejected, and it can be concluded that length of work has a relationship with the incidence of low back pain in daily field workers at the BBPPT Kominfo Depok Project. From the analysis results, the value of OR = 3.760 was also obtained, meaning that respondents with 8 hours of working duration were 3.760 times more likely not to experience LBP events than respondents who had worked > 8 hours.

This is in line with research by Anggraini (2014) on 272 cigarette factory workers. In their research, it was found that there was a relationship between the length of work increasing the incidence of low back pain using the Pearson Correlation test, obtaining a p-value of 0.042 (Anggraini, Jenie, and Ronica, 2018). This is in line with research conducted by Bilondatu (2018) on the operator PT. Makassar Container Terminal from the results of the bivariate test obtained a p value of 0.018, which means H_0 that the length of work has a relationship with low back pain in Operator PT. Makassar Container Terminal Year 2018. ⁽⁸⁾

The weight of the lifting weight greatly affects complaints of low back pain because the heavier the load is lifted, the greater the back muscle strength of the worker used.

The results of the analysis of the relationship between the weight of the lifting load and the incidence of low back pain showed that out of 46 respondents who experienced low back pain in the heavy lifting category ≤ 40 kg, 9 respondents (42.9%) and in the heavy lifting category > 40 kg, 37 respondents (75.5%). Meanwhile, 12 respondents (57.1%) did not experience low back pain in the category of weight lifting ≤ 40 kg, and in the category of weight lifting > 40 kg there were 12 respondents (24.5%). The results of data analysis using chi-square obtained a p-value of 0.013 ($p < 0.05$), this means that H_0 is rejected, and it can be concluded that lifting weights has a relationship with the incidence of low back pain in daily field workers at the BBPPT Kominfo Depok Project. From the results of the analysis, the value of OR = 4.111 was also obtained, meaning that respondents with a lifting weight category of ≤ 40 kg were 4.111 times higher in not experiencing complaints of LBP events than respondents who had a lifting weight category of > 40 kg.

Work with heavy loads resulting in excessive exertion and wrong posture such as bending and carrying loads is a risk for musculoskeletal complaints.

This is in line with research conducted by Susanto *et al.*, (2013) on 32 carrying workers at the Bandungan Market, Semarang Regency, obtained bivariate test results with a p-value of 0.000, which means that there is a relationship between the weight of the lifting load and the incidence of low back pain which divides two groups of heavy lifting loads, workers who carry loads of more than 40 kg tend to experience severe back pain while workers who carry loads of less than 40 kg experience mild low back pain. From the results of the research above it is known that if the carrying load is more than 40 kg and the activity is carried out repeatedly it results in a risk of musculoskeletal complaints. This happens because the worker's muscles receive pressure due to the excessive lifting of weights without any relaxation. ⁽⁹⁾

Research conducted by Wahyuni (2019) on porters at Pasar Legi Surakarta obtained the results of a bivariate test p-value of 0.001 which concluded that there was a relationship between the weight of the load carried by porters and the incidence of low back pain. ⁽¹⁷⁾

CONCLUSION AND SUGGESTIONS

Based on the results of the research that has been done, it can be concluded that the factors associated with the incidence of low back pain in daily field workers at the BBPPT Kominfo Depok project in 2023 are smoking habits with a p-value of 0.044, years of service with a p-value of 0.042, length of work with a p-value of 0.017 and the weight of the load with a p-value of 0.013. Meanwhile, the factors that are not related to the incidence of low back pain in daily field workers at the BBPPT Kominfo Depok project in 2023 are age with a p-value of 0.071 and body mass index (BMI) with a P value of 1.000.

Suggestions workers are expected to warm up before carrying out work activities so that the muscles do not feel stiff, reduce smoking consumption, and use tools to move materials or other objects. Suggestions for contracting companies are reducing working time for daily workers so that daily workers get sufficient rest time, adjusting the ability of all workers in the division of tasks and adding daily workers to reduce the length of work for daily workers, paying attention to the physical health of daily workers in The BBPPT Kominfo Depok project and provided an adequate number of assistive devices so that workers do not lift objects or materials manually.

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ANALYSIS OF THE APPLICATION OF AN ACTIVE FIRE SYSTEM ACCORDING TO MINISTER OF PUBLIC WORKS NO. 26/PRR/M/2008 AT MEDITERANIA GARDEN RESIDENCE 2

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ABSTRAK

Peraturan Menteri Pekerjaan Umum Nomor 26/PRR/M/2008 tentang Persyaratan Teknis Sistem Proteksi Kebakaran Pada Bangunan Gedung dan Lingkungan. Pada tahun 2011 hingga 2015, total data kebakaran di Indonesia sebanyak 979. Pada tahun 2018 terjadi kebakaran di salah satu pusat perbelanjaan atau pusat perbelanjaan yang mengakibatkan total korban jiwa sebanyak 37 orang. Tujuan penelitian ini adalah untuk mengetahui penerapan sistem proteksi kebakaran aktif sesuai Peraturan Menteri Pekerjaan Umum No. 26/PRR/M/2008 pada Apartemen Mediterania Garden Residence 2 Tahun 2022. Penelitian ini bersifat kualitatif-kuantitatif dengan deskriptif Pendekatannya dan menggunakan teknik purposive sampling, analisis menggunakan checklist dan wawancara mendalam. Hasil observasi penelitian yang diperoleh setelah dilakukan analisa menggunakan penilaian kesesuaian penerapan sistem proteksi kebakaran aktif yaitu APAR 99,6% dan Hydrant 99,6%. Penerapan sistem proteksi kebakaran aktif pada Apartemen Mediterania Garden Residence 2 sesuai standar dalam Peraturan Menteri Pekerjaan Umum No.26/PTR/M/2008 dengan memperoleh skor hydrant sebesar 99,6% dan untuk APAR memperoleh skor sebesar 99,6%. penerapan APAR dan Hydrant sudah cukup baik namun harus ditingkatkan dalam hal pengecekan dan monitoring secara rutin.

Kata Kunci: Peraturan, APAR, hydrant, proteksi kebakaran

ABSTRACT

Regulation of the Minister of Public Works Number 26/PRR/M/2008 concerning Technical Requirements for Fire Protection Systems in Buildings and the Environment. From 2011 to 2015, the total data on fires in Indonesia was 979. In 2018 a fire occurred in a shopping center or shopping center, causing a total of 37 people to die. The purpose of this study was to determine the application of an active fire protection system according to Minister of Public Works Regulation No. 26/PRR/M/2008 at Mediterania Garden Residence 2 Apartments in 2022. This research is qualitative-quantitative with a descriptive approach and uses a purposive sampling technique, analysis uses a checklist and deep interview. The results of research observations obtained after the analysis used the suitability assessment of the application of active fire protection systems, namely APAR 99.6% and Hydrant 99.6%. Implementation of an active fire protection system at Mediterania Garden Residence 2 Apartment according to standards in Minister of Public Works Regulation No.26/PTR/M/2008 by obtaining a hydrant score of 99.6% and for APAR obtaining a score of 99.6%. the application of APAR and Hydrant is quite good but must be improved in terms of routine checking and monitoring.

Keywords: Regulation, APAR, hydrant, fire protection

INTRODUCTION

Regulation of the Minister of Public Works PU No. 26/PRR/M/2008 in part 1: Technical System Specifications for Fire Protection in Buildings and the Environment Provisions for General Cases Explanation of Chapter One In each of these Ministerial Regulations, there are specific points referred to, namely the building and environmental protection system is a collection of actions that

carried out to protect buildings or areas from the effects of fire whether the action is active or passive (1)

National Fire Protection Association (NFPA) Fire Analysis and Research stated that from 2012 to 2014, the number of fires burning in the United States continued to increase significantly over that period. In 2012, there were 1,375,000 fire incidents; in 2013 as many as 1,241,000, and in 2014 as many as 1,298,000 (2)

The National Disaster Management Agency reported that between 2011 and 2015 there were a total of 979 fires, with 31 incidents occurring in factories, offices, schools, and hotels (3). The Central Statistics Agency for DKI Jakarta Province the number of fire cases that occurred from 2018 - 2021, 2018 There were 820 fire cases originating from housing, industry, buildings, and objects. Then in 2020, there were 3,156 fire cases in DKI Jakarta, then in 2021, there were fire cases with a total of 1,535 fire cases originating from industry, buildings, housing, and objects.

Preliminary observations made by researchers in the Mediterania Garden Residence 2 Apartment related to active protection systems, which are still not by the reference of Minister of Public Works No. 26/PRR/M/2008, this can cause fires to occur if the application related to active protection systems has not been implemented properly and also active maintenance of active fire protection equipment less done.

METHOD

The research method uses qualitative analysis to describe the implementation of an active fire protection system at Mediterania Garden Residence 2 Apartments in Jakarta in 2022. With a descriptive approach, the descriptive approach is a type of study that examines data obtained directly from field conditions to find solutions to existing problems. This descriptive-qualitative study aims to collect data regarding the application of an active fire protection system. This is done by conducting observations and interviews. This research was conducted at Mediterania Garden Residence 2 Apartment Jakarta in December 2022.

The informants for this research are credible, namely those in charge of the fire protection system, those who know all the information needed in this research, and those who work there and are experts in that field.

Table 1. Research Informants

No	Informant	Office	Total
1	Main Informant	safety officer, Supervisor engineering	3
2	Supporting Informants	Building site coordinator	1

RESULTS AND DISCUSSION

Based on Table 2, the results of research observations were obtained after analysis using an application suitability assessment in an active fire protection system, namely 99.6%. The results of

research on APARs that are spread in the Mediterania Garden Residence 2 Apartment area, there are 2 types of APARs, namely dry powder and CO₂. According to Novianty (2012), the use of APAR can prevent the initial fire before a larger fire occurs (4). With the availability of fire extinguishers in the workplace, if a small fire occurs it can be stopped immediately before a larger fire occurs. Uncontrollable.

Table 2. Observation Results of Fire Extinguishers and Hydrants

No	Overview	Results
1	Fire extinguisher	99.6%
2	Hydrants	99.6%

Elements of the availability of APAR fire classification labels, the findings indicate that the APAR classification is attached to APAR. Consistent with this, according to Hartanto (2013), the fire classification label on APAR allows the public to know the name of the APAR according to the cause of the fire. The fire classification label on the APAR allows the public to know the name of the APAR based on the cause of the fire. With the availability of a fire classification label, the suitability of APAR use can be determined based on the cause of the fire (5).

From the results of in-depth interviews with key informants and key informants, it can be seen that the fire extinguishers were inspected by SO staff but when maintenance involved parties from security and engineering. And there is some information related to APAR which is indeed only SO that handles this, so those from engineering and security don't know about it.

Table 3. Results of Interviews Related to APAR by The Safety Officer, Engineering Supervisor, and Building Field Coordinator

Safety Officer	Engineering Supervisor	Field Coordinator
From the results of the review, it can be seen that it can be concluded that the Apar in Mediterania Garden Residence 2 Apartments as a whole the Apar system functions perfectly and its capacity is by the provisions in the specifications. This means that all the elements examined comply with the requirements in the reference standard. this is reinforced by the results of interviews with informants.	From the results of the review it can be seen that it can be concluded that the APAR components as a whole have not been placed in the appropriate place, It can be seen from the results of the interview that the hazardous substance identification label, six-year maintenance label, hydrostatic test label, or other label is affixed in front of the APAR, but the APAR system is functioning well or capacity by the provisions in the specification.	From the results of the review, it can be seen that it can be concluded that not all components or elements of the APAR linkage are the responsibility of the security staff with the APAR in the Mediterania Garden Residence 2 Apartment as a whole the Apar system functions properly or its capacity is by the provisions in the specifications.

From Table 3 it is known that the hydrant fulfillment rate is 99.6%, so the researchers concluded that in terms of components, the fire protection system is functioning properly or its capacity has been determined in regulations. the results of research on the connection of the hose and hydrant box should not be clogged. According to Juwana (2005), a building's hydrant box must be

easily opened, visible, easily accessible, and free from any obstructions (6). Unobstructed connections to the hose and hydrant box ensure that the hydrant can be accessed and used in the event of a fire.

An unobstructed hose connection ensures that the hydrant can be accessed and used in the event of a fire. Elements of hydrant placement are based on the results of a study on hydrant placement along the access point of the fire engine vehicle (6). Yard hydrants are placed along the entrances and exits of fire trucks to facilitate fire fighting activities of firefighters.

وَمِنْهُمْ مَنْ يَقُولُ رَبَّنَا آتِنَا فِي الدُّنْيَا حَسَنَةً وَفِي الْآخِرَةِ حَسَنَةً وَقِنَا عَذَابَ النَّارِ

QS 2: 201 which means "And some of them say: our Lord, give good (to us) in this world and the hereafter, and keep us away from the fires of hell", when connected with K3, namely According to the Domino Theory, there are two factors that might contribute to the coming disaster, dangerous behavior, and dangerous environment. One of the interesting facts about dangerous diseases that can be found in the holy book of Islam is the alms reward system for those who work to eliminate dangerous conditions. Since the time of the Prophet Muhammad, this has been proven to happen.

Table 4. Interview Results Related to Hydrant by Safety Officer, Engineering Supervisor, and Building Field Coordinator

Safety Officer	Engineering Supervisor	Field Coordinator
The results of the review used the information provided by the informants. From the results of the review, it can be seen that it can be concluded that the hydrant, overall the hydrant system is functioning properly or its capacity is by the provisions in the specifications. This means that the element being inspected complies with the requirements in the reference standard. This was reinforced by the results of interviews with informants.	From the results of the review, it can be seen that it can be concluded that the components, elements, or maintenance and inspection of the hydrant linkage with the Engineering Supervisor have not been carried out properly because one of the existing regulations states that the hydrant hose box must be inspected once every 3 months, however, this is different from the information obtained from the results Interview is every 6 months.	From the results of the review, it can be seen that it can be concluded that not all components, inspection, or maintenance of hydrant linkages are the responsibility of the field coordinator of the hydrant building in Mediterania Garden Residence 2 Apartments as a whole The hydrant system functions properly or its capacity is by the provisions in the specifications.

CONCLUSION AND SUGGESTIONS

Implementation of 99.6% APAR Active Fire Protection System, by Minister of Public Works No.26/PTR/M/2008 concerning technical requirements for fire protection systems in buildings and the environment and application of 99.6% hydrant Active Fire Protection System, by Minister of Public Works No.26/PTR/M/2008 concerning technical requirements for fire protection systems in buildings and the environment.

The suggestions are to develop or improve related to APAR maintenance and hydrants, maintain existing compatibility and involve the engineering team as well as security to inspect active fire protection equipment.

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RELATIONSHIP BETWEEN LIFESTYLE, BMI STATUS, AND LEVEL OF RELIGIOUS KNOWLEDGE RELATED TO MENARCHE AND EARLY MENARCHE IN ELEMENTARY SCHOOL X CHILDREN IN SOUTH TANGERANG CITY IN 2022

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ABSTRAK

Dengan penurunan usia 0,145 tahun setiap dekadenya, Indonesia menempati urutan ke 15 dari 67 negara menurut hasil laporan Riskesdas tahun 2010 yang menemukan bahwa 5,2% anak di 17 provinsi di Indonesia mengalami menarche sebelum usia 12 tahun yang ditandai dengan penurunan usia 0,145 tahun setiap dekadenya dengan pembesaran panggul, pembesaran payudara, tumbuhnya rambut ketiak dan rambut kemaluan. Menarche telah terjadi pada 20,9% wanita Indonesia yang berusia dibawah 12 tahun. Desain penelitian adalah cross-sectional dengan sampel 90 anak kelas 5 dan 6. Teknik pengambilan sampel menggunakan non-probability sampling, analisis data menggunakan uji Chi-Square ($\alpha=0,05$). Variabel yang berhubungan dengan kejadian menarche dini adalah gaya hidup (P-value=0.004, OR=9.008), status BMI (P-value=0.007, OR=8.042), variabel yang tidak berhubungan dengan menarche dini yaitu: berhubungan dengan tingkat pengetahuan agama untuk menarche (P-value=1.000, OR=0.000). Penelitian ini diharapkan dapat memberikan tambahan wawasan kepada masyarakat mengenai menarche dini. Penelitian ini diharapkan dapat menjadi literasi untuk melengkapi penelitian-penelitian sebelumnya mengenai menarche dini. Penelitian selanjutnya dapat menambahkan variabel lain yang belum dibahas dalam penelitian ini, seperti status gizi atau lainnya.

Kata Kunci: Gaya hidup, BMI, agama, menarche dini

ABSTRACT

With a decrease in age of 0.145 years every decade, Indonesia ranks 15th out of 67 countries according to the results of the 2010 RISKESDAS report, which found that 5.2% of children in 17 provinces in Indonesia experienced menarche before the age of 12 which was characterized by enlarged pelvis, breast enlargement, growth of axillary hair and pubic hair. Menarche has occurred in 20.9% of Indonesian women under the age of 12 years. The study design was cross-sectional with a sample of 90 children in grades 5 and 6. The sampling technique used non-probability sampling, data analysis used the Chi-Square test ($\alpha=0.05$). Variables related to the incidence of early menarche are lifestyle (P-value=0.004, OR=9.008), BMI status (P-value=0.007, OR=8.042), variables not related to early menarche, namely: level of religious knowledge related to menarche (P-value=1.000, OR=0.000). This research is expected to provide additional insight to the public regarding early menarche. This research is expected to be literacy to complement previous studies regarding early menarche. Future research can add other variables that have not been discussed in this study, such as nutritional status or others.

Keywords: Lifestyle, BMI, religion, early menarche

INTRODUCTION

The transition process that every individual undergoes from childhood to adolescence is characterized by physical and psychological changes. This period spans from the onset of puberty to the maturity stage. In women, puberty is marked by the arrival of menstruation for the first time, which is referred to as menarche (Gamble, 2017). Menarche is a sign of the transition from childhood to

adolescence in women. It is marked by the first menstruation and is marked by physical and sexual development such as enlargement of the pelvis, growth of the uterus, vagina, growth of hair in the armpits and around the pubic area (2). Several studies have also shown that breast development can occur at the age of 8 years and the first menstruation can occur at the age of 9 (3).

According to research conducted by (Kadir dkk, 2019) (4), it was found that menarche occurs at different ages, with the fastest occurring at 9 years of age and the slowest at 15 years of age. The majority of subjects experienced menarche at the age of 12 years (35.8%) and 13 years (30.4%). At the age of 12 years, around 57.8% of female students had experienced menarche, then it increased to 88.2% at the age of 13 years. Almost all female students experienced menarche at the age of 14 (99.5%). In addition to body mass index and the habit of teenagers who often consume instant food, this is a common risk factor for early menstruation. Adolescent sexual development is influenced by nutrition, therefore BMI status is generally associated with early menarche (5). Adolescents who are tall, fat, and stocky often enter puberty before their peers. Children with a body mass index like this are 2.42 times more likely to enter puberty before their peers (Fildza et al., 2016).

The reduction in the average age at menarche is widely associated with changes in women's lifestyles. The development of civilization encourages changes in the way of human life, which in turn drives changes in everything from eating patterns to habits and behavior (7). Facilities that are available in large numbers can reduce children's physical activity and affect their health. This facility also allows children to access unfiltered shows and information. Another study (8), also shows that children from families with high income and education are more vulnerable to exposure to the mass media and are more at risk of experiencing early menarche compared to children from families with different economic conditions. According to research conducted by (Meng X dkk, 2017) (9) in China, residential neighborhoods that are close to cities can affect the age of puberty in women born between 1973-2004. The research shows that children who live in urban environments are more likely to experience earlier puberty. Nutritional and socioeconomic factors also play an important role in the process of puberty.

Children who live in cities tend to consume energy-rich foods, so they have a higher risk of early menarche compared to children who live in rural areas who consume foods with a high carbohydrate content. Research from (Chen Y, 2018) (10) shows that a living environment that is exposed to a lot of cigarette smoke can increase the risk of early menarche in children. This also adds to the health risks for passive smokers or what is known as secondhand smoke. Around where adolescents live, according to the results of research conducted by (Shen Y, 2019) (11), an emotional relationship was found with the occurrence of menarche. Children who live in environments full of emotional stress are at higher risk of experiencing sexual maturation. The average age of Menarche has been determined by studies in some different countries. The typical age of Menarche has been over 14 years in the United States since 1994 and has since decreased to 12.2 years; in Canada, ranged from 8.5

to 15.6 years; in Jamaica, it is 13.2 years. The average age of Menarche for girls in several Asian countries such as Hong Kong and Japan is between 12.2 and 12.38 years (12).

At present there is a shift in the age of Menarche for young women, where the age of Menarche tends to decrease along with improving living standards and socio-economic conditions (early Menarche). Physiologically, Menarche is characterized by bleeding from the vagina due to the shedding of the uterine lining.

Women who are menstruating for the first time often experience a variety of negative emotions, including worry, panic, and terror. Menarche, which usually occurs between the ages of 12 and 15, is a hallmark of female puberty. This type of Menarche occurs in children under 12 years of age and is associated with early puberty (Susanti dan Sunarto., 2012). With a decrease in age of 0.145 years every decade, Indonesia ranks 15th out of 67 countries according to the results of the 2010 RISKESDAS report, which found that 5.2% of children in 17 provinces in Indonesia experienced menarche before the age of 12. Menarche has occurred in 20.9% of Indonesian women under the age of 12; this is a fact that is currently happening (7). Change in age at early menarche is considered a risk factor for diseases such as obesity, metabolic syndrome, cardiovascular disease, and breast cancer so its prevalence is of concern to the health science community. Premature menarche causes the epiphyseal plates to close earlier, making women who reach menarche at a younger age shorter than average. However, women who reach Menarche at a younger age also have a higher risk of developing estrogen-related cancers such as breast and endometrial cancer due to prolonged exposure to estrogen. In addition, early menarche is associated with an increased likelihood of metabolic syndrome, diabetes, and cardiovascular disease, as well as an increased risk of death from ischemic heart disease and stroke (14).

To prepare children for menarche, support from parents, school environment, and peers is needed. Parents must pay attention to changes in their child's lifestyle, including diet and lifestyle because today's modern lifestyle conditions can affect the age of menarche (9). The Ministry of Health has also compiled guidelines for health services at Community Health Centers which contain materials on reproductive health, nutritional development, sexually transmitted infections, and healthy living behaviors since 2003. According to research conducted by (Rahmananda dan Triyana, 2019), nutritional factors can affect age at menarche nutritional status as measured by Body Mass Index (BMI). This is because an increase in fat mass can cause the formation of leptin which then triggers the secretion of the Tropic releasing Hormone (GnRH) as a sign of reproductive maturity. Reproductive hormones such as estrogen, androgen, and progesterone can be formed due to adipose glands which produce an increase in leptin. Reproductive maturity is marked by the appearance of menarche in women.

Adolescents who do not understand menstruation in a religious context may have a wrong view of menstruation, especially regarding menarche which occurs at an early age. They often think that menstruation is a bad thing. Therefore, children who do not receive sufficient information about

menstruation, especially in the religious sphere, may find it difficult to accept menarche when it occurs to them (16). In this era, more and more elementary school students have unhealthy lifestyles which can lead to bad BMI as well. As well as consuming unhealthy food or lack of physical activity, causing nutritional deficiencies and obesity. Menarche at an early age will of course also make female students anxious about the physical changes they have. With the lack of religious knowledge one has, this anxiety is even more prone to occur because the lack of religious knowledge will also have an impact on the psychology of a student who experiences menarche at an inappropriate age.

Based on research that was conducted at the X Integrated Islamic Elementary School, South Tangerang City in December 2022, it was found that out of a total of 60 grade 5 students and 30 grade 6 students with a total of 90 respondents, from the analysis that was carried out on lifestyle variables, namely 59 children with a percentage of 65.6% with an unhealthy lifestyle category, on the BMI status variable, namely 76 children with a percentage of 84.4% with a bad BMI status, on the variable level of religious knowledge related to menarche, namely 9 children with a percentage of 10.0% with poor level of religious knowledge related to menarche. This happened because there were several factors including, after the observation at School X, the pocket money given by the respondent's parents ranged from Rp. 10,000 to Rp. 15,000 this encourages them to consume soft drinks and junk food more often because they get pocket money which is quite large for children aged 10-12 years, then many of them are allowed to freely use gadgets. This is one of the factors that makes them often stay up late and lack movement.

METHOD

This type of research uses a cross-sectional study design with a saturated sampling technique/non-probability sampling. The sample in this study was 90 elementary school children in grades 5 and 6 who were at School X in the Bukit area, South Tangerang City. The independent variables in this study were lifestyle, BMI status, and religious knowledge. While the dependent variable in this study is the incidence of early menarche. Statistical analysis in this study used the Chi-Square test.

RESULTS AND DISCUSSION

Based on Table 1 it can be seen that the distribution of female students in grade 5 totaled 60, and grade 6 numbered 30 with a total of 90 respondents. Research respondents aged 10 years with a percentage of 27%, 11 years with a percentage of 50%, and 12 years with a percentage of 23%, so the majority of research respondents were 11 years old. Based on the table above for lifestyle variables, it shows that the majority of research respondents have an unhealthy lifestyle (65.6%) with a total of 59 children, while the number of healthy lifestyles is still minimal (34.4%) with a total of 31 children. BMI status shows that the majority of research respondents have poor BMI status (84.4%) with a total of 76 children, while the number of good BMI status is still minimal (15.6%) with a total of 14 children. The variable of religious knowledge shows that the majority of research respondents have a good level of

religious knowledge (90.0%) with a total of 9 children, while the number of respondents with a poor level of religious knowledge is very minimal (10.0%) with a total of 9 children.

There are 67.8% of students with unhealthy lifestyles experience early menarche, and as many as 64.5% of students with healthy lifestyles experience early menarche. From the table above it is known that there is a relationship between lifestyle and the incidence of early menarche. Indicated by a P-value of $0.004 < 0.05$ and an odds ratio value of 9.008. 67.1% of students with bad BMI status experienced early menarche, and as many as 64.3% of students with good BMI status experienced early menarche. From the table above it is known that there is a relationship between BMI status and the incidence of early menarche. Indicated by a P-value of $0.007 < 0.05$ and an odds value of 8,042. 66.7% of students with a poor level of religious knowledge experience early menarche, and as many as 66.7% of students with a good level of religious knowledge experience early menarche. From the table above it is known that there is no relationship between the level of religious knowledge and the incidence of early menarche. Indicated by a P-value of $1.000 > 0.05$ and an odds value of 0.000.

Table 1. Analysis Univariate

Variable	Frequency	Percentage (%)
Lifestyle		
Unhealthy Lifestyle	59	65.6
Healthy Lifestyle	31	34.4
BMI Status		
Bad	76	84.4
Good	14	15.6
Religious Knowledge Related to Menarche		
Bad	9	10.0
Good	81	90.0

Based on bivariate analysis with the Chi-Square test, the first hypothesis is that there is a relationship between lifestyle and early menarche. Based on the results of statistical tests, shows that the p-value is < 0.05 so it can be concluded that there is a relationship between lifestyle and the incidence of early menarche. This research is in line with the research of (Lestari, Masrikhiyah, Sari, (2022); and Nurrahmaton (2018)) which states that there is a relationship between lifestyle and the incidence of early menarche. According to Nurrahmaton (2018) a person's lifestyle, especially young women, as seen from physical activity (sports), consumption of fast food and soft drinks can accelerate menarche. In changing times, more and more restaurants are serving ready-to-eat food and soft drinks to meet the consumption needs of the community, especially teenagers who prefer to consume fast food and soft drinks because they are more instant and delicious, according to the theory which states that they often consume soft drinks. may accelerate menarche.

Table 2. Analysis of the Relationship between Dependent and Independent Variables

Variable	Early Menarche				Total		OR	p-value
	Experiencing Menarche		Not Having Menarche					
	n	%	n	%	N	%		
Lifestyle								
Not Healthy	40	67.8	19	32.2	59	100.0	9.008	0.004
Healthy	20	64.5	11	35.5	31	100.0		
BMI Status								
Bad	51	67.1	25	32.2	76	100.0	8.042	0.007
Good	9	64.3	5	35.7	14	100.0		
Religious Knowledge Related to Menarche								
Bad	6	66.7	3	33.3	9	100.0	0.000	1.000
Good	54	66.7	27	33.3	81	100.0		
Total	60	66.7	30	33.3	90	100.0		

The second hypothesis is that there is a relationship between BMI status and the incidence of early menarche. Based on the results of statistical tests, showed that the p-value was <0.05 , so it can be concluded that there is a relationship between BMI status and the incidence of early menarche. This research is in line with research ((Rahmananda and Sari, 2020; Kadir, Linardi, and Aditiawati, 2019)) which states that there is a relationship between BMI status and the incidence of early menarche. According to (Mohamad et al, 2013) the value of a person's Body Mass Index (BMI) is also closely related to lifestyle, level of health services, family socio-economic improvement, excessive consumption of fast food, and nutrition normally consumed by a certain area.

The third hypothesis is that there is no relationship between the level of religious knowledge related to menarche and the incidence of early menarche. Based on the results of statistical tests, it shows that the p-value is > 0.05 , so it can be concluded that there is no relationship between the level of religious knowledge related to menarche and the incidence of early menarche.

Women who experience early menarche experience signs of maturity earlier than is generally accepted in this society. The sign of maturity that she experienced earlier, is not necessarily in line with the perfection of the development she experienced as a young woman. Meanwhile, if we look at the conditions prevailing in Indonesia, the age of menarche for Indonesian women is 10-16 years with an average of 12.5 years. Al-Qur'an Surat Ar-Rum (30) mentions that there are three phases of life, namely: (1) the childhood phase (al-theft), the phase when a person is weak or a baby (2) the baligh phase, the phase when a person becomes strong and mature (3) the phase As you get older, your body's condition weakens again. The phrase that approaches puberty in meaning is the baligh phase. Individuals who have reached the baligh phase have been given responsibilities (taklif), especially religious and social responsibilities (17).

CONCLUSION AND SUGGESTIONS

Based on the results of the data analysis that has been done, the research can be concluded as follows, there is a relationship between lifestyle and early menarche in elementary school children, there is a relationship between BMI status and early menarche in elementary school children, there is no relationship between the level of religious knowledge and early menarche in elementary school children, there is a difference in the incidence of early menarche with parents' income. Children whose parents' income is $\geq 4,500,000$ experience less early menarche.

Improving information dissemination regarding the causes of early menarche in elementary schools, and increasing counseling to teachers and students regarding important knowledge in anticipation of the occurrence of early menarche in elementary school students, it is hoped that this will become additional literacy material in the health sector to complement previous studies regarding early menarche. It is hoped that it can provide additional insight to SDIT X students regarding early menarche events, it is hoped that SDIT X students can add and update information related to early menarche events, can spread knowledge about early menarche events to other students. Future research can add other variables that have not been discussed in this study, such as nutritional status or others.

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DETERMINANTS OF IMPLEMENTATION OF OHS CULTURE AT RSIA BUNDA CIPUTAT, SOUTH TANGERANG CITY, IN 2022

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ABSTRACT

The hospital is one of the workplaces that has a high risk of danger that can cause accidents or work-related illnesses. The application of OSH culture in hospitals is needed to minimize incidents of accidents and work-related illnesses by hospital standards or targets to achieve zero accidents. Purpose: The purpose of this research is to find out the determinants of implementing OSH culture at RSIA Bunda Ciputat in 2022. This quantitative observational study used an analytic survey with a cross-sectional approach. The sampling technique used a total sampling of 118 workers, which was carried out in December 2022 at RSIA Bunda Ciputat. Data analysis with logistic regression ($\alpha=0.05$). The application of OSH culture at RSIA Bunda Ciputat is not optimal; only 40.7% of respondents applied well, and 59.3% did not do well. Leadership and attitude simultaneously affect the application of OSH culture after being controlled by perception and action variables ($p = 0.00$). The most dominant factor in implementing OSH culture is leadership ($p = 0.011$, $B = 1.999$, $OR = 3.001$). There are 4 factors (leadership, attitude, perception, and action) that influence the application of OSH culture at RSIA Bunda Ciputat, and 2 factors, including perception and action, are confounding factors. Suggestion: One of the strategies needed to increase the application of an occupational health and safety culture in hospitals is to optimize the functions of the occupational health and safety committee, supervision, and training related to worker health and safety.

Keywords: Safety Culture, OHS, and Health Workers

ABSTRAK

Rumah sakit merupakan salah satu tempat kerja yang mempunyai resiko tinggi terhadap bahaya yang dapat menimbulkan kecelakaan atau penyakit akibat kerja. Penerapan budaya K3 di rumah sakit diperlukan untuk meminimalisir kejadian kecelakaan dan penyakit akibat kerja sesuai standar atau target rumah sakit untuk mencapai nihil kecelakaan. Tujuan: Tujuan penelitian ini adalah untuk mengetahui determinan penerapan budaya K3 di RSIA Bunda Ciputat Tahun 2022. Penelitian observasional kuantitatif ini menggunakan metode survei analitik dengan pendekatan cross-sectional. Teknik pengambilan sampel menggunakan total sampling sebanyak 118 pekerja yang dilakukan pada bulan Desember 2022 di RSIA Bunda Ciputat. Analisis data dengan regresi logistik ($\alpha=0,05$). Penerapan budaya K3 di RSIA Bunda Ciputat belum optimal; hanya 40,7% responden yang menerapkan dengan baik, dan 59,3% yang tidak melakukannya dengan baik. Kepemimpinan dan sikap secara simultan berpengaruh terhadap penerapan budaya K3 setelah dikontrol variabel persepsi dan tindakan ($p=0,00$). Faktor yang paling dominan dalam penerapan budaya K3 adalah kepemimpinan ($p=0.011$, $B=1.999$, $OR=3.001$). Terdapat 4 faktor (kepemimpinan, sikap, persepsi, dan tindakan) yang mempengaruhi penerapan budaya K3 di RSIA Bunda Ciputat, dan 2 faktor yaitu persepsi dan tindakan merupakan faktor perancu. Saran: Salah satu strategi yang diperlukan untuk meningkatkan penerapan budaya kesehatan dan keselamatan kerja di rumah sakit adalah dengan mengoptimalkan fungsi komite kesehatan dan keselamatan kerja, pengawasan, dan pelatihan terkait kesehatan dan keselamatan pekerja.

Kata Kunci: Budaya Keselamatan, K3, dan Tenaga Kesehatan

INTRODUCTION

Health service facilities are workplaces that have a high risk of danger, so it is necessary to implement and apply occupational health and safety so that workers are safe and healthy. In Law No.

