FACTORS AFFECTING NURSING STUDENT SATISFACTION IN ONLINE LEARNING DURING THE COVID-19 PANDEMIC

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Abstract

Introduction: _The COVID-19 pandemic had an impact on nursing education. Most nursing education providers have not implemented online learning before the COVID-19 pandemic. All components of the campus must adapt quickly. This study aims to determine the factors that influence the satisfaction of nursing students with online learning._

Methods: _This study uses a cross-sectional design. A sample of 203 nursing students at a private higher education institution in Bekasi, West Java, was taken by convenience sampling from August 17th to September 19th, 2022. The questionnaire used is modified from several previous studies. Data analysis using statistic software with Spearman rank test._

Results: _96,1% of respondents were female, with a median age of 22.78 years, and 59,6% had online learning experiences. The median learning hours are 7.66 hours. Variables that have a relationship with positive direction and moderate correlation with student satisfaction are student readiness (p-value 0.00; r 0.55), learning design (p-value 0.000; r 0.44), technology support (p-value 0.00; r 0.48); lecturer interaction (p-value 0.000; r 0.40). Variables that have a positive direction with a weak correlation are the learning platform (p-value 0.000; r 0.30), social presence (p-value 0.000; r 0.26), direct instruction (p-value 0.000; r 0.26), student interaction (p-value 0.000; r 0.26) and learning content (p-value 0.000; r 0.30)._

Conclusions: _Factors related to student satisfaction are student readiness, learning design, technology support, lecturer interaction, the learning platform, social presence, direct instruction, student interaction, and learning content. Educational institutions must be proactive in reviewing policies before implementing distance learning._

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INTRODUCTION

The learning plan during the COVID-19 pandemic must answer the challenges of the pandemic situation. Most learning designs in nursing education in Indonesia before the COVID-19 pandemic still used face-to-face learning. Only a small number of universities have used online learning for specific subjects. Sianturi, 2018) said that online learning in the nursing field faces challenges because a nursing education has learning outcomes not only cognitive but affective and psychomotor. Learning must shift from traditional face-to-face classrooms to online learning where all students and lecturers are together in a virtual environment for cognitive, affective, and psychomotor achievements. The online approach is one option so that the learning process can continue to run as it should without ignoring the risk of being exposed to the virus. Lecturers and students must familiarize themselves with the online learning atmosphere, which has never been done before (Ali 2012).

Technology that bridges the online learning process is carried out without reducing the quality of the learning process itself. Currently, online learning designs using a technology approach are available in various websites, applications, and social media designs. In addition, many universities have also developed learning management systems (LMS). Sharma et al. said that web-based online learning is one of the most effective options (Wasim et al. 2014).

Around 99% of educational institutions have LMS, whereas 85% of the faculties use LMS. However, only about 56% of lecturers and students are accustomed to using LMS in daily learning activities. As many as 74% of faculties said that using LMS was very useful in improving the quality of learning. LMS is used by 86% of smartphones, 47% of their tablets, and 80% of mobile devices (Dahlstrom et al. 2014).

Online learning can improve the quality of teaching and learning. Online education can increase the creativity of both lecturers in delivering learning using electronic media and increase the mastery of technology in students. In nursing education, integrating online learning into the curriculum is possible if institutions pay attention to the rapid development of information technology. Students can be actively involved in online and face-to-face learning in the classroom (Arkorful & Abaidoo 2015; Qureshi et al. 2012).

Organizing online learning has various advantages. One of the advantages obtained by students is online interaction with fellow learning participants. Research conducted by Furnes, Kval, and Hoye shows that online interactions improve students' ability to interact with fellow participants and increase the active role of participants .(Furnes et al. 2018). Another study shows that the implementation of online learning has various advantages for students, including increased accessibility of information, better delivery of learning content, standardized learning content, more personalized instruction, trust, and increased convenience. Benefits can also be obtained for educational institutions, including online learning lowering the operational costs of learning because the

use of classrooms and learning facilities decreases, training costs decrease, and the cost of copying printed materials decreases (Arkorful & Abaidoo 2015; Gazi 2013).

