

Analysis of the Satisfaction of Nursing Students towards E-learning of the Medical-Surgical Nursing (MSN) subject during Pandemic

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Abstract

Background: The whole world is dealing with the covid-19 pandemic. Therefore, the government has taken a policy to transform the education system from in-class to remote learning. Nursing students are adapting to this system, maintaining learning activities through unfamiliar online methods. One of the subjects they take during this pandemic is Medical-Surgical Nursing. This online learning system has created new challenges in the teaching-learning process on the Medical-Surgical Nursing subject. Students tend to feel disinterested, which leads to a sense of dissatisfaction during online learning.

Purpose: This study aimed to analyse the satisfaction of nursing students towards e-learning of the Medical-Surgical Nursing subject during the pandemic.

Methods: This research used descriptive analysis with a cross-sectional research design and used self-administered questionnaire. The samples of 300 respondents were nursing students at private and public universities in Denpasar. The research started from January to July 2021 from proposal making to data processing. This study used univariate and bivariate analysis involving the logistic regression test.

Results: There is a relationship between the variables of accessibility, understanding the material, interactivity, and method accuracy. The regression equation is $-5.336 + 0.011$ for Accessibility, $+ 0.474$ for Material, $+ 0.021$ for Interactivity, $+ 0.150$ for Utility, and $- 0.093$ for Self-Reliance.

Conclusion: The conclusion in this research is that the convenience of obtaining materials is the most significant relationship.

Keywords: accessibility; learning; nursing education; satisfaction.

Introduction

The coronavirus disease 2019 or better known as COVID-19, has become a pandemic for several months in 2020. Then, the World Health Organization (WHO) declared the COVID-19 a global emergency on March 11th, 2020 (Dilante, 2020). The transmission of this virus is relatively high. It has caused a high percentage of mortality and morbidity in almost all countries, including Indonesia. The Disaster Management Agency reported that as of October 14th, 2020, the COVID-19 cases in Indonesia reached 344,749 patients confirmed as positive, and 12,156 people died (Covid-19 Task Force, 2020). It showed that the virus has been spreading faster and has had a significant impact on human life.

The increasing number of positive confirmed cases of COVID-19 has prompted the Indonesian government to take decisive action to reduce the spread of this disease, such as the large-scale social restrictions and self-isolation. One of the large-scale social restrictions is distance learning methods or online systems in education (Purwanto, 2020). Many countries have implemented this remote learning method, but not yet in Indonesia (Bowers & Kumar, 2015; Porter, Graham, Spring, & Welch, 2014).

The outbreak of Covid-19 has had an impact on the world of education.

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It requires enormous changes in the teaching-learning process, including nursing education. It has encouraged the government and universities to make innovations in the teaching-learning process through online learning methods. As a result, students need to spend time studying from home. Several nursing students expressed difficulties in the teaching-learning process because medical surgical nursing subject areas required a good understanding to support their knowledge and skills. Due to changes in learning during the pandemic, it is not uncommon for students to experience depression, anxiety and stress ranging from mild to severe symptoms (Acob, Arifin & Dewi, 2021)

Based on the AIPNI (Asosiasi Institusi Pendidikan Ners Indonesia) curriculum, the semester credit system in medical-surgical nursing holds the most credits compared to other subjects (Core Curriculum for Indonesian Nurses Education, 2015). In the nursing profession curriculum, medical-surgical nursing is also the subject with the most credits in clinical practice. It requires students to learn more about the medical-surgical nursing subject both in theory and skills. In this current pandemic, it becomes a new challenge for lecturers and students. Based on researcher interviews, students' opinions reflected dissatisfaction towards the online process in this subject because of the subject complexity, limited learning time, and the absence of opportunities to meet directly with lecturers. .