23 of 1992, Article 23 concerning health states that to increase work productivity and prevent work-related diseases, it must be carried out in every workplace, especially those with a risk of health hazards (1). In its implementation, the implementation of Occupational Health and Safety is still said to be not optimal or not yet relevant to the *Zero Accident slogan*. *The International Labor Organization* (2018) states that around 2.78 workers die from work-related accidents or diseases every year, with more than 380,000 (13.7%) deaths due to work accidents (2). According to the 2019 report from *the Occupational Safety and Health Administration*, hospitals in the United States recorded approximately 221,400 occupational accidents and diseases. Meanwhile, in Indonesia, recorded work accident cases in 2020 experienced an increase of 117,000 cases from the previous year's total of 114,000 cases (3). The occurrence of work accidents is caused by two aspects: *unsafe actions* as a result of unsafe behavior and *unsafe conditions* where the work environment is not good, or the condition of work equipment is dangerous. Heinrich states that about 80% of accidents are triggered by *unsafe actions*, with 20% caused by *unsafe conditions*, known as the 80:20 rule (4).

RSIA Bunda Ciputat is a health service facility located in the city of South Tangerang. RSIA Bunda Ciputat is classified as a type C hospital and has been established since 2005 with an area of 1444 m². Based on preliminary research conducted in June 2022 regarding the identification of risks for cleaning workers at RSIA Bunda Ciputat, it is known that there are several risks, including exposure to disease germs or viruses, needle sticks, exposure to hazardous and toxic materials, exposure to UV rays, scratches from sharp objects, and musculoskeletal disorders. With 28.1% at high risk, 40.6% at moderate risk, and 31.3% at low risk (5).

The survey was conducted in November 2022, and it is known that during 2021–2022, it was recorded that as many as 9 workers experienced work accidents and as many as 31 people experienced health problems. This is known to exceed the standards or targets set by the hospital, namely, zero accidents. Out of a total of 9 work accident cases, including 4 nurses and 1 cleaning worker stuck with a needle, 2 technicians were cut by a sharp object, 1 cleaning worker was exposed to UV light, and as many as 31 cases of health problems were exposed to the COVID-19 virus and experienced musculoskeletal disorders. The results of an investigation conducted by the hospital's occupational health and safety committee found that work-related accidents that occurred at RSIA Bunda Ciputat were caused by unsafe actions in seven cases, namely workers' failure to use personal protective equipment and their lack of skills and knowledge related to health and safety. work at the hospital. This is in line with research (6), which states that knowledge of occupational health and safety and unsafe actions have a relationship with work accidents. These results are supported by research by Rahayu (2015), which states that knowledge and occupational health and safety culture have an odds ratio of 9.13, meaning that workers with low knowledge are 9.13 times more at risk of not implementing a culture of occupational health and safety compared to workers who have good knowledge (7).

According to Cooper (2001), the application of an occupational health and safety culture can reduce the risk of hazards, especially those that are directly related to the behavior of workers in carrying out their work. Occupational health and safety culture itself is defined as the attitudes, perceptions, knowledge, and behavior of individuals or groups that are influenced by occupational health and safety commitments (8). The culture of occupational health and safety is also formed by psychological aspects, behavioral aspects, and organizational aspects (9). This is in line with the results of research by Zimri, et al. (2020), which show that there is a relationship between psychological and behavioral aspects with the application of hospital occupational health and safety management in preventing work-related accidents and diseases (10). Seeing the phenomenon at RSIA Bunda Ciputat, where there are still accidents and health problems for workers, underlies researchers' decision to research "What are the determinants of implementing a culture of health and safety at RSIA Bunda Ciputat in 2022?"

METHOD

This type of research is quantitative, using a cross-sectional study design. The sample used in this study was all RSIA Bunda Ciputat employees, who were selected based on a total sampling technique of 118 employees. This research was conducted at RSIA Bunda Ciputat in December 2022. The data source for this study was primary data, which was collected directly by the researchers using a questionnaire instrument with a Google form, and secondary data regarding cases of work-related accidents and illnesses that occurred at RSIA Bunda Ciputat. Data analysis with logistic regression ($\alpha=0.05$).

RESULTS AND DISCUSSION

Psychological factors on the implementation of occupational health and safety culture

The results of the analysis at RSIA Bunda Ciputat found that psychological factors influenced the application of a culture of occupational health and safety because the p-value was less than 0.05. Table 1 shows that there were 25 (53.2%) workers with a good perception of implementing a health and safety culture and 23 (32.4%) workers with a poor perception of implementing a health and safety culture. From the results of the analysis, the value of OR = 2.37 is obtained, which means that workers with good perceptions have 2.37 times the opportunity to adopt a culture of occupational health and safety. Perceptions in the application of occupational health and safety culture are inseparable from how a person translates information into safe action, especially when interpreting work environment situations that are dangerous and can cause work accidents (13, 14).

The results of the study by Kerinci et al. (2015) indicate that there is a positive relationship between perceptions of occupational safety and health and occupational health and safety behavior. The correlation value obtained from this study was 0.405 with a p-value of 0.010. This shows that the better the perception of occupational safety and health among workers, the better the behavior of occupational

health and safety is carried out by workers (11). In line with the research conducted by Shiddiq et al. (2014), it was found that there is a link between perceptions of occupational health and safety and unsafe behaviors of employees in the production unit IV PT. Tonas Cement. The results showed a p-value of 0.011 ($p = 0.05$), which indicated that there was a significant relationship between perceptions of occupational safety and health and occupational health and safety behavior (12). These results indicate that the role of worker awareness in assessing and giving meaning to hazardous working environmental conditions is very important for improving safety behavior. This makes the perception of occupational safety and health very important in influencing employee health and safety behavior and needs to be considered in efforts to improve the application of occupational health and safety in the workplace.

In the attitude variable, it can be seen that there are 31 (51.7%) workers who have a positive attitude towards implementing a health and safety culture and 17 (29.3%) workers with a negative attitude towards implementing a health and safety culture. From the results of the analysis, it was found that $OR = 2.578$, which means that workers who have a good attitude will have a 2.57 times greater chance of implementing a health and safety culture compared to workers who have a bad attitude. In addition to perception, psychological factors such as attitudes found in several literatures have an important role and influence the implementation of a culture of occupational health and safety (13,14). This is in line with research by Zimri et al. (2020) that indicates attitudes influence the implementation of occupational health and safety at Pobundayan Hospital, Kotamobagu City (10). In research by Rahayu (2015), workers who have bad attitudes have 9.286 times the risk of not implementing a health and safety culture compared to workers who have good attitudes (7). The results of this study are also in line with research by Dwiari and Muliawan (2020) that indicates attitude is the dominant factor in the implementation of hospital occupational health and safety, in which respondents who have a positive attitude towards the implementation of hospital occupational health and safety are 1.59 times more likely to have a good implementation of hospital occupational health and safety compared to respondents who have a negative attitude (15).

From the results of observations and interviews with officers, there are still officers who do not know and understand the use of personal protective equipment and the hazards that may occur in the workplace. This can lead to officers acting in an unsafe manner, endangering themselves and those around them. This is supported by research by Putri et al., (2018), which found that workers with a negative attitude are 22 times more likely to have a work accident than workers with a positive attitude (16). The relevance of the research results is that a proactive attitude in applying knowledge about occupational safety and health can reduce the number of work accidents and create a good occupational health and safety culture in hospitals.

Table 1. Analysis of the Relationship between Psychological Factors and the Application of Occupational Health and Safety Culture

Category	Implementation of occupational health and safety culture				Total		p-value	OR 95% CI
	Good		Not good					
	n	%	n	%	n	%		
Perception								
Good	25	53.2	22	46.8	47	100	0.024	2,372 (1111-5063)
Not good	23	32.4	48	67.6	71	100		
Attitude								
Positive	31	51.7	29	48.3	60	100	0.013	2,578 (1.207 - 5.507)
Negative	17	29.3	41	70.7	58	100		

Relationship of behavioral factors to the implementation of occupational health and safety culture

Based on the results of the analysis in Table 2, behavioral factors influence the application of a culture of occupational health and safety ($p\text{-value} > 0.05$) at RSIA Bunda Ciputat. The results of this study indicate that there is a relationship between behavioral factors and the implementation of a culture of occupational health and safety at RSIA Bunda Ciputat. According to the findings of the analysis, action, knowledge, and leadership have $p\text{-values}$ less than 0.05.

Table 2 shows that there were 27 (55.1%) workers with good practices implementing a health and safety culture and 21 (30.4%) workers implementing a health and safety culture with bad actions. From the results of the analysis, the value of $OR = 2.805$ is obtained, which means that workers who apply a culture of occupational health and safety have 2.8 times the opportunity to take good actions compared to workers who take bad actions = 2.805, which means that workers who apply a culture of occupational health and safety have 2.8 times the opportunity to take good actions compared to workers who take bad actions. This needs to be of particular concern to hospitals when conducting coaching or safe action stimuli toward workers. Based on the results of observations and interviews with workers, it is known that there are still workers who do not use personal protective equipment and cannot simulate the use of a spill kit for handling spills of hazardous and toxic materials. This is risky and has the potential for accidents and work-related illnesses when an emergency occurs and the officers do not have the skills to handle hazardous and toxic materials.

This is in line with the fact that workers' actions have a relationship with the incidence of work accidents among workers at PT. Tondong Jaya Marble (17). As supported by research by Rahayu (2015), unfavorable actions have a risk of 5,956 times not implementing a culture of occupational health and safety (16). As is in line with research by Zimri et al. (2020), that action has a $p\text{-value}$ of 0.05, which means there is a significant relationship between action and the implementation of occupational health and safety at Pobundayan Hospital, Kotamobagu City (10). Similar research was conducted by Deseva et al. (2021), which found that action has a significant effect on the implementation of occupational health and safety at the Royal Prima Medical Hospital (18).

In the knowledge variable, it can be seen that there are 35 (49.3%) workers with good knowledge who apply occupational health and safety culture and 13 (27.7%) workers who implement occupational health and safety culture with poor knowledge. From the results of the analysis, it was found that $OR = 2.543$, which means that workers who have good knowledge will have a 2.54 times greater chance of implementing an occupational health and safety culture compared to workers who have poor knowledge. In forming safe worker actions, workers must know occupational health and safety procedures provided or implemented by the hospital. The results of the study show that 39.8% of workers' knowledge at RSIA Bunda Ciputat is still not good. From the results of interviews with respondents, it was clear that respondents felt knowledge about occupational health and safety was very important to prevent accidents and occupational diseases. As long as workers have a good level of knowledge regarding occupational health and safety, it is hoped that they will be able to properly implement a culture of occupational health and safety in hospitals. According to Rahayu (2015), in his research, it was stated that workers who have low knowledge are at 9.13 times the risk of not implementing an occupational health and safety culture compared to workers who have good knowledge (16). In line with the results of the study by Endriastuty and Adawia (2018), knowledge about occupational health and safety has a significant relationship ($p = 0.00$) with occupational health and safety culture (19). Similar research was conducted by Zimri et al. (2020), proving that there is a significant relationship between knowledge and the application of hospital occupational health and safety (10). It can be interpreted that the better the level of knowledge of the respondents, the greater the application of the occupational health and safety culture.

In the leadership variable, it can be seen that there are 29 (56.9%) workers who feel that good leadership can implement an occupational health and safety culture and 19 (28.4%) workers who feel that leadership is not good enough to implement a health and safety culture. From the results of the analysis, it was found that $OR = 3.30$, which means that good leadership will have a 3.33 times greater chance of workers implementing a health and safety culture compared to poor leadership. One of the factors needed to create a strong occupational health and safety culture is safety leadership. Based on the results of the analysis of the most dominant factor, it was found that the leadership variable was the most dominant factor influencing the application of a health and safety culture at RSIA Bunda Ciputat ($p = 0.011$; $OR = 3$; $B = 1.099$). In line with research by Deseva et al. (2021), leadership has a significant influence ($p = 0.020$) on the implementation of occupational health and safety at RSU Royal Prima Medan, with a 4.7 times greater risk ($OR = 4.709$) of implementing occupational health and safety if leadership is good (18). Supported by research by Dwiari & Muliawan (2020), leadership has a significant relationship to the implementation of hospital occupational health and safety (15).

The exemplary factor in leadership is highly prioritized and a priority in building and shaping a culture of occupational health and safety in an organization. This is because a leader has a great

influence in changing the mindset and performance of workers—how they think, behave, and act (20). According to research by Hasan (2018), leadership has a significant effect on worker satisfaction and performance. In line with research by Aprilia (2016), leadership has the greatest contribution to employee performance at 40.2%.

From the results of observations and interviews with respondents, it appears that coaching regarding occupational health and safety has been carried out, but monitoring of occupational health and safety has not been carried out consistently so there are still workers who do not work according to the SPO. According to Cooper (2000), the implementation of an effective occupational health and safety culture will be able to reduce losses caused by accidents. For the occupational health and safety culture to work effectively, it requires strong commitment and leadership from top management to ensure that the occupational health and safety culture is truly imbued within the organization (9). Therefore, supervision and strategies are needed to increase worker motivation to behave safely and consistently.

Table 2. Analysis of the Relationship between Behavioral Factors and the Application of Occupational Health and Safety Culture

Category	Implementation of occupational health and safety culture				Total		<i>p-value</i>	OR CI 95%
	Good		Not good					
	n	%	n	%	n	%		
Action								
Good	27	55.1	22	44.9	49	100	0.007	2,805 (1.310 - 6.007)
Not good	21	30.4	48	69.6	69	100		
Knowledge								
Good	35	49.3	36	50.7	71	100	0.019	2,543 (1.153 - 5.606)
Not good	13	27.7	34	72.3	47	100		
Leadership								
Good	29	56.9	22	43.1	51	100	0.002	3,330 (1.546 - 7.175)
Not good	19	28.4	48	71.6	67	100		

Relationship of organizational factors to the implementation of occupational health and safety culture

The results of the study found that organizational factors were not related to the implementation of an occupational health and safety culture ($p = 0.05$) at RSIA Bunda Ciputat (Table 3). From the results of the analysis, $OR = 1$, which means that a policy that is not good will have a 1 times greater chance of not implementing a culture of occupational health and safety compared to a policy that has been well formed. The organizational factor in this study is policy. Based on the results of the bivariate test, it is known that the p -value is > 0.05 , meaning that organizational factors cannot be continued to the multivariate analysis stage. It can be interpreted that there is no significant relationship between organizational factors, namely policies, and the application of occupational health and safety culture at RSIA Bunda Ciputat.

This result is different from the results of previous studies. According to Dwiari & Muliawan's results of previous studies. According to Dwiari & Muliawan (2020), the policy has a

significant relationship with the implementation of occupational health and safety ($p = 0.05$), with a 1.41 times higher risk of implementing occupational health and safety if the policy is good (15). In line with research (21), the policy dimension significantly influences occupational health and safety culture ($p = 0.005$). This is evidenced by the policy having an $\text{Exp}(B)$ value of 3.814. The application of a good occupational health and safety culture in the workplace is influenced by the existence of company or organizational policies that support consistent and comprehensive implementation of occupational health and safety (21). The difference in the results of this study is due to the different policies adopted by each organization.

Based on the results of the interviews, it is known that RSIA Bunda Ciputat has clear policies related to hospital occupational health and safety that have been documented and communicated to all human resources in the hospital. Hospital leadership realizes that the hospital's occupational health and safety policy is the main foundation that is expected to be able to move all elements within the hospital so that good implementation of hospital occupational health and safety can be realized. This shows that the hospital is very concerned about the health and safety of its employees and has tried to improve the implementation of a culture of health and safety in the right way.

Table 3. Analysis of the Relationship between Organizational Factors and the Application of Occupational Health and Safety Culture

Category	Implementation of occupational health and safety culture				Total	<i>p-Value</i>	OR CI 95%
	Good		Not good				
	n	%	n	%	n	%	
Policy							
Good	44	40.7	64	59.3	108	100	1,031
Not good	4	40	6	60	10	100	(0 .275 - 3.869)

Analysis of the Factors Most Influencing the Implementation of Occupational Health and Safety Culture

The analysis of the most influencing factors in this study was carried out using logistic regression because the dependent variable in the study was a dichotomous categorical variable, namely the application of a good or bad occupational health and safety culture. The precision value is 0.25, which means that a variable with $p = 0.25$ can be a multivariate candidate. The results of bivariate selection at RSIA Bunda Ciputat showed that there were five variables with $p = 0.25$: perception, attitude, action, knowledge, and leadership.

Results of the Analysis of the Dominant Factors in the Application of Occupational Health and Safety Culture

At this stage, a multivariate analysis was carried out to obtain the best model for determining the determinants of the implementation of an occupational health and safety culture at RSIA Bunda Ciputat. The multivariate analysis used is the multiple logistic regression prediction model. If the test

results show that there are variables that have a p-value greater than 0.05, then these variables must be excluded from the modeling. The results of the first stage of logistic regression at RSIA Bunda Ciputat showed that 3 variables had a p-value > 0.05, namely attitude (p-value = 0.315), knowledge (p-value = 0.142), and perception (p-value = 0.1) so that the next step is to remove variables that have a p-value > 0.05, expend variables starting from the variable that has the largest p-value first, namely attitude.

Table 4. Results of Multivariate Analysis of Multiple Logistic Regression Tests between Independent Variables and Dependent Variables

Variable	Model 1	Model 2	Model 3	Model 4	Late Model (Model 3)	OR Value in the Final model
	p-values	p-values	p-values	p-values	p-values	
Perception	0.100	0.081	0.112 *	-	0.112 *	1953
Attitude	0.315	-	0.251 *	0.191 *	0.251 *	1,642
Action	0.031	0.028	0.022	0.011	0.022	2,610
Knowledge	0.142	0.117	-	-	-	-
Leadership	0.023	0.007	0.011	0.012	0.011	3,001

Description: (*) confounding variable

Model test phases 1, 2, 3, and 4: To determine which variables exit the model and re-enter the independent or confounding variables, further selection is carried out, namely entering and removing the model by looking at changes in the OR. From the results of model 2 testing, after the attitude variable was removed, there was a change in OR > 10% for each variable. So that the attitude variable is included in the model.

From the results of testing model 3, after the knowledge variable was removed, there was no change in OR > 10% of each variable. So that the knowledge variable is removed from the model. From the results of testing model 4, after the perception variable was removed, there was a change in OR > 10% for each variable. So that the perception variable is put back into the model.

After all, variables were included in the logistic regression model, the knowledge variable was excluded from the model because it had a p-value > 0.05 and did not have a significant effect on the implementation of a culture of occupational health and safety. So, the final model is obtained in Table 5 as follows:

Table 5. Final Model of Variables Influencing the Implementation of Occupational Health and Safety Culture

Variable	B	Sig.	OR	95% CI	
				Lower	Upper
*Perception	0.669	0.112	1953	0.855	4,462
*Attitude	0.496	0.251	1,642	0.704	3,828
Action	0.959	0.022	2,610	1.145	5,949
Leadership	1,099	0.011	3,001	1,281	7,026

The results of the final model analysis yield a p=0.022 value for the action variable and a p=0.011 value for the leadership variable, which means that these two variables have a significant relationship to the application of occupational health and safety culture at RSIA Bunda Ciputat as to

support the hypothesis that there is a significant effect on the knowledge variable and leadership and implementation of occupational health and safety culture at RSIA Bunda Ciputat.

Leadership is the most dominant variable in influencing the implementation of occupational health and safety culture at RSIA Bunda Ciputat, with an OR value of 3.001, which means that good leadership has a 3 times greater chance of influencing the implementation of occupational health and safety culture compared to poor leadership. Whereas the action variable has an OR value of (2.610), which means that good actions have a 2.6 times greater effect on implementing a health and safety culture compared to workers who have bad actions.

Perception and action variables, which do not show a significant relationship ($p\text{-value} > 0.05$), are confounding variables in this study. From the results of the coefficient of determination, it can be seen how much the model can explain the dependent variable. Based on the results of the analysis, the Nagelkerke R Square (R^2) value was 0.224 (22.4%), meaning that the variables of perception, attitude, leadership, and action were able to influence the implementation of an occupational health and safety culture by 22.4% and the rest were influenced by other variables in outside research.

CONCLUSION AND SUGGESTIONS

Based on research conducted on the determinants of the application of Occupational Health and Safety Culture at RSIA Bunda Ciputat, several conclusions can be drawn as follows:

1. The implementation of an occupational health and safety culture at RSIA Bunda Ciputat can be categorized as not good (59.3%). From the results of observations, the implementation of occupational health and safety programs has not been implemented properly, even though policies and organizations for occupational health and safety have been formed.
2. There is an influence between psychological factors, namely perceptions and attitudes, and the application of a culture of health and safety at RSIA Bunda Ciputat.
3. There is an influence between behavioral factors, namely action, knowledge, and leadership, and the application of a culture of health and safety at RSIA Bunda Ciputat.
4. There is no influence between organizational factors, namely policies and the implementation of a culture of occupational health and safety at RSIA Bunda Ciputat.
5. The most dominant factor affecting the implementation of an occupational health and safety culture is leadership at RSIA Bunda Ciputat.

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EFFECTIVENESS OF STUNTING PREVENTION PROGRAM AT BAJA HEALTH CENTER IN TANGERANG CITY

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ABSTRACT

Stunting is a form of growth and developmental failure that causes linear growth disorders in toddlers due to the accumulation of nutritional deficiencies over a long period, starting from pregnancy to 24 months of age. The problem of malnutrition in Indonesia is a health issue that has not been fully addressed by the government. This can be seen from survey and research data such as the Basic Health Research (2018), which states that the prevalence of stunting (very short) in Indonesia is 19.3%, higher than in 2013 (19.2%) and 2007 (18%). Although many stunting prevention programs have been implemented by various parties and the health sector, these efforts have not effectively reduced the target number of stunting cases at the national level, posing a challenge for the health sector in preventing stunting cases. This research adopts a descriptive qualitative study design, where researchers aim to assess the effectiveness of the stunting prevention program in the working area of Baja Tangerang Health Center with three informants. Data collection techniques include interviewing related parties, observation, and documentation, with data analyzed by combining information from various existing sources. Health Center Baja has handled 2 children with malnutrition and 7 children with stunting. The results indicate that preventive measures must continue to be improved by meeting nutritional needs during pregnancy, monitoring child growth and development, and maintaining environmental hygiene. Integrated and multisectoral programs are needed to increase family income and prevent premature births (babies born not full term) to overcome the incidence of stunting in toddlers.

Keywords: *Stunting, Prevention Program, Health Center Baja Tangerang City*

ABSTRAK

Stunting adalah bentuk kegagalan pertumbuhan dan perkembangan yang menyebabkan gangguan pertumbuhan linear pada anak balita akibat akumulasi kekurangan gizi selama periode panjang, mulai dari kehamilan hingga usia 24 bulan. Masalah gizi buruk di Indonesia merupakan isu kesehatan yang belum sepenuhnya ditangani oleh pemerintah. Hal ini terlihat dari data survei dan penelitian seperti Riset Kesehatan Dasar (2018), yang menyatakan bahwa prevalensi stunting (sangat pendek) di Indonesia mencapai 19,3% lebih tinggi dibandingkan tahun 2013 (19,2%) dan 2007 (18%). Meskipun berbagai pihak dan sektor kesehatan telah melaksanakan banyak program pencegahan stunting, Upaya tersebut belum secara efektif mengurangi jumlah kasus stunting pada Tingkat nasional, menjadi tantangan bagi sektor kesehatan dalam mencegah kasus stunting. Penelitian ini mengadopsi desain studi kualitatif deskriptif, dimana para peneliti bertujuan untuk menilai efektivitas program pencegahan stunting di wilayah kerja Puskesmas Baja Tangerang dengan melibatkan tiga informan. Teknik pengumpulan data mencakup wawancara dengan pihak terkait, observasi, dan dokumentasi, dengan data dianalisis dengan menggabungkan informasi dari berbagai sumber yang ada. Puskesmas Baja telah menangani 2 anak dengan gizi buruk dan 7 anak dengan stunting. Hasil menunjukkan bahwa langkah-langkah pencegahan harus terus ditingkatkan dengan memenuhi kebutuhan gizi selama kehamilan, memonitor pertumbuhan dan perkembangan anak, serta menjaga kebersihan lingkungan. Program terintegrasi dan multisectoral diperlukan untuk meningkatkan pendapatan keluarga dan mencegah kelahiran premature (bayi lahir sebelum waktunya) guna mengatasi kejadian stunting pada balita.

Kata Kunci: *Stunting, Program Pencegahan, Puskesmas Baja Kota Tangerang*

INTRODUCTION

Good nutrition is the primary requirement for health and has a significant impact on the quality of human resources (1). The issue of nutrition in infants and toddlers remains a major problem in the population, with malnutrition being one of the key concerns. Nutrition plays a crucial role in social and economic development (2), making it essential to reduce undernutrition in infants and children to support the achievement of Sustainable Development Goals (SDGs), particularly those related to ending hunger, ensuring food security, improving nutrition, and promoting sustainable agriculture (3).

Stunting is a prevalent health problem in many developing countries, including Indonesia. It arises due to chronic malnutrition, caused by prolonged inadequate nutritional intake, leading to growth disorders in children, resulting in lower or shorter height than their age standards (4). Stunting poses significant nutritional challenges with wide-ranging impacts on social and economic aspects of society (5). Stunted toddlers are at risk of physical and cognitive impairment, metabolic disorders that may lead to degenerative diseases, and impaired socio-emotional development (6,7). Furthermore, children experiencing growth delays due to poor diet and repeated infections are more susceptible to illness and mortality, placing an economic burden on families and society (3).

The causes of stunting can be grouped into three levels, namely the community, household (family), and individual levels. At the household (family) level, inadequate food quality and quantity, income level, inadequate parenting of children's meals, and inadequate basic health services are factors that cause stunting, where these factors occur due to factors at the community level (8). The consequences of micronutrient deficiencies during childhood are devastating. Pure protein deficiency in severe stages can lead to kwashiorkor in children under five years old. Protein deficiency is also often found together with energy deficiency leading to a condition called marasmus. Protein itself has many functions, including forming new body tissues during growth and development, maintaining body tissues, repairing and replacing damaged or dead tissues, and providing amino acids needed to form digestive and metabolic enzymes (9).

Malnutrition in Indonesia remains a health problem that the government has yet to fully address. This is evident from survey and research data, such as the Basic Health Research (2018), which indicates that the prevalence of severe stunting (very short) in Indonesia is 19.3%, higher than the rates in 2013 (19.2%) and 2007 (18%). According to the Ministry of Health's Indonesian Nutrition Status Survey (SSGI), the prevalence of stunting in Indonesia is projected to reach 21.6% by 2022. In Banten Province, the prevalence of stunting among children under five is 20%, ranking second only to West Java Province at 20.5%. However, in Tangerang City, the prevalence of stunting among children under five is 11.5%, which is relatively lower compared to other cities in the region. Despite the decrease from the national target, the government remains determined to make more drastic efforts to achieve the target stunting prevalence rate of 14% by 2024 (10).

According to Minister of Health Regulation No. 75/2014, a Health Center is a health service facility that organizes public health efforts and provides first-level individual health services. It prioritizes promotive and preventive efforts to achieve the highest degree of public health in its working area, serving patients with various health problems, including nutritional issues. The high incidence of nutrition and nutrition-related diseases in the community requires comprehensive treatment. However, due to various limiting factors, the handling of these problems has not been optimal. One of the contributing factors is that health workers, including nutritionists, do not fully adhere to their main duties and functions. Additionally, the inadequate availability of resources, including personnel, negatively impacts the success of the malnutrition prevention program. This phenomenon will significantly influence the success of health and nutrition development in Indonesia (11).

Health Center Baja Tangerang City is an integrated Health Service Center that provides services to the community with various health facilities and prevention programs for various health problems, including malnutrition prevention and stunting programs. The center's working area is located on Jalan Baja, in Cibodas Baru Urban Village, Cibodas Subdistrict, south of Tangerang City. It covers an area of 992.10 km², situated at an altitude of 14 meters above sea level, and is approximately 6 km away from the center of Tangerang City. The working area of this Health Center includes three villages: Cibodas Baru, Uwung Jaya, and Jati Uwung. In implementing health programs, Health Center Baja Tangerang City is supported by health cadres from each village, including health cadres, posyandu (integrated health posts), Posbindu PTM (Non-Communicable Disease Monitoring Post), and Posbindu elderly (Elderly Health Monitoring Post), who actively participate in community health initiatives.

Nutrition programs implemented in the area of Health Center Baja Tangerang City include the provision of Vitamin A, blood supplement tablets supplementation for adolescent girls, tracking cases of malnutrition, nutrition and health interventions (nutrition services), and preventive efforts to overcome malnutrition, including stunting prevention programs and the establishment of nutrition posts and nutrition clinics. These efforts align with the program issued by the Tangerang City Office, where the Laksa Gurih program serves as an innovation to reduce the number of malnutrition cases in Tangerang City. The Laksa Gurih innovation aims to enhance the quality of assistance for malnourished toddlers, thus supporting the acceleration of improving their nutritional status. Under this innovation, every time a malnourished toddler is identified, health workers and one cadre provide immediate assistance until the toddler's nutritional status improves. As a result of this program, the number of malnourished toddlers decreased from 162 in 2017 to 33 by the end of 2021. This innovative approach involves not only health workers but also community cadres who have received training in Malnutrition Management. Their active involvement plays a crucial role in the success of the program's implementation and ensuring comprehensive care and support for malnourished children in the community.

The success of the Stunting Prevention Program is undoubtedly influenced by various interrelated factors, ensuring that health programs are implemented coherently without overlapping. Community support is also crucial as the primary focus in reducing stunting cases and addressing other nutritional issues. In this case, the author seeks to determine the effectiveness of the implemented program in reducing stunting cases in the area and identify the factors that can influence the success of the stunting prevention program at Health Center Baja Tangerang City.

METHOD

This research is a descriptive qualitative study aimed at assessing the effectiveness of the stunting prevention program in the working area of the Baja Health Center, Tangerang City. The participants and informants involved in this study are individuals related to the stunting prevention program at the Baja Health Center in Tangerang City. The relevant parties include:

1. Person in Charge of the Nutrition Program at Baja Health Center in Tangerang City
2. Representatives of Health Cadres in the Working Area of Baja Health Center in Tangerang City.
3. Community Representatives involved in the Nutrition Program at the Baja Health Center in Tangerang City.

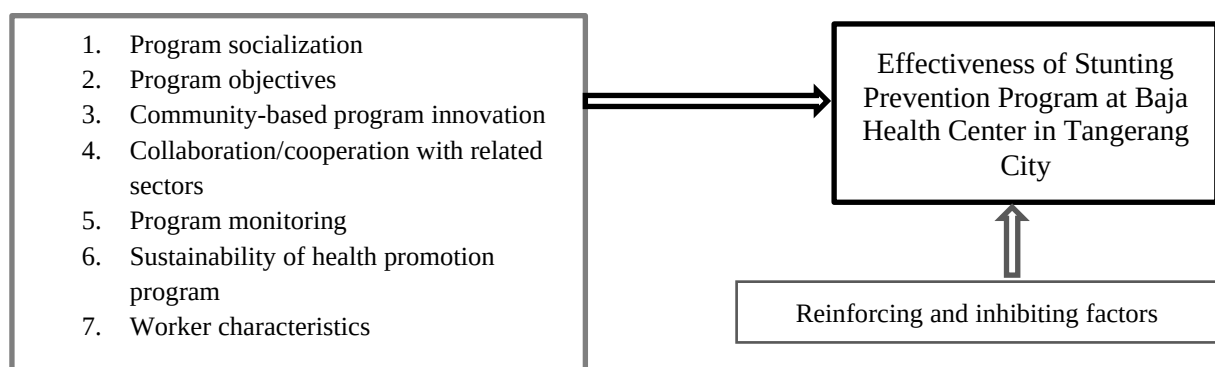


Figure 1. Research framework

Based on the conceptual framework provided, the researcher has formulated a list of questions for each variable to be studied. The questions are as follows:

1. How effectively is the Nutrition program or stunting prevention program socialized to related parties at the Baja Health Center in Tangerang City?
2. What are the specific objectives of the stunting prevention program at the Baja Health Center in Tangerang City?
3. Are there any innovative approaches in the stunting prevention programs that actively involve the community? If so, please explain what programs are implemented and how they involve the community.

4. How does the cooperation mechanism work for implementing the stunting prevention program with related cross-sectors or other relevant stakeholders?
5. Is the nutrition program adequately monitored and evaluated? What is the mechanism for monitoring and evaluating the effectiveness of the program?
6. Is the nutrition program consistently implemented every year? How does the Health Center determine the priorities for the nutrition program?
7. What human resources are involved in the implementation of the nutrition program at the Baja Health Center in Tangerang City? How are they organized and managed to carry out the program effectively?

RESULTS AND DISCUSSION

The research method used in this study is qualitative with a phenomenological approach. This approach aims to understand and explain a person's lived experiences and perceptions related to the nutrition program and stunting prevention activities at the Baja Health Center in Tangerang City. The researcher seeks to gain insights into how individuals involved in the program perceive and experience various aspects of the program, including their knowledge about Vitamin A administration, blood supplement tablets for adolescent girls, tracking malnutrition cases, nutrition and health interventions, and preventive efforts to overcome malnutrition, including stunting prevention programs and the provision of nutrition posts and clinics.

The phenomenological approach is suitable for this research as it allows the researcher to explore the subjective experiences and perspectives of the participants, such as the person in charge of the Nutrition Program, representatives of health cadres, and community representatives involved in the nutrition program at the Baja Health Center.

By using qualitative methods and the phenomenological approach, the researcher aims to provide a deeper understanding of how these individuals perceive and engage with the nutrition and stunting prevention programs, shedding light on their experiences and perspectives regarding the program's effectiveness and impact. This approach will provide valuable insights into the program's strengths, weaknesses, and areas for improvement, contributing to the overall knowledge and efforts to address malnutrition and stunting in the area.

Table 1. Recap of Data on Stunting, Stunted, and Nutritional Deficiencies in the Baja Health Center Area in 2022

No	Urban village	Nutrition Status			Total
		Stunting	Stunted	Nutritional Deficiencies	
1	Cibodas Baru	0	1	1	2
2	Uwung Jaya	2	5	5	12
3	Jati Uwung	0	0	1	1
Total		2	6	7	15

Source: Baja Health Center

Program Socialization

Initially, some mothers of toddlers did not accept the fact that their children were stunted during the socialization process. However, after receiving explanations, they eventually realized that their babies' weight had not been increasing. For instance, Ms. Dewi, a participant in this study and a mother of a stunted baby, expressed her thoughts as follows:

"Yes, there was a counseling session. I became aware of stunting during the fasting month when a health officer suddenly visited our house and informed me that my child was stunted and experiencing malnutrition. At first, I felt angry and couldn't believe that my child was stunted and malnourished. However, the information came directly from the Health Center. The officer explained that my child's weight hadn't been increasing and suggested I get the child checked at the Health Center. "

Ms. Dewi's statement about the Malnutrition Prevention Program's socialization aligns with the information provided by health cadre, Ms. Ratna Komala, who mentioned that health officers from the Health Center visited the urban village to conduct counseling sessions. Ms. Ratna Komala stated

"Yes, there were counseling sessions. They covered topics such as food for toddlers, hygiene practices, and malnutrition. Health officers from the Health Center came to our village to conduct these counseling sessions".