In addition, online learning also has various disadvantages. These disadvantages are the difficulty of controlling plagiarism, the negative impact on student's social skills, the subordinate role of instructors in the learning process, difficulty in applying to health and mechanical science, requiring unexpected costs for system and website development, difficulty controlling student fraud such as cheating, one-to-one interaction. Each other is low (Arkorful & Abaidoo 2015).

Various disadvantages stated by some of the literature can affect the quality of learning, learning outcomes, and student satisfaction. The literature review shows that various factors can affect student satisfaction and the quality of learning outcomes, including the presence of lecturers in online settings, the interaction between students - lecturers, learning content, online-offline connection design in blended learning (Nortvig et al. 2018).

The results of initial observations and interviews showed that unpreparedness for sudden e-learning situations due to the pandemic greatly affected learning conditions both from the side of students, lecturers, and online learning settings. In everyday situations, online learning is carried out very minimally. Even in some private institutions, there is no single course that applies online or blended learning. This phenomenon is a challenge for the campus environment because the COVID-19 pandemic demands rapid adaptation of various components that support online learning. This study aimed to determine the factors that influence student satisfaction in online learning during the COVID-19 pandemic at a private nursing institution in Bekasi City..

METHODS

Study design

The researcher conducted a quantitative study with a cross-sectional design (Pollit, & Beck, 2012).

Population, samples, and sampling

The study population was all students of the Bachelor of Nursing program in a private nursing education in Bekasi, West Java. Total 203 nursing students was taken by convenience sampling using online survey with response rate was 58%. Based on a meta-analysis study, the average online survey response rate is 44.1% (Wu et al. 2022). The inclusion criteria for this study were active students in the Bachelor of Nursing program, students undergoing online learning, and willing to be respondents. The exclusion criteria in this study were students from other study programs outside of nursing and students who were not participants in online classes.

Instruments

This study uses a questionnaire containing questions based on the indicators and dimensions of the research variables. The questionnaire was modified from several previous studies (Muflih et al. 2020; Yilmaz 2017; Barbera et al. 2013) and consisted of twelve parts, namely respondent characteristics, readiness questions, learning platform questions, learning design, technology support, social presence, direct instruction, lecturer interaction, student interaction, learning content, student satisfaction and barriers to online learning. The researcher modified the Likert scale from 5 levels to 4 levels,

namely strongly disagree (1), disagree (2), agree (3), and strongly agree (4). Meanwhile, for negative statements, strongly agree (1), agree (2), disagree (3), and strongly disagree (4). Validity and reliability tests were conducted on 40 respondents with an r-value range of 0.320 to 0.821. The Cronbach's alpha values results are in the range of 0.523 to 0.780.

Procedure

Data collection is done by online questionnaire via a google form. Researchers limited the time of data collection from August 17th to September 19th, 2022.

Data analysis

Data analysis used statistical software. Univariate analysis using frequency distribution, median, minimum-maximum value, and interquartile range (IQR). In comparison, the bivariate analysis uses Spearman rank.

Ethical clearance

The Bani Saleh School of Health Ethics Committee issued the ethical approval. The research number was: EC.181/KEPK/STKBS/VIII/2022.

RESULTS

Characteristics of respondents can be seen in table 1 shows the majority of respondents are female, as many as 195 people (96.1%). The highest response rate came from semester 3, with 81 respondents (39.9%), followed by semester seven, with as many as 50 people (24.6%). A total of 121 respondents (59.6%) have experience in online learning. Table 2 shows that the median age of the respondents is 22.78 years with an interquartile range of 3.00 years, the lowest age is 18 years, and the highest is 50 years. The number of hours of online learning in a day has a median of 7.66 with an interquartile range of 1 hour and the lowest learning hours are 3 hours, and the highest is 10 hours.

The bivariate analysis used was the Spearmen correlation test because the normality test results using the Kolmogorov-Smirnov showed that the data were not normally distributed. The results of the analysis can be seen in the following table).