The authors realize that the students' satisfaction level towards online learning in medical-surgical nursing subject is still relatively low. Therefore, it is necessary to conduct further study on the factors related to the students' satisfaction level towards e-learning in this subject, so that student satisfaction with the online learning process will have an impact on student learning outcomes which include knowledge and skills improvement. This study aimed to analyse the satisfaction of nursing students towards e-learning of the Medical-Surgical Nursing subject during the pandemic.

Methods

A Study Design

This quantitative research uses descriptive analysis with a cross-sectional research design. The independent variables in this study are accessibility, the convenience of understanding the materials, interactivity, method accuracy, and self-reliance. Then, the dependent variable is student satisfaction.

Setting

This research started from January to July 2021 for seven months long. Nursing students from private universities in Denpasar took part to be the respondents.

Research Subject

The population in this study were all students of grade 4 and 6 from public and private universities

in Denpasar which included ITEKES Bali, Stikes Wira Medika Denpasar, Udayana University, and Poltekkes Denpasar. The authors used a purposive sampling technique with the Slovin formula and obtained 300 respondents. Inclusion criteria were nursing students who had taken medical-surgical nursing subject online. Exclusion criteria were respondents who refused to be research subjects, did not complete the questionnaire, and students who were on leave were not included in the study.

Instruments

This study used several questionnaires developed by researchers according to the topic and quoted from several studies in Indonesian. The questionnaires included seven parts. First, the characteristic questionnaire consisted of initials, age, gender, university origin, learning media used, internet network conditions, study locations, and devices used during learning. Second, the accessibility of the e-learning questionnaire contained seven statements using a Likert scale with reliability alpha Cronbach 0.781. Then, the four statements of convenience of obtaining materials inquiry had alpha Cronbach score of 0.876. Interactivity questionnaire with nine statements had a Cronbach alpha of 0.887. Utility questionnaire with six statements had a Cronbach alpha of 0.928. The self-reliance questionnaire had 12 points with a Cronbach alpha of 0.911. Lastly, the satisfaction questionnaire with five statements had a Cronbach alpha of 0.864.

The independent variables including accessibility, convenience of obtaining materials, interactivity, utility, and self-reliance have three categories: good, sufficient, and poor. The values are categorized based on the quartile values. While the dependent variable of satisfaction has two classifications: satisfied and dissatisfied based on the median value. The researcher modifies the questionnaire according to the needs and then tested the reliability and validity. The authors developed the questionnaires from previous research with a Likert scale regarding factors related to students' satisfaction (Cigdem & Ozturk (2016), Kuo, et al. (2014), Liaw & Huang (2016).

Data Analysis

The univariate analysis is to identify each research variable, including demographic data, accessibility, the convenience of understanding the materials, interactivity, methods accuracy, self-reliance, and the students' satisfaction level towards e-learning. Then, the bivariate analysis aims to determine factors related to students' satisfaction towards e-learning in the medical-surgical nursing subject.

The statistical test used is the chi-square test if it meets the requirements. Then, by using the SPSS test for windows version 20, with a 95% confidence interval or p-value smaller than 5% alpha (<0.05), H_0 is rejected with a 95% CI value.

The multivariate analysis by logistic regression aimed to determine the variables that have a more