Program Objective

Knowledge about nutritional fulfilment during pregnancy including the mother's attitude in taking blood supplement tablets found that the informant knew about the importance of consuming nutritious food, but the nutritious food intended was only in the form of vegetables and did not consume a variety of nutritious foods. The Baja Health Center with the Nutrition Post aims to meet the necessary needs, following the health worker's quote:

"The purpose of this program is following the Health Center itself, one of which is to hold a nutrition post from 6 classes of 4 classes and there are several children who have been released and have improved nutritional status for average weight gain and nutritional status has improved. Like that. From the nutrition post alone, we will handle these toddlers and continue to educate their mothers so that they are not released again, their behaviour remains by what we still provide".

Community-based program innovation

The Nutrition Post at Health Center Baja has an innovation program called GASPOL, namely the movement to overcome stunting and wasting with nutrition posts and processed local food, as explained by the health worker, in the following quote:

"For Health Center Baja itself, our name GASPOL is the movement to overcome stunting and wasting with nutrition posts and processed local food, an innovation program from the Health Center. The flagship program and indeed one of the ways to reduce stunting cases, by educating mothers of toddlers and practicing how to feed them like that, then proceed to nutrition clinic visits every week and for 2 months we will provide high-protein PMT, namely eggs."

Collaboration/cooperation of related sectors

Addressing the issue of stunting requires a collective commitment and collaboration among various sectors, including the government, social institutions, academia, and the mass media. The efforts made involve optimizing the Nutrition Post, focusing on enhancing facilities, service officers, service quality, and providing adequate human resources for posyandu (integrated health service post) cadres. Regional Apparatus Organizations (OPDs) and other agencies play a crucial role in revitalizing the Nutrition Post. The individuals in charge, along with all active stakeholders in combating stunting, work together to identify the underlying causes and risks and tailor appropriate solutions to meet the specific needs of the community. Health Center Baja actively engages its cadres in the Nutrition Post and health workers to oversee the program's implementation. As stated by Mrs. Dewi, a mother whose baby was affected by stunting:

"There is extensive involvement, including the village head and the village head's mother, who also assists, making it a community-wide effort. Yes, the program is closely monitored. Mrs. Arumi, the health worker, usually communicates through WhatsApp to keep track. The measurements and weighing are regularly conducted, and now my child's growth is almost back to normal. She turned two years old yesterday, and if I'm not mistaken, her height was measured at 77 cm."

Monitoring and Evaluation Program

To accelerate the reduction of stunting at Health Center Baja, health workers conduct continuous monitoring and evaluation of their activities, as stated in the following quote:

"Monitoring and evaluation are essential; we don't just complete the activity and stop there. We monitor the nutritional status of the toddlers continuously until there is improvement"

"We monitor the nutritional status of the toddlers continuously until there is improvement."

Through these monitoring and evaluation activities, the aim is to measure the extent of program implementation, assess its effectiveness, and determine the level of convergence in addressing stunting.

Sustainability of health promotion programs

Program sustainability is of utmost importance. A program must not only be effective during its implementation but also sustainable to receive continuous support and resources, thus increasing its impact. While there may be examples of sustainable programs that lack evidence of their effectiveness,

health promotion programs require the ability to maintain and run effective initiatives (12). The Nutrition Post organized by Health Center Baja is held annually and regularly monitored. As expressed by a health worker:

"The stunting cases have decreased, but now with increased awareness and publicity about stunting, it appears that there are more visible cases. However, there may still be some hidden cases that were not previously known. Through this program, we aim to identify and address both visible and hidden cases, ensuring that all toddlers receive proper monitoring. In the past, when we worked alone, some toddlers were not adequately monitored due to limited human resources."

Human Resources involved

The success of accelerating stunting reduction greatly depends on program integration at the village level, as it is where cross-sector programs are implemented (13). The village head plays a crucial role in spearheading stunting reduction activities within the village. To ensure the effectiveness of stunting prevention efforts, coordination at the village level is essential, with a focus on targeting households through various activities, including the Nutrition Post (14).

Currently, the human resources available at Baja Health Center are sufficient, but there is a need for additional nutritionists and cadres who can actively monitor the progress of the program. The cooperation between cross-sector stakeholders, such as nutrition officers, village heads, village midwives, and village cadres, is vital to support the successful implementation of activities in the stunting reduction acceleration program (15,16). These activities include posyandu sessions, Supplementary Feeding (PMT) programs, and other initiatives aimed at reducing stunting cases.

All officers collaborate closely to determine the implementation of activities, guide the community towards mindset change, and increase knowledge about the significance of proper parenting and nutrition for children.

CONCLUSION AND SUGGESTIONS

Based on the research conducted, the following conclusions can be drawn that the stunting reduction acceleration program at Health Center Baja has shown to be quite effective. Several indicators support this conclusion. First, regarding tasks and functions: the implementation of the program's tasks and functions has been well-executed, particularly with the involvement of cadres in running the program. However, a challenge in this aspect is the limited number and capacity of PMT (Supplementary Feeding) cadres, which remains inadequate. Second, concerning the program planning and implementation: the plan for accelerating stunting reduction has been executed, especially in terms of routine activities and supplementary feeding. Low parental education is recognized as an obstacle to the program's success. Parental education influences their understanding of child-rearing practices,

including nutritional intake. Typically, parents with higher education have broader knowledge and insights, including proper parenting and providing adequate nutrition for their children. The level of parental knowledge, particularly mothers, about nutrition significantly impacts their behavior in meeting the nutritional needs during pregnancy, breastfeeding, and providing appropriate food for their children after birth. While PMT cadres are responsible for providing additional food to children under five three times a day for three months, the rest of the child's nutritional intake is regulated by parents, especially mothers.

Regarding the human resources involved, program integration at the village level serves as the forefront of success in accelerating stunting reduction, as cross-sector programs are primarily implemented at the village level. The village head assumes responsibility for driving stunting reduction activities in the village. Effective coordination at the village level and targeted interventions within households, such as through the Nutrition Post, are crucial to achieving successful stunting prevention.

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THE RELATIONSHIP BETWEEN BODY MASS INDEX (BMI), ALBUMIN LEVELS, MEAN ARTERIAL PRESSURE (MAP), AND FOOD INTAKE ON THE INCIDENCE OF PREECLAMPSIA: A PROSPECTIVE COHORT STUDY

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ABSTRACT

Preeclampsia and eclampsia have the greatest impact on the morbidity and mortality of pregnant women and newborns. Management of patients with manifestations of preeclampsia requires a well-formulated plan that takes into account maternal risk factors, clinical, laboratory, and imaging (X-ray) findings, and time of onset gestational age, and delivery. The purpose of this study was to determine the relationship between body mass index (BMI), albumin levels, mean arterial pressure (MAP), and food intake on the incidence of preeclampsia. This prospective cohort study was conducted at the Community Health Centers working area of Central Jakarta from October 2021 to May 2022. A sample of 167 pregnant women was selected using consecutive sampling with inclusion criteria of 13-16 weeks gestation and was willing to participate in the research program. Samples who had communication disorders were on routine medication, and had a history of other diseases, except for hypertension, were excluded from the study. Data processing uses the SPSS 22.0 program with independent t-test and chi-square test analysis. The results showed that 8.4% of pregnant women with preeclampsia were positive, there was a significant relationship between age ($p = 0.042$; $RR = 2.99$; 95% CI: 1.00-9.16); spacing of pregnancies ($p = 0.008$; $RR = 3.97$; 95% CI: 1.46-10.78); maternal history of hypertension ($p = 0.002$; $RR = 5.18$; 95% CI: 1.98-13.59); BMI in early pregnancy ($p = 0.001$; $RR = 6.02$; 95% CI: 1.98-18.28); albumin level ($p = 0.001$; $RR = 13.48$; 95% CI: 1.80-100.69); MAP ($p < 0.001$; $RR = 10.93$; 95% CI: 4.47-26.70); animal protein intake ($p = 0.024$; $RR = 3.13$; 95% CI: 1.10-8.91); and vegetable intake ($p = 0.038$; $RR = 2.79$; 95% CI: 1.02-7.64) with preeclampsia. Preventing the occurrence of preeclampsia can be done by early examination of albumin levels and maintaining food intake.

Keywords: Preeclampsia, Body Mass Index (BMI), Albumin, Mean Arterial Pressure (MAP)

ABSTRAK

Preeklampsia dan eklampsia memiliki dampak terbesar terhadap morbiditas dan mortalitas ibu hamil dan bayi baru lahir. Penatalaksanaan pasien dengan manifestasi preeklampsia memerlukan rencana yang dirumuskan dengan baik yang memperhitungkan faktor risiko ibu, temuan klinis, laboratorium, dan pencitraan (sinar-X), dan waktu onset usia kehamilan, dan persalinan. Tujuan penelitian ini adalah untuk mengetahui hubungan antara indeks massa tubuh (IMT), kadar albumin, tekanan arteri rata-rata (MAP), dan asupan makanan terhadap kejadian preeklampsia. Studi kohort prospektif ini dilakukan di wilayah kerja Puskesmas Jakarta Pusat pada Oktober 2021 hingga Mei 2022. Sampel 167 ibu hamil dipilih menggunakan consecutive sampling dengan kriteria inklusi usia kehamilan 13-16 minggu dan bersedia mengikuti program penelitian. Sampel yang memiliki gangguan komunikasi sedang menjalani pengobatan rutin, dan memiliki riwayat penyakit lain, kecuali hipertensi, dikeluarkan dari penelitian. Pengolahan data menggunakan program SPSS 22.0 dengan analisis uji t independen dan uji chi-square. Hasil penelitian menunjukkan bahwa 8,4% ibu hamil dengan preeklampsia positif, terdapat hubungan yang signifikan antar usia ($p = 0,042$; $RR = 2,99$; 95% CI: 1,00-9,16); jarak kehamilan ($p = 0,008$; $RR = 3,97$; 95% CI: 1,46-10,78); riwayat

hipertensi ibu ($p = 0,002$; $RR = 5,18$; 95% CI: 1,98-13,59); BMI pada awal kehamilan ($p = 0,001$; $RR = 6,02$; 95% CI: 1,98-18,28); tingkat albumin ($p = 0,001$; $RR = 13,48$; 95% CI: 1,80-100,69); PETA (hal < 0,001; $RR = 10,93$; 95% CI: 4,47-26,70); asupan protein hewani ($p = 0,024$; $RR = 3,13$; 95% CI: 1,10-8,91); dan asupan sayuran ($p = 0,038$; $RR = 2,79$; 95% CI: 1,02-7,64) dengan preeklampsia. Mencegah terjadinya preeklampsia dapat dilakukan dengan pemeriksaan dini kadar albumin dan menjaga asupan makanan.

Kata kunci: Preeklampsia, Indeks Massa Tubuh (IMT), Albumin, Tekanan Arteri Rata-rata (MAP)

INTRODUCTION

Preeclampsia (PE) affects pregnancy and is a major cause of maternal and infant morbidity and mortality worldwide ^{1,2}. Nearly a tenth of maternal deaths in Asia and Africa and a quarter of maternal deaths in Latin America are associated with hypertensive disorders of pregnancy. Among hypertensive disorders, preeclampsia and eclampsia have the greatest impact on maternal and newborn morbidity and mortality ³. The incidence of preeclampsia worldwide is around 2.16%, while the incidence of preeclampsia in Indonesia is 5-10% of all pregnancies ^{4,5}. The 2017 Indonesian Health Demographic Survey reports that nationally maternal mortality is 305 per 100,000 live births. The target for the 2024 Medium Term Development Plan (RPJM) is 105 per 100,000 live births, while the SDG's target for 2030 is 70 per 100,000 live births. Preeclampsia is still the highest direct cause of maternal death after bleeding ⁶.

The etiopathogenesis of preeclampsia is still not fully understood, besides the diagnosis, screening, and management of preeclampsia are still controversial ⁷. Management of patients with manifestations of preeclampsia requires a well-formulated plan that considers maternal risk factors, clinical, and laboratory findings, and time of onset to gestational age, and delivery ⁸. Early identification of preeclampsia is a core principle of adequate management. However, the existing research is more directed towards early detection when the onset of preeclampsia has occurred. The National Institute for Health and Care Excellence (NICE) recommends that women at high risk of developing preeclampsia be identified before 13 weeks of gestation ⁹.

The National Collaborating Center for Women's and Children's Health (NCCWCH) in England has issued guidelines on routine prenatal care that recommend evaluating the risk of preeclampsia in the mother at the first visit. Many conditions and risk behaviors are considered risk factors for preeclampsia. Risk factors for pre-eclampsia that must be evaluated include maternal age (age 40 years or more), parity (nullipara), spacing between pregnancies (more than 10 years), family history of pre-eclampsia, previous history of pre-eclampsia, Body Mass Index ($BMI \geq 30 \text{ kg/m}^2$), pre-existing vascular disease (eg hypertension), pre-existing kidney disease, and multiple pregnancies ¹⁰.

Sociodemographic risk factors that must be evaluated include maternal age, parity, and distance between pregnancies. Scientific studies show that older mothers (equal to or more than 30 years) at the time of pregnancy are more at risk of experiencing preeclampsia than women under 35 years ^{11,12,13,14}. The

incidence of preeclampsia in multiparous women varies but is lower than in nulliparas, nulliparous women are more at risk of suffering from preeclampsia than primiparas^{14, 15}. In addition, birth intervals > 3 years have a higher risk of experiencing preeclampsia, and the risk increases at birth intervals > 4 years compared to pregnancy intervals < 4 years^{16, 17}. However, other studies have shown that the 2-4 year inter-pregnancy interval has almost the same risk as the < 2 years and > 4-year interval¹⁸. The prevalence of preeclampsia in twin pregnancies is greater than in single pregnancies and twin pregnancies have 3 to 5 times the risk of preeclampsia compared to single pregnancies. The increased risk of preeclampsia in multiple pregnancies may be due to the high circulating concentrations of antiangiogenic substances such as soluble FMS-like tyrosine kinase 1 (sFlt1) and soluble endoglin (sEng)^{19,20,21}.

Healthy living practices during pregnancy such as physical activity and nutrition intake also are associated with preeclampsia. This is influenced by the knowledge and awareness of pregnant women about healthy living practices that were formed before pregnancy and even during pre-marriage^{22, 23}.

Several studies have reported that pregnant women who do light physical activity are more at risk of experiencing preeclampsia than women who do moderate and strenuous activities and pregnant women who are active and exercise regularly significantly reduce the risk of preeclampsia. Calorie intake ≥ 2175 kcal, protein intake < 65 grams per day and consumption of fruit and vegetables < 5 servings and consumption of insoluble fiber < 7.7 g increase the risk of preeclampsia^{24,25,26,27}. A diet with a high intake of vegetables, plant foods, and vegetable oils reduces the risk of preeclampsia, while a diet with high consumption of processed meats, sugary drinks, salty foods, and snacks increases the risk of preeclampsia²⁸. Furthermore, the low fulfillment of nutrition during pregnancy has an impact on the occurrence of malnutrition in infants and increases the risk of various other diseases in the later life period^{29, 30}.

A meta-analysis reported that the risk of preeclampsia in very obese people ($\text{BMI} \geq 30 \text{ kg/m}^2$) increased by 2.8 to 5.4 times, pregnant women with a history of pre-eclampsia in a previous pregnancy had an 8.4 times risk of suffering from pre-eclampsia^{13,31,32,33}. In addition, the results of a systematic review show that women with medical conditions such as hypertension, diabetes mellitus, and renal and autoimmune diseases have high-risk factors for preeclampsia.^{13, 32, 34, 35}.

Poor maternal mental health hurts pregnancy outcomes and fetal development so psychosocial interventions are needed for women with preeclampsia. The development of preeclampsia is influenced by stress which can alter the function of the neuroendocrine and immune systems³⁶. There is a significant relationship between anxiety and preeclampsia, pregnant women with anxiety have an increased risk of preeclampsia compared to those who do not have anxiety³⁷. In addition, unwanted pregnancies are also significantly associated with preeclampsia, patients with unwanted pregnancies have a greater risk of experiencing preeclampsia³⁸. Pregnant women with a diagnosis of schizophrenia or bipolar disorder were

significant predictors of pre-eclampsia. Women with schizophrenia, bipolar disorder, and non-psychotic mental disorders had a significantly higher risk of preeclampsia 3 times higher than the group without psychiatric disorders^{39, 40}.

Laboratory features that need to be evaluated early in pregnancy to predict preeclampsia include uric acid, urea, creatinine, albumin, serum glutamic oxaloacetic transaminase (SGOT), and serum glutamic pyruvic transaminase (SGPT) and mean arterial pressure (MAP). Increased MAP, uric acid, urea, and creatinine, as well as increased liver enzymes such as albumin, SGOT, and SGPT, can increase the risk of preeclampsia^{1, 41,42,43,44,45,46}. In addition, elevated urinary protein levels exacerbate the development of preeclampsia and are associated with poor perinatal outcomes. Early proteinuria was significantly associated with an increased risk of preeclampsia, preterm delivery, and growth retardation^{47,48,49}.

Based on the description above, this study aims to look at the relationship between BMI, albumin, MAP, and food intake on the incidence of preeclampsia at the Community Health Centers working area of Central Jakarta.

METHOD

The collection of questionnaires and samples of research respondents has from Community Health Centers working area of Central Jakarta. The sample of respondents was then analyzed at the Microbiology Laboratory. The time of research was carried out from October 2021 to May 2022. The research design used is a prospective cohort study design. This design measures the variables studied at one time in the population. The population of this study was all pregnant women who checked their pregnancies at primary health care, while the target population was pregnant women who checked their pregnancies at eight sub-district health centers in Central Jakarta. The reachable population in this study were pregnant women with a gestational age of 13-16 weeks, according to the study inclusion criteria, then they were observed until the delivery process or when the onset of preeclampsia occurred.

$$n = \frac{\left\{ z_{1-\frac{\alpha}{2}} \sqrt{P_0(1-P_0)} + z_{1-\beta} \sqrt{P_a(1-P_a)} \right\}^2}{(P_a - P_0)^2}$$

The sample in the study was determined using hypothesis testing for a single population proportion with a P_0 of 31.69% and $P_a = 15\%$, Alpha 5%, 95% CI, 90% power, 2-sided, n size = 105, plus 20% to anticipate dropping out, so that the number of samples is minimal of 126 pregnant women^{50, 51}. This study analyzed several 167 pregnant women. Sampling was selected by consecutive sampling, the order of arrival of pregnant women until the minimum sample was met, at the beginning of sampling were pregnant women

with a gestational age between 13-16 weeks based on formula calculations from the first day of last menstruation or based on ultrasound results.

The sample inclusion criteria were mothers with singleton pregnancies aged 13-16 weeks who were willing to participate in the research program by signing an informed consent or consent after receiving an explanation. The study exclusion criteria were samples that had communication disorders, were on routine medication, and had a history of other diseases, except hypertension.

Respondent data collection included sociodemographics such as age, education, occupation, parity, the distance between pregnancies, the habit of drinking herbal medicine, drinking coffee and smoking, maternal history of hypertension, and previous history of preeclampsia obtained using questionnaire sheets. Behavior during pregnancy such as physical activity. The amount of the respondent's physical activity for 24 hours is stated in the PAL (Physical Activity Level). The category of physical activity level based on the PAL value according to WHO is mild: 1.40-1.69; medium: 1.70-1.99; and weight: 2.00-2.40. The calculation of the PAL value is obtained from the Human Energy Requirement book.

The portion of food intake per day used a food recall questionnaire (6p staple food, 3p animal protein, 4p vegetable protein, 4p vegetables, and 4p fruit) and then determined the cut-off using the ROC curve. The mother's medical history, namely MAP, and blood pressure measurements were carried out by the research team and then calculated. The MAP value is 2 times the diastolic blood pressure plus the systolic pressure and divided by three, then the cut-off is determined using the ROC curve.

BMI is calculated with the formula maternal weight in early pregnancy (kilogram) divided by height squared (centimeters). BMI measurements are performed early in pregnancy and in general, the mother has not gained weight during this period. BMI is categorized according to the Center for Obesity Research and Education (WHO) to be: <18.5 = Underweight; $18.5-22.9$ = normal weight; $23.0-24.9$ = Overweight; $25.0-29.9$ = Obese I; and ≥ 30.0 = Obese II.

Psychological problems such as anxiety were obtained using the Hamilton Rating Scale of Anxiety (HRSA) questionnaire in Indonesian with the categories: <14 = No anxiety; $14-20$ = mild anxiety; $21-27$ = moderate anxiety; $28-41$ = severe anxiety; and $42-56$ = very severe anxiety.

An overview of the laboratory results for levels of uric acid, urea, creatinine, albumin, SGOT, and SGPT by taking blood taken by the research team was then examined in the laboratory. The levels of uric acid, urea, creatinine, and albumin are expressed in mg/dL, and SGOT/SGPT are expressed in U/I and then the cut-off is determined using the ROC curve.

Preeclampsia is a disease in pregnancy characterized by an increase of 30 mm Hg systolic or 15 mm Hg diastolic or blood pressure $> 160/110$ after 20 weeks of gestation, accompanied by qualitative proteinuria $\geq +1$, quantitative > 300 mg/24 hours.

All data in the questionnaire were checked and then coded and inputted using SPSS version 22.0. Variable with continuous data were analyzed for normality using the Kolmogorov-Smirnov test. Based on the Kolmogorov test showed a normal distribution. Descriptive statistics consisting of mean, standard deviation, percentage, and categories were analyzed by univariate analysis. 95% confidence level and P-value <0.05 were used to assess statistical significance. ROC Curve analysis was performed to obtain an overview of diagnostic accuracy and determine the optimal cut-off value. The accuracy of the diagnosis comes from the area under the ROC curve and the optimal cut-off is used to identify positive and negative conditions in the diagnosis. The data in the form of ratios will be analyzed using the ROC curve to get the cut-off point value so that all variables are categorized. The variables analyzed in the ROC curve in this study included 6 variables, namely BMI in early pregnancy, uric acid levels, albumin levels, MAP, animal protein intake, and vegetable intake. The relationship between BMI, levels of uric acid, urea, creatine, albumin, SGOT, SGPT, MAP, and food supply with preeclampsia used independent t-test and Chi-square.

The research was carried out after obtaining approval from the supervisor and obtaining a certificate of research ethics feasibility from the Research Ethics Committee. This research has passed the ethical test based on the ethical approval recommendation letter from the Research Ethics Committee on April 26, 2021, Number 330/UN6.KEP/EC/2021. Data collection was carried out by the main researcher and assisted by enumerators. Pregnant women filled out the questionnaire after receiving information about the research and signed an informed consent. In this study, the author confirms that all methods are carried out following the relevant guidelines and regulations (Helsinki Declaration) with a Unique Identifying Number (UIN) or registration ID research registry8520. This manuscript has been reported in line with the STROCSS criteria⁵². This research is not experimental or intervention research.

RESULTS AND DISCUSSION

From **Table 1** we can see that the majority of respondents in this study were <30 years old (54.5%) with a mean age of 29.4 years $\pm$ SD 5.8 (age range 16-42 years). The majority of respondents have secondary education (53.9%) and as many as 79.3% of respondents do not work. Respondents nullipara, primipara, and multipara respectively 25.1%, 35.9%, and 38.9% respectively, with the largest interval of pregnancies <4 years (74.9%). Respondents with moderate/severe physical activity (56.9%) were found to be slightly more active than those with light physical activity (43.1%).

As many as 132 respondents (79%) complained of moderate/severe anxiety and as many as 21% others only had mild anxiety or did not feel anxious at all. Only 3.6% of respondents had a history of preeclampsia and as many as 16.2% of respondents had a hereditary history of hypertension from their mother. A history of consuming herbs and coffee was found in 20.9% of respondents, while a history of

smoking was only found in 5.4% of respondents. Respondents with a positive diagnosis of preeclampsia were 14 pregnant women (8.4%).

Table 1. Characteristics of Pregnant Women (n= 167)

Characteristic	N	%
Age (Year)		
<30	91	54.5
≥30	76	45.5
Education		
Under Junior High School	62	37.1
Senior High School	90	53.9
College	15	9.0
Occupation		
Work	34	20.4
Housewife	133	79.3
Parity		
Nullipara	42	25.1
Primipara	60	35.9
Multipara	65	38.9
Pregnancy Distance (Year)		
<4	125	74.9
≥4	42	25.1
Physical Activity		
Medium/Heavy	95	56.9
Light	72	43.1
Anxiety Level		
Moderate/severe anxiety	132	79.0
Not anxious/mild anxiety	35	21.0
History of preeclampsia		
Yes	6	3.6
No	161	96.4
History of hypertension		
Yes	27	16.2
No	140	83.8
History of drinking herbal medicine		
Yes	35	20.9
No	132	79.1
History of coffee consumption		
Yes	35	20.9
No	132	79.1
Smoking history		
Yes	9	5.4
No	158	94.6
Preeclampsia		
Positive	14	8.4
Negative	153	91.6

In this study, statistical analysis showed that there were differences in BMI in early pregnancy ($p=0.008$), albumin ($p=0.003$), and MAP ($p=0.002$) between positive and negative preeclampsia respondents. However, there was no difference between the levels of uric acid, urea, creatine, SGOT, and SGPT between

respondents who were positive and negative for preeclampsia ($p > 0.05$). In addition, based on food intake, the results showed that there was no difference in all food intake, both staple food, animal protein, vegetable protein, vegetables, and fruit between positive and negative preeclampsia respondents ($p > 0.05$) (**Table 2**).

Table 2. Comparison of BMI, Uric Acid Levels, Urea, Creatinine, Albumin, SGOT, SGPT, MAP, and Food Supply in Positive and Negative Preeclampsia

Measurement	Preeclampsia's mean (SD)		p-value
	Positive (n=14)	Negative (n=153)	
BMI in early pregnancy	28.89(5.47)	25.27(4.77)	0.008
Gout	3.57(0.90)	3.17(0.67)	0.088
Urea	13.79(4.46)	13.14(3.97)	0.698
Creatinine	0.625(0.115)	0.615(0.090)	0.819
Albumin	4.293(0.308)	4.047(0.318)	0.003
SGOT	15.00(4.54)	16.78(6.39)	0.375
SGPT	11.93(6.28)	14.03(8.23)	0.360
MAP	97.3(10.3)	88.0(7.9)	0.002
Food Supply			
Staple food	3.54(3.25)	3.45(3.40)	0.752
Animal protein	2.50(0.02)	3.02(1.20)	0.076
Plant protein	0.96(0.75)	1.11(0.89)	0.476
Vegetables	0.82(0.80)	1.02(0.63)	0.116
Fruits	1.62(1.55)	1.39(1.15)	0.684

*Independent t-test

In the preeclampsia group, it was reported that the majority of respondents were aged ≥ 30 years. The majority of respondents with preeclampsia did not work, had secondary education, had given birth > 2 times (multipara), and had pregnancies ≥ 4 years apart. In addition, the majority of respondents with preeclampsia had moderate/severe physical activity, and dominantly had moderate/severe anxiety, none of the respondents with preeclampsia had a history of preeclampsia but half of the respondents with preeclampsia had a hereditary history of hypertension from the mother. Based on the Chi-Square test, it was found that there was a significant relationship between age ($p = 0.042$; RR= 2.99; 95% CI: 1.00-9.16); spacing of pregnancies ($p = 0.008$; RR= 3.97; 95% CI: 1.46-10.78); maternal history of hypertension ($p = 0.002$; RR= 5.18; 95% CI: 1.98-13.59); BMI ($p = 0.001$; RR= 6.02; 95% CI: 1.98-18.28); albumin level ($p = 0.001$; RR= 13.48; 95% CI: 1.80-100.69); MAP ($p < 0.001$; RR= 10.93; 95% CI: 4.47-26.70); food sources of animal protein intake ($p = 0.024$; RR= 3.13; 95% CI: 1.10-8.91); vegetable intake ($p = 0.038$; RR= 2.79; 95% CI: 1.02-7.64) with preeclampsia (**Table 3**).

Table 3. The Relationship between The Characteristics of Pregnant Women on The Incidence of Preeclampsia

Characteristic	Preeclampsia's mean (SD)		p-value	RR (CI 95%)
	Positive N (%)	Negative N (%)		
Age (Year)				
<30	4(4.4)	87(95.6)	0.042	2.99 (1.00-9.16)
≥30	10(13.2)	66(86.8)		
Education				
Under Junior High School	4(6.5)	58(93.5)	0.280	-
Senior High School	10(11.1)	80(88.9)		
College	0(0.0)	15(100.0)		
Occupation				
Work	2(5.9)	32(94.1)	0.737	0.63 (0.13-2.96)
Housewife	12(9.0)	121(91.0)		
Parity				
Nullipara	4(9.5)	38(90.5)	0.834	-
Primipara	4(6.7)	56(93.3)		
Multipara	6(9.2)	59(90.8)		
Pregnancy Distance (Year)				
<4	6(4.8)	119(95.2)	0.005	3.97 (1.46-10.78)
≥4	8(19.0)	34(81.0)		
Physical Activity				
Medium/Heavy	9(9.5)	86(90.5)	0.559	1.40 (0.44-4.38)
Light	5(6.9)	93.1(93.1)		
Anxiety Level				
Moderate/severe anxiety	13(9.8)	119(90.2)	0.305	3.71 (0.47-29.42)
Not anxious/mild anxiety	1(2.9)	34(97.1)		
History of preeclampsia				
Yes	0(0.0)	6(100.0)	1.000	-
No	14(8.7)	147(91.3)		
History of hypertension				
Yes	7(25.9)	20(74.1)	0.002	5.18 (1.98-13.59)
No	7(5.0)	133(91.6)		
History of drinking herbal medicine				
Yes	5(14.3)	30(85.7)	0.174	2.09 (0.75-5.86)
No	9(6.8)	123(93.2)		
History of coffee consumption				
Yes	2(5.7)	33(94.3)	0.736	0.61 (0.13-2.84)
No	12(9.1)	120(90.9)		
Smoking history				
Yes	0(0.0)	9(100.0)	1.000	-
No	14(8.9)	144(91.1)		
BMI in early pregnancy				
>27.6 kg/m ²	10(20.4)	39(79.6)	0.001	6.02 (1.98-18.28)
≤27.6 kg/m ²	4(3.4)	114(96.6)		
Gout				
>3.4 mg/dL	8(14.0)	49(86.0)	0.077	2.57 (0.94-7.06)
≤3.4 mg/dL	6(5.5)	104(94.5)		
Albumin				
>4	13(15.9)	69(84.1)	0.001	13.48 (1.80-100.96)
≤4	1(1.2)	84(98.8)		
MAP				

Characteristic	Preeclampsia's mean (SD)		p-value	RR (CI 95%)
	Positive N (%)	Negative N (%)		
>101 mmHg	7(50.0)	7(50.0)	0.001	10.93 (4.47-26.70)
≤101 mmHg	7(4.6)	146(95.4)		
Animal protein				
≤2 portion	9(14.8)	52(85.2)	0.024	3.13 (1.10-8.91)
>2 portion	5(4.7)	101(95.3)		
Vegetables				
≤0.5 portion	8(14.8)	46(85.2)	0.038	2.79 (1.02-7.64)
>0.5 portion	6(5.3)	107(94.7)		

*chi-square test

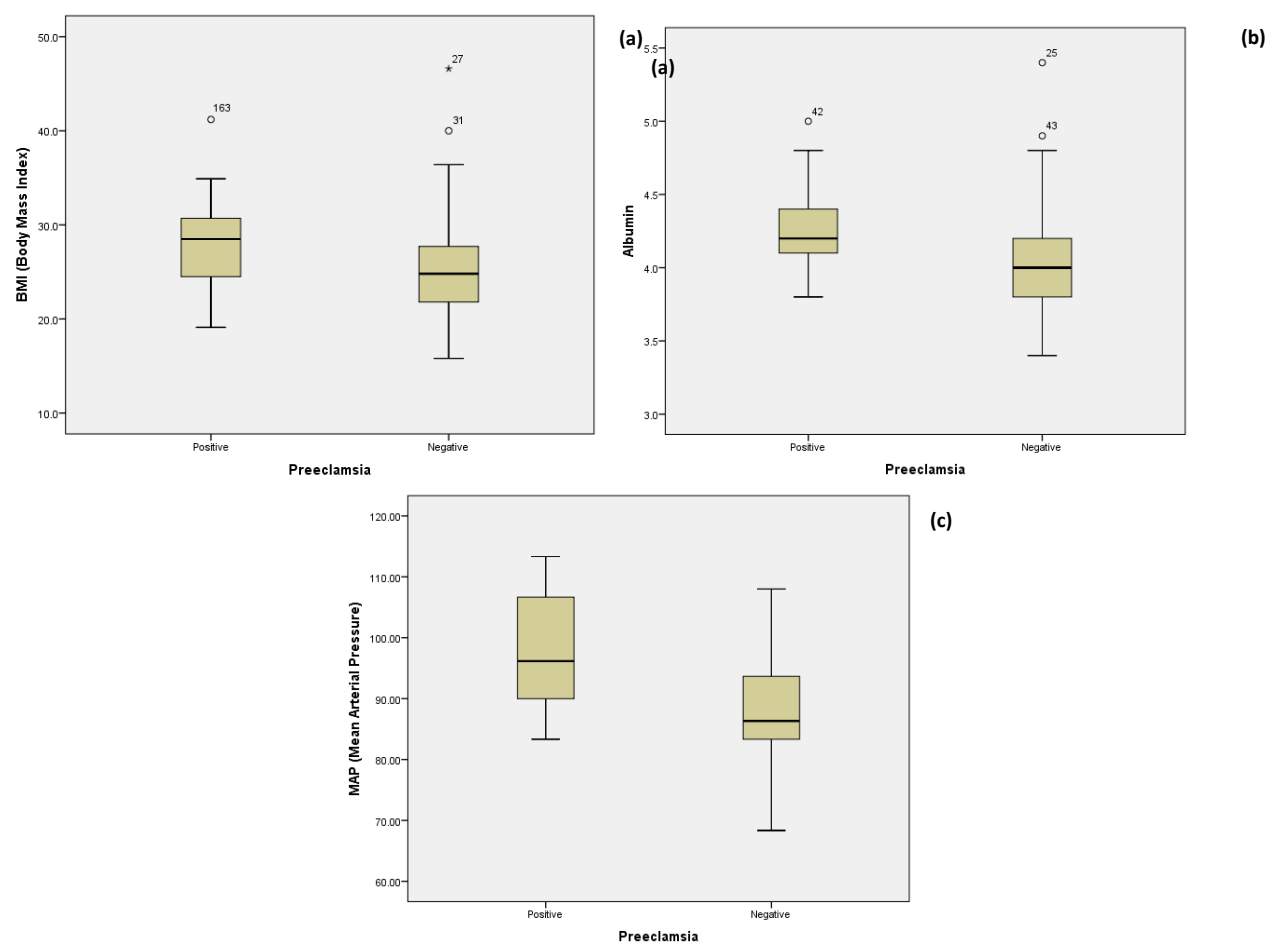


Figure 1. Boxplot Comparison of BMI, Albumin Levels, and MAP in Women with Positive and Negative Preeclampsia

Figure 1 showed that BMI in early pregnancy in mothers with positive preeclampsia was higher than those with negative preeclampsia (a), albumin levels in mothers with positive preeclampsia were higher than those with negative preeclampsia (b), and MAP in mothers with positive preeclampsia was higher than those with negative preeclampsia (c).