Table 1. Characteristics of respondents (n = 203)

No	Characteristics	N	%
1	Gender		
	Man	8	3,9
	Woman	195	96,1
	Total	**203**	**100**
2	Semester		
	Semester 2	18	8,9
	Semester 3	81	39,9
	Semester 4	4	2
	Semester 5	30	14,8
	Semester 7	50	24,6
	Semester 8	20	9,9
	Total	**203**	**100**
3	Online learning experience before the pandemic		
	No experience	82	0,2
	There is experience	121	59,6
	Total	**203**	**100**

Table 2. Characteristics of respondents based on age and number of hours of online learning (N = 203)

No	Characteristics	Median	Min	Max	IQR*
1	Age	22,78	18	50	3,00
2	Number of hours of online study in a day	7,66	3	10	1,00

*IQR: *interquartile range*

In table 3, the lowest learning median is 9.00, and the highest is 21.00, with the lowest IQR 0.00 and the highest 2.00 showing the median for student readiness in online learning is 18.00 (9.00 - 24.00); The results of the bivariate analysis showed that the variables that had a positive and moderate correlation with student satisfaction were student readiness (p-value 0.00; r 0.55); learning design (p-value 0,000; r 0,44), technology support (p-value 0,00; r 0,48); lecturer interaction (p-value 0.000; r 0.40). Variables that are related but have a positive direction with weak correlation include learning platform (p value 0.000; r 0.30), social presence (p value 0.000; r 0.26); direct instruction (p value 0.000; r 0.26); student interaction (p value 0.000; r 0.26) and learning content (p value 0.000; r 0.30).

DISCUSSION

This study shows that the majority of respondents are female. This result follows previous research with most of the respondents (84%) (Fitzgerald & Konrad 2021) dan 77,4% females (Coman et al. 2020). There are differences between male and female gender in attitudes about learning (Legewie & DiPrete 2012). Research shows that male students are more accepting of using public websites than female students. However, acceptance and utilization of e-learning services are higher for female students than for male students (CarinaDolch 2020). This research is different from research in Oman and the UAE to 383 students, with the result that there is no difference in the use of tools and devices for male and female students

Table 3. Correlation Analysis of Factors Affecting Student Satisfaction in Participating in Online Learning (n = 203)

No.	Variable	Median	Min-Max	IQR	r	p-value
1	Student readiness in online learning	18,00	9,00-24,00	2,00	0,55	0,000
2	Learning platform	21,00	14,00-28,00	1,00	0,30	0,000
3	Learning design	12,00	8,00-16,00	0,00	0,44	0,000
4	Technology support	21,00	3,00-12,00	1,00	0,48	0,000
5	Social presence	9,00	3,00-12,00	0,00	0,26	0,000
6	Direct instruction	9,00	4,00-12,00	0,00	0,26	0,000
7	Lecturer interaction	9,00	4,00-12,00	0,00	0,40	0,000
8	Student interaction	9,00	6,00-12,00	0,00	0,26	0,000
9	Learning content	9,00	6,00-12,00	0,00	0,30	0,000

*Inter Quartil Range

(Al-emran et al. 2016).

The survey results on previous online learning experiences showed that most students (59.6%) had experience in online learning. This is in line with previous research, which showed that 66.1% had previous experience in using e-learning (Coman et al. 2020). The number of hours of online learning in a day has a median of 7.66, with the lowest learning hours being 3 hours and the highest being 10 hours. Other research shows that most respondents study online with a range of 1-3 hours, as much as 50.7%, 4-6 hours 22.8%, and 7-9 hours 7.5% (Maqableh & Alia 2021). Research shows that previous online learning experiences can improve students' ability to choose appropriate learning strategies (Wang et al. 2013).