Table 1. Respondents Characteristics

Variables	Students' Satisfaction						P
			Dissatisfied		Satisfied		
	n	%	n	%	n	%	
Age							
19 years old	28	9.3					
20 years old	112	37.3					
21 years old	125	41.7					
22 years old	31	10.3					
23 years old	2	0.7					
24 years old	2	0.7					
Gender							
Male	36	12.0					
Female	264	88.0					
University Origin							
Utekes Bali	175	58.3					
Stikes Wira Medika	34	11.3					
PSSKPN Udayana	75	25.0					
Poltekkes Denpasar	16	5.3					
Network Conditions							
Poor	9	3.0					
Fair	225	75.0					
Good	66	22.0					
Study Locations							
Home	284	94.7					
Boarding house	16	5.3					
Electronic Devices							
Handphone	161	53.7					
Computer	139	46.3					
Accessibility							
Poor	110	36.7	52	47.30	58	30.50	0.000
Sufficient	98	32.7	39	35.50	59	31.10	
Good	92	30.7	19	17.30	73	38.40	
Materials Understanding							
Complex	46	15.3	37	33.60	9	4.70	0.000
Fair	164	54.7	63	57.30	101	53.20	
Easy	90	30.0	10	9.10	80	42.10	
Interactivity							
Passive	84	28.0	43	39.10	41	21.60	0.001
Sufficient	126	42.0	46	41.80	80	42.10	
Active	90	30.0	21	19.10	69	36.30	
Utility							
Poor	80	26.7	43	39.10	37	19.50	0.000
Sufficient	185	61.7	63	57.30	122	62.20	
Appropriate	35	11.7	4	3.60	31	16.30	

Variables	Students' Satisfaction						p
			Dissatisfied		Satisfied		
	n	%	n	%	n	%	
Self-Reliance							
Less	79	26.3	30	27.30	49	25.80	0.341
Fair	141	47.0	56	50.90	85	44.70	
Independent	80	26.7	24	21.80	56	29.50	
Satisfaction							
Dissatisfied	110	36.7					
Satisfied	190	63.3					

Table 2. The Logistic Regression Equation

Variable	Coefficient β	SE (B)	p-value	OR (Minimum-Maximum)
Accessibility	0.011	0.057	0.852	1.011 (0.904-1.130)
Materials understanding	0.474	0.091	0.000	1.6060 (1.343-1.919)
Interactivity	0.021	0.045	0.651	1.021 (0.934-1.116)
Utility	0.150	0.056	0.008	1.161 (1.040-1.297)
Self-reliance	-0.093	0.036	0.010	0.911 (0.849-0.978)
Constant	-5.336	1.600	0.001	

significant influence on other variables. Logistic regression analysis is a mathematical approach used to analyse the relationship between several independent variables and a dichotomous or binary dependent variable. The authors applied the analysis in this research, considering that the dependent variables are satisfied and dissatisfied.

Ethical Consideration

Prior to data collection, the Ethics Committee of Institute Technology and Health Bali approved this study on June 28th, 2021, with approval number: 04.0466/KEPITEKES-BALI/VI/2021. The authors confirmed that all respondents had obtained appropriate informed consent.

Results

Based on the table 1 above, demographic data is presented. Out of 300 respondents, 125 respondents were 21 years old, then 112 respondents were 20 years of age. Most of the respondents, namely 264 people were female, while 36 respondents were male. The data shows that 175 respondents came from ITEKES Bali, 75 students came from PSSKPN Udayana, 34 respondents came from Stikes Wira Medika, and 16 respondents came from Poltekkes Denpasar. On the network conditions aspect, 225 respondents considered it as fair. Then, 66 respondents revealed it as good, while nine others implied it as poor. Only 16 respondents studied at the boarding house while 284 students studied from home. Handphone was the most widely used device as 161 respondents chose it, although 139 students

used laptops.

The results showed that 110 respondents remarked poor on the accessibility aspect, 98 students considered it sufficient, and 92 people experienced the good ones. On the materials understanding variable, 46 students thought it was complex, 164 respondents answered it was fair, and 90 students revealed it was easy. For the interactivity variable, 126 people stated it as sufficient, as 90 students claimed they could actively interact, while 84 respondents chose the passive category. Considering the method used during the online learning process, 185 people marked it as sufficient, then 35 people stated it as appropriate, whereas 80 people responded to the poor category. For the self-reliance aspect, 141 people counted it as fair, 80 students answered they were independent in learning, yet 79 respondents claimed they were less. Concerning the satisfaction variable, 190 respondents conveyed they were satisfied, while 110 people were dissatisfied.