In this study, it was found that 10 out of 76 (13.2%) respondents aged ≥ 30 years had preeclampsia, while only 4 of 91 (4.4%) respondents aged <30 years had preeclampsia. With statistical analysis, it was found that there was a significant relationship between age and preeclampsia. Respondents aged ≥ 30 years were significantly at risk of 2.99 times suffering from preeclampsia compared to respondents aged < 30 years ($p= 0.042$; $RR= 2.99$; 95% CI: 1.00-9.16). The results of this study are in line with previous studies Kim et al., 2022 reported 2,354,219 births recorded in Korea between 2012 and 2018 and found that older age (≥ 30 years) is a risk factor for PE⁵³. Research by Ananth et al., 2013 also explained that the rate of preeclampsia decreased among women aged <30 years (among women aged 20-24 years the rate decreased from 2.6% to 2.4%; and 25-29 years the rate decreased from 2.4% to 1.6%), while this figure increased at the age of 30-34 years (increased from 1.7% to 2.0%), aged 35-39 years (increased from 1.6% to 1.9%), and aged 40-45 years (increased from 2.3% to 5.1%)⁵⁴.

The relationship between maternal age and preeclampsia forms a U-shaped curve, the lowest frequency is in women aged 25-29 years, while the highest frequency is found in women aged less than 20 years and more than 35 years. Morikawa Age has an important influence on the incidence of hypertensive disorders in pregnancy¹⁴. A woman aged 35 years or more at the time of pregnancy is defined as an "advanced maternal age (AMA)" or "elderly mother"¹¹.

In this study, it was found that 8 out of 42 (9%) respondents with pregnancies ≥ 4 years had preeclampsia, while only 6 out of 125 (4.8%) had preeclampsia in respondents with <4 years. With statistical analysis, it was found that there was a significant relationship between pregnancy spacing and preeclampsia. Respondents with gestational intervals ≥ 4 years were significantly at risk of 3.97 times suffering from preeclampsia compared to respondents with gestational intervals < 4 years ($p= 0.008$; $RR= 3.97$; 95% CI: 1.46-10.78). The meta-analysis conducted by Cormick et al., 2016 involving 4 studies with a total of 77,561 women concluded that compared to intervals between pregnancies of 2 to 4 years, shorter intervals are not associated with an increased risk of recurrent preeclampsia but longer intervals appear to increase the risk of preeclampsia¹⁸. In addition, a study conducted by Mignini et al., in 2015 reported that a short gestation interval of <12 months was associated with neonatal death and preterm birth, but not with poor maternal outcomes, whereas a longer interval of >72 months was associated with pre-eclampsia⁵⁵.

In a small study of 47 women with two consecutive pregnancies, Bernstein et al. demonstrated that women had significantly lower MAP in the second pregnancy than in the first⁵⁶. The decrease in MAP between two pregnancies was negatively correlated with the length of the interval between pregnancies. Biological memory of the cardiovascular system may contribute to the deeper reduction in blood pressure in the second pregnancy, lower levels of anti-angiogenic factors in the second than in the first pregnancy also provide a plausible mechanism for the deeper decrease in MAP in the second pregnancy⁵⁷.

In this study, 7 out of 27 (25.9%) respondents with a history of hypertension had preeclampsia, while only 7 out of 140 (5.0%) respondents without a history of hypertension had preeclampsia. With statistical analysis, it was found that there was a significant relationship between the history of hypertension and preeclampsia. Respondents with a history of hypertension were significantly at risk of suffering from preeclampsia 5.18 times compared to respondents without a history of hypertension ($p=0.002$; $RR= 5.18$; 95% CI: 1.98-13.59). A meta-analysis of 92 studies involving 25,356. 688 pregnant women conducted by Bartsch et al., in 2016 reported that pregnant women with a history of pre-eclampsia in a previous pregnancy had an 8.4 times risk of suffering from pre-eclampsia ($RR= 8.4$; 95% CI: 7.1-9.9) [32]. The results of a systematic review conducted by Duckitt et al. showed that pregnant women with a history of pre-eclampsia in a previous pregnancy had a 7.6 times risk of suffering from pre-eclampsia ($RR= 7.61$; 95% CI: 4.3-13.47) ³⁵.

In this study, it was found that 10 out of 49 (20.4%) respondents with $BMI > 27.6 \text{ kg/m}^2$ had preeclampsia, while only 4 out of 118 (3.4%) had preeclampsia in respondents with $BMI \leq 27.6 \text{ kg/m}^2$. With statistical analysis, it was found that there was a significant relationship between BMI and preeclampsia. Respondents with $BMI > 27.6 \text{ kg/m}^2$ were significantly at risk of 6.02 times suffering from preeclampsia compared to respondents with $BMI \leq 27.6 \text{ kg/m}^2$ ($p= 0.001$; $RR= 6.02$; 95% CI: 1.98-18.28). The results of this study are in line with the research of AbdAllah et al., in 2018 showing that there was a significant relationship between BMI and preeclampsia, respondents with overweight ($BMI 25-29.99 \text{ kg/m}^2$); obesity class I ($BMI 30-34.99 \text{ kg/m}^2$); class III obesity ($BMI 35-39.99 \text{ kg/m}^2$) and class IV obesity ($BMI > 40 \text{ kg/m}^2$) are significantly at risk of 2.2 times suffering from preeclampsia compared to respondents with normal BMI ⁵⁸.

In addition, a study conducted by Sohlberg et al., in 2012 reported that pregnant women with class II-III obesity were at four times the risk of experiencing mild to moderate preeclampsia ($RR= 4.0$; 95% CI: 3.7-4.4) ⁵⁹. The meta-analysis conducted by Poorolajal in 2016 reported from 23 studies with 1,387,599 participants that preeclampsia was associated with being overweight ($OR= 1.73$; 95% CI 1.59-1.87; 21 studies; $I^2= 62.3\%$) and obesity ($OR= 3.15$; 95% CI: 2.96-3.35; 22 studies; $I^2= 36.0\%$) ⁶⁰. In this study, it was concluded that being overweight and obese can be considered predictors of preeclampsia.

In this study, it was found that 8 out of 57 (14%) respondents with uric acid $> 3.4 \text{ mg/dL}$ suffered from preeclampsia, while 6 out of 120 (5.5%) had preeclampsia respondents with uric acid $\leq 3.4 \text{ mg/dL}$. With statistical analysis, the results showed that there was no significant relationship between gout and preeclampsia. Respondents with uric acid $> 3.4 \text{ mg/dL}$ had a risk of 2.57 times suffering from preeclampsia compared to respondents with uric acid $\leq 3.4 \text{ mg/dL}$ but not statistically significant ($p= 0.077$; $RR= 2.57$; 95% CI: 0.94-7.06) The results of a study by Chen et al., 2015 reported that serum uric acid levels only

increased after the appearance of clinical symptoms of preeclampsia⁶¹. However, uric acid is not involved in the development of preeclampsia and cannot be a biomarker for the early prediction of preeclampsia.

Uric acid likely plays a direct role in the pathological process of preeclampsia at both the placental and maternal vascular levels. In animal models, hyperuricemia exhibits several pathogenic effects of uric acid, including pro-inflammatory effects, stimulation of smooth muscle cell proliferation, inhibition of endothelial cell proliferation and migration, and enhancement of endothelial dysfunction and damage. All of these effects play an important role in the pathophysiology of preeclampsia⁶².

In this study, 13 out of 82 (15.9%) respondents with albumin >4 mg/dL had preeclampsia, while only 1 out of 85 (1.2%) had preeclampsia in respondents with albumin ≤4 mg/dL. With statistical analysis, it was found that there was a significant relationship between albumin levels and preeclampsia. Respondents with albumin > 4 mg/dL were significantly at risk of 13.48 times suffering from preeclampsia compared to respondents with albumin ≤4 mg/dL ($p=0.001$; RR= 13.48; 95% CI: 1.80-100.69). Serum albumin is related to oxidative stress inversely but positively related to endothelial function in pregnant women. Human serum albumin appears to reduce oxidative stress through inhibition of NADPH oxidase in human vascular smooth muscle, suggesting that serum albumin levels may be an important determinant of vascular oxidative stress. in several diseases, one of which is preeclampsia⁶³.

One of the most striking physiologic changes in preeclampsia is intense systemic vasospasm. When mid-trimester means arterial pressure is > 90 mm Hg, there is a significant increase in the frequency of proteinuria, hypertension, and the diagnosis of preeclampsia in the third trimester. Several blood pressure measurements including systolic blood pressure, diastolic blood pressure, pulse rate, mean arterial pressure, and 24-hour ambulatory pressure have been studied in early pregnancy as predictors of preeclampsia⁶⁴. MAP is a better predictor of preeclampsia than systolic blood pressure, diastolic blood pressure, or increased blood pressure⁴⁴. In this study, it was found that 7 out of 14 (50%) respondents with MAP >101 mmHg had preeclampsia, while only 7 out of 153 (4.6%) had preeclampsia in respondents with MAP ≤101 mmHg. With statistical analysis, it was found that there was a significant relationship between MAP and preeclampsia. Respondents with MAP >101 mmHg were significantly at risk of 10.93 times suffering from preeclampsia compared to respondents with MAP ≤101 mmHg ($p<0.001$; RR= 10.93; 95% CI: 4.47-26.70). These results are in line with the study of Miller et al., 2007 which reported that MAP was associated with an increased risk of preeclampsia (adjusted RR versus low quartile, 3.0; 95% CI: 1.2-7.4)⁶⁵. Research by Zhu et al., in 2021 concluded that MAP is a good predictor of preeclampsia, especially term preeclampsia, in Asian women. MAP in Asian women has moderate to high performance for predicting preeclampsia, with an AUC of 0.86 (95% CI: 0.78-0.95) at 11-14 weeks' gestation; AUC of 0.87 (95% CI: 0.80-0.95) at 18-22 weeks of gestation and AUC 0.91 (95% CI: 0.85-0.98) at 28-32 weeks of gestation⁶⁶.

Animal protein can lead to healthy reductions in blood pressure and other cardiovascular markers in healthy and hypertensive people. In addition, the relationship between protein and hypertension can be influenced by the type and source of protein. There is a significant negative relationship between animal protein intake and the risk of hypertension in women. Increasing animal protein intake can significantly reduce systolic and diastolic blood pressure in women ⁶⁷.

In this study, it was found that 9 out of 61 (14.8%) respondents with an intake of animal protein ≤ 2 portions suffered from preeclampsia, while only 5 out of 106 (4.7%) suffered from preeclampsia. With statistical analysis, it was found that there was a significant relationship between the intake of animal protein and preeclampsia. Respondents with animal protein intake ≤ 2 servings were significantly at risk of 3.13 times suffering from preeclampsia compared to respondents with animal protein intake > 2 servings ($p=0.024$; $RR=3.13$; 95% CI: 1.10-8.91). Zhu's study et al., 2022 reported that a high-fat diet pattern showed a U-shaped relationship with preeclampsia, a high intake of animal protein could reduce the possibility of preeclampsia but if intake was increased it tended to increase the risk of preeclampsia ⁶⁸.

Maternal diet is one of the many factors thought to play a role in the etiology of preeclampsia. A high score on a healthy diet characterized by a high intake of vegetables, fruits, and vegetable oils is associated with a reduced risk of preeclampsia ²⁸. The lower risk of pre-eclampsia among women who consumed organic vegetables was observed independently of a healthy diet including generally higher vegetable intake ⁶⁹.

In this study, it was found that 8 out of 54 (14.8%) respondents with vegetable intake ≤ 0.5 servings suffered from preeclampsia, while respondents with vegetable intake > 0.5 servings found only 6 out of 113 (5.3%) suffered from preeclampsia. With statistical analysis, it was found that there was a significant relationship between vegetable intake and preeclampsia. Respondents with vegetable intake ≤ 0.5 servings were significantly at risk of 2.79 times suffering from preeclampsia compared to respondents with vegetable intake > 0.5 servings ($p=0.038$; $RR=2.79$; 95% CI: 1.02-7.64). Research conducted by Torjusen et al., 2014 reported that pregnant women who often reported eating organic vegetables had a lower risk of preeclampsia than pregnant women who reported 'never/rarely' or 'sometimes' eating organic vegetables ⁶⁹.

The prevalence of jamu use during pregnancy ranges from 12% to 82.3%.^{70, 71}. Multinational studies conducted in various countries show that 28.9% of pregnant women consume herbal medicines during pregnancy ⁷⁰. In this study, it was found that 5 out of 35 (14.3%) respondents who consumed herbal medicine suffered from preeclampsia, while only 9 of 132 (6.8%) respondents who did not consume herbal medicine suffered from preeclampsia. With statistical analysis, it was found that there was no significant relationship between herbal medicine consumption and preeclampsia. Respondents who consumed herbal medicine had a risk of 2.09 times suffering from preeclampsia compared to respondents who did not

consume herbal medicine ($p = 0.174$; $RR = 2.09$; 95% CI: 0.75-5.86). These results are not much different from the study of Sharbaf et al., 2013 which reported that there was no relationship between the risk of preeclampsia and consumption ($p = 0.560$)⁷².

CONCLUSION AND SUGGESTIONS

Examination of pregnant women in the first trimester requires clinical laboratory analysis in the form of serum albumin levels. Health workers in primary care need to be equipped with a food photo book instrument as a reference for determining food portions per day.

This research is inseparable from various limitations that may affect the results of the study. Some of these limitations include the number of samples that are preeclampsia not comparable to the number of samples that are not preeclampsia. However, this is consistent with the prevalence of preeclampsia in Indonesia of 7-10% and 3-5% in developed countries. If further research requires a comparable number of preeclampsia and non-preeclampsia events, then a larger number of samples or a multi-center study is needed. In addition, the results of this study need to be further tested for the effectiveness of the model in primary health services.

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THE EFFECT OF HORMONAL CONTRACEPTION ON OBESITY IN WOMEN OF REPRODUCTIVE AGE IN JAKARTA, INDONESIA

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ABSTRACT

Hormonal contraception can stimulate the appetite control center in the hypothalamus, so that acceptors eat more than usual. The use of hormonal contraception in women of childbearing age can lead to weight gain which can lead to obesity. Obesity in women of childbearing age will increase the risk of developing diseases such as diabetes, hypertension, hyperlipidemia, and preeclampsia during pregnancy. To see the effect of hormonal contraception on the incidence of obesity in women of childbearing age. The design of this study used descriptive analytic with a cross sectional study approach. The sample in the study were 840 women of childbearing age (15-49 years) who used hormonal contraception (DMPA). Logistic regression analysis was performed to assess the independent factors associated with the incidence of obesity in women of childbearing age using 95% Odds Ratio (OR) and Confidence Interval (CI). P-value < 0.05 was considered statistically significant. Data analysis explained that age, type of hormonal contraception, and duration of contraception use were risk factors for obesity in women of childbearing age. Age > 35 years (OR: 1.6; 95% CI: 0.361-6.807; P 0.548), type of hormonal contraception (OR: 1.8; 95% CI: 1.322-2.461; P <0.001), duration of contraceptive use (OR: 4.9; 95% CI: 3.513-6.851; P <0.001). The type of contraception and the duration of use of hormonal contraception are potential factors for the occurrence of obesity in women of childbearing age. The results of this study help the government to tackle obesity rates.

Keywords: Contraception, DMPA, women of childbearing age, obesity

ABSTRAK

Kontrasepsi hormonal dapat merangsang pusat kontrol nafsu makan di hipotalamus, sehingga penerima kontrasepsi makan lebih dari biasanya. Penggunaan kontrasepsi hormonal pada wanita usia subur dapat menyebabkan peningkatan berat badan yang dapat menyebabkan obesitas. Obesitas pada wanita usia subur akan meningkatkan risiko terkena penyakit seperti diabetes, hipertensi, hiperlipidemia, dan preeklamsia selama kehamilan. Untuk melihat efek kontrasepsi hormonal terhadap kejadian obesitas pada wanita usia subur, desain penelitian ini menggunakan analisis deskriptif analitik dengan pendekatan studi potong lintang. Sampel dalam penelitian ini adalah 840 wanita usia subur (15-49 tahun) yang menggunakan kontrasepsi hormonal (DMPA). Analisis regresi logistik dilakukan untuk menilai faktor-faktor independen yang terkait dengan kejadian obesitas pada wanita usia subur menggunakan Odds Ratio (OR) 95% dan Confidence Interval (CI). Nilai $p < 0,05$ dianggap signifikan secara statistik. Analisis data menjelaskan bahwa usia, jenis kontrasepsi hormonal, dan durasi penggunaan kontrasepsi merupakan faktor risiko obesitas pada wanita usia subur. Usia > 35 tahun (OR: 1,6; 95% CI: 0,361-6,807; p 0,548), jenis kontrasepsi hormonal (OR: 1,8; 95% CI: 1,322-2,461; $p < 0,001$), durasi penggunaan kontrasepsi (OR: 4,9; 95% CI: 3,513-6,851; $p < 0,001$). Jenis kontrasepsi dan durasi penggunaan kontrasepsi hormonal adalah faktor potensial untuk terjadinya obesitas pada wanita usia subur. Hasil studi ini membantu pemerintah dalam mengatasi tingkat obesitas.

Kata Kunci: Kontrasepsi, DMPA, wanita usia subur, obesitas

INTRODUCTION

The Central Statistics Agency stated that active family planning participants in Jakarta in 2021 totaled 1,571,347 participants. Meanwhile, family planning participants who used hormonal contraception DMPA (Depo Medroxy Progesterone Acetate) totaled 576,106 participants.

Depo Medroxy Progesterone Acetate (DMPA) is a type of contraception that contains 150 mg of DMPA which is given every three months by way of intramuscular injection [1], [2]. DMPA hormonal contraception is a method of contraception that is widely used. This contraceptive has good effectiveness but also has some side effects [2]–[4].

A study states that the use of DMPA hormonal contraception in women of childbearing age can trigger weight gain or body mass index (BMI) [5]–[7]. Weight gain that occurs in DMPA hormonal contraceptive acceptors is due to the content of the hormone progesterone in hormonal contraceptives which can stimulate the appetite control center in the hypothalamus, so acceptors eat more than usual [5].

Excessive weight gain is a nutritional problem that occurs a lot and requires serious treatment [8], [9]. This can cause other diseases including heart disease, diabetes mellitus, hypertension, cancer, and hypercholesterolemia [4], [8], [10]. In addition, excessive weight gain can also cause psychological burdens such as lack of self-confidence due to changes in body shape that are not as expected [11]–[14].

The use of hormonal contraception in women of childbearing age can increase weight gain which leads to obesity [5], [15]–[17]. Several factors can cause obesity including genetics, physical activity, psychology, energy intake, environment, socioeconomic status and use of contraception, especially hormonal contraception [18]–[20]. Obesity in women of childbearing age will increase the risk of developing diabetes, hypertension, hyperlipidemia, and preeclampsia in pregnant women [4], [21].

METHOD

Analytical descriptive research study with a cross sectional study approach. The study was conducted on 840 women of childbearing age (15-49 years) who used hormonal contraception. Respondents' demographic data included age, body mass index, type of hormonal contraception, and length of use of hormonal contraception. Obesity in women of childbearing age is seen based on body mass index (BMI). The characteristics of the respondents are summarized using a frequency distribution table. Data analysis with chi square test and multiple logistic regression using Odds Ratio (OR) with Confidence Interval (CI) 95%. Data were analyzed with IBM-SPSS software. Statistically, the p-value <0.05 is considered significant.

RESULTS AND DISCUSSION

Of the 840 women of reproductive age, the average age was 29 (16-49) years, with the proportion of respondents aged <20 years 1.1% (n=9), aged 20-35 years 80.8% (n=679), age > 35 years 18.1% (n=152). According to body mass index (BMI) the proportion of women who were underweight was 28.7% (n=241), normal 18.7% (n=157), overweight 13.8% (n=116), and obese 38.8% (n=326). The proportion of 1 month injection was 42.3% (n=355), 3 months injection was 57.7% (n=485). Proportion of duration of use of hormonal contraception < 3 years 61.2% (n=514), ≥ 3 years 38.8% (n=326).

Table 1. Frequency Distribution of Characteristics of Women of Childbearing Age Using Hormonal Contraceptives (N=840)

Characteristics of Respondents	n (%)
Mean age (min-max)	29.8 (16-49)
< 20 years	9 (1.1)
20-35 years	679 (80.8)
> 35 years	152 (18.1)
Body Mass Index (BMI)	
Underweight	241 (28.7)
Normal	157 (18.7)
Overweight	116 (13.8)
Obesity	326 (38.8)
Types of Contraception	
1 month injection	355 (42.3)
3 months injection	485 (57.7)
Duration of Contraceptive Use	
< 3 years	514 (61.2)
≥ 3 years	326 (38.8)

The table above shows that the type of hormonal contraception and the duration of contraception use contribute to the incidence of obesity. Potential and significant variables related to the incidence of obesity in women of childbearing age were the type of hormonal contraception (OR: 1.8; 95% CI: 1.322-2.461; P <0.001), duration of contraceptive use (OR: 4.9; 95% CI: 3.513-6.851; P <0.001).

Table 2. Determinants of Obesity in Women of Childbearing Age Using Hormonal Contraceptives (N=840)

Variabel	Obesity		n	Bivariate		Multivariate	
	No n (%)	Yes n (%)		p-value	OR (95% CI)	p-value	OR (95% CI)
Age							
< 20 years	6 (66.7)	3 (33.3)	9		Reference		Reference
20-35 years	446 (65.7)	233 (34.3)	679	0.951	1.0 (0.259-4.216)	0.861	0.9 (0.211-3.669)
> 35 years	62 (40.8)	90 (59.2)	152	0.142	2.9 (0.700-12.049)	0.548	1.6 (0.361-6.807)
Types of Contraception							
1 month injection	246 (69.3)	109 (30.7)	355		Reference		Reference
3 months injection	268 (55.3)	217 (44.7)	485	<0.001	1.8 (1.370-2.437)	<0.001	1.8 (1.322-2.461)

Variabel	Obesity		n	Bivariate		Multivariate	
	No n (%)	Yes n (%)		p-value	OR (95% CI)	p-value	OR (95% CI)
3 months injection							
Duration of Contraceptive Use					Reference		Reference
< 3 years	432 (73.1)	159 (26.9)	591		5.5 (4.015-7.626)	<0.001	4.9 (3.513-6.851)
≥ 3 years	82 (32.9)	167 (67.1)	249	<0.001			

Women of childbearing age have a greater risk of obesity if they use hormonal contraception in the long term [7], [15], [22], [23]. Overweight women contribute more to obesity when using hormonal contraception [7], [22]. However, in several studies, weight gain in women who use contraception is also related to age [15], [16], [24].

Contraceptive methods related to weight gain in several studies, namely Depo Medroxy Progesterone Acetate (DMPA) contraception [6], [25]–[27]. In line with this study, the use of DMPA hormonal contraception increases the incidence of obesity which is triggered by excessive weight gain.

Long-term DMPA contraceptive use has predictable consequences. The results showed that the use of DMPA for more than 3 years has a greater risk of developing obesity. Previous research also showed the same results, where the use of DMPA led to obesity [6], [10], [15], [22].

CONCLUSION AND SUGGESTIONS

The use of hormonal contraception can increase appetite, thus triggering excess weight gain and leading to obesity. Long-term use of hormonal contraception can cause obesity, therefore it is expected that the use of hormonal contraception, especially contraception for 3 months, is not more than 3 years. Women aged >35 years and women with excess body weight are encouraged to use non-hormonal contraception with close supervision and counseling from a doctor. This aims to reduce the incidence of obesity in women of childbearing age.

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ERGONOMIC RISK ANALYSIS AND MUSCULOSKELETAL DISORDERS (MSDs) OPERATOR FINAL INSPECTION ON AUTMOTIVE INDUSTRY IN TANGERANG CITY

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ABSTRACT

Ergonomics is very important to note so that work-related illnesses and accidents do not occur. Disturbances arising from ergonomics are Musculoskeletal disorders (MSDs), namely disorders of body structures such as muscles, joints, tendons, ligaments, nerves, cartilage, bones, local blood circulation system. Ergonomics risks were identified using REBA and MSDs complaints using the Nordic Body Map questionnaire. Age, education, exercise habits, smoking habits, BMI, body posture and length of work are factors that can influence MSDs complaints. The aim of this research is to know the factors that influence MSDs complaints. Cross sectional study design with a sample of 231 using logistic regression analysis. The results showed that the ergonomic risk level was low 17,3%, medium 16,9% and high 65,8%. The prevalence of MSDs complaints is 65,8% felt by operators. Respondents aged > 35 years (42,9%), SMA/SMK and below (91,8%), do not have exercise habits 95,2%, smoke every day (59,3%), BMI is overweight (72,7%), risky posture (83,1%) and normal working hours (72,7%). There is a relationship between ergonomic risk, body posture and MSDs complaints. In conclusion, the dominant factor influencing MSDs complaints is body posture with OR 0,127. The research suggestion is to make improvements through the OHS control hierarchy such as equipping lifting equipment, re-designing conveyors for transporting tires, modifying racks to be non-level, socializing working safely and working with poster zones, making work procedures safe.

Keywords: Ergonomic, Musculoskeletal disorders, REBA, Nordic Body Map.

ABSTRAK

Ergonomi sangat penting untuk diperhatikan agar tidak terjadi penyakit dan kecelakaan yang berkaitan dengan pekerjaan. Gangguan yang timbul dari ergonomi adalah gangguan muskuloskeletal (MSDs), yaitu gangguan pada struktur tubuh seperti otot, sendi, tendon, ligamen, saraf, kartilago, tulang, dan sistem peredaran darah lokal. Risiko ergonomi diidentifikasi menggunakan REBA dan keluhan MSDs menggunakan kuesioner Nordic Body Map. Usia, pendidikan, kebiasaan berolahraga, kebiasaan merokok, BMI, postur tubuh, dan lama bekerja adalah faktor yang dapat memengaruhi keluhan MSDs. Tujuan penelitian ini adalah untuk mengetahui faktor-faktor yang memengaruhi keluhan MSDs. Desain penelitian potong lintang dengan sampel sebanyak 231 menggunakan analisis regresi logistik. Hasil penelitian menunjukkan tingkat risiko ergonomi rendah sebesar 17,3%, sedang 16,9%, dan tinggi 65,8%. Prevalensi keluhan MSDs adalah 65,8% yang dirasakan oleh operator. Responden berusia > 35 tahun (42,9%), SMA/SMK dan di bawah (91,8%), tidak memiliki kebiasaan berolahraga 95,2%, merokok setiap hari (59,3%), BMI overweight (72,7%), postur tubuh berisiko (83,1%), dan jam kerja normal (72,7%). Terdapat hubungan antara risiko ergonomi, postur tubuh, dan keluhan MSDs. Kesimpulannya, faktor dominan yang memengaruhi keluhan MSDs adalah postur tubuh dengan OR 0,127. Saran dari penelitian ini adalah melakukan perbaikan melalui hierarki pengendalian K3 seperti penyediaan peralatan angkat, merancang ulang konveyor untuk mengangkut ban, memodifikasi rak agar tidak datar, mensosialisasikan bekerja dengan aman dan berkolaborasi dengan zona poster, membuat prosedur kerja yang aman.

Kata Kunci: Ergonomi, Gangguan muskuloskeletal, REBA, Peta Tubuh Nordic

INTRODUCTION

Ergonomics is one of the important work-related illnesses that needs to be considered (1) define ergonomics as an applied science that combines various disciplines to serve the specific needs of humans. It is a goal-oriented science that aims to reduce or eliminate injuries and disorders, improve productivity, and enhance quality of life.

Ergonomics aims to prevent Work-Related Musculoskeletal Disorders (WMSDs) through the application of identification, evaluation, and control of risk factors in the workplace. Musculoskeletal Disorders (MSDs) are structural disorders of the body such as muscles, joints, tendons, ligaments, nerves, cartilage, bones, and local circulatory systems. MSDs caused or aggravated by work and the impact of the immediate work environment are referred to as work-related MSDs (2). Musculoskeletal disorders (MSDs) are also described as conditions that affect tendons, muscles, ligaments, peripheral nerves, joints, cartilage (including intervertebral discs), bones, and/or supporting blood vessels (1).

The identification of potential hazards and risks has been conducted, and it is known that one of the potential risks for operators in Final Inspection is the occurrence of MSDs. This indicates the need for control measures to minimize the potential hazards and create a safe and healthy work process, preventing work-related illnesses caused by ergonomic hazards. One of the efforts is to determine the ergonomic risk values that can be measured and identify the values and potential activities associated with ergonomic hazards, in order to provide appropriate recommendations. According to Karwoski (2006), there are several practical assessment tools available to measure ergonomics, such as the NIOSH Lifting Equation, LMM Risk Assessment Model, REBA, RULA, LUBA, The ACGIH TLV, and others. When used correctly, each of these tools can play a key role as part of a comprehensive ergonomic process (3).

Based on the preliminary survey conducted, operators have reported complaints related to ergonomic factors. The three main complaints reported by operators are shoulder pain, calf pain, and arm pain. In the Final Inspection process, there are ergonomic hazards, and one of the causes is manual handling activities involving lifting heavy tire loads weighing between 12 - 30.9 kg. This includes repetitive tasks of moving loads from the conveyor or floor to trucks/racks. According to Berlin et al. (2017), there are several measurement tools that can be used to assess ergonomics, such as the Rapid Upper Limb Assessment (RULA), Rapid Entire Body Assessment (REBA), Ovako Working Posture Analyzing System (OWAS), Hand Arm Risk-assessment Method (HARM), Liberty Mutual Manual Materials Handling Tables, NIOSH Lifting Equation, and others (4).

To avoid MSDs complaints caused by inappropriate ergonomic factors, according to Di Tecco et al. (2020) explain that work and non-work factors have a role in worsening worker MSDs, namely first, demographic and individual characteristics, such as gender, age, migrant status, ethnicity, genetics, social and economic situation; the second is health conditions and co-morbidities; the three risk factors

related to unhealthy behavior and lifestyle such as being overweight, physically inactive, sedentary lifestyle; fourth is psychosocial factors and fifth is digitalization and the use of new technology in the workplace.

The aim of this study is to analyze the ergonomic risks during work, assess musculoskeletal disorder (MSDs) complaints, and determine the relationship between individual factors (age, education, exercise habits, smoking habits, BMI, body posture, and duration of work) with MSDs complaints. Additionally, the study aims to investigate the simultaneous relationships between age, education, exercise habits, smoking habits, BMI, body posture, duration of work, and MSDs complaints.

METHOD

This study utilized an analytical survey research design employing a cross-sectional approach. The study population consisted of all operators in the final inspection department, totaling 477 employees. The sample size was determined using the Slovin's formula, which is $n = N / (1 + (N \times e^2))$. A total of 240 respondents were selected as the research sample. The inclusion criteria for this study were permanent or contract employees of the company, employees with a work experience of more than 1 year, those identified with ergonomic risks according to the HIRADC, and willingness to participate. The exclusion criteria included intern employees, unwillingness to be respondent, employees with less than 1 year of work experience, and non-operator status.

Data collection was conducted through field observations and questionnaires. The level of ergonomic risk was assessed based on the REBA worksheet, which consists of working posture, workload, repetition, and static positions (5). To gather data on operator characteristics and MSD complaints, the Nordic Body Map (NBM) questionnaire was used. The NBM questionnaire collects information on discomfort locations by referring to specific body regions or using a diagram of the body where respondents can indicate specific areas for assessment (6).

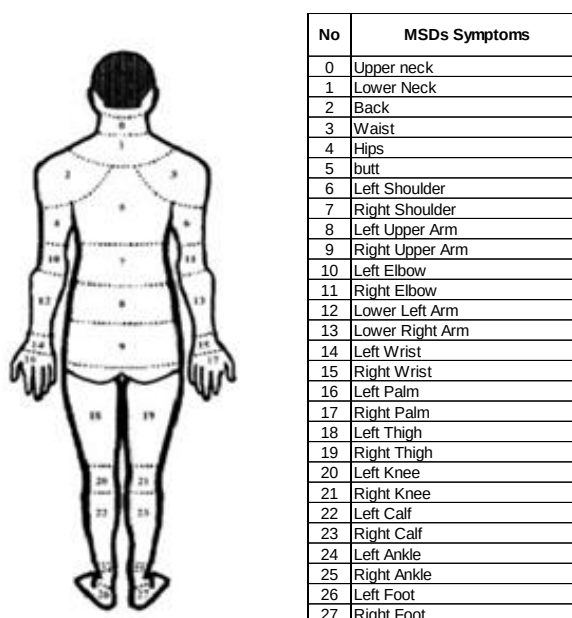


Figure 1. Nordic Body Map (NBM)

The data analysis method used in this study involves univariate analysis to obtain a descriptive frequency distribution of each variable, bivariate analysis to examine the relationship and magnitude of the relationship between the independent variables (age, education, exercise habits, smoking habits, BMI, body posture, and duration of work) and the dependent variable (MSDs complaints), and multivariate analysis to identify the factors that are most associated with MSDs complaints.

RESULTS AND DISCUSSION

In Table 1, it shows the distribution of variables. The majority of operators fall under the age group of < 35 years, with 139 respondents (60.2%), while the smallest group consists of employees aged 45 and above (18.6%). The respondents with education level up to high school comprise 212 employees (91.8%), and the lowest group consists of those with Academy/D1/D2/D3 education, totaling 5 employees (2.2%). There are 11 employees (4.8%) who engage in exercise habits, while 220 employees (95.2%) do not have exercise habits. The highest number of respondents is daily smokers, with 137 employees (59.3%), and the lowest group comprises 2 employees (0.9%) who are former smokers. The BMI distribution reveals that 16.9% of employees are overweight, 23.8% have a normal BMI, and 3.5% are underweight. Among the respondents, 39 employees (16.9%) have a non-risky body posture, while 192 employees (83.1%) have a risky body posture. Regarding work duration, 168 employees (72.7%) have a normal duration, while 63 employees (27.3%) have a high duration.

Table 1. Demographic characteristics of the respondents

Respondents Characteristics	Amount	
	n	%
Age		
≥ 45 years old	43	18.6%
35-44 years old	49	21.2%
< 35 years old	139	60.2%
Education		
Bachelor Degree	14	6.1%
Academy (DI, DII, DIII)	5	2.2%
Senior High Schools below	212	91.8%
Exercise Habits		
Yes	11	4.8
No	220	95.2
Smoking Habits		
Everyday	137	59.3
Sometimes	10	4.3
Ex-Smoker	2	0.9
Not a Smoker	82	35.5
BMI		
Overweight	168	72.7
Normal	55	23.8
Underweight	8	3.5
Body Posture		
Risk	192	83.1
No Risk	39	16.9
Length of working		
High	63	29.3
Normal	168	72.3

In table 2, it can be seen that there are 152 employees (65.8%) categorized as high ergonomic risk, and 40 employees (17.3%) categorized as low ergonomic risk. Operators' MSDs symptoms are represented in table 3, 152 respondents have MSDs symptoms (65.8%) and 79 respondents do not have MSDs symptoms (34.2%).