The results showed that the median age of the respondents was 22.78 years with an interquartile range of 3.00 years, the lowest age was 18 years, and the highest was 50 years. Another study in Romania showed that the majority of respondents who became students were in the age range of 18-22 years (77.6%), while the rest were in the age range of 23-25 years (10.5%) and more than 25 years (Coman et al. 2020). The difference in these conditions is due to the differences in the programs taken by the students who took the survey. Respondents in this study were undergraduate programs from the regular class and diploma three graduates who continued to transfer to the undergraduate program. Meanwhile, Coman et al., (2020) conducted research on undergraduate and master's students.

Age can affect acceptance of technology, online learning platforms, duration of use, and attitudes. Study on

161 respondents at Russell Group university, the UK, on the use of technology in middle-adult students. Studies show older students use more technology in general than younger students. However, older students use less technology for learning than younger students (Staddon 2020).

The results of this study indicate that student readiness has a relationship with student satisfaction in online learning with a positive relationship direction and a moderate correlation. Research on 236 undergraduate students shows that student readiness strongly predicts student satisfaction in taking classes using the Fliffed Classroom method (Yilmaz 2017). Muflih et al.'s research on 1210 students at government-owned universities in Jordan indicates that readiness to participate in online learning supports students' experiences and positive attitudes (Muflih et al. 2020). Students will quickly adapt to online learning situations if they are prepared.

The results of this study indicate that the learning platform has a relationship with student satisfaction in online learning with a positive relationship direction and a weak correlation. Studies in Egypt show that learning platforms affect student learning satisfaction (Basuony et al. 2020). The study results in Ghana show that the e-learning platform is one of the factors influencing student satisfaction. Researchers explain that using a known platform that requires a little effort and adaptation can increase satisfaction (Bossman & Agyei 2022). This is in line with Lee's research (2014) that 77.78% of students agree that a user-friendly platform is crucial in increasing student satisfaction. This research shows that the majority of learning platforms that are widely used are zoom and campus e-

learning. The results of the descriptive analysis show that 81.3% of students agree and 11.3% strongly agree that the learning platform is compatible with all computer systems. In addition, 75.9% agree, and 10.3% strongly agree that using the learning platform does not require much effort.

The results of this study indicate that learning design has a relationship with student satisfaction in online learning with a positive relationship direction and a moderate correlation. Research on 62986 respondents showed that learning design was significantly related to satisfaction with both new and old learning participants. This satisfaction is influenced by the learning materials, evaluation strategies, and learning hours (Li et al. 2016). Another study by Lee (2014) on 81 students showed that 82.72% of students delivered study instructions and evaluation rubrics that affected student satisfaction. Positive learning experiences can affect student satisfaction. Studies show that a practical learning experience is strongly influenced by learning design and the quality of the material being taught (Arbaugh, 2014; Sharples et al., 2014; Tobarra et al., 2014). Learning design can support the transmission of knowledge and acquisition of student skills (Heinerichs et al. 2016). Therefore, varied learning designs are needed to improve the quality of learning outcomes (Cheng & Chau 2016). The varied designs allow students not to experience boredom in taking courses that are held online.

Although learning design can affect student satisfaction, it does not always reflect learning outcomes and student retention rates. This can be caused by the difficulties encountered while learning. Feedback from both the teacher and learning participants and support are other

components that must be considered (Rienties & Toetenel 2016)

The results of this study indicate that technology support has a relationship with student satisfaction in online learning with a positive relationship direction and a moderate correlation. Ali described that one dimension of technology that supports online learning is the quality of technology and the quality of the internet available (Ali 2012). Research in Ghana on 388 respondents showed that anxiety about the lack of technical support is a vital factor in student satisfaction in online learning (Bossman & Agyei 2022). Another study in Egypt of 280 undergraduate business school students showed that the internet affects learning satisfaction (Basuony et al. 2020).