Based on chi-square cross tabulation, the results show that there is a significant relationship between satisfaction and most all of the variables: accessibility (p value = 0.000 and $X^2 = 15.902$), the convenience of obtaining materials (p value = 0.000 and $X^2 = 63.473$), interactivity (p value = 0.000 and $X^2 = 15.522$). The data shows there is a relationship between satisfaction with the method accuracy (p value = 0.000 and $X^2 = 20.198$). Meanwhile, the self-reliance variable has no significant relationship with the satisfaction variable (p value = 0.341 and $X^2 = 2.154$).

The logistic regression equation in the table can

be written with the model ($y = a \text{ (constant)} + b_1x_1 + b_2x_2$), which is $-5.336 + 0.011 \text{ Accessibility} + 0.474 \text{ Material} + 0.021 \text{ Interactivity} + 0.150 \text{ Utility} - 0.093 \text{ Self-Reliance}$. The table above shows that:

1. The odds ratio for the Accessibility variable is 1.011. The coefficient B is positive, and the data is quantitative, therefore if the Accessibility variable increases by 1 unit, the probability ratio of Satisfied compared to Dissatisfied will increase by a factor of 1.011, assuming the variables of Material, Interactivity, Utility, and Self-reliance are constant.

2. The odds ratio for Material is 1.606. The coefficient B is positive, and the data is quantitative, thus if the material increases by 1 unit, the probability ratio of Satisfied compared to Dissatisfied will increase by a factor of 1.606, assuming the variables Accessibility, Interactivity, Utility, and Self-Reliance are constant.

3. The odds ratio for Interactivity is 1.021. The coefficient B is positive, and the data is quantitative, thus if the interactivity increases by 1 unit, the probability ratio of Satisfied compared to Dissatisfied will increase by a factor of 1.021, assuming the variables of Accessibility, Material, Utility, and Self-Reliance are constant.

4. The odds ratio for the Utility variable is 1.161. The coefficient B is positive, and the data is quantitative, therefore if the utility variable increases by 1 unit, the probability ratio of Satisfied compared to Dissatisfied will increase by a factor of 1.161, assuming the variables of Accessibility, Material, Interactivity, and Self-reliance are constant.

5. The odds ratio for the Self-Reliance variable is 0.911. The coefficient B is negative, and the data is quantitative, therefore if the self-reliance increases by 1 unit, the probability ratio of Satisfied compared to Dissatisfied will decrease by a factor of 0.911, assuming the variables of Accessibility, Material, Interactivity, and Utility are constant.

Discussion

The COVID-19 pandemic has changed the pattern of life for the entire community from all aspects, including education. The droplet transmission of COVID-19 has urged society to keep their distance and avoid direct contact while interacting. It has affected the education system to transform the in-class into remote learning that utilises technology as a way of learning.

Online learning is uncommon in the education system in Indonesia, so adaptation is needed. Higher education settings can adapt more quickly to online learning since they are more familiar with the technology. The nursing education system has started to use technology as a tool in continuing online learning. The lecturers use various methods during the learning process to make effective and efficient lessons for the students. For this reason, it is necessary to support the facilities, infrastructure, activeness and creativity of the lecturers.

Students' perceptions influence their satisfaction towards e-learning, involving the activeness, the

convenience of accessing materials, internet connection, teaching methods, and motivation to study. Alquarshi (2019) stated that the factors related to satisfaction and perception in distance learning are self-efficacy, materials understanding, and the interaction between students and lecturers. Self-efficacy gives higher satisfaction because it encompasses the responses towards learning evaluation, a good comprehension of the materials, getting challenges in the learning process, and increasing involvement.

This study shows that the accessibility, the convenience of understanding the materials, interactivity, method accuracy variables have a significant relationship with students' satisfaction. However, the self-reliance variable does not. One of the necessary tools during online learning is accessibility, including the internet network to obtain the lessons. The respondents in this study stated they got sufficient internet connection, yet most experienced a poor network. Almost in all over Bali Island, including Denpasar, the internet connection is unstable due to the scattered learning locations. Few students returned to their home areas where internet access could be lacking. Moreover, some of them did not understand how to operate the computer, which hindered them in accessing materials or attending online lectures. Yilmaz (2017) states that when individuals are technology savvy, it will increase motivation during learning.