Table 2. Ergonomic Risk Level

No.	Ergonomic Risk Level	Frequency (n)	Percentage (%)
1.	Can be ignored	0	0
2.	Low	40	17.3
3.	Middle	39	16.9
4.	High	152	65.8
5.	Very high	0	0
Total		231	100

Based on the assessment using REBA, the results show that 65.8% of the activities performed by operators in the final inspection exhibit a high level of risk. This implies that immediate investigation

and changes are necessary. The activities in the final inspection include lifting, pushing, sliding, pulling, bending, twisting, and reaching in awkward positions. These activities involve tasks such as lifting tires from the workbench to the conveyor or from the conveyor to the truck, sliding tires, stacking tires in the truck, pushing the truck to the next process, pulling the truck, and positioning the truck. In this process, all activities and the amount of load (tire weight) lifted by the operators range from 23 to 44 kg, contributing to the ergonomic risk factors.

Table 3. MSDs Symptoms

MSDs Symptoms	Result	%
Yes	152	65.8%
No	79	34.2%

From the questionnaire results, the majority (65.8%) reported experiencing MSDs complaints. This is due to the fact that the operators' work activities still rely on the employees' muscle strength. For example, the manual handling of tires without using lifting aids, such as lifting tires from the floor or conveyor to the truck, or from the work area to the conveyor, involves awkward positions where the tires are lifted above shoulder level. Load refers to the amount of effort exerted by muscles and the amount of pressure on the body as a result of different job demands. All job tasks require workers to use their muscles, but when the job requires them to exert excessively high levels of force on specific muscles, it can damage muscles, tendons, joints, and other soft tissues used in the task. This damage can occur from a single movement or action that requires the muscles to lift a very heavy load. However, in general, damage occurs when the muscles repeatedly generate moderate to high levels of force, for prolonged durations, and/or when the body is in awkward postures (1). During field observations, it was noted that not all employees engage in stretching exercises before work or at regular intervals, which poses a risk of muscle fatigue.

Table 4. Prevalence of MSD Symptoms

No	Body Parts	Yes		No	
		n	%	n	%
1.	Upper neck	96	41.6	135	58.4
2.	Lower Neck	79	34.2	152	65.8
3.	Back	78	33.8	153	66.2
4.	Waist	105	45.5	126	54.5
5.	Hips	111	48.1	120	51.9
6.	Butt	64	27.7	167	72.3
7.	Left Shoulder	87	37.7	144	62.3
8.	Right Shoulder	102	44.2	129	55.8
9.	Left Upper Arm	81	35.1	150	64.9
10.	Right Upper Arm	99	42.9	132	57.1
11.	Left Elbow	61	26.4	170	73.6
12.	Right Elbow	74	32	157	68

No	Body Parts	Yes		No	
		n	%	n	%
13.	Lower Left Arm	77	33.3	154	66.7
14.	Lower Right Arm	77	33.3	154	66.7
15.	Left Wrist	86	37.2	145	62.8
16.	Right Wrist	92	39.8	139	60.2
17.	Left Palm	77	33.3	154	66.7
18.	Right Palm	70	30.3	161	69.7
19.	Left Thigh	69	29.9	162	70.1
20.	Right Thigh	68	29.4	163	70.4
21.	Left Knee	91	39.4	140	60.6
22.	Right Knee	76	32.9	155	67.1
23.	Left Calf	94	10.7	137	59.3
24.	Right Calf	97	42	134	58
25.	Left Ankle	95	41	136	58.9
26.	Right Ankle	101	43.7	130	56.3
27.	Left Foot	95	41.1	136	58.9
28.	Right Foot	90	39	141	31

In table 4, Prevalence of MSDs symptoms by anatomic site showed differing prevalence for different anatomic sites. The hips were the area with the highest prevalence of MSDs symptoms (48.1%), followed by the waist (45.2%), right shoulders (44.2%). Skeletal muscle complaints generally occur due to excessive muscle contractions caused by heavy workloads with prolonged durations. This puts pressure on the soft muscle tissues. When hands have to grip tools, the soft muscle tissues directly bear the pressure from gripping the tool, and if this occurs frequently, it can cause persistent muscle pain (1).

Table 5. Correlation between Age, Education, Exercise Habits, Smoking Habits, BMI, Body Posture, Length of working and MSDs symptoms

Variable	MSDs Symptom				Amount	p-Value
	Yes		No			
	n	%	n	%		
Age						
≥ 45 years old	29	32.6	14	32.6	43	0.553
35-44 years old	29	40.8	29	49.8	49	
< 35 years old	94	32.4	45	32.4	139	
Amount	152	65.8	79	34.2	231	
Education						
Bachelor Degree	9	64.3	5	35.7	14	0.800
Academy (DI, DII, DIII)	3	60	2	40	5	
Senior High Schools below	140	66	72	34	212	
Amount	152	65.8	79	34.2	231	
Exercise Habits						
Yes	8	72.7	3	27.9	11	0.865
No	144	65.5	76	34.5	220	
Amount	152	65.8	79	34.2	231	
Smoking Habits						
Everyday	94	68.6	43	31.4	137	0.151
Sometimes	7	79	3	30	10	

Variable	MSDs Symptom				Amount	p-Value
	Yes		No			
	n	%	n	%		
Ex-Smoker	2	100	0	0	2	0.951
Not a Smoker	49	59.8	33	40.2	82	
Amount	152	65.8	79	34.2	231	
BMI						
Overweight	110	65.5	58	34.5	168	
Normal	36	65.5	19	34.5	55	0.000
Underweight	6	75	2	25	8	
Amount	152	65.8	79	34.2	231	
Body Posture						
Risk	116	60.4	76	39.6	192	
No Risk	36	93.2	3	7.7	39	0.358
Amount	152	65.8	79	34.2	231	
Length of working						
High	38	60,3	25	39.7	63	0.358
Normal	114	67.9	54	32.1	168	
Amount	152	65.8	79	34.2	231	

There was no significant correlation between age, education, exercise habits, smoking habits, BMI, length of working with the prevalence of MSDs symptoms ($p\text{-value} > 0.05$) (Table 5).

Based on the studied individual characteristic variables, data on individual factors based on age showed that 40.8% of employees aged 35-44 experienced MSDs complaints. This is in line with the statement by (7) that as age increases, degeneration occurs in the bones, and this process begins around the age of 30. At the age of 30, tissue degeneration occurs, leading to tissue damage, scar tissue formation, and fluid reduction. This reduces the stability of the bones and muscles. In other words, as individuals grow older, the risk of experiencing a decrease in bone elasticity, which triggers MSDs symptoms, increases. This is consistent with the research conducted by Shobur et al. (2019), which found that workers aged ≥ 30 years are 4.4 times more likely to experience high-level musculoskeletal complaints compared to workers aged < 30 years (8).

In terms of education level, employees with a high school diploma or lower accounted for 66% of those who experienced MSDs complaints. This is consistent with the research conducted by (Ilmiati & Indriani (2021), which found a significantly high prevalence of MSDs complaints among respondents with no formal education, accounting for 4.5%. According to Diana & Karini (2016), compared to workers with lower levels of education, employees with higher educational degrees work with ergonomic principles and appropriate task performance methods, which can be implemented in the workplace (Ilmiati & Indriani (2021).

From the questionnaire, data on individual factors based on exercise habits were obtained. It was found that 4.8% of employees exercise, while 95.2% of employees do not exercise. There were complaints of Musculoskeletal Disorders (MSDs) among non-exercising employees, accounting for

65.5% of the total. The research conducted by Aulia et.al. (2018) showed that respondents who do not have exercise habits have a 3.4 times higher risk of experiencing MSD complaints compared to respondents who have exercise habits.

From the questionnaire, data on individual factors based on smoking habits were obtained. It is known that the majority of respondents, accounting for 59.3% of employees, smoke every day. Non-smokers make up 35.5% of the respondents, occasional smokers account for 4.3%, and former smokers comprise 0.9%. Among employees who smoke every day, 68.6% of them reported experiencing MSD complaints. This finding is consistent with Hanif's research, which states that the higher the level of smoking among workers, the more likely they are to experience MSD complaints (11).

Based on the BMI factor, it can be determined that 72.7% of employees in the Final Inspection department are overweight. Employees with a higher BMI tend to have a higher likelihood of developing MSDs, as explained in the study by Njaka et al. They described BMI as a predictor of many musculoskeletal disorders, stating that individuals with a BMI score over 30 have a higher chance of developing MSDs compared to workers with lower BMI scores. Non-obese workers have a 0.17 lower likelihood of experiencing MSDs disorders (12).

Based on the body posture factor, it can be determined that 83.1% of employees have a risky body posture, while 16.9% have a non-risky body posture. Among employees with a risky body posture, 60.4% reported experiencing MSDs complaints. In a study conducted by Finowaa et al. (2022), it was found that there is an influence of working posture on the occurrence of MSDs. Non-ergonomic working postures can easily lead to fatigue in workers, potentially resulting in decreased job performance (11). Stack et al. (2016) explained that most joints, in a neutral or good posture, exhibit close to their full range of motion. As one moves away from both ends of the range of motion or deviates from a neutral position, the posture becomes more awkward, causing muscles, tendons, and ligaments around the joints to become tense (1).

Based on the factor of length of employment, it can be determined that 72.7% of employees work under normal conditions, while 27.3% work long hours (including overtime). The prevalence of MSD complaints is 60.3% among workers with high length of employment and 67.9% among those with normal length of employment. Workers typically work for 8 hours a day, with the remaining time allocated for family and social life, rest, and sleep. In a week, workers work for a total of 40 hours. Sufficient rest breaks allow workers to recover and rejuvenate their bodies for better performance.

The relationship between ergonomic risk, individual factors and MSDs symptoms.

From the analysis conducted using statistical tests, the obtained p-value is 0.00, which is smaller than the significance level α of 0.05. Therefore, based on these results, it can be concluded that there is a significant relationship between ergonomic risk and MSDs complaints. This finding is consistent with a similar study conducted by Yosineba et al. (2020), which also found a significant moderate correlation

($r=0.531$; $p\text{-value}=0.000$) between ergonomic risk and MSDs complaints. The same study conducted by (13) also shows a relationship between risk level and musculoskeletal complaints. In their analysis, an odds ratio (OR) value of 0.116 was obtained. This means that respondents working at a high-risk level have a 0.116 times greater risk of experiencing MSDs complaints compared to respondents working at a moderate-risk level. Based on field observations, it is known that workers with moderate to high ergonomic risks in the company are provided with protective equipment such as back support. However, workers with low ergonomic risks are not provided with back support personal protective equipment (PPE). This has led to workers with low ergonomic risks experiencing MSDs complaints compared to workers with high ergonomic risks. The repetitive nature of the job in shaving tire activities, which is performed while standing during working hours, along with the absence of designated stretching time and lack of back support, are suspected to be reinforcing factors for the high prevalence of MSDs complaints among workers in the trimming department. According to (14), frequent repetitive movements (e.g., every few seconds) and long durations can lead to the accumulation of muscle-tendon tension and fatigue. If adequate rest periods are provided between exertions, muscles and tendons can recover from the strain and stretching effects. However, during improper positions and strenuous efforts, the impact of repetitive movements due to performing the same work activities can be amplified. Risk factors such as repetitive actions can also depend on the specific tasks performed and the affected body areas.

From the analysis conducted using statistical tests, the obtained $p\text{-value}$ is 0.546, which is greater than the significance level α of 0.05. Therefore, based on these results, it can be concluded that there is no significant relationship between age and MSDs complaints. This finding is consistent with the same study conducted by Aulia (2019), which also found no association between age and MSDs complaints.

In that study, it was found that workers below the age of 35 tend to experience higher levels of complaints compared to workers above the age of 35. During interviews, it was revealed that workers above the age of 35 feel accustomed to their work activities, resulting in fewer complaints compared to workers below the age of 35. Based on the respondents' statements, it can be inferred that workers above the age of 35 may have longer work experience, especially if they have prior experience in similar types of work, which makes them more accustomed to the tasks performed (15).

Based on the results of the analysis conducted using statistical tests, a $p\text{-value}$ of 0.954 was obtained, which is greater than α (0.05). Therefore, it can be concluded that there is no significant relationship between education and Musculoskeletal Disorders (MSDS) complaints. This finding is consistent with a study conducted by Njaka et al. (2021), which showed that educational qualifications do not significantly affect awareness of ergonomics and generally do not influence Musculoskeletal Disorders (MSDs) complaints. It is important to note that in scientific research, the lack of a significant

relationship does not mean that there is no relationship at all. In this context, the research findings indicate that the education variable does not have a significant influence on the studied Musculoskeletal Disorders (MSDs) complaints. However, other factors or interactions that were not considered in this study may also affect these results (12).

Based on the analysis conducted using statistical tests, the obtained p-value is 0.865, which is greater than the significance level α of 0.05. Therefore, based on these results, it can be concluded that there is no significant relationship between exercise habits and Musculoskeletal Disorders (MSDs) complaints. However, it is worth noting that there is a different finding from the study conducted by Goalbertus & Putri (2022), which showed a significant relationship between exercise habits and MSDs complaints. According to their study, physical activity can increase oxygen flow to the tissues, improving muscle function and reducing the risk and severity of MSDs. Stretching exercises can also effectively reduce muscle tension caused by improper body posture (16).

Based on the statistical test conducted, the obtained p-value is 0.402, which is greater than the significance level α of 0.05. Therefore, based on these results, it can be concluded that there is no significant relationship between smoking habits and Musculoskeletal Disorders (MSDs) complaints. This finding is consistent with the study conducted by Munoz et al. (2022), which also found no significant relationship between smoking habits and MSDs complaints in various body parts (17). Similarly, a study by Sulistiyo et al. showed that among 16 smoking respondents, 9 individuals (56.2%) reported MSDs complaints, while among 83 non-smoking respondents, 57 individuals (68.7%) reported MSDs complaints. The chi-square test with a p-value of 0.499 (>0.05) indicates that there is no significant association between smoking habits and MSDs complaints. However, it's important to note that a different result was found in the study by Hanif (2020), which indicated a positive relationship between smoking habits and MSDs complaints. According to that study, higher levels of smoking were associated with a higher prevalence of MSDs complaints. It was suggested that the nicotine content in cigarettes can increase plasma epinephrine levels, leading to insomnia and decreased mineral content in bones, resulting in pain due to fractures or bone damage (11).

Based on the analysis, the obtained p-value is 0.856, which is greater than the significance level α of 0.05. Therefore, based on these results, it can be concluded that there is no significant relationship between body posture and Musculoskeletal Disorders (MSDs) complaints. This finding is consistent with the studies conducted by Sulistiyo dkk. (2018) and Estrada-Muñoz dkk. (2022), which also found no significant association between BMI and MSDs complaints. However, it's important to note that a different result was found in the study conducted by Njaka et al. (2021). Their study indicated that individuals with a BMI score of more than 30 have a higher likelihood of developing MSDs compared to workers with lower BMI scores. Non-obese workers had a 0.17 lower likelihood of developing this

disorder. Similar findings were indicated in a study among woodcutting workers in Bangladesh, where their BMI was significantly related to MSDs (12).

Based on the analysis conducted, the obtained p-value is 0.000, which is smaller than the alpha value of 0.05. Therefore, it can be concluded that there is a correlation between body posture and Musculoskeletal Disorders (MSDs) complaints. The odds ratio (OR) value obtained is 0.12, indicating that respondents with non-risky body posture have a 0.12 times lower chance of experiencing MSDs complaints. This finding is consistent with the research conducted by Finowaa et al. (2022), which indicates the influence of work-related body posture on the occurrence of MSDs, with work posture having a 12.2 times higher likelihood of MSDs (19). The study by Stack et al. (2016) also suggests that body posture affects MSDs, both in the nature of the work itself and in the way it is performed, increasing the risk of MSDs for individuals. Factors such as awkward or non-neutral postures, load and force, including heavy, frequent, or awkward lifting, compression, and repetitive motions can increase the risk of MSDs. In the case of Final Inspection operators, observations and ergonomic assessments have shown that the work activities involve awkward postures, repetitive movements, and compression on the muscles when gripping heavy tires. This can result in persistent muscle pain. When it comes to force, it is important to consider not only the amount of force involved but also: 1) how long the worker must exert force, 2) how frequently force is exerted within a certain period of time, and 3) the posture used when applying force Stack et al. (2016).

Based on the analysis conducted using statistical tests, the obtained p-value is 0.358, which is greater than the alpha value of 0.05. Therefore, it can be concluded that there is no relationship between length of employment and MSDs complaints. However, another study conducted by Anjanny et.al. (2019) showed a significant association between length of employment and Musculoskeletal Disorders (MSDs). Working for approximately 40 hours per week is generally considered optimal, as exceeding that duration is likely to result in negative consequences for both the workers themselves and their work.

Multivariate Analysis

The results of the multivariate analysis indicate that there is one variable that influences MSDs complaints, with body posture being the most dominant factor, with an influence of 0.127 times. Risky body postures can lead to fatigue and a decrease in work performance. Therefore, by eliminating risky body postures and implementing appropriate ergonomic principles, MSDs complaints experienced by employees can be reduced or even eliminated. Good ergonomics is achieved when human capabilities align with the demands imposed by machines or tasks. This objective can be achieved through user-centered design processes aimed at making systems more beneficial by focusing on system usability and applying ergonomic principles, knowledge, and usability techniques (21). Efforts to control occupational health and safety risks (K3) can be carried out using the hierarchy of control measures, including elimination, substitution, engineering controls, administrative controls, and personal

protective equipment. The selection of control measures should be based on the company's needs and capabilities to minimize existing hazards or eliminate them.

CONCLUSION AND SUGGESTIONS

The prevalence of high ergonomic risk levels among Final Inspection operators is 65.8%, and the prevalence of MSDs complaints is also 65.8%. The activities performed by the Final Inspection operators involve manually lifting heavy loads (ranging from 23-44 kg), pushing heavy trolleys over distances of 5 to $\pm$ 20 meters, sliding, pulling, bending, twisting, and reaching awkward positions, all of which have the potential for high ergonomic risks. There is a relationship between ergonomic risk and body posture with MSDs complaints. However, other individual characteristics such as age, education, exercise habits, smoking habits, BMI, and length of employment do not have a significant relationship with MSDs complaints. There is one variable that influences MSDs complaints, and body posture is the most dominant factor, with a significant impact of 0.127 times.

There is a high ergonomic risk and immediate improvements are needed through an engineering control approach. One step that can be taken is to provide lifting aids for handling heavy loads. Additionally, designing an automated conveyor system from the trimming process to the uniformity machine can be implemented. This is aimed at eliminating potential ergonomic risks and enhancing a safer and more ergonomic working environment. Creating guidelines for safe work practices and promoting activities aligned with the power zone and safe lifting techniques. standardizing physical categories for workers handling loads, such as setting maximum age limits and minimum height requirements for workers, determining recovery time and incorporating short rest breaks, implementing periodic job rotations, managing work schedules, work pace, or work methods and maintaining a healthy and fit body.

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ANALYZING THE INTERSECTION OF SMOKING CONSEQUENCES IN ISLAMIC JURISPRUDENCE AND ITS DIVERSE PERSPECTIVES

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ABSTRACT

The leading preventable cause of fatality in contemporary society is smoking. In Islamic law, smoking is inextricably linked to the examination of the Qur'an, Hadith, and Ijtihad. This literature review examines the intricate convergence of smoking repercussions and Islamic jurisprudence, delving into the varied viewpoints concerning this matter within the Islamic tradition. This research examines fundamental Islamic scriptures, such as the Al-Quran, Hadith, and Ijtihad, in order to reveal the diverse array of principles and perspectives that influence Islamic perspectives on smoking. A spectrum of perspectives exists within Islamic jurisprudence regarding smoking, ranging from permissibility to prohibition, according to a synthesis of the relevant literature. The research emphasizes the complex correlation between smoking and Islamic ethics, taking into account elements such as personal accountability and health repercussions. Furthermore, the analysis discerns significant themes and recurring arguments that influence the varied viewpoints on smoking in Islamic thought as presented in the literature. In summary, this literature review highlights the intricacy of the matter through its provision of an all-encompassing examination of the varied viewpoints concerning the repercussions of smoking within the realm of Islamic jurisprudence. The results of this research enhance our comprehension of the ethical implications and difficulties linked to smoking in an Islamic framework. As a result, policymakers, practitioners, and scholars in the disciplines of health and religious studies will gain invaluable knowledge from these results.

Keywords: smoking consequences, Islamic jurisprudence, Qur'an and Hadith

ABSTRAK

Penyebab utama kematian yang dapat dicegah dalam masyarakat kontemporer adalah merokok. Dalam hukum Islam, merokok terkait erat dengan kajian Al-Qur'an, Hadits, dan Ijtihad. Tinjauan literatur ini mengkaji konvergensi yang rumit antara dampak merokok dan yurisprudensi Islam, menyelidiki berbagai sudut pandang mengenai masalah ini dalam tradisi Islam. Penelitian ini mengkaji kitab suci Islam yang mendasar, seperti Al-Quran, Hadits, dan Ijtihad, untuk mengungkap beragam prinsip dan perspektif yang mempengaruhi perspektif Islam tentang merokok. Spektrum perspektif yang ada dalam yurisprudensi Islam mengenai merokok, mulai dari kebolehan hingga pelarangan, berdasarkan sintesis literatur yang relevan. Penelitian ini menekankan korelasi yang kompleks antara merokok dan etika Islam, dengan mempertimbangkan elemen-elemen seperti pertanggungjawaban pribadi dan dampak kesehatan. Selain itu, analisis ini melihat tema-tema penting dan argumen yang berulang yang memengaruhi beragam sudut pandang tentang merokok dalam pemikiran Islam sebagaimana disajikan dalam literatur. Singkatnya, tinjauan literatur ini menyoroti kerumitan masalah ini melalui pemeriksaan yang menyeluruh terhadap berbagai sudut pandang tentang dampak merokok dalam ranah yurisprudensi Islam. Hasil dari penelitian ini meningkatkan pemahaman kita tentang implikasi etis dan kesulitan yang terkait dengan merokok dalam kerangka kerja Islam. Sebagai hasilnya, para pembuat kebijakan, praktisi, dan cendekiawan dalam disiplin ilmu kesehatan dan agama akan mendapatkan pengetahuan yang tak ternilai dari hasil penelitian ini.

Kata Kunci : konsekuensi merokok, yurisprudensi Islam, Al-Qur'an dan Hadis

INTRODUCTION

Smoking, an issue of public health on a global scale, has attracted growing scrutiny owing to its adverse effects on both personal and societal health. In light of the complex societal ramifications associated with smoking, it is crucial to examine this matter from various perspectives, encompassing cultural, religious, and legal structures (1).

Based on WHO data, Indonesia is the third country with the highest number of smokers in the world after China and India (2). Increased cigarette consumption is associated with an increased burden of smoking-related diseases and increased smoking-related mortality (3). Smoking is the largest preventable cause of death in society. In 1950, there were only about 300,000 smoking-related deaths each year. This figure jumped to 1 million deaths in 1965; 1.5 million in 1975, and to 3 million in the 1990s. Of the 3 million deaths, 2 million occurred in developed countries and the rest (33.3%) occurred in developing countries such as Indonesia. The results of the Global Adult Tobacco Survey (GATS) survey of the prevalence of smokers in Indonesia in 2010 was 29.2% of the total population of 50.2 million people per day consisting of 56.7 million men and 1.6 women. Smoking was more prevalent in rural communities at 37.7% than in urban communities at 31.9%. Indonesia ranks third as the largest smoker after China and India. While in the Association of South East Asia National (ASEAN) region, the Indonesian population is the population with the highest prevalence of smokers (46.16%) (4).

This literature review explores the convergence of smoking repercussions and Islamic jurisprudence in an effort to decipher the multifaceted viewpoints held by diverse Islamic communities and scholars regarding smoking. Islam, in its entirety as a lifestyle, furnishes a moral and ethical structure that encompasses a wide range of human conduct, including health-related practices.

The increased prominence of discussions pertaining to smoking in Islamic communities in recent years reflects the changing relationship between religious teachings, tradition, and modern challenges. The health and religious ramifications of smoking have generated a range of viewpoints in Islamic academia and communities, prompting inquiries into the permissibility, morality, and ramifications of smoking in the context of Islam (5).

Comprehending the convergence of smoking repercussions within the framework of Islamic jurisprudence is of utmost importance for a multitude of reasons. Primarily, it illuminates the dynamic characteristics of Islamic discourse and its capacity to accommodate present-day health concerns. Through an examination of the multifaceted viewpoints present in Islamic scholarship, healthcare practitioners and policymakers can acquire valuable knowledge that aids in the development of culturally attuned strategies for advocating public health endeavors (5).

Furthermore, the purpose of this review is to facilitate an understanding and reconciliation between the medical and religious viewpoints concerning smoke. Although health professionals predominantly concentrate on the physical ramifications of smoking, it is imperative to recognize and

address the religious aspects that impact personal decision-making within Islamic communities. The implementation of an interdisciplinary approach is critical in order to formulate all-encompassing strategies that align with the values and beliefs of various populations.

The potential for this literature review to provide insights for public health interventions, policy development, and community-based initiatives is what renders it significant. By consolidating current understanding regarding the convergence of smoking repercussions within the framework of Islamic jurisprudence, this work establishes a fundamental basis for discourse and cooperation among policymakers, healthcare practitioners, and religious authorities. Furthermore, this evaluation makes a valuable contribution to the wider academic conversation regarding the harmonization of religious principles and modern health issues. It offers a chance to foster mutual comprehension and collective accountability in the pursuit of enhancing overall health.

The primary objective of this literature review is to examine the multifaceted issues associated with smoking as they pertain to Islamic jurisprudence. By doing so, it aims to offer a thorough comprehension of the various viewpoints that influence the way Islamic communities perceive smoking. By conducting this investigation, our objective is to establish a foundation for well-informed dialogues, considerate participation, and cooperative endeavors that tackle the obstacles presented by smoking while upholding religious principles and promoting public health.

METHOD

This study used a systematic exploration of academic databases such as PubMed, JSTOR, and Google Scholar to identify scholarly articles, books, and conference papers. The application of keywords such as "smoking consequences," "Islamic jurisprudence," and "diverse perspectives on smoking in Islam" to ensure a comprehensive and targeted literature search. Rigorous screening of literature to assess relevance to the research focus, excluding materials that do not directly address the consequences of smoking within the context of Islamic jurisprudence. Furthermore, we synthesizing and summarizing findings from the literature to discern commonalities, contradictions, and notable viewpoints on the consequences of smoking within the Islamic context.

Table 1. List of Publication

No	Researchers Name	Title	Publication and Year of Publication	Conclusion
1.	Saifuddin	Cigarette Fatwas, Contestation of Religious Authority and Politics in Indonesia	Ijtihad: Jurnal Wacana Hukum Islam dan Kemanusiaan Vol. 20, No. 1 (2020)	The development of the cigarette fatwa in Indonesia is a nuanced and ongoing process, not sudden or conclusive. It is intricately woven into a complex discourse that involves the production of the fatwa and its negotiation within the social landscape. The classification of smoking as haram, halal, or makruh continues

No	Researchers Name	Title	Publication and Year of Publication	Conclusion
				to evolve, reflecting the dynamic discourse battles within Indonesian society. The ulama, possessing the authority to issue fatwas, serve as both agents shaping discourse and individuals grappling with state policies governing social, economic, and political resources. The effectiveness of the fatwa's influence encounters challenges from the economic power of cigarette manufacturers. A significant hurdle for these scholars, as social agents, is reconciling the inherent identity dilemma they face. As producers of fatwas, the ulama must navigate not only religious authority but also contend with the political and economic capital embedded in state development policies. Moreover, the ulama's role extends to negotiations with the culture that frames them, the discourse they generate, and external, transnational influences. Positioned at this intersection, the modality of the ulama becomes a subject of negotiation and contestation in the practical implementation of fatwas regarding cigarettes. This detailed exploration highlights the intricate dynamics involved in shaping and enacting religious rulings, responding to the complex realities of Indonesian society (6).
2.	Sutanto Priyo Hastono, Fatimah, Triana Srisantyorini, Muhammad Farid Hamzens, Iswan	Islamic Perspective on Adolescent Smoking Behaviour	Indonesian Journal Of Islam and Public Health Vol. 2 No. 2 (2022)	Cigarettes consist of finely chopped tobacco wrapped in thin paper with adhesive, containing harmful particles like nicotine, tar, benzopyrene, benzantracne, phenol, cadmium, cresol, and indole carbazole. Research by Siti Faidah identifies three factors leading to adolescent smoking: psychological satisfaction, parental attitudes, and peer influence. The negative impact of smoking extends to human health, environmental issues, and various diseases. From an Islamic perspective, there's no explicit

No	Researchers Name	Title	Publication and Year of Publication	Conclusion
				prohibition in the Qur'an or Hadith on smoking, leading to varied opinions among scholars. While some forbid it, others justify it. To deter adolescent smoking, parents are advised not to smoke themselves, and vigilance over children's peer groups is crucial. Smoking behaviors, often emotionally driven, suggest the need for a cognitive approach in preventive and curative efforts, emphasizing the importance of providing information on the dangers of smoking (3).
3.	Najamuddin, Edy Akhyary, Mu'min, Fauzi, Junaidi, Hendri Kremer	The Use Of Kretek Herbs For Cigarette Addicts In View Of Islamic Law	Turkish Journal of Computer and Mathematics Education Vol.12 No.7 (2021)	It is not entirely certain that homeopathic cigarettes are devoid of health-harming side effects. There are still some circles that have doubts about this. As a result, it is not recommended to hasten its consumption or experimentation. It is imperative that all individuals exercise caution when it comes to the utilization of these medicinal cigarettes. If the effectiveness of this herbal cigarette has been substantiated and it is indeed devoid of detrimental physiological effects, then the arrogance that is frequently observed among smokers should also be abstained from. Engaging in public smoking is discouraged due to the potential for slander to befall smokers and Muslims alike. Nevertheless, frequent smokers who wish to transition from non-herbal to herbal cigarettes may find this method or a more effective alternative to be implemented. Ultimately, smokers are still required to completely cease their habit (7).
4.	Muh Nur Akhsin Ridho, Evi Martha	The Role of Fatwa Muhammadiyah on Smoking Law in Attitude, Subjective Norm, and Behavior Control toward Smoking Behavior	Jurnal Kesehatan, Vol. 11, No. 1, (2020)	Regarding the law against smoking, the informants who included smokers, non-smokers, and former smokers generally expressed support for the Tarjih and Tajdid Council of Muhammadiyah No. 6/SM/MTT/III/2010 Fatwa.

No	Researchers Name	Title	Publication and Year of Publication	Conclusion
				Although smoking is not allowed in the Muhammadiyah working atmosphere, some employees of the Muhammadiyah Da'wah Center continue to smoke covertly. Among people who do not smoke or who have smoked in the past, attitudes against smoking were negatively correlated with attitudes toward the fatwa and positively correlated with non-smoking behavior. While behavioral control influenced smoking behavior for all categories of informants, subjective norms contributed to non-smoking behavior for both non-smokers and former smokers. Motivated by their identity as Muhammadiyah citizens, a few smokers declared their determination to give up after the fatwa. The Muhammadiyah Da'wah Center should be urged to lead by example in enforcing the smoking ban within the Muhammadiyah community, and the fatwa should be upgraded to the status of a Muhammadiyah decision for more organizational binding (8).
5.	Nurlaila Harun	The Law of Smoking According to Nash and Shar'ia Principles (<i>Hukum Merokok Menurut Tinjauan Nash dan Kaidah Syar'iyah</i>)	Jurnal Ilmiah Al-Syir'ah Vol 13, No 2 (2015)	Smoking is permissible based on the verses of the Qur'an and As-Sunnah and correct I'tibar (logic). Argument from the Qur'an His words Qs. A l-Baqarah 195. So do not be the cause of your own destruction. The verse wajhud him (control aspect) includes smoking, including throwing oneself into destruction. Whereas the proof of As-Sunnah is the Hadith that comes from the Prophet in shahih which forbids the waste of wealth. The purpose of squandering wealth is to allocate it to things that are not beneficial. It is understood that the distribution of wealth through the purchase of cigarettes is included in the distribution of things that are useless and even harmful (9).

RESULTS AND DISCUSSION

The examination of multiple publications offers a thorough understanding of the intricate and diverse process involved in the creation of the cigarette fatwa in Indonesia, taking into account aspects related to religion, culture, economy, and organizations. This study demonstrates how intricate and continuous the process of formulating the cigarette fatwa in Indonesia is. It is the outcome of complex conversations within the social environment rather than a snap or definitive choice (3,7,8).

It is said that the process of determining whether smoking is haram, halal, or makruh is dynamic and reflects ongoing debates within Indonesian culture. This implies that discussions and arguments on public attitudes toward smoking are ongoing. The ulama, who have the power to declare fatwas, are portrayed as people attempting to make sense of state policy as well as agents influencing debate. The financial might of tobacco companies poses a threat to their efficacy, highlighting the intricate interactions between religious, political, and economic elements (10,11).

The problem of identity that ulama with producing fatwas faced. Along with navigating religious authority, they also have to deal with the political and economic factors that are included into governmental development plans. The ulama's responsibility encompasses negotiating with external, transnational influences as well as the culture that frames them. This suggests that causes other than the local setting had an impact on the fatwa's formulation, which further complicates the situation. It is highlighted how smoking is bad for the environment, how unhealthy it is for people, and how many diseases it is linked to. This gives the conversation about the religious viewpoint on smoking a more expansive framework (12,13).

Scholarly viewpoints differ due to the fact that smoking is not explicitly prohibited in the Qur'an or Hadith. This ambiguity fuels the continuous discussions on smoking permissibility in the religious community. The Tarjih and Tajdid Council of Muhammadiyah No. 6/SM/MTT/III/2010 Fatwa against smoking is mentioned in the text as generally supported. It also draws attention to instances of employees of the Muhammadiyah Da'wah Center smoking in secret, suggesting a possible discrepancy between practice and policy. Factors such as psychological satisfaction, parental attitudes, peer influence, and organizational norms are identified as contributors to smoking behavior, underlining the multifaceted nature of the issue. The text presents legal and religious arguments both in favor and against smoking. The Qur'anic verse on not causing one's own destruction and the Hadith prohibiting the waste of wealth are cited as arguments against smoking. There is a call for the Muhammadiyah Da'wah Center to lead by example in enforcing the smoking ban within the Muhammadiyah community, suggesting the importance of organizational commitment to anti-smoking policies (8).