The results showed that social presence significantly affected student satisfaction with a weak correlation. Social presence is where all online learning participants interact as "real persons" in a virtual room (Barbera et al. 2013). A study conducted by 205 undergraduate students at Ankara University showed that social presence was positively related to online learning satisfaction. Interactive online learning tools can increase social presence (Horzum 2017). Meta-analysis studies show a positive and strong relationship between social presence and satisfaction. Social presence emphasizes social interaction as the basis for critical thinking and students' highest level of learning. Social presence can encourage student participation and motivation to participate in learning (Richardson et al. 2017). When social presence is high in learning, students are more satisfied. Therefore, when developing an online learning plan, it is necessary to set the interaction between students, students, and lecturers to be more interactive. The lesson plan must

balance class members' learning structure and interactive dialogue (Horzum 2017).

This study's results indicate a positive and significant relationship between direct instruction and student satisfaction, with a weak correlation. Studies in Ghana show that appropriate teacher responses can increase student satisfaction (Bossman & Agyei 2022). Direct instruction in the form of learning instructions and discussion instructions during asynchronous learning sessions can also increase student satisfaction (Cho & Tobias 2016). Students will experience a decrease in satisfaction if the lecturer gives unclear instructions or is slow in responding during the learning session (Bossman & Agyei 2022).

The results showed a positive and significant relationship between lecturer interactions and student satisfaction in online learning. This study is in line with previous research, which showed that student satisfaction was influenced by student-lecturer interactions (Kuo et al. 2014), lecturer feedback, interaction, and facilitation/assistance (Gray & DiLoreto 2016). Other studies have also shown that lecturer-student interaction increases learning satisfaction (Fedynich, Bradley and Bradley, 2015;Chiero et al., 2015). Students who study online need an attachment between lecturers, other students, and the learning content. Therefore, lecturers need to choose an environment that supports learning with a combination of various strategies, both synchronous learning, asynchronous discussions, learning videos and learning audio, practicum, and other methods that can be used online (Gray & DiLoreto 2016).

Lecturers can also use high-quality videos to increase interest in lecture topics and

show lecturers' presence during lectures, mainly when asynchronous learning is carried out (Southard et al. 2015). Lecturers during asynchronous discussions can increase student participation in online discussions by providing clear instructions on how to participate in discussions (Cho & Tobias 2016).

The results of this study indicate that student interaction has a relationship with student satisfaction in online learning with a positive relationship direction but has a weak correlation. This follows the research results that interaction between students is crucial in increasing satisfaction in learning (Fedynich, Bradley and Bradley, 2015;Chiero et al., 2015; Ali, 2012; Kuo et al., 2014). An educator must find various ways to stimulate student activity in interacting with each other during the learning process (Chigeza & Halbert 2014).

An online learning environment can create a feeling of connection between students and can help build trust among students. This feeling is crucial in forming new knowledge during the learning process (Cho & Tobias 2016). The interactions and discussions formed during online learning can increase students' bonds and positive feelings toward learning (Mary et al. 2014). This situation can increase student satisfaction in learning.

The results of this study indicate that learning content has a relationship with student satisfaction in online learning with a positive relationship direction but has a weak correlation. Learning content is a topic that will be studied when online classes are held (Barbera et al. 2013). Another study conducted on 499 students from various social science disciplines in three countries, namely the University of

New Mexico in the United States, Pekin University in China, and the Universitat Oberta de Catalunya in Spain, using an online survey showed that learning content was the most influential factor in student satisfaction (Barbera et al. 2013). This is in line with other research conducted through an online survey of 221 students showing that learning content is a strong predictor of student satisfaction (Kuo et al. 2014). Other research shows that learning content aligned with learning outcomes and teaching materials can increase student satisfaction. In addition, 77.28% of respondents strongly agree that useful learning topics are essential to increase learning satisfaction (Lee, 2014).

The study's limitations were found even though the researcher had carried out the research according to the planned design. The limitations found include data collection using online surveys. Respondent participation did not reach only 58% according to the specified time limit, and respondents in this study were all undergraduate nursing students, both regular and extension programs, thus affecting the normality of the data.

CONCLUSIONS

The majority of students had an online learning experience prior to the pandemic. Variables that have a positive relationship with moderate correlation are student readiness, learning design, technology support, and lecturer interaction. Educational institutions must proactively review online learning policies and conduct a survey before implementing online learning methods.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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