Another indicator that affects students' satisfaction during online learning is the convenience of understanding the materials. Medical-surgical nursing materials are very complex, so this subject requires students to discover more related literature. The respondents in this study are interested in learning about medical-surgical nursing materials. It motivates the students to brainstorm the concepts before the class begins. The lecturers provide easy access to the lessons for students. Although they might face difficulties understanding the subject, the students put individual efforts to figure out the medical-surgical nursing materials. Research by Rachmawati and Putri (2020) reveals that students find it hard to understand the lessons through online learning because they are accustomed to face-to-face learning. In-class lectures allow students to interact easily. When students experience difficulties, they can ask the lecturer immediately. However, the students can take advantage of online learning. The students can access the lessons anytime, anywhere that will trigger the preparations before online learning starts. Online learning that uses educational videos containing material explanations from lecturers is said to have a good effect in increasing student knowledge, also accompanied by assignments to hone their skills (Rahayu, Sulistiyawati, Purnamasari, Sawitri & Fikriah, 2021).

The interactivity between students and lecturers indicates the success of the learning process. In distance learning, students frequently feel detached

from the lecturers due to various obstacles. It might cause the students to feel uninterested in the learning process, which leads to confusion in understanding the materials (Rachman, 2012). Ineffective communication often occurs due to several obstacles, such as an unstable internet connection. Furthermore, the complex materials prompt the students to be focused. Eventually, it will lead to a reluctance for students to interact during the lesson. Demir (2015) states that online-based communication will be effective where individuals interact remotely with a language that is easy to understand, have a language culture and a supportive environment. Yilmaz's research (2017) found that interactions among students, other students, and teachers are effective during online learning. Good interaction also shows increased learning needs that will address satisfaction and motivation to learn (Yilmaz, 2014).

The effectiveness of the distance learning method influences students' satisfaction. The use of the appropriate approach can increase the knowledge and skills of students (Nurumal, Diyono & Che, 2020). It will affect the system, information, and services qualities received by students (Pawirosumarto, 2016). Liaw and Huang (2013) found that one of the interactive learning environments is determined by appropriate learning media. The videos in the LMS as learning media are accessible at any place and anytime (Karao_glan Yilmaz & Keser, 2016). The learning methods design will arouse curiosity and attract the attention to learn and understand the lessons. The high curiosity about the materials will encourage the students to interact with each other through online learning. It will also be one of the pedagogical learning for applying the technology method as an adult learning that improves the learning outcomes (Yilmaz & Kılıç-Çakmak, 2012).

This study shows that the self-reliance factor is not related to students' satisfaction. It is different from the research by Yilmaz (2017), which states that independence in the learning process is one of the factors that affect students' satisfaction. Distance learning makes students less independent because they are not familiar with online methods in the learning process. However, some students feel they are required to increase their independence in learning. Yilmaz (2017) shows that e-learning readiness is a crucial predictor of students' satisfaction and learning motivation. Therefore, to build learning satisfaction, determine the readiness of students. Lecturers can help them by providing learning materials and topics discussion the day before the online learning schedule. If there are students who have low readiness, it is the lecturer's responsibility to assist them in arranging the strategy during the online learning. Moreover, to improve online learning readiness, it is also necessary to update the curriculum or improve computer-based and technology-based learning. Lecturers must become role models for students in using e-learning

methods (Hao and Lee, 2016).

Conclusion

The conclusion of this research is that there are some variables which have relationship with student's satisfaction such as accessibility, convenience in understanding materials, interactivity, method accuracy. The most significant relationship is the convenience of obtaining materials with an OR value of 1.606.

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