The presence of psychological satisfaction as a notable determinant implies that individuals might begin smoking as a reaction to emotional concerns. This highlights the necessity for incorporating interventions that target coping mechanisms and emotional well-being into comprehensive anti-

smoking initiatives. The significance of social contexts in shaping behavior is highlighted by parental attitudes and peer influence; therefore, community-wide initiatives involving families and social networks are essential (14).

The text presents legal and religious arguments that provide a range of perspectives regarding smoking. On the basis of the Qur'anic verse that forbids self-destruction and the Hadith that forbids the frittering away of wealth, smoking is immoral and unethical. Although these religious arguments do not overtly forbid smoking, they do imply the possibility of a clash between the practice and the tenets of Islam. This provides opportunities for religious leaders to participate in educational initiatives that aim to foster a more comprehensive comprehension of the spiritual ramifications associated with smoking (15).

The practical aspect of the discourse is enhanced by the demand that the Muhammadiyah Da'wah Center set an exemplary example by strictly enforcing the smoking prohibition within the Muhammadiyah community. This highlights the importance of organizational commitment in shaping the conduct of members of a particular religious community. This level of dedication not only corresponds with the religious tenets espoused by Muhammadiyah, but also establishes a prominent and impactful position opposing smoking (12).

Organizational norms are of utmost importance in influencing individual conduct within this particular framework. An institution that possesses religious authority, such as the Muhammadiyah Da'wah Center, conveys a significant message to its members through the proactive enforcement and implementation of anti-smoking policies. This has the potential to foster a cultural transformation among community members, strengthening the notion that smoking is contrary to the organization's core values and principles (6).

Through its proactive approach towards anti-smoking measures, the Muhammadiyah Da'wah Center not only manifests its unwavering commitment to the Muhammadiyah principles but also establishes itself as a beacon of moral and spiritual counsel for the members of its community. By enforcing anti-smoking policies, the organization manifests its dedication to promoting a healthy way of living consistent with the principles espoused in Islamic teachings (16).

The potential for this organizational commitment to instigate a significant cultural transformation within the community is substantial. A potential outcome of members observing the Muhammadiyah Da'wah Center's resolute commitment to anti-smoking initiatives is a transformation in the group's shared perspective on smoking. The position taken by the organization has the potential to impact not only the actions of existing smokers, but also the thoughts and choices of individuals who are considering or vulnerable to starting a habit (17).

Moreover, the leadership exemplified by the Muhammadiyah Da'wah Center has the potential to transcend the confines of the organization. As the favorable results of anti-smoking initiatives become

apparent to members of the community, a cascading effect may occur in neighboring regions and among communities that are affiliated with them. This wider ramification underscores the capacity of religious institutions to positively influence and promote the health and welfare of society (18).

The cultural shift brought about by the anti-smoking policies of the Muhammadiyah Da'wah Center transcends the simple prohibition of a particular conduct; it represents a dedication to comprehensive welfare. This dedication aligns with the tenets of Islam, which prioritize the safeguarding and conservation of communal and personal well-being. Through proactive involvement in addressing the matter of smoking, the organization showcases its cognizance of the wider ramifications that personal decisions can have on the welfare of the collective community (16).

CONCLUSION AND SUGGESTIONS

In summary, this research greatly advances our knowledge of how Indonesia's tobacco fatwa came to be. Through a review of several papers and a consideration of several factors, the study sheds light on how complex and continuous the formulation process is. It highlights how important it is to recognize the nuanced nature of social interactions and how organizational, cultural, religious, and economic variables interact to shape a religious decision with such broad societal implications.

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HARMONY AND HEALTH: APPROACH TO IDENTIFYING RISK FACTORS AND COMPLICATIONS OF DIABETES MELLITUS

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ABSTRACT

Diabetes mellitus, commonly referred to as diabetes, is a chronic condition characterized by lifelong affliction. This study employs the literature review methodology, wherein researchers undertake a systematic examination of a range of current publications encompassing diverse genres. The objective of this study is to explore diverse concepts and theories that can subsequently be formed to align with the research objectives. Diabetes mellitus (DM) is a chronic metabolic condition with several causes, characterized by elevated blood glucose levels and associated metabolic dysregulation of carbohydrates, lipids, and proteins due to insufficient insulin activity. Diabetic foot is recognized as a notable consequence of diabetes mellitus. The management of diabetic foot can be improved with the implementation of foot workouts. Typically, individuals diagnosed with diabetes mellitus have access to several treatment options, including insulin therapy, administration of diabetic medications, exploration of alternative treatments, consideration of surgical interventions, and adoption of a healthier lifestyle.

Keywords: risk factors, diabetes mellitus, complications

ABSTRAK

Diabetes mellitus adalah suatu kondisi kronis yang ditandai dengan penderitaan seumur hidup. Penelitian ini menggunakan metodologi tinjauan literatur, dimana peneliti melakukan pemeriksaan sistematis terhadap berbagai publikasi terkini yang mencakup beragam genre. Tujuan penelitian ini adalah untuk mengeksplorasi beragam konsep dan teori yang selanjutnya dapat dibentuk agar selaras dengan tujuan penelitian. Diabetes mellitus (DM) adalah suatu kondisi metabolisme kronis dengan beberapa penyebab, ditandai dengan peningkatan kadar glukosa darah dan terkait dengan disregulasi metabolisme karbohidrat, lipid, dan protein karena aktivitas insulin yang tidak mencukupi. Diabetes melitus merupakan suatu kondisi medis yang ditandai dengan dua bentuk berbeda, yaitu diabetes tipe 1 dan diabetes tipe 2. Kaki diabetik diketahui sebagai komplikasi dari diabetes melitus. Penatalaksanaan kaki diabetik dapat ditingkatkan dengan penerapan senam kaki. Biasanya, individu yang didiagnosis menderita diabetes mellitus memiliki akses terhadap beberapa pilihan pengobatan, termasuk terapi insulin, pemberian obat diabetes, eksplorasi pengobatan alternatif, pertimbangan intervensi bedah, dan penerapan gaya hidup yang lebih sehat.

Kata kunci: faktor risiko, diabetes mellitus, komplikasi

INTRODUCTION

Diabetes mellitus or diabetes is a chronic disease that can be suffered for life. Diabetes Mellitus (DM) is caused by system disorders that occur in the organ system characterized by an increase in blood sugar or often referred to as hyperglycemia conditions caused by a decrease in the amount of insulin from the system [1]. DM can cause various complications both macrovascular and microvascular. DM disease can cause cardiovascular disorders which is a fairly serious disease if not immediately given treatment so that it can increase hypertension and heart infarction [2].

Indonesia is the fourth country with the highest number of people with diabetes after the United States, China and India [3]. In addition, people with DM in Indonesia are expected to increase rapidly by 2-3 times in 2030 compared to 2000. WHO (World Health Organization) also stated that, the world is now inhabited by 171 million people with DM and will increase twice become 366 million in 2030 [4]. The Data and Information Center of the Indonesian Ministry of Health also states that the latest estimate of IDF (International Diabetes Federation) in 2035 there will be 592 million people living with diabetes in the world [5].

Diabetes has 2 types, namely type 1 diabetes mellitus which is the result of an autoimmune reaction to pancreatic islet cell proteins, then type 2 diabetes which is caused by a combination of genetic factors associated with impaired insulin secretion, insulin resistance and environmental factors such as obesity, overeating, undereating, exercise and stress, and aging [6]. Exercise or physical activity is useful for controlling blood sugar levels and weight loss in patients with diabetes mellitus. The great benefits of exercise in diabetes mellitus include lowering blood glucose levels, preventing obesity, playing a role in overcoming complications, blood lipid disorders and increased blood pressure [7].

Diabetes is often caused by genetic factors and a person's behavior or lifestyle. In addition, social environmental factors and health service utilization also lead to diabetes and its complications. Diabetes can affect various organ systems of the human body over a period of time, called complications. Diabetes complications can be divided into microvascular and macrovascular. Microvascular complications include nervous system damage (neuropathy), renal system damage (nephropathy) and eye damage (retinopathy) [8].

Risk factors for type 2 diabetes mellitus include age, physical activity, exposure to smoke, Body Mass Index (BMI), blood pressure, stress, lifestyle, family history, HDL cholesterol, triglycerides, gestational DM, history of glucose abnormalities and other abnormalities and people who have a body weight with an obese level have a 7.14 times risk of developing type two DM disease when compared to people who are at an ideal or normal weight [3,9,10].

According to the Islamic view, diabetes mellitus is a disease of the pancreas and a disorder of its function that can cause various disabilities and other dangerous complications so that sufferers will generally experience a decrease in the quality of life. Diabetes mellitus can cause obstacles to the maintenance of the objectives of Islamic law (Maqashid asSyariah), which include the maintenance of life, mind, property, religion and offspring. Meanwhile, according to the health view, fasting can reduce excess sugar levels in the body. Therefore, diabetes mellitus requires treatment [11].

In various narrations, the Prophet Muhammad SAW had treated himself and had ordered his family and friends to seek treatment when sick. Diabetes is a disease that can be caused by an unhealthy lifestyle, such as eating and drinking irregularly. So it is natural that the Prophet Muhammad SAW suggested fasting so that the body becomes healthy [12].

For people with diabetes, it is recommended to maintain their diet or commonly referred to as a diet. Diet is one of the main forms of treatment. Diabetes can be cured by fasting. By fasting, a person can reduce the portion of food every day. The purpose of fasting is to maintain the stability of blood sugar levels, and it is recommended to check with a doctor to measure blood sugar levels. This method is done in order to control blood sugar levels. Blood conditions are not balanced if diabetics constantly consume foods that contain a lot of sugar. If the patient has self-discipline not to consume sweet foods and is diligent in fasting, then he does not need to worry about the disease he is suffering from. But please note that not all diabetics are allowed to fast. There are certain patient conditions that are allowed to fast, for example diabetics who can control blood glucose levels with food planning and exercise [13].

METHOD

This research used the literature review method, where researchers conduct a series of studies involving various types of existing journals with the aim of finding various types of ideas and theories which can then be formulated in accordance with the research objectives. The search for the necessary sources used electronic site search programs such as Google Scholar, PubMed, Springerlink, and Science Direct with the keywords Diabetes from an Islamic and health perspective. Some articles that have been obtained are selected based on the publication time with a span of the last 10 years (2014–2021) published in Indonesian and English. The literature review in this study was conducted to explore diverse concepts and theories that can subsequently be formed to align with the research objectives.

Table 1. List of Literature

No.	Researchers Name	Title	Journal and Year of Publication	Conclusion
1.	Dita Wahyu Hestiana	Factors Associated with Adherence to Dietary Management in Outpatients with Type 2 Diabetes Mellitus in Semarang City (<i>Faktor-Faktor yang Berhubungan Dengan Kepatuhan Dalam Pengelolaan Diet Pada Pasien Rawat Jalan Diabetes Mellitus Tipe 2 Di Kota Semarang</i>)	Journal of Health 2 (2) (2017)	The management of type 2 DM includes meal planning or diet, physical activity, blood sugar control, and medication. The prevalence of type 2 DM cases reaches 85-90%. In Tlogosari Wetan Health Center, type 2 DM cases are the top 5 highest cases in Semarang City. The type of research used was a cross sectional study with a population of all patients with type 2 DM in 2016 (July 1 - December 31) and the sample size was 57 respondents. Measurement of dietary management was done using a questionnaire. The results showed there was a relationship between age (p role of health workers (p: 0.7). Factors associated with adherence in dietary management of type 2 DM were age, gender, and family role [14].
2.	Lestari, Zulkarnain, Aisyah Sijid	Diabetes Mellitus: Review of Etiology, Pathophysiology, Symptoms, Causes, How to Test, How to Treat and How to Prevent (<i>Diabetes Melitus: Review Etiologi, Patofisiologi, Gejala, Penyebab, Cara Pemeriksaan, Cara Pengobatan dan Cara Pencegahan</i>)	Prosiding Biologi Achieving the Sustainable Development Goals with Biodiversity in Confronting Climate Change Gowa, 08 November 2021	Diabetes mellitus or commonly called diabetes is a chronic disease that can be suffered for life. There are 2 types of diabetes, namely type 1 diabetes mellitus which is the result of an autoimmune reaction to pancreatic islet cell proteins, then type 2 diabetes which is caused by a combination of genetic factors associated with impaired insulin secretion, insulin resistance and environmental factors such as obesity, overeating, under-eating, exercise and stress, and aging. This review discusses the etiology, pathophysiology, symptoms, causes, examination, treatment and prevention of diabetes mellitus [15].
3.	Zaenab M. Syahid	Factors Associated with Diabetes Mellitus Treatment Adherence (<i>Faktor yang Berhubungan dengan Kepatuhan Pengobatan Diabetes Mellitus</i>)	Jurnal Nursing Update Vol. 12 No.4 (2021)	This literature study was conducted by analyzing Indonesian-language scientific articles published from 2015. Then after journal selection, 6 qualitative articles were obtained that met the inclusion criteria. Found that many factors are associated with adherence to diabetes mellitus treatment, namely

No.	Researchers Name	Title	Journal and Year of Publication	Conclusion
4.	Sasmiyanto, S.	Predisposing Factors of Health Behavior of Patients with Type 2 Diabetes Mellitus (<i>Faktor Predisposisi Perilaku Kesehatan Penderita Diabetes Mellitus Tipe 2</i>)	Jurnal Keperawatan Silampari 3, 466 – 476 (2020).	age, knowledge, motivation, social (family support and health workers), education, economy, access and psychological factors. Health workers and health workers must know the factors associated with adherence to diabetes mellitus treatment so that complications can be prevented and treated appropriately. Become the basis for health workers and policy makers in planning tips for the prevention and control of diabetes mellitus [16]. The results showed that pre-disposition factors in the form of knowledge, beliefs, beliefs, and attitudes simultaneously influenced the health behavior of patients with diabetes mellitus with an R value of 0.809 and separately the attitude factor was the dominant pre-disposition factor determining the health behavior of patients with diabetes mellitus with a p value of 0.000. In conclusion, the respondent's attitude towards his condition suffering from diabetes mellitus affects the respondent's actions to seek health help to manage symptoms or carry out treatment for complications experienced [16].
5.	Rev, E.	Sex and Gender Differences in Risk, Pathophysiology And Complications of Type 2 Diabetes Mellitus.	Published online 2016 May 9. doi: 10.1210/er.2015-1137	Biological and psychosocial factors contribute to sex differences in diabetes risk. Overall, psychosocial stress has a greater impact on women than men. In addition, women have a greater increased risk of cardiovascular, myocardial infarction, and stroke mortality than men, compared to nondiabetic subjects. However, when dialysis therapy was initiated, mortality rates were comparable in men and women. Diabetes appears to attenuate the protective effect of

No.	Researchers Name	Title	Journal and Year of Publication	Conclusion
				female sex in the development of heart disease and nephropathy. Endocrine and behavioral factors are involved in gender inequality and influence the outcome. Further research into the sex-differentiated pathophysiological mechanisms of T2DM and its complications may contribute to more personalized diabetes care in the future and will thus increase awareness of sex-differentiated risk factors [17].

RESULTS AND DISCUSSION

Diabetes mellitus (DM) is defined as a disease or chronic metabolic disorder with multiple etiologies characterized by high blood sugar levels accompanied by metabolic disorders of carbohydrates, lipids, and proteins as a result of insulin function insufficiency. Insufficiency of insulin function can be caused by impaired or deficient insulin production by beta Langerhans cells of the pancreas gland, or caused by lack of responsiveness of body cells to insulin [4].

According to Perkeni, Diabetes Mellitus is a chronic metabolic disorder characterized by hyperglycemia. Various complications can arise due to uncontrolled blood sugar levels, such as neuropathy, hypertension, coronary heart disease, retinopathy, nephropathy, and gangrene. Diabetes mellitus is a chronic metabolic disorder characterized by elevated blood glucose (hyperglycemia), caused by an imbalance between supply and demand to facilitate the entry of glucose into cells so that it can be used for metabolism and cell growth. Reduced or absent insulin makes glucose retained in the blood and causes an increase in blood sugar, while cells become deficient in glucose which is needed in cell survival and function [18].

Several studies have mentioned that risk factors for type 2 diabetes mellitus include age, physical activity, exposure to smoke, body mass index (BMI), blood pressure, stress, lifestyle, family history, HDL cholesterol, triglycerides, pregnancy DM, history of glucose abnormalities and other abnormalities. Research conducted by Isnaini dan Ratnasari states that family history, physical activity, age, stress, blood pressure and cholesterol values are associated with the occurrence of type 2 DM, and people who have a body weight with an obese level are at risk of 7.14 times developing type two DM disease when compared to people who are at an ideal or normal [10].

According to the Ministry of Health (2010), by understanding the risk factors, diabetes mellitus can be prevented. DM risk factors are divided into several risk factors, but there are some that can be changed by humans, in this case it can be diet, activity patterns, and stress management. The second factor is a risk factor, but its nature cannot be changed, such as age, gender, and factors of diabetics with a family background [19]. Management of type 2 DM includes meal planning or diet, physical activity, blood sugar control, and taking medication [14]. Factors associated with adherence to diabetes mellitus treatment are age, knowledge, motivation, social (family support and health workers), education, economy, access to health services, and psychological factors [19].

The results of research by Yurida and Huzaifah (2019) state that fasting during Ramadan can be used as an alternative dietary method that has positive benefits if carried out by people with type II diabetes mellitus, which can reduce blood sugar to be more stable [20]. Patients with DM can also experience complications at all cellular levels and all anatomic levels. The manifestation of chronic complications can occur at the microvascular level (diabetic retinopathy, diabetic nephropathy, diabetic neuropathy, and cardiomyopathy) or macrovascular (stroke, coronary heart disease, peripheral vascular disease). Another complication of DM can be excessive susceptibility to infection due to easy urinary tract infections, pulmonary tuberculosis, and foot infections, which can then develop into diabetic ulcers/gangrene [21].

One of the most common complications of diabetes mellitus is diabetic foot, which can manifest as ulcers, infections and gangrene and Charcot arthropathy. Foot gymnastics is an exercise performed for DM sufferers or non-sufferers to prevent wounds and help improve blood circulation in the foot. Diabetic foot problems, such as ulceration, infection and gangrene, are common causes of hospitalization for people with diabetes. Routine diabetic foot care is any form of foot disorder caused by diabetes mellitus. The main factors influencing the formation of diabetic foot are a combination of autonomic neuropathy and somatic neuropathy, vascular insufficiency, and infection. Diabetic foot patients who are hospitalized are generally caused by minor trauma that is not felt by the patient. This causes the transmission of infection to continue [22]. There are two actions in the basic principles of diabetic foot management, namely preventive measures and rehabilitation measures. Rehabilitation measures include an integrated program, namely ulcer evaluation, control of metabolic conditions, wound debridement, germ culture, appropriate antibiotics, rehabilitative surgery and medical rehabilitation. Preventive measures include foot care education, diabetic shoes and foot exercises [23].

Diabetic foot exercise is an activity or exercise performed by patients with diabetes mellitus to prevent wounds and help improve blood circulation in the feet. Foot exercises can help improve blood circulation and also strengthen the small muscles of the feet and prevent foot deformities. In addition, foot

exercises can also increase strength in the thigh muscles, calves, and also overcome limitations in joint movement. The purpose of doing leg exercises is to improve blood circulation, strengthen small muscles, prevent leg deformities, increase calf and thigh muscle strength, and overcome limitations in movement. These foot exercise movements can improve blood circulation in the feet, improve blood circulation, strengthen leg muscles and facilitate foot joint movements. Thus it is hoped that the feet of diabetics can be well maintained and can improve the quality of life of diabetics [24].

CONCLUSION AND SUGGESTIONS

Based on the results of the literature review, it was concluded that the risk factors for diabetes mellitus include education, occupation, physical activity, smoking habits, consumption patterns, and nutritional status. The treatment that can be done for people with diabetes mellitus is insulin therapy, taking diabetes drugs, trying alternative treatments, undergoing surgery and improving life style (healthy lifestyle) by eating nutritious or healthy foods and exercising. One of the complications of diabetes is diabetic foot. Foot exercises are one way to prevent wounds and improve blood circulation in the feet. Interventional research is needed to measure the effectiveness of foot exercises on the prevention of complications of diabetes mellitus and is associated with an Islamic approach.

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THE EFFECTIVENESS OF USING SCREENS ON COMPUTER MONITORS AGAINST EYE MUSCLE FATIGUE OF EMPLOYEES AT THE AMBON CITY EDUCATION OFFICE IN 2023

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ABSTRACT

Eye fatigue is a somatic disorder in the ciliary muscle of the eye that is forced to work to see close objects for long periods of time. Computers as electronic devices use electrical energy and electromagnetic radiation waves that are harmful to eye health. The installation of Antiglare Screen on a computer monitor is believed to reduce complaints of eye muscle fatigue so it needs to be reviewed for the effectiveness of its use. It is known the effectiveness of using screens on computer monitors to reduce eye muscle fatigue of employees at the Ambon City Education Office in 2023. Quantitative research design with quasy experiment method. Using Simple Random Sampling technique as many as 30 respondents. Data collection techniques using questionnaires and interventions using screen monitors measured by the photostress recovery test method. The measurement results are analyzed by the repeated-measured anova statistical test. The average prevalence value of eye muscle fatigue ≥ 50 seconds before the screen installation intervention on a computer monitor. After the intervention, post-measurement of 1 right eye on the fourth day amounted to 14.833 seconds, the OR value was 0.028, for the left eye it was 14.633 seconds, the OR value was 0.001. Post measurement-2 of the right eye on the sixth day of 26.367 seconds of OR value of 0.026, for the left eye of 25.533 seconds OR value 0.016. Furthermore, Post measurement-3 right eye on day 10 amounted to 35,200 seconds OR value -0.001, for left eye 35,700 seconds OR value -0.038. There was a difference in the average fatigue of the eye muscles in three post-measurements using the photostress recovery test method. Post-measurement variable-3 on day 10 of the intervention using a computer monitor screen had an effect on reducing eye muscle fatigue. The longer respondents use antiglare screen, the less eye muscle fatigue. Although there were respondents who had refractive errors, the use of screen monitors was effective in reducing fatigue of the right eye OR (-0.001) and left eye OR (-0.038). Computer users must have occupational safety and health awareness in using computers. Pay attention to the arrangement of the workspace and optimize eye rest time by occasionally turning your eyes to the green area filled with trees outdoors.

Keywords: Eye Muscle Fatigue, Anti Glare Screen

ABSTRAK

Kelelahan mata adalah gangguan somatik pada otot siliaris mata yang dipaksa bekerja untuk melihat objek dekat dalam waktu yang lama. Komputer sebagai perangkat elektronik menggunakan energi listrik dan gelombang radiasi elektromagnetik yang berbahaya bagi kesehatan mata. Pemasangan Layar Antiglare pada monitor komputer diyakini dapat mengurangi keluhan kelelahan otot mata sehingga perlu ditinjau efektivitas penggunaannya. Diketahui efektivitas penggunaan layar pada monitor komputer untuk mengurangi kelelahan otot mata pegawai di Kantor Pendidikan Kota Ambon pada tahun 2023. Desain penelitian kuantitatif dengan metode eksperimen semu. Menggunakan teknik Simple Random Sampling sebanyak 30 responden. Teknik pengumpulan data menggunakan kuesioner dan intervensi menggunakan monitor layar yang diukur dengan metode tes pemulihan fotostres. Hasil pengukuran dianalisis dengan uji statistik repeated-measured anova. Nilai prevalensi rata-rata kelelahan otot mata ≥ 50 detik sebelum intervensi pemasangan layar pada monitor komputer. Setelah intervensi, pengukuran pasca-1 mata kanan pada hari keempat sejumlah 14,833 detik, nilai OR adalah 0,028, untuk mata kiri sejumlah 14,633 detik, nilai OR adalah 0,001. Pengukuran pasca-2 mata kanan pada hari keenam sejumlah 26,367 detik, nilai OR adalah 0,026, untuk mata kiri sejumlah 25,533 detik nilai OR adalah 0,016. Selanjutnya, pengukuran pasca-3 mata kanan pada hari ke-10 sejumlah 35,200 detik, nilai OR adalah -0,001, untuk mata kiri sejumlah 35,700 detik nilai OR adalah -0,038. Terdapat perbedaan

rata-rata kelelahan otot mata dalam tiga pengukuran pasca menggunakan metode tes pemulihan fotostres. Variabel pengukuran pasca-3 pada hari ke-10 dari intervensi menggunakan layar monitor komputer berpengaruh dalam mengurangi kelelahan otot mata. Semakin lama responden menggunakan layar antiglare, semakin sedikit kelelahan otot mata. Meskipun ada responden yang memiliki gangguan refraktif, penggunaan monitor layar efektif dalam mengurangi kelelahan mata kanan OR (-0,001) dan mata kiri OR (-0,038). Pengguna komputer harus memiliki kesadaran keselamatan dan kesehatan kerja dalam menggunakan komputer. Perhatikan penataan ruang kerja dan optimalkan waktu istirahat mata dengan sesekali memandang ke area hijau yang penuh dengan pepohonan di luar ruangan.

Kata Kunci: kelelahan otot mata, layar anti silau

INTRODUCTION

Occupational health protection is an effort that is needed to protect everyone to live a healthy life and be free from health problems that show safe conditions or safe from damage or loss at work (PP No 88, 2019). The development of information and communication technology in the world of work makes computers a common electronic tool in demand to complete work online easily and quickly. Computers are widely used in offices, in research institutes, in colleges, and companies. Generally, 80% of office work is completed by utilizing the use of the internet and computers, so workers spend at least three hours a day staring at computer screens (Fradisha et al., 2017).

Along with the development of electronic technology, a liquid crystal display (LCD) monitor was created that produces three radiations, namely x-rays, ultraviolet and electromagnetic. When users work staring at the monitor for a long period of time, the eyes will absorb electrons that are not filtered by the filter layer on the monitor in the form of radiation that makes the eyes feel tired (Rahmadanil, 2015). A survey by the National Institute for Occupational Safety and Health (NIOSH) reports 75-90% of computer users more than two hours a day are at risk of visual impairment (National Institute for Occupational Safety and Health, 2014). In 2017 statistical data showed that more than 10 million computer users annually had their eyes checked related to symptoms of eye muscle fatigue, these workers were recorded to spend time working with computers for 6 hours a day (Computer Vision Syndrome Statistics, 2017).

In the United States as many as 143 million people work every day staring at computer monitors, 90% complain of symptoms of eyestrain (Rosenfield, 2011). Based on a survey by the American Optometric Association (AOA) there are more than 10 million eye examinations per year related to eye disorders. As many as one million cases are reported annually (American Optometric Associatio, 2019). Research by the National Capital Region of Delhi India also shows 76% of 200 workers experience vision problems (Talwar R et al., 2009). In Indonesia, data from the Central Statistics Agency (BPS) in 2013 states that more than 75% of business sectors both in urban and rural areas use computers (Central Bureau of Statistics, 2014). Data from the 2020 Indonesian Telecommunications Statistics on computer penetration in Indonesia has an increasing trend from year to year, for the province of Maluku computer usage data is 15.93% (Central Statistics Agency, 2020).

The Ambon City Education Office is a government agency responsible for education administration according to the work area. The use of computer devices for 7 hours makes work more effective and efficient. A preliminary survey of 10 employees of the Ambon City Education Office in February 2022 found that 7 employees complained of dry eyes, irritated eyes, blurred vision, double vision, headaches, pain in the neck and shoulders as symptoms of eye muscle fatigue after working staring at the monitor screen more than two hours a day. To avoid the effects of eye muscle fatigue, a computer monitor is installed antiglare and radiation screen (anti-glare / radiation screen) standardized ISO9001 in 2015 which is identified by the method of measuring the level of eye fatigue through the function of retinal adaptation and eye acuity (photostress recovery test) (Sutarno & Pasarella, 2015). Based on the phenomena and problems obtained and previously stated about eye fatigue, researchers are interested in examining "The effectiveness of using screens on computer monitors against eye muscle fatigue of employees at the Ambon city Education Office in 2023".

METHOD

This research is a type of quantitative research with a quasy experiment one group pre-post test design. This study provides action or treatment in the form of installing an anti-glare screen on a computer monitor to see the level of eye muscle fatigue. The intervention was carried out for three consecutive days starting from pre-intervention, post-1, post-2, and post-3 within a period of 10 days. Furthermore, to assess the level of eye muscle fatigue, measurements of eye muscle fatigue are carried out (photostress recovery test method). The measurement results were analyzed using repeated-measured anova statistical tests and paired sample t-test tests on the characteristics of refractive error respondents.

RESULTS AND DISCUSSION

The eye has a special structure and is a vital organ of great value. Humans can obtain information as much as 80% just by looking (Kurmasela et al., 2013). If the visual organ is disturbed, it will greatly affect the working function of the brain to respond to what is seen in the surrounding environment. A good level of vision makes a person have a wider opportunity to access information and technology that is beneficial to work productivity as it should. According to Prayoga (2014) the use of gadgets such as computers, laptops, notebooks and mobile phones can manifest in visual perception if the eye muscles experience stress even though it is not accompanied by local effects on muscle accommodation or retina that disrupts the eye nerves.

The Ambon City Education Office is an Ambon city government agency that has the task of assisting the mayor in carrying out the formulation and implementation of policies in the field of education. The organizational structure of the Education Office, consisting of the Secretariat, the Field of Early Childhood Education and Non-Formal Education, the Field of Basic Education, and the Field of Educators and Education Personnel. Facilities that support all routine work of employees of the

Ambon City Education Office include Lenovo brand computers measuring 22 and 23 inc totaling 32 computers. The distribution of computers in each room is 10 computers in the Personnel and General Planning Room, 14 computers in the Basic Education Sector, 3 computers in the PAUD and PNF Education Fields, and 5 computers for the Teacher and Education Personnel Services Sector. Public services are held from 08.00 to 16.30. Especially for employees who use computers continuously for 8 hours 30 minutes per day with a break of 1 hour, namely at 12.00-13.00. The number of male employees is 47 people while female employees are 78 people.

According to Hanum (2008) the use of screen on a monitor can reduce the light entering the eye so that tired eye symptoms will decrease. This study only measured pre-intervention and post-intervention eye muscle fatigue for 9 hours working on PT Indosat NSR Call Center workers and did not explain how the worker's eye condition if using the screen longer. Curiosity aroused the enthusiasm of researchers to explore the effectiveness of continuous use of screens, and measured both eyes of respondents using the method of measuring eye muscle fatigue photostress recovery test 4 times, namely in pre-intervention before screen use compared to measurement results in intervention-1 to intervention-3. The type of Antiglare Screen used is an LCD computer layer anti-radiation Screen Protector measuring 22-23 inches and made of dark glass base material. According to Parihar et al., (2016) significantly, the prevalence of CVS symptoms was lower in subjects who used antiglare covers on their computer screens. The measurement results in the form of recovery time (RT) will determine the prevalence of eye muscle fatigue experienced by respondents if ≥ 50 seconds will be at risk of eye muscle fatigue and vice versa will reduce eye muscle fatigue.

Univariate analysis data shows that from 125 employees of the Ambon City Education Office, 30 respondents were respondents in the study. From the results of this study, it is known that the characteristics of respondents who interact with computer monitors show that 70.0% or as many as 21 respondents have an age of > 40 years at risk of eye muscle fatigue. In line with research (Sofiati et al., (2011) states that workers aged 40-50 years will quickly experience fatigue compared to younger workers. With increasing age, physical and spiritual abilities will decline slowly. Another problem that supports eye muscle fatigue is gender, as many as 73.3% or 22 respondents are female because the ratio of male employees who use computers is less than female employees. According to Tarwaka (2014), women's muscle ability is also lower than men's so that women's muscle endurance is also lower than men.

Of the 30 respondents, 16 (53.3%) respondents found no refractive errors and 14 (46.7%) respondents had refractive errors in the eye. When there will be measurements related to refractive errors, researchers only use subjective information from respondents about refractive error conditions such as minus, plus and cylindrical eyes. This research is in line with the theory that suggests that eye refractive disorders such as distant vision disorders (myopia), near vision disorders (hypermetropia),

differences in corneal arch (astigmatism), and muscle discontinuity (phoria) can cause eye fatigue because they continuously accommodate to be able to see subjects more clearly (Roestijawat, 2007).

Another factor that affects eye muscle fatigue is a history of certain diseases, but 83.3% or as many as 25 respondents do not have a history of certain diseases. Decreased tear secretion can occur due to diabetes mellitus and hypertension, this disease can reduce tear secretion or increase tear evaporation which aggravates the occurrence of dry eyes in computer workers (Azkadina, 2012). The condition of eye muscle fatigue also affects the distance of the monitor, in this study as much as 86.7% of the distance of the monitor that meets the standards of the workstation of 26 respondents. According to Kanithkar, in his research reported that the farther the eye visibility to the computer screen (90-100 cm), the fewer symptoms respondents complained about CVS. Ideally, the distance of eye vision to a computer screen is 20-40 inches (50-100cm) (Logaraj et al., 2014).

In addition, the largest percentage of lighting (Lux) is local lighting that does not meet the standard as many as 25 respondents (83.3%). Lack of workspace lighting can result in eye muscle fatigue, lighting that is too strong can result in mistakes. Adequate lighting can prevent eye muscle fatigue and increase speed and efficiency in reading. Conversely, lack of lighting is not too risky for eye disease but causes eye fatigue. Demographic data of respondents, frequency distribution of respondent characteristics of this study can be seen in table 1.1 as follows:

Tabel 1. Frequency Distribution of Respondent's Characteristics

Variable	N	Presentation
Age		
> 40 years at risk	21	70,0
≤ 40 years Less at Risk	9	30,0
Gender		
Male	8	26,7
Female	22	73,3
Refractive Errors		
There are	14	46,7
None	16	53,3
History of Certain Diseases		
Diabetes Mellitus	2	6,7
Hipertension	3	10,0
None	25	83,3
Monitor Distance		
Does not meet standard	4	13,3
Meets Standard	26	86,7
Local Lighting		
Meets Standard	5	16,7
Does not meet standard	25	83,3

Data Source: Research Data, 2022

Based on bivariate analysis data, it is known that out of 30 respondents, there were 14 (46.7%) respondents who had refractive errors and 16 (53.3%) respondents did not have refractive errors. The

variable relationship between refractive error and screen monitor installation intervention is closely related to the difference in recovery time (RT) value between pre-intervention and post-measurement-1 on the fourth day of the right eye, which is 14.833 seconds with an OR value of 0.028. Observations continued to see the relationship between pre-intervention and post-measurement 2 days six where the change in time to measure eye muscle fatigue began to increase by 26.367 seconds with an OR value of 0.026. For post-measurement 3 days to 10 right eyes, the eye recovery time was obtained based on an RT change of 35,200 seconds with an OR value of -0.001.

The results of the analysis using the paired sample t-test obtained a p-value of 0.000, and an OR value of 95% CI showed that respondents with refractive errors or not refractive errors had the opportunity to experience a decrease in eye fatigue when using a computer screen monitor on an ongoing basis, so it can be concluded that there are differences in refractive error variables on eye muscle fatigue in pre-intervention and post-measurement of the right eye. The distribution of the relationship of refractive error variables to the intervention of the use of the left eye screen is seen in table 1.2 as follows:

Table 2. The Variable Relationship of Refractive Errors with The Intervention of Using a Computer Monitor Screen in The Right Eye to Reduce Eye Muscle Fatigue of Employees at The Ambon City Education Office in 2023

No	Refractive Errors	Right Eye Monitor Screen Installation Intervention								
		There are		None		Total	Mean	Time	OR	p-value
		n	%	n	%					
1	Pre-Intervention Right Post-1	14	46,7	16	53,3	30	14,833	9,002	0,028	0,000
2	Pre-Intervention Right Post-2	14	46,7	16	53,3	30	26,367	11,475	-0,026	0,000
3	Pre-Intervention Right Post-3	14	46,7	16	53,3	30	35,2	13,77	-0,001	0,000

Data Source: Research Data, 2022

The variable relationship of refractive error with the intervention of using a computer screen monitor in the right eye shows that there is a difference between pre-intervention and post-measurement-1 of the right eye with a value of $p = 0.000 (< 0.005)$, so the researchers draw conclusions that between pre-intervention and post-measurement-1 right eye muscle fatigue using the photostress recovery test method has a difference in recovery time of 14.833 seconds within 3 days. Observation of the use of screen monitors on reducing right eye muscle fatigue continued in post-measurement-2 which was compared to pre-intervention and obtained a value of $p = 0.000 (< 0.005)$, so it can be concluded that there is a difference in recovery time for faster right eye muscle fatigue of 26.367 seconds within 6 days.

The study continued to analyze the relationship between pre-intervention and post-measurement of 3 right eyes which resulted in an average RT difference of 35,200 seconds with a significant value of $0.000 p < 0.005$), so that it can be concluded that there is a difference between pre-intervention right eye and post measurement 3 right eye for 10 days. The results of this study are in line with the research of Parihar et al., (2016) that significantly, the prevalence of CVS symptoms is lower in subjects who use antiglare covers on their computer screens. The measurement results in the form of recovery time (RT) will determine the prevalence of eye muscle fatigue experienced by respondents, if ≥ 50 seconds will be at risk of eye muscle fatigue and vice versa.

In this study, changes in recovery time for eye muscle fatigue depended on evaluating sudden changes in retinal adaptation to light stimulation when measuring eye muscle fatigue. Conceptually, when a person sees a luminous object on a colored base at a continuous close distance, the eye must have a strong accommodation power. The length of exposure of objects to certain objects will affect eye health, especially objects that are seen emitting excessive light. Any use of technology will pose a risk to health if its use is not managed properly. Computer use manifests in visual perception if the eye muscles experience severe stress that disrupts the eye nerves resulting in eye muscle fatigue. If the visual organ is disturbed, it will greatly affect the working function of the brain to respond to what is seen in the surrounding environment (Prayoga, 2014).

There are two human eyes, namely the left eye and the right eye, each of which has the same function and anatomy. When damaged, the power of eye use will differ between the two so that in an effort to restore the eye the results of the vision examination will be different. Before measuring eye muscle fatigue, respondents were asked for information related to refractive errors in the form of questionnaires. Information from respondents is then used as a reference to compare the condition of the right eye and left eye after measuring eye muscle fatigue. Many conditions make the left and right eyes get different light exposure, especially the rest time of one eye when the other eye is measured eye muscle fatigue.

Actually, the right eye and left eye are not used together, only often open and close both together. This research is in line with the theory of Nendyah Roestjawati (2007) in Prayoga (2014) which suggests that eye refractive disorders such as remote vision disorders (myopia), near vision disorders (hypermetropia), differences in corneal arch (astigmatism), muscle discontinuity (phoria) can cause eye fatigue because it continuously accommodates to be able to see subjects more clearly.

Based on bivariate analysis data, the variable relationship between refractive error and screen monitor installation intervention is closely related to the difference in RT values between pre-intervention and post-measurement-1 left eye, which is 14.633 seconds with an OR value of 0.001. The relationship between pre-intervention and post-measurement-2 where the change in time to measure eye muscle fatigue began to increase by 25.533 seconds with an OR value of 0.016. For post

measurement-3 of the right eye, the eye recovery time was based on an RT change of 35.700 seconds and an OR value of -0.038. The results of the paired sample t-test analysis obtained a p-value of 0.000 and OR 95% CI showed that respondents with refractive errors or not refractive errors had the opportunity to experience a decrease in eye fatigue when using a computer screen monitor on an ongoing basis so that it can be concluded that there are differences in refractive error variables on eye muscle fatigue in pre-intervention and post-measurement of the left eye. The distribution of the relationship of refractive error variables to the intervention of using the left eye screen of this study is seen in table 1.3 as follows:

Table 3. The Variable Relationship of Refractive Errors with The Intervention of Using a Computer Monitor Screen in The Left Eye to Reduce Eye Muscle Fatigue of Employees at The Ambon City Education Office in 2023

No	Refractive Errors	Left Eye Monitor Screen Installation Intervention								
		There are		None		Total	Mean	Time	OR	p-value
		n	%	n	%					
1	Pre-Intervention - Left Post-1	14	46,7	16	53,3	30	14,633	6,954	0,001	0,000
2	Pre-Intervention - Left Post -2	14	46,7	16	53,3	30	25,533	10,387	0,016	0,000
3	Pre-Intervention - Left Post -3	14	46,7	16	53,3	30	35,700	13,270	-0,038	0,000

Data Source: Research Data, 2022

The variable relationship of refractive error with the intervention of using a computer monitor screen in the left eye showed that there was a difference between pre-intervention and post-measurement-1 left eye with a value of $p = 0.000 (< 0.005)$, so the researchers concluded that between pre-intervention and post-measurement-1 left eye muscle fatigue had a recovery time difference of 14.633 seconds within four days. Observation of the use of screen monitors on the decline of the left eye continued at post measurement-2 compared to pre-intervention obtained a value of $p = 0.000 (< 0.005)$, so it can be concluded that there is a difference in recovery time of left eye muscle fatigue of 25.533 seconds within six days.

Analysis of the relationship between pre-intervention and post-measurement of 3 right eyes resulted in an average RT difference of 35,700 seconds with a significant value of $0.000 p < 0.005$, so it can be concluded that there is a difference between pre-intervention and post-measurement 3 left eye for 10 days. The results of this study are in line with Prayoga's research (2014) that there is a relationship between eye refractive errors and eye fatigue in medical personnel in the inpatient department of RSUD dr. Soediran Mangun Sumarso Wonogiri. A good level of vision makes a person have a wider opportunity to access information and technology and is beneficial for work productivity expressed as it should be. According to Hanum (2008) stated that the decrease in eye muscle fatigue (RT) after workers work with monitors using screens is slightly different between the right eye and left eye.

A significant difference is the sharpness of vision, both near and far which is considered to determine the function of eye measurement by showing various sizes of objects, so that if there is a decrease in eye visual acuity, it must be considered the influence of refractive errors owned by respondents. According to Priliandita (2015), simply the contrast of the monitor screen can be interpreted as the difference in the sharpness of the color of the characters (letters) with the background color (background) on the monitor screen. The output displayed by the monitor comes from the emission of light waves. Flat screen monitors in the form of LCD monitors carry the concept of energy saving and environmentally friendly (green technology) but no monitor can adjust to the eye health of computer screen users. So to assess the effectiveness of using a screen monitor against eye fatigue, it must be necessary to increase the time of use of the screen monitor.

According to Asnel & Kurniawan (2020) said that work done with computers is work that requires the ability of both eyes to be able to focus vision at close distances. Near vision requires convergence of eye muscles due to working continuously in front of a computer so that both eyes will be not in the same direction and focused on different points. The brain that works to suppress or eliminate the shadow in one eye will experience fatigue over time so that complaints of eye muscle fatigue occur. The prevalence of the right eye tends to be more tired compared to the left eye so that the value of each measurement between the right and left eyes is also different.

The prevalence of decreased fatigue of the right eye and left eye muscles was slightly different after using Antiglare Screen at post measurement-3. The RT distance between pre-intervention and post-measurement-3 is more influential on reducing the risk of eye muscle fatigue because it uses the Screen longer and more effective, meaning that the longer respondents use the Antiglare Screen, the less eye muscle fatigue will be. In line with Hanum's research (2008) states that the Recovery Time process before and after the intervention of screen use provides a smaller probability value, so that the use of screens on monitors effectively reduces eye fatigue of workers who work with computers for a long time and continuously.

Multivariate analysis in this study used repeated measures anova test which aims to see changes in data each time interval in the intervention. The hypothesis proposed in the study is that there is an effect of the use of computer monitor screens on the level of eye muscle fatigue in employees at the Education Office of Ambon city. There were four intervention variables for four different measurement times to respondents' right eyes: Pre-intervention, post measurement-1, post measurement-2, and post measurement-3. In this study, statistical tests of anova re-measurement were carried out by looking at the table of test of within-subjects's effects and analysis of within-subjects factors and obtained a significant value of 0.000 which means that there is an influence on the right eye and left eye after the intervention. This showed that there was a significantly different reduction in eye fatigue from the Pre-Intervention, post-measurement-1, post-measurement-2, and post-measurement-3 stages in the

experimental group. The intervention of using screen monitors in modeling on the four variables will be continued analysis using pairwise comparisons test.

It is known that the first multivariate model of pre-intervention variables, post measurement-1, post measurement-2, post measurement-3 right eye p-value of 0.000 means less than alpha value 0.05 thus there are variables excluded from modeling. In the second multivariate model, the post-measurement variable-1 is no longer included in the modeling but in this second modeling there are still pre-intervention, post-measurement-2, and post-measurement-3 variables which are known p-value less than the alpha value of 0.05, so that in the third modeling there will be variables that are not included. The third model, the post-measurement variable-2 was not included because it had a p-value less than the alpha value of 0.05, but in this third modeling there were still pre-intervention, post measurement-1, and post-measurement-3 variables so that in the fourth modeling the variables that were not included were post-measurement variable-3. The fourth model is the last multivariate modeling. The variables that most affect eye muscle fatigue are pre-intervention after being controlled by post-measurement-1 and post-measurement-2. Judging from the value of the odd ratio (OR), the smallest value of the post-measurement variable-3 was -0.001, meaning that respondents who used computer screen monitors experienced a decrease in right eye muscle fatigue for 35,200 seconds within 10 days. The results of the repeated measure-anova test can be seen in table 1.4 below:

Table 4. ANOVA Repeated Measures Test for The Effectiveness of Using Computer Screen Monitors Against Fatigue of The Right Eye Muscles

No	Installation Intervention Screen Monitor		Mean	Std. Error	95% Confidence Interval for Differencen		OR	p-value
					Lower Bound	Upper Bound		
1.	Pre Intervention	Post-1	14,833*	1,648	10,168	19,499	0,028	0,000
		Post -2	26,367*	2,298	19,861	32,873	-0,026	0,000
		Post -3	35,200*	2,556	27,962	42,438	-0,001	0,000
		Pre Intervention	-14,833*	1,648	-19,499	-10,168	-0,002	0,000
2.	Post -1	Post -2	11,533*	1,053	8,55	14,516	-0,026	0,000
		Post -3	20,367*	1,126	17,178	23,555	-0,001	0,000
		Pre Intervention	-26,367*	2,298	-32,873	-19,861	-0,002	0,000
		Post -1	-11,533*	1,053	-14,516	-8,55	0,028	0,000
3.	Post -2	Post -3	8,833*	0,666	6,947	10,72	-0,001	0,000
		Pre Intervention	-35,200*	2,556	-42,438	-27,962	-0,002	0,000
		Post -1	-20,367*	1,126	-23,555	-17,178	0,028	0,000
		Post -2	-8,833*	0,666	-10,72	-6,947	-0,026	0,000

Data Source: Research Data, 2022 (*Pairwise Comparisons Repeated Measures*)

The acceptance of the hypothesis proposed in this study is in accordance with research conducted by Nurfhalisa (2022) about the relationship between online learning and computer vision syndrome (CVS) in SD Inpres Perumnas I students aged 10-12 years in Makassar City during the Covid-

19 pandemic. Thus, it can be concluded that continuous use of screens is effective in reducing eye fatigue in workers who work with computers. The interaction between the right eye intervention groups can be seen from figure 5.1 about the difference in the level of fatigue of the right eye muscles before and after the intervention.

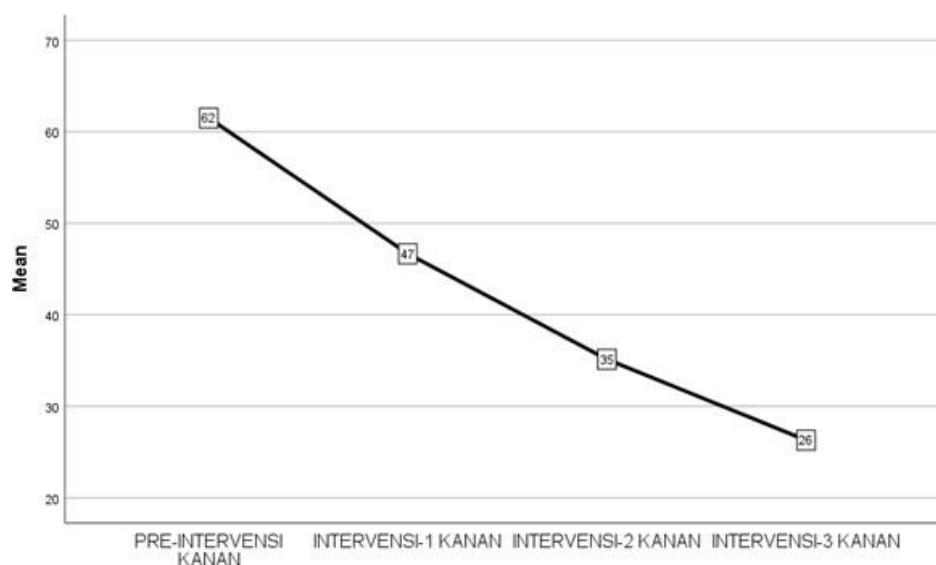


Figure 1. Diagram of Differences in Right Eye Muscle Fatigue Before and After Intervention

It is known that in the first multivariate model the variables pre-intervention, post measurement -1, post measurement-2, post measurement-3 left eye have a p-value of 0.000 meaning less than alpha value 0.05 then the same as the right eye, in the left eye there are also variables excluded from the modeling. The second multivariate model, shows that the post-measurement-1 variable is no longer included in the modeling but this second modeling still has pre-intervention, post-measurement-2, and post-measurement-3 variables that have a p-value less than an alpha value of 0.05, so for the third modeling there will be variables that are not included.

The third model, the post-measurement variable-2 was not included because it had a p-value less than an alpha value of 0.05, but the third modeling still had pre-intervention, post measurement-1, and post measurement-3 variables so that the modeling of the four variables of the post-measurement variable 3 was not. The fourth modelling is the last of the multivariate models that most affect eye muscle fatigue. Pre-intervention variables after control by post-measurement-1 and post-measurement-2 greatly decreased left eye muscle fatigue. Judging from the odd ratio (OR) value obtained the smallest value of the intervention variable-3 of 0.038, it can be concluded that respondents who use computer screen monitors experience a decrease in left eye muscle fatigue for 14,633 seconds within 4 days and 35,700 seconds within 10 days. The results of the repeated measure anova test can be seen in table 1.5 below:

Table 5. ANOVA Repeated Measures Test for The Effectiveness of Using Computer Screen Monitors Against Fatigue of The Left Eye Muscles

No	Installation Intervention Screen Monitor		Mean	Std. Error	95% Confidence Interval for Difference b		OR	p-value
					Lower Bound	Upper Bound		
1.	Pre Intervensi	Post-1	14,633*	2,104	8,674	20,592	0,001	0,000
		Post -2	25,533*	2,458	18,573	32,494	0,016	0,000
		Post -3	35,700*	2,69	28,083	43,317	-0,038	0,000
		Pre Intervention	-14,633*	2,104	-20,592	-8,674	0,000	0,000
2.	Post -1	Post -2	10,900*	1,014	8,029	13,771	0,016	0,000
		Post -3	21,067*	1,283	17,434	24,699	-0,038	0,000
		Pre Intervention	-25,533*	2,458	-32,494	-18,573	0,000	0,000
		Post -1	-10,900*	1,014	-13,771	-8,029	0,001	0,000
3.	Post -2	Post -3	10,167*	0,73	8,098	12,235	-0,038	0,000
		Pre Intervention	-35,700*	2,69	-43,317	-28,083	0,000	0,000
		Post -1	-21,067*	1,283	-24,699	-17,434	0,001	0,000
		Post -2	-10,167*	0,73	-12,235	-8,098	0,016	0,000

Data Source: Research Data, 2022 (*Pairwise Comparisons Repeated Measures*)

The results of measuring eye muscle fatigue showed that the right eye was more at risk of eye muscle fatigue because RT > 50 seconds while the left eye on the contrary < 50 seconds, but experienced a decrease in RT after the antiglare screen was used on a computer monitor for 10 days accompanied by measuring eye muscle fatigue for each intervention. This is in line with Hanum's (2008) research that the prevalence of right-eyed fatigue is greater than the prevalence of left-eye fatigue. The cause may be due to the habit of some workers who work more using the right eye, but this possibility needs to be proven by further eye examination. Another possibility that could also be the cause comes from the measurement method. When taking measurements, the first to be measured is the right eye, so the left eye has a break for a while. The effect of screen use intervention on eye muscle fatigue is an interaction between intervention groups for the left eye which can be seen from the following figure:

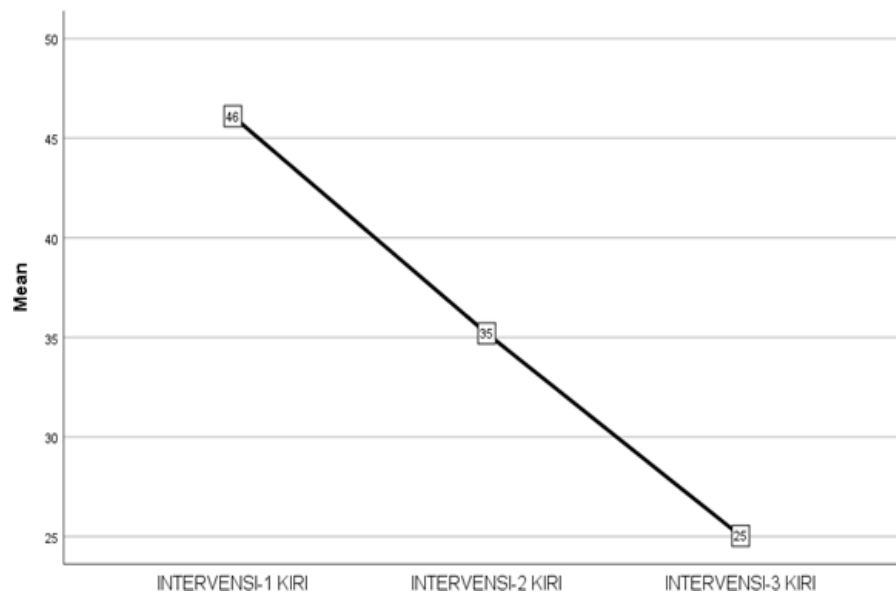


Figure 2. Diagram of Differences in Left Eye Muscle Fatigue Before and After Intervention

From the results of this study it is known that the use of screens on computer monitors used by workers who work with computers for a long time and continuously, can reduce workers' eye fatigue and the prevalence of eye fatigue. The use of screens also causes age, sex, refractive errors, monitor distance and lighting to be more insignificant for the occurrence of computer workers' eyestrain.

CONCLUSION AND SUGGESTIONS

The conclusion contains a summary of the description of the results and discussion and answers the objectives of the study. Based on the results and discussion, several conclusions can be drawn as follows: The results of multivariate modeling show that the variables pre-intervention, post measurement-1, post measurement-2, post-measurement-3 right eye have a p-value of 0.000 meaning that $> \alpha 0.05$ then there are variables excluded from the modeling. The variables post measurement-3 most affected eye muscle fatigue after being controlled by pre-intervention, post measurement-1 and post measurement-2 with an OR value of -0.001, meaning that respondents who used computer screen monitors experienced a decrease in right eye muscle fatigue for 35,200 seconds within 10 days; The results of multivariate modeling show that the variables pre-intervention, post measurement-1, post measurement-2, post-measurement-3 left eye have a p-value of 0.000 meaning $> \alpha 0.05$ then there are variables excluded from the modeling. The post-measurement-3 variable most affected eye muscle fatigue after being controlled by pre-intervention, post measurement-1 and post measurement-2 with an OR value of 0.038, meaning that respondents who used computer screen monitors experienced a decrease in left eye muscle fatigue for 35,700 seconds within 10 days.

Based on the conclusions of this study, the following suggestions can be put forward: To the agency to rearrange the work lay out by paying attention to the floor area of the employee's workspace, lighting and arranging the workspace or placing green plants in the room that are useful for soothing the eyes and adding aesthetic value that comforts the eyes while working. Individual computer users (employees) are expected to increase awareness to prioritize aspects of eye safety and health when working using a computer; Especially for employees who work using computers ≥ 4 hours a day in order to set eye rest time, by occasionally switching the view to a green area filled with outdoor trees; To the next researcher, this study became a recommendation for research on eye muscle fatigue in computer workers but can be modified intervention by adding further examination of refractive errors, with the method of examining eye muscle fatigue using the Flicker Fusion tool. Adjustment of work lay out such as musculoskeletal due to work position using a computer can also be used as a variable that needs to be considered so that the results of research will be more useful in the development of occupational safety and health science studies.

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IMPLEMENTATION OF NATIONAL INDICATORS FOR QUALITY OF HEALTH CARE SERVICES IN PUBLIC HEALTH CENTER IN WEST JAVA PROVINCE

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ABSTRACT

The National Quality Indicator (INM) is one of the benchmarks in efforts to improve the quality of health services. Community health centers must provide quality health services according to standards. To find out the implementation of the achievements of the community health centers in West Java Province in measuring, reporting, and achieving the national indicators of quality in the community health centers as an effort to maintain and improve service quality. The method used is a descriptive method with secondary data analysis from the national indicators of the quality report on the Mutufasyankes.kemendes.go.id application, the data is presented in the form of a frequency distribution. The National Quality Indicator Report for 2022 is higher than in 2021, there are 1057 (97%) Community Health Centers that have reported INM, the district/city with the lowest achievement, namely Kab. Ciamis 60%, Banjar City 69%, and Bekasi City 70%, 3 indicators have not reached the target in all districts/cities, namely compliance with the use of PPE, compliance with patient identification, and successful treatment of TB patients for all drug-sensitive cases (SO). There are still districts/cities in West Java province that are not yet compliant with reporting INM, and there are still INM achievements that have not reached the target, it is necessary to optimize the monitoring and evaluation of INM reporting activities by the district/city Health Office.

Keywords: *National Quality Indicators, Public Health Centers, Health Service*

ABSTRAK

Indikator Mutu Nasional (INM) merupakan salah satu tolok ukur dalam upaya meningkatkan kualitas pelayanan kesehatan. Pusat kesehatan masyarakat harus menyediakan pelayanan kesehatan berkualitas sesuai dengan standar. Untuk mengetahui implementasi pencapaian puskesmas di Provinsi Jawa Barat dalam mengukur, melaporkan, dan mencapai indikator-indikator mutu nasional di puskesmas sebagai upaya untuk menjaga dan meningkatkan kualitas pelayanan. Metode yang digunakan adalah metode deskriptif dengan analisis data sekunder dari laporan indikator mutu nasional pada aplikasi Mutufasyankes.kemendes.go.id, data disajikan dalam bentuk distribusi frekuensi. Laporan Indikator Mutu Nasional untuk tahun 2022 lebih tinggi dibandingkan tahun 2021, terdapat 1057 (97%) puskesmas yang telah melaporkan INM, kabupaten/kota dengan pencapaian terendah, yaitu Kab. Ciamis 60%, Kota Banjar 69%, dan Kota Bekasi 70%, 3 indikator belum mencapai target di seluruh kabupaten/kota, yaitu kepatuhan penggunaan APD, kepatuhan identifikasi pasien, dan keberhasilan pengobatan pasien TB untuk semua kasus sensitif obat (SO). Masih terdapat kabupaten/kota di Provinsi Jawa Barat yang belum patuh melaporkan INM, dan masih terdapat pencapaian INM yang belum mencapai target, perlu optimalisasi monitoring dan evaluasi terhadap kegiatan pelaporan INM oleh Dinas Kesehatan kabupaten/kota.

Kata Kunci: *Indikator Kualitas Nasional, Puskesmas, Pelayanan Kesehatan*

INTRODUCTION

Law Number 36 of 2009 concerning Health Article 5 states that everyone has the right to obtain safe, quality, and affordable health services (1). The quality of health services has a huge impact on all health service efforts carried out by health service facilities, then in the Minister of Health Regulation, Number 34 of 2019 concerning Community Health Centres Article 2 states that health development held at community health centers aims to create healthy community health center work areas, with communities that: 1) have healthy behavior which includes awareness, willingness, and ability to live healthily; 2) able to reach quality health services; 3) live in a healthy environment; and 4) have an optimal degree of health, both individuals, families, groups, and communities (2).

Community health centers as the spearhead in the implementation of basic health efforts that organize first-level Community Health Efforts (UKM) and Individual Health Efforts (UKP) by prioritizing promotive and preventive efforts have an important role in supporting the realization of the highest degree of public health. Quality health services can increase patient satisfaction with the services provided (3). Meanwhile, health service facilities, especially community health centers, have the potential to be a place for the spread of disease for health workers, patients, patient's families, visitors, and the community so health facilities need to ensure the health and safety of those at risk from these potential hazards (4) To overcome various health service problems, an effort to evaluate, improve, and improve the quality of health services is needed to overcome problems in health services. This is one of them taken by measuring quality indicators (4).

National Quality Indicators are mandatory indicators that are implemented by all health centers. The objectives of determining indicators are: 1) To assess whether efforts have been made to improve health service outputs, 2) To learn using best practices obtained through the comparative review process, 3) To provide feedback to health facilities, and 4) In the interest of public transparency. In addition, the measurement of national quality indicators is used as a consideration for the District Health Office, Provincial Health Office, and Ministry of Health in carrying out planning, implementation, and control as well as supervision and accountability for the implementation of service quality in health care facilities (5).

At the Community Health Centre (Puskesmas) 6 national indicators of service quality must be measured and reported, namely: 1) Hand Hygiene Compliance; 2) Compliance with the Use of Personal Protective Equipment (PPE); 3) Patient Identification Compliance; 4) Successful Treatment of TB Patients with All Drug Sensitive (SO) Cases; 5) Pregnant Women Receiving ANC Services according to Standards; and 6) Patient Satisfaction (6).

Based on data from the Ministry of Health in 2021, public health centers in West Java province measuring and reporting INM are still 65%, meaning that there are still 45% more public health centers that have not reported national quality indicators. Therefore, the authors want to know the description

of the implementation of national indicators of quality of health services at public health centers in West Java to see the extent of the achievement of the success of public health centers in West Jawa in reporting and fulfilling national quality indicators as one of the steps to improve the quality of health services (7).

METHODS

The research method used is a descriptive method with secondary data analysis of INM reports on the Mutufasyankes.kemkes.go.id application, the data is presented in the form of frequency distribution.

RESULTS AND DISCUSSION

There are 1088 Puskesmas in West Java province spread across 27 districts/cities and based on INM reporting data of Puskesmas of West Java Province in December 2022 (final semester) from the Ministry of Health data on the achievement of 6 national quality indicators at Puskesmas in districts/cities with the following details (table 1)

<i>Districts/Cities</i>	<i>Hand Hygiene Compliance</i>	<i>Compliance with the use of personal protective equipment</i>	<i>Patient Identification Compliance</i>	<i>Treatment Success of Tb Patients All Drug Sensitive (SO)</i>	<i>Cases of Pregnant Women Who Get Ancillary Services According to Standards</i>	<i>Customer satisfaction</i>
Target	85%	100%	100%	90%	100%	76.61%
<i>Bogor</i>	92,92	97,93	77,51	77,87	75,76	79,84
<i>Sukabumi</i>	93,16	93,21	65,66	71,35	78,69	79,02
<i>Cianjur</i>	87,35	91,27	70,13	80,85	83,38	80,11
<i>Bandung</i>	98,36	99	76,45	78,85	85,15	84,52
<i>Garut</i>	92,68	95,64	71,9	82,28	78,37	81,49
<i>Tasikmalaya</i>	96,59	96,63	64,73	74,45	90,45	88,84
<i>Ciamis</i>	94,59	99,5	83,06	68,72	93,2	83,46
<i>Kuningan</i>	95,42	96,57	70,35	76,61	95,02	80,91
<i>Cirebon</i>	92,56	91,12	67,27	81,29	95,99	83,59
<i>Majalengka</i>	96,97	91,12	66,38	78,68	86,93	80,98
<i>Sumedang</i>	95,02	93,23	66,16	79,34	66,38	85,25
<i>Indramayu</i>	96,12	96,48	81,51	76,84	61,99	82,72
<i>Subang</i>	100	90,08	68,42	74,51	95,18	80,77
<i>Purwakarta</i>	97,31	96,24	73,07	82,74	96,77	80,6
<i>Karawang</i>	94,97	94,57	75,96	58,33	83,93	81,06
<i>Bekasi</i>	96,36	97,79	81,04	72,88	83,03	84,31
<i>Bandung Barat</i>	93,39	93,09	66,22	73,95	62,82	80,79
<i>Pangandaran</i>	93,74	98,92	83,73	59,82	75,44	90,59
<i>Kota Bogor</i>	97,18	98,21	75,04	76,25	77,66	81,18
<i>Kota Sukabumi</i>	95,21	98,96	93,69	58,44	93,84	82,69
<i>Kota Bandung</i>	96,12	98,04	71,32	73,93	91,2	86,11

<i>Districts/Cities</i>	<i>Hand Hygiene Compliance</i>	<i>Compliance with the use of personal protective equipment</i>	<i>Patient Identification Compliance</i>	<i>Treatment Success of Tb Patients All Drug Sensitive (SO)</i>	<i>Cases of Pregnant Women Who Get Ancillary Services According to Standards</i>	<i>Customer satisfaction</i>
Target	85%	100%	100%	90%	100%	76.61%
<i>Kota Cirebon</i>	98,69	99,24	83,89	85,59	96,94	83,6
<i>Kota Bekasi</i>	95,71	98,22	51,87	58,08	85,78	86,34
<i>Kota Depok</i>	94,17	98,54	72,96	75,98	78,18	83,28
<i>Kota Cimahi</i>	95,84	99,76	80,83	82,02	82,55	81,31
<i>Kota Tasikmalaya</i>	95,13	91,02	86,45	75,93	87,21	81,34
<i>Kota Banjar</i>	94,56	98,71	41,95	65,45	100	85,57

The target for the Hand Hygiene Compliance (HHC) indicator is 85% and the health centers in the districts/municipalities of West Java province have achieved the target. The target indicator of compliance with the use of Personal Protective Equipment (PPE) is 100%. No district or city in West Java Province has achieved the target, the highest achievement of PPE compliance was obtained by Cimahi city at 99.76%, while Majalengka district had the lowest achievement of PPE compliance indicators at 9.12%.

The target of the patient identification compliance indicator is 100%. There are no districts or cities in West Java Province that have achieved the patient identification compliance target. The highest patient identification compliance rate was obtained by Sukabumi City at 93.69%. Meanwhile, Banjar City had the lowest patient identification compliance indicator achievement of 41.95%.

The target of the indicator of successful treatment of TB patients in all Drug Sensitive (SO) cases is 90%, no district or city in West Java Province has reached the target. The highest achievement of successful treatment of TB patients with all drug-sensitive (SO) cases was obtained by the city of Cirebon at 85.59%, while the city of Bekasi had the lowest achievement of the indicator of successful treatment of TB patients with all drug-sensitive (SO) cases at 58.08%. The indicator target for pregnant women receiving standardized ANC services is 100%. Meanwhile, only one Banjar city has achieved the target of pregnant women receiving standardized ANC services. The lowest achievement of the indicator of pregnant women receiving ANC services according to the standard was obtained by Indramayu district, which was 61.99%.

The target of the customer satisfaction indicator is 76.61%. All districts or cities in Bara Java province have achieved the target of service user satisfaction with the highest achievement obtained by Pangandaran district at 90.59%. Meanwhile, the lowest achievement was obtained by Sukabumi district, which was 79.02%. Data on the achievement of INM reporting in districts/cities in West Java province can be seen in the diagram below (diagram 1).

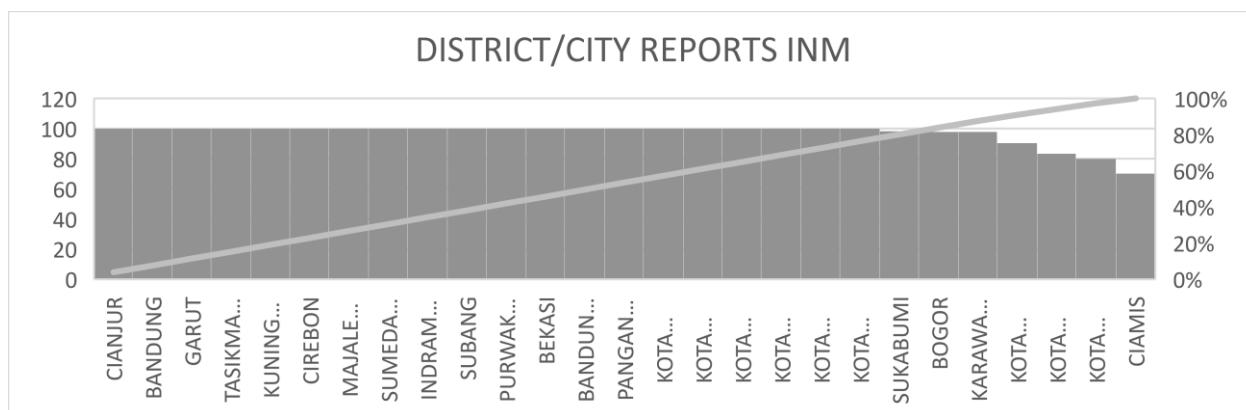


Figure 1. District/ City Reports INM

Based on the Pareto diagram above, it can be seen that there are 7 districts/cities whose Puskesmas have not reported INM with the bottom 3 being Ciamis District, Banjar City, and Bekasi City. So based on this data, of course, it needs to be analyzed further. Meanwhile, data on INM achievements as of December 2022 in Indonesian provinces that report INM can be seen in the diagram below (diagram 2).

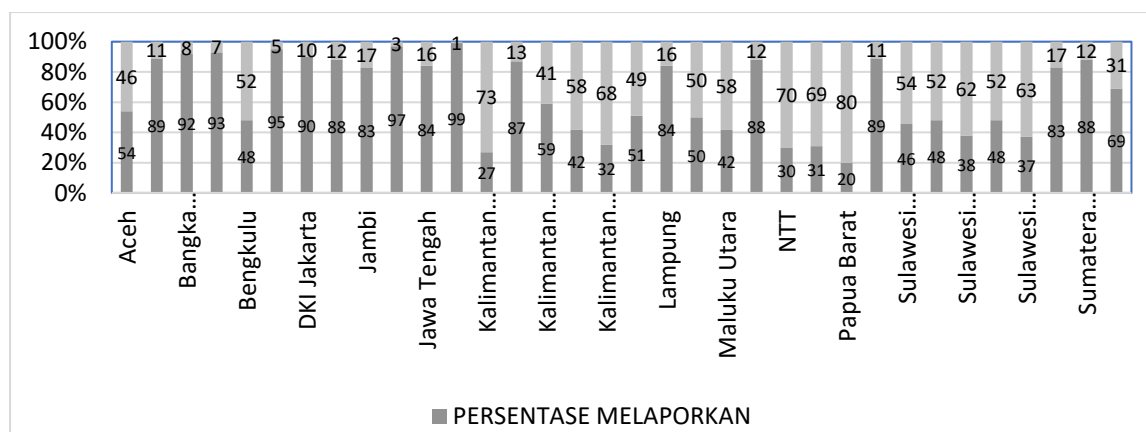


Figure 2. Indonesian Provinces that Report INM

Based on national data, it can be seen that West Java province has 93% reported the results of INM measurements by December 2022, which indicates that 93% of Puskesmas in the West Java region have conducted measurements and reported the results through the health facility quality application.

WHO developed a framework for the quality of health services through a health service quality dimension approach, namely health services that are effective, efficient, accessible, acceptable / patient-focused, fair, and safe. These dimensions of health service quality then developed into seven dimensions, namely effective, safe, people-centered, timely, efficient, equitable, and integrated (8). Efforts to improve the quality of health services are carried out through a systems approach in which health service outcomes are outputs (outcomes) of structures (inputs) that are managed through a process, various methods of quality improvement and intervention need to pay attention to the three parameters of the approach (9). One of the important roles of the healthcare system is to ensure and

improve the quality of services provided. A healthcare quality assurance approach will ensure that healthcare organizations continue to provide services that meet the expectations and needs of patients and become efficient and respectable organizations (10).

Based on the regulation of the Minister of Health No. 30 of 2022 concerning National Indicators of Quality of Health Services for Independent Practices of Doctors and Dentists, Clinics, Community Health Centres, Hospitals, Health Laboratories, and Blood Transfusion Units, article 5 states that the measurement of quality indicators is carried out through an information system developed by the Ministry of Health. Measurement of national quality indicators is carried out concerning the quality indicator profile and through several stages, namely:

1. Data collection

Data collection is the process of collecting data related to the quality indicators that have been determined. It aims to obtain the information needed to achieve the objectives of indicator measurement. The data collection process is carried out by the work unit responsible for quality indicators at the health center. Data collection consists of several stages, namely identifying data sources, determining sampling, developing data collection instruments, data collection frequency, and data collection frequency. data collection instruments, frequency of data collection, and data elements required according to the Puskesmas INM profile.

2. Data validation

Data validation is the process of assessing the accuracy and correctness of the data that has been collected. The data validation process is carried out by a committee/team/officer appointed by the head of the health center. Several conditions require data validation, among others:

- New indicators are implemented
- Data will be published
- There are changes in the indicator data collection system, such as changes in data collection instruments or changes in officers who collect data
- Changes in data achievement without an explainable cause
- Changes in data sources, such as manual data collection switching to electronic format Changes in data collection subjects, such as changes in research protocols.

There are various efforts to increase validity and reduce errors and random errors in data collection, namely:

- Standardizing measurements by using the same operational definitions and data elements.
- Conducting training for data collectors and validators
- Instrument standardisation
- Re-measuring with the same sample

3. Data analysis

Data analysis is an effort to combine and transform data into understandable information so that it can be used in making conclusions or in making judgments. Decision-making. The data analysis process is assisted by the quality committee/team. There are three ways of presenting data that are often used: narratives, tables, and diagrams. The information obtained is then analyzed in the following way:

- Comparing achievements serially to determine any increase or decrease in performance achievements
- Comparing achievements with predetermined targets
- Comparing achievements with the achievements of other similar healthcare facilities as a form of benchmarking
- Comparing achievements with standards and references that are classified as best practices or practice guidelines.

4. Reporting and communication

The achievement of quality indicators must be reported and communicated periodically according to the quality indicator profile. Reporting and communication are needed in planning, monitoring, evaluation, and decision-making to improve health services at Puskesmas. The reporting and communication mechanism is carried out online through the application, but if you experience problems accessing online, you can do the following:

1) Internal reporting

a) Monthly

- Report from service unit to Quality Team.
- Quality Team report to the head of the health center

b) Triwulan

Leaders of public health centers report to the District/City/Provincial Health Office.

2) External reporting

Public health centers report the results of measuring quality indicators to the Ministry of Health periodically according to the indicator profile through the mutufasyankes.kemkes.go.id application and the results of achieving quality indicators are then communicated to all relevant stakeholders. The data collection period for the indicators Hand Hygiene Compliance, Personal Protective Equipment Compliance, Patient Identification Compliance, TB Patient Treatment Success for All Drug Sensitive (SO) Cases, and Pregnant Women Receiving Standardised ANC Services is monthly. Meanwhile, the data collection period for the Service User Satisfaction indicator is semi-annual (11). Service

quality indicators are made to meet or exceed patient expectations, so they need continuous and sustainable improvement (12).

Regulation of the Minister of Health No. 30 Year 2022 article 3 states that to maintain and improve the quality of health services on an ongoing basis, Independent Practices of Doctors and Dentists, Clinics, Community Health Centres, Hospitals, Health Laboratories, and Blood Transfusion Units must measure and evaluate the quality of health services by quality indicators. Based on the author's interview with a team member at the Directorate of Quality of Health Services, Ministry of Health, it was found that in the implementation of INM at Puskesmas several challenges still need to be addressed, among others:

- Community Health Centres have not seen the National Quality Indicators as a necessity so the Community Health Centres have not worked on National Quality Indicators to the fullest to achieve the indicators that have been set. This is because the benefits of implementing the National Quality Indicators have not been fully internalized by Community Health Centres.
- The use of the National Quality Indicator reporting application by Community Health Centres has not been maximized. Reporting of National Quality Indicators by Community Health Centres must be done at the end of the month if the National Quality Indicators for November are only inputted in November, the application dashboard will record that the National Quality Indicators are included in December and November is no reporting of National Quality Indicators.
- The Community Health Centre's lack of understanding of the National Quality Indicators regarding quality measurement and reporting. Reporting done by Community Health Centres is not necessarily by the actual situation.
- The incomplete understanding of the health Office has led to suboptimal guidance on quality improvement in community health centers through the National Quality Indicators.
- Lack of monitoring and guidance from the District/Municipal and Provincial Health Offices regarding recording and reporting of National Quality Indicators.

The efforts that have been made by the Ministry of Health to overcome the challenges of implementing national quality indicators and strengthening quality improvement efforts at public health centers include:

- Issuing regulation of the Minister of Health Number 30 of 2022 concerning National Indicators of Quality for Health Services at Independent Practices of Doctors and Dentists, Clinics, Community Health Centres, Hospitals, Health Laboratories, and Blood Transfusion Units.

- Making the national quality indicators a pre-requisite for conducting accreditation surveys listed in Minister of Health Regulation No.34 of 2022 on Accreditation of Community Health Centres, Clinics, Health Laboratories, Blood Transfusion Units, Physician Independent Practices, and Dentist Independent Practices.
- Issuing various guidelines that are used as a foundation or reference in the implementation of national quality indicators in Community Health Centres.
- Disseminating national quality indicators through digital platforms to District/City Health Offices, Provincial Health Offices, and Community Health Centres and Provincial Health Offices also make similar efforts to disseminate national quality indicators to strengthen the implementation of national quality indicators in their work areas.
- Using deconcentration funds for Provinces to strengthen the health Office team and non-physical Special Allocation Funds (DAK) for Districts / Cities to prepare health service facilities in strengthening quality by organizing workshops on national quality indicators and their applications.
- Become a resource person at the socialization of national quality indicators organized by the District/City and Provincial Health Offices.
- Developing the national quality indicators reporting application and integrating the national quality indicators data with the e-Cohort and SITB applications.
- Analyze the results of the reporting of national quality indicators and provide feedback to the District Health Office, Province, and Public Health Centre.

CONCLUSIONS AND SUGGESTIONS

It can be concluded that there are still national quality indicators that have not been achieved in all districts and cities, namely:

- Compliance with the use of personal protective equipment where this indicator is an implementation of the application of standard precautions on Infection Control Prevention at public health centers by the Minister of Health regulation no 27 of 2017 concerning Guidelines for Infection Control Prevention in Health service facilities (13),
- Patient identification compliance indicators, this indicator is to support the implementation of patient safety, where patient identification is an identification system for patients to distinguish between one patient and another patient to facilitate or facilitate the provision of services to patients and ensure patient safety by the Ministry of Health Regulation no 11 of 2017 concerning Patient Safety (14).
- The successful treatment of TB patients in all Drug Sensitive (SO) cases, this indicator is to support the achievement of national priority programs in the field of Health, namely improving Tuberculosis (TB) disease control (15).

The implementation of Quality Indicators of Health Services at public health centers has improved over time. All provinces, especially West Java province, have reported the measurement of national quality indicators, although it is not yet possible to see the compliance of reporting every month by each public health center. It is also unclear what factors cause non-compliance of community health centers in reporting the measurement of national quality indicators and non-achievement of national quality indicators. Reporting of national indicators of quality in community health centers in the province of West Java Province in September 2022 has reached 93% of community health centers, which is 28% superior to the reporting of national indicators of quality in December 2021. In its implementation, there are several obstacles from the District Health Office level to the community health centers. However, the Indonesian Ministry of Health has made various efforts to improve the implementation of the National Quality Indicators in community health centers, one of which is by making the National Quality Indicators an absolute requirement when a community health center wants to submit a proposal to carry out community health center accreditation and the need to optimize monitoring and evaluation activities for reporting the National Quality Indicators by the district health office.

The suggestions that the author can give include:

- Conduct analysis and feedback on the reporting of National Quality Indicator measurements periodically every semester to all District Health Offices, Offices, and Community Health Centres.
- The District / City Health Office provides guidance and supervision to Community Health Centres periodically every month regarding the measurement and reporting of National Quality Indicators by appointing 1 person in charge as the person in charge of guidance and supervision.
- Conduct socialization of national quality indicators and training on the use of the national quality indicators application offline to each District Health Office to improve the understanding of District Health Offices regarding national quality indicators and their reporting.
- Establish sanctions or rewards for Community Health Centres related to reporting compliance with national quality indicators and the achievement of the 6 national quality indicators.

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EXPLORING THE PROHIBITION OF SMOKING IN ISLAM: A LITERATURE REVIEW ON QUR'ANIC VERSES, SUNNAH, AND I'TIBAR PERSPECTIVES WITH EMPHASIS ON HEALTH IMPLICATIONS

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ABSTRACT

Smoking is prohibited based on the meanings indicated in the text of the Qur'an and Sunnah and the correct I'tibar (logic). The evidence from the Qur'an is His words Qs. Al-Baqarah 195. This research uses the literature review method in which researchers conduct a series of studies involving various kinds of information derived from literature such as books, journals, documents, and so on with the aim of finding various kinds of theories and ideas which can then be formulated results in accordance with the objectives of the research carried out in order to obtain conclusions about smoking in the perspective of Islam and health. The results of various sources of literature show that Islam has explained well in the Qur'an and hadith regarding smoking in the view of Islam and health. Because smoking can lead to destruction, which damages the entire body system and causes disease from this reason it is very clear that smoking is prohibited or haram. Therefore, avoid cigarettes and get used to healthy living.

Keywords: *smoking, Islam, health*

INTRODUCTION

According to Government Regulation No. 81/1999 in Article 1 paragraph 1 cigarettes are packaged processed tobacco products including cigars or other forms produced from the plants *Nicotiana tabacum*, *Nicotiana glauca* and other species or synthetics containing nicotine and tar with or without additives. Admittedly or not cigarettes are already an inseparable part of human civilization (1). Cigarettes are finely knitted tobacco leaves wrapped using thin paper and attached with adhesive. For some people, cigarettes have become a kind of primary need that must be fulfilled. There is even a statement that says rather than not smoking, it is better not to eat. This kind of phenomenon is certainly one form of a shift in cigarettes in human life, which was originally only a secondary need and has now turned into a primary need (2). In 2015, around 1.1 billion people smoked, with more men than women smoking. Although in percentage terms the number of people who smoke is decreasing, the number of people who smoke is decreasing (3).

Absolute numbers are increasing, especially in Africa. Many studies have proven that smoking can cause the risk of death. Smoking increases the chance of developing serious diseases that carry the risk of death (4). Along with the increasing number of smokers in Indonesia, the number of cases of lung disease caused by smoking has also increased (5). This is certainly not too surprising given the high consumption of cigarettes per capita in Indonesia. There is even a tendency that the majority of smokers come from families with middle to lower economic classes. Of course this is very detrimental.

Wardani et al stated that there is an increase in patients in the UK diagnosed with lung cancer and respiratory tract disorders due to smoking. This continues to increase along with the increase in cigarette consumers due to addiction (6). Research conducted by Thun et al (2000) stated that 90% of lung cancer deaths were initially caused by smoking. Male smokers are at risk of death from lung cancer 22.4 times greater than male non-smokers and 11.9 times greater in women (7).

Hepilita et al stated that death due to smoking is not tied to the age factor. Individual age is an internal factor causing death while smoking habits include external factors or factors from outside the individual. From the previous explanation, it is known that smoking is a habit that can damage health and has been proven by various studies regarding its relationship with various diseases that can result in morbidity and mortality (8).

Public health status is one of the benchmarks for achieving the success of a program in the context of implementing development policies in the health sector. In general, health status can be seen from decreasing morbidity and disability rates, mortality rates, and improving the nutritional status of the community (9). Tobacco use is a major risk factor for cancer, chronic respiratory disease, kidney failure, intestinal ischemia, heart disease, and hypertension. In addition, cigarette consumption has negative consequences to the social and economic environment (10).

METHOD

This research uses the literature review method where researchers conduct a series of studies involving various kinds of information derived from literature such as books, journals, documents, and so on with the aim of finding various kinds of theories and ideas which can then be formulated according to the research objectives. The sources used are from 2010-2020. The literature review in this study was conducted in order to obtain conclusions about smoking in the perspective of Islam and health. As for some of the literature reviewed by researchers and then reduced, it is listed in the table below:

Table 1. Literature Review

No.	Researchers Name	Title	Publication	Conclusion
1.	Indis Ferizal	Mekanisme Pengujian Hukum Oleh Ulama Dalam Menetapkan Fatwa Haram Terhadap Rokok Mechanism of Legal Examination by Ulama in Establishing Fatwa Haram Against Cigarettes	Jurnal Hukum Samudra Keadilan Volume 11, Number 1, January-June 2016	This research establishes that the fatwa on smoking under MUI uses a legal basis that emphasizes the aspects of mafsada and madarat caused by the content of harmful substances contained in cigarettes. However, if all people are aware of the dangers of smoking and are no longer dependent on cigarettes, including

No.	Researchers Name	Title	Publication	Conclusion
				financially, MUI will certainly issue a comprehensive fatwa on the prohibition of smoking. MUI's fatwa only refers to the value of following the rules of Islamic law (11).
2.	Muh. Mukri	Menyoal Hukum Merokok dalam Perspektif Hukum Islam Questioning the Law of Smoking in the Perspective of Islamic Law	Al-Manahij Jurnal Kajian Hukum Islam Vol. 4 No. 1 January-June 2010	First, most of the previous scholars were of the view that smoking is permissible or makruh. Secondly, in contrast to the views of most of the previous scholars, the views of some of the current scholars who tend to forbid smoking because they are dependent on the results of research. Third, the law of smoking may be relative and balanced with what it causes. Fourth, if it brings relatively small harm with makruh law, then behind the harm there is a greater benefit, then the makruh law becomes permissible (12).
3.	Teuku Tahlil, Richard J Woodman, John Coveney, and Paul Ward.	The impact of education programs on smoking prevention: a randomized controlled trial among 11 to 14 year olds in Aceh, Indonesia	BMC Public Health 2013, 13:367	This research has several implications for smoking prevention programs among young people in Indonesia and other Muslim countries. This study shows that smoking prevention programs implemented in schools increase students' knowledge about smoking and its adverse effects, as well as strengthen anti-smoking attitudes. This research also shows that Islamic or health- based programs are suitable for students in Aceh and possibly other Muslim communities. However, combining the two programs does not increase efficiency. Finally, we recommend further research to replicate this program's intervention approach with a more rigorous study design that ensures a better balance between the baseline, the general population of heavy smokers, and long-term

No.	Researchers Name	Title	Publication	Conclusion
				programs. evaluations so that the results of this study can be adjusted for effectiveness (13) .
4.	Ahmed K. AlDelaimy and Waleed A.T. Al- Ani	Prevalence of hookah smoking and associated factors among male high school students in Iraq	BMC Public Health (2021) 21:1317	This research generates news about hookah tobacco use among Iraqi male high school students and it is a socio-culturally acceptable phenomenon among them. This requires effective action, including health education, school program interventions, and laws banning hookah bars. Further research is needed to compare young people of the same age in different areas and to understand the differences and agreements in these behaviors and the impact on public health (14).
5.	Sutanto Priyo Hastono, Fatimah, Triana Srisantyorini, Muhammad Farid Hamzens, Iswan	Islamic Perspectives on Adolescent Smoking Behaviour	Indonesian Journal of Islam and Public Health (IJIPH) Vol. 2 No. 2 2022	Cigarettes are made by finely chopping tobacco and wrapping it in thin adhesive paper. Siti Faidah's research identifies three factors contributing to adolescent smoking: psychological satisfaction, parental attitudes, and peer influence. Nicotine, tar, benzopyrene, benzantracene, phenol, cadmium, cresol, and indole carbazole are particles found in cigarettes, causing detrimental health effects. Smoking is linked to environmental issues and various diseases. From an Islamic standpoint, there's no explicit mention of smoking in the Qur'an or Hadith, but scholars differ on its permissibility. To deter children from smoking, families are advised not to engage in the habit. Peers play a significant role in influencing adolescent smoking, making it crucial for parents to monitor their children's peer groups. Smoking behaviors are emotionally driven, emphasizing the need for

No.	Researchers Name	Title	Publication	Conclusion
				cognitive approaches in prevention and intervention, such as providing information on the hazards and negative consequences of smoking (15).

RESULTS AND DISCUSSION

Results from various literature sources shows that Islam has explained well in the Qur'an and hadith about smoking in the view of Islam and health. Islam and Health walk Together in maintaining the dangers of smoking for health and views or prohibitions about smoking by Islam. Cigarettes in the view of Islam and health therefore this is considered important in the teachings of Islam and health. therefore also mentioned by some caused by the harmful substances in cigarettes. The views of previous scholars experts in regarding this cigarette in the field of health is not very good when inhaled by the human body (15).

The views on smoking range between mubah (permissible) or makruh (avoidable). However, the views of some scholars today tend to forbid smoking because it is based on the results of scientific research. The ruling on smoking can be relative and balanced with its consequences. If the negative impact caused by smoking is relatively small and there are greater benefits behind the loss, then the law of makruh (avoided) can change to mubah (allowed) (16).

The Indonesian government has taken steps to reduce the growth of cigarette consumption in the country. One such measure is through the Minister of Health Regulation No. 28/2013, which requires the inclusion of health warnings and health information on tobacco product packaging with images which is creepy. Nonetheless, it is increasing every year. According to The Tobacco Atlas 2015 research, approximately 66 percent of men over the age of 15 in Indonesia are smokers. Factors that influence cigarette consumption include internal factors such as culture and society, as well as internal factors such as psychology and personality. The results showed that 100% of respondents were aware of negative health perceptions for smokers, but 72% ignored them and 28% did not ignore them. In addition, the study also showed that images on cigarette packaging did not successfully influence the health perceptions of members of the IMEL (Ikatan Mahasiswa Empat Lawang) Palembang organization (17).

Indonesia is one of the countries with the highest number of smokers in the world, including the number of child smokers which continues to grow every year. Smoking among children has also been forbidden by MUI. Adolescence is the initiation period for smokers, and the sooner they quit, the lower the health risks. However, the notion that it is difficult to quit smoking is one of the challenges in creating a smoke-free generation Adolescence is full of curiosity and exploration, but is also vulnerable to psychosocial problems due to social changes. In addition, modern lifestyles that want to always be

on trend, like humor in relationships, spend time with peers, and use money to fulfill desires in front of their friends are also factors that influence smoking behavior. By the smokers' own admission, smoking is easy to start, but hard to stop. It is important to remember that cigarettes are actually a product intended for adults, and consuming them risks many negative impacts (4).

Cigarettes are a product produced by cutting the leaves of tobacco leaves perfectly which are rolled or filled into a cylinder called paper wrapped (generally less than 120 mm in length and 10 mm in centerline). Cigarettes are lit from start to finish and left smoldering and then smoked until the smoke comes out. In general, cigarettes use filter. Cigarette smoked directly through the mouth, but some are lit with a smoking pipe (2).

In the Islamic perspectives whoever studies well the kalam of scholars, will surely find that the law of smoking is haram, according to the opinion of the madzhab scholars. It is only the opinion of some clerics (-sorry- who may be fond of cigarettes) who do not dare to forbid, so they end up saying makruh or some say mubah. In fact, if we examine further, the madzhab scholars have never said so, including the role model madzhab scholars in our country, namely the Shafi'iyah scholars (18). Shafi'i scholars such as Ibn 'Alaan in the books Syarh Riyadhhis Sholihin and Al Adzkar and his other books explain the prohibition of smoking. Likewise, Shafi'i scholars who haraam cigarettes are Ash Shaykh 'Abdur Rahim Al Ghozi, Ibrahim bin Jam'an and other Shafi'i scholars who haraam cigarettes (19).

Cigarette contains more than 4000 types of chemicals harmful to health, ranging from nicotine and other substances that can cause cancer and other toxic substances for the body. Smoking may be a common thing for some people because it can make their lives more enthusiastic, there are also because they want to look trendy in front of friends and people around them. While some think that if they don't smoke their life feels something is not good and the mouth feels as if it is tart and unpleasant. But they don't know what exactly the dangers of smoking are for their own health, and also those around them. Smoking activity can damage health and for those who smoke cigarette smoke (passive smokers) have the risk of getting the same disease. For this reason, on this occasion we would like to provide a few articles about the dangers of smoking for health. And hopefully it can help in order to campaign for the dangers of smoking and build awareness to stop smoking (20).

Smokers have a higher risk of coronary heart disease, heart attack, peripheral vascular disease and stroke. In addition, chemicals in cigarettes can also damage the inner lining of blood vessels, trigger the formation of arterial plaque, and disrupt healthy blood flow. The effects of smoking are not only limited to active smokers, but can also adversely affect passive smokers. Passive exposure to cigarette smoke can cause respiratory problems, eye and throat irritation, and increase the risk of respiratory diseases in those around them, especially in children (21).

In addition, in the Islamic perspective, through Ijtima` Ulama MUI Fatwa Commission III, January 24-26, 2009 in West Sumatra, it was determined that smoking is haram for children, pregnant women, and smoking in public places. As a form of exemplary, it is forbidden for MUI administrators

to smoke in any condition. According to 'Abdullah bin Abdurrahman Al-Sanad, in his book *Nashihah Al- Insan' ala Isti'mal Al-Dukhan*, cigarettes were known by Europeans around 915 H or 1518 AD, when a group of experts they found a "strange" plant in Tobacco (Mexico). They took the seeds home and from there it spread to other areas, including the Islamic countries. That is why there is no opinion of past scholars about the law of smoking. However, through an understanding of *maqashid al- shari'ah* (religious purpose) we can know the law of smoking and other "new" issues. The purpose of religious guidance is to maintain five basic things, namely the teachings of religion, soul, mind, property and offspring (22).

CONCLUSION AND SUGGESTIONS

The warning of the dangers of smoking is getting clearer by providing images of the side effects of smoking in cigarette packaging. We are familiar with the horrifying images attached to cigarette packs, ranging from pictures of small children with old smokers and many more. The picture aims to provide a harsher warning because the previous warnings were less effective in the community, especially among smokers.

The dangers of smoking for health are not only for smokers but for people around because of the effects of cigarette smoke or passive smoking, a lot of chemicals that are toxic are contained in a cigarette. Because smoking can lead to destruction, which damages the entire body system (causing cancer, respiratory disease, heart disease, digestive diseases, adverse effects on the fetus, and damages the reproductive system), from this reason it is very clear that smoking is prohibited or haram.

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SUPPLEMENTARY FEEDING (PMT) PROGRAM FOR TODDLERS FROM LOCAL FOOD AT PANUNGGANGAN PUBLIC HEALTH CENTER, TANGERANG CITY, 2023

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ABSTRACT

Background: One of the strategies for dealing with nutritional problems in toddlers is the provision of supplementary feeding (PMT) made from local food which is available, easy, and affordable. **Purpose:** This study aims to describe the local food-based PMT program for undernourished toddlers with a BB/U index at the Panunggangan Public Health Center, Tangerang City in 2023. **Method:** this research is descriptive, the population is mothers who have under nutritional status with an underweight indicator for BB/U at the Panunggangan Public Health Center. The sample was determined based on the needs of 50 toddlers, using a purposive sampling technique, data was collected by anthropometric measurements of toddlers and interviews with mothers of toddlers, and the data was analyzed univariately. **Results:** During 14 days, local food-based PMT was given to 50 toddlers according to the criteria at the Panunggangan Health Center, Tangerang City. More than half of the respondents were male (52%), most of them were 23 months old (74%), there was an increase in body weight in 44 toddlers (88%), there was a change in the nutritional status of the weight/age indicator in 9 toddlers (18%), toddlers' acceptance of PMT (likes 74%), however only 28% of mothers of toddlers make their snacks, the rest buy instant snacks because they don't have varied cooking skills. **Conclusion:** There are many benefits to be gained from implementing the PMT program made from local food for toddlers which has a positive impact on health status, nutrition, and other factors. **Suggestion:** it is necessary to increase the skills of cadres and mothers of toddlers in processing PMT based on local food

Keywords: Supplementary Feeding, Toddlers, Local foodstuffs

ABSTRAK

Latar belakang: Salah satu strategi penanganan masalah gizi pada balita adalah pemberian makanan tambahan (PMT) berbahan pangan lokal yang berasal dari bahan makanan tersedia, mudah dan terjangkau. **Tujuan:** penelitian ini bertujuan menggambarkan program PMT berbasis pangan lokal pada balita gizi kurang indeks BB/U di Puskesmas Panunggangan Kota Tangerang tahun 2023. **Metode:** penelitian ini bersifat deskriptif, populasi adalah ibu yang memiliki balita status gizi kurang indikator BB/U di Puskesmas Panunggangan. Sampel ditentukan berdasarkan kebutuhan berjumlah 50 balita, menggunakan teknik *purposive sampling*, data dikumpulkan dengan pengukuran antropometri balita dan wawancara pada ibu balita, data di analisis secara univariat. **Hasil:** Selama periode 14 hari pemberian PMT berbasis pangan lokal diberikan kepada 50 balita sesuai kriteria di Puskesmas Panunggangan Kota Tangerang. Lebih dari separuh responden berjenis kelamin laki laki (52%), sebagian besar balita berusia lebih dari 23 bulan (74%), adanya peningkatan berat badan pada 44 balita (88%), adanya perubahan status gizi indikator BB/U pada 9 balita (18%), daya terima balita terhadap PMT (suka 74%) walaupun demikian hanya 28% ibu balita membuat sendiri kudapan sisanya membeli kudapan instan karena tidak memiliki ketrampilan memasak bervariasi. **Kesimpulan:** Banyak manfaat didapat dari pelaksanaan program PMT berbahan pangan lokal pada balita yang secara positif berdampak pada status kesehatan, gizi dan faktor lainnya. **Saran:** perlunya peningkatan ketrampilan kader dan ibu balita dalam mengolah PMT berbasis pangan lokal

Kata kunci: Pemberian makanan tambahan, Balita, Bahan pangan lokal

INTRODUCTION

The development of quality human resources is a top priority of national development. Good nutrition is one of the important factors in the success of human resource development. Toddlers are one of the malnutrition-prone groups whose growth and development are very rapid and require attention, especially if they experience nutritional disorders such as undernutrition, malnutrition, and stunting because the impact will occur in the future.

Based on the 2022 Indonesian Nutritional Status Survey (SSGI), the prevalence of underweight toddlers is 17.1%, wasting is 7.7%, and stunting toddlers is 21.6%. In Banten province, the prevalence of underweight toddlers is 17.2%, wasting is 7.9%, and stunting toddlers is 20%. For Tangerang City itself, the prevalence of underweight toddlers is 11.4%, wasting is 4.8%, and stunting toddlers is 11.8%, so the nutritional problems of toddlers are still quite high and need special attention. This nutritional problem is caused by various factors, including inadequate food intake or frequent exposure to infectious diseases is one of the direct causes of nutritional problems in toddlers. Improper family parenting, low knowledge, environmental health, difficult access to health services, and socioeconomic family conditions also indirectly affect the nutritional status of toddlers.

Local food-based supplementary feeding (PMT) is one of the strategies for handling nutritional problems in toddlers. This activity needs to be accompanied by the provision of nutrition and health education so that behavior change occurs such as breastfeeding support, infant and child feeding education and counseling (PMBA), cleanliness, and environmental sanitation for families. PMT activities made from local food are expected to encourage food independence and family nutrition sustainably. Indonesia is the third largest country in the world in biodiversity.^{3,4}

This shows how great the potential for the use of local food to improve toddler nutrition. However, the availability of many diverse food ingredients has not been utilized optimally for raw materials for making Additional Food (MT). The Ministry of Health of the Republic of Indonesia has prepared Technical Guidelines for Supplementary Feeding (PMT) Made from Local Food for Toddlers whose financing for the implementation of activities can come from various sources such as Special Allocation Funds (DAK), BLUD, village funds, Corporate Social Responsibility (CSR), Posyandu and others.

Puskesmas Panunggangan, Tangerang City uses BLUD funds to create nutrition post activities for Supplementary Feeding (PMT) based on local food for malnourished toddlers lacking BB/U indicators in five villages of the puskesmas working area for 14 days.

METHOD

This study is descriptive, the population is mothers who have toddlers whose nutritional status lacks BB / U indicators at the Panunggangan Health Center. The sample was determined based on the needs of 50 toddlers using purposive sampling techniques because the sample was the target of PMT

provision made from local food with nutritional status lacking BB / U indicators in 5 villages of the Panunggan Puskesmas target area whose funding was through BLUD, data was collected by anthropometric measurements of toddlers and interviews with mothers of toddlers, the data was analyzed univariately.

The data analyzed were toddler gender, toddler age, weight gain, changes in nutritional status, acceptability, and history of procurement of toddler supplementary food (buy or make your own).

RESULT AND DISCUSSION

Based on Table 1. for the sex distribution of male toddlers receiving PMT amounted to 26 people (52%), and women amounted to 24 people (48%), the average age distribution of toddlers receiving PMT was 37 people over 23 months old (74%) and 13 people under 23 months old (26%), the distribution of toddlers based on circumstances after receiving PMT who experienced weight gain amounted to 44 people (88%), and toddlers who did not have a change in weight amounted to 6 people (12%), for the distribution of toddlers receiving PMT who experienced changes in nutritional status of weight indicators according to age (BB / U) amounted to 9 people (18%), and toddlers who did not experience changes in nutritional status amounted to 41 people (82%), most toddlers namely 37 people liked local food-based PMT (74%) and toddlers who did not like as many as 13 people (26%), for the distribution of PMT procurement history for toddlers, most of them are by buying 36 people (72%), and those who make their own PMT at home are 14 people (28%).

Table 1. Distribution of Respondents Based on Toddler Characteristics and Research Variables (n = 50)

No	Variable	Category	Total	Percentage (%)
1	Gender	Male	26	52%
		Woman	24	48%
2	Age	≤ 23 months	13	26%
		> 23 months	37	74%
3	Toddler's Condition after receiving PMT	There is weight gain	44	88%
		No change	6	12%
4	Changes in nutritional status of BB/U indicators	Yes	9	18%
		No	41	82%
5	PMT acceptability	Like	37	74%
		Dislike	13	26%
6	History of PMT procurement in households	Buy	36	72%
		Make your own at home	14	28%

The results showed that 44 toddlers receiving PMT in the Panunggan City Tangerang Health Center Working Area after being given the intervention experienced weight gain (88%) and 9 toddlers experienced improvements in nutritional status of BB/U indicators (18%) within 14 days. From these results, researchers argue, that the occurrence of malnutrition in children under five in the

Panunggan Health Center work area is caused by a lack of nutritious food intake that is sufficient for the growth and development of toddlers. This research is in line with the results of research found that there is an influence on the provision of Local Wisdom-Based Modif PMT, there is an increase in body weight in malnourished toddlers in the work area of the Boalemo Gorontalo Regency Health Center.

Interviews conducted by researchers with mothers of malnourished toddlers obtained information that they did not know about food ingredients that contain high nutrition and how to process them so that they are liked by toddlers. Up to 36% of mothers buy instant food supplements for their children (72%) regardless of the type and composition. Based on the results of research for 14 days at the nutrition post, the acceptability of 37 toddlers liked the type of PMT given every day (72%). The selection of food ingredients and varied menus so that children do not feel bored so that, affecting toddler consumption, the level of food consumption will be

Impact on the nutritional status of children. Supplementary Feeding (PMT) given to malnourished toddlers aims to provide high, high protein, and sufficient intake of vitamins and minerals gradually, to achieve optimal nutritional status with adequate nutritional composition, therefore knowledge and skills are needed by mothers and posyandu assistance cadres in making additional food for toddlers. This is in line with Sari's research (2018) which states that there is a relationship between knowledge of feeding patterns and the nutritional status of toddlers.

CONCLUSION AND SUGGESTIONS

Many benefits are obtained from the implementation of the PMT program made from local food for toddlers which positively has an impact on increasing body weight and there is an improvement in the nutritional status of BB / U indicators.

1. For health workers, it can provide counseling, education, and increased insight to mothers of toddlers and posyandu cadres on how to process additional foods based on local foods that are easily available into nutritious and varied foods, so that toddlers get adequate nutritional intake to improve nutritional status.
2. For the community, pay more attention to the intake of additional food for toddlers that contains enough energy, protein, and other nutrients so that there is an increase in children's nutritional status by providing self-processed PMT with food ingredients that are easily accessible, cheap, and easy to make.

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