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Attitude Towards E-Learning Among Nurses in Continuing Education

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A B S T R A C T

The rapid development of technology encourages learning methods that are more practical, efficient, and fast. E-learning is believed to be an effective learning method for nurses in the hospital environment. The e-learning module requires adequate facilities and positive learner characteristics. Understanding nurses' needs and learning perspectives will facilitate e-learning implementation, especially for continuing nursing education. This study aimed to analyze the relationship between experiences and the importance of e-learning, barriers, motivation, and nurses' attitudes towards the e-learning method in a private hospital. This study applied a quantitative method with a correlation design and conducted a purposive sampling technique with 66 samples. This study used an attitude questionnaire towards e-learning which was adapted from Chong. This study revealed that most of the nurses already had experienced e-learning (98.5%). In addition, half of the nurses had positive attitudes towards e-learning (53%), almost two-thirds of nurses were motivated (74.2%), more than half perceived that e-learning is less critical (51.5%), and nurses reported a few obstacles to participating in e-learning (57.6%). Moreover, there was no significant relationship between experience, barriers, motivation, the importance of e-learning, and nurses' attitudes towards e-learning (p value> 0.05). On the other hand, nurses also reported the main barriers to participating in e-learning included lack of time and minimum computer access to the internet (> 70%). It is noted that nurses have the motivation to continue learning in the scope of clinical practice using e-learning. Only some nurses show a positive attitude towards e-learning. Thus, some improvements are needed to support e-learning for nurses, such as more time for learning, additional knowledge about computer use, and adequate internet networking

1. INTRODUCTION

Continuing learning is a compulsory requirement and qualification of nurses to maintain their quality of care, minimizing risks between patients and nurses (Chong et al., 2016). Some benefits of continuing learning include improved communication skills (Emaliyawati, Widiasih, Sutini, Ermiati, & Rahayu, 2020) and career promotion (Subu et al., 2020). The continuing learning in the hospital has changed from traditional face-to-face learning into e-learning in which using computer technology in the teaching-learning process.

The E-learning method is perceived as effective learning (Hanum, 2013; Wilson, 2018) and is recommended as an alternative to assist lifetime learning (Karaman, 2011; Lahti, Hätönen, & Välimäki, 2014; Rouleau et al., 2019). The advantages of e-learning, i.e., flexibility, accessibility, and convenience, lead nurses to have more opportunities to advance their knowledge (Chong et al., 2016). E-learning supports the learner to be independent and flexible in their learning, to improve their knowledge, skills, and critical thinking as well as to aid educators to develop their personal-professional growth and their technical skills (Kuriplachová, Kováčková, Magurová, L'udmila, & Kendrová, 2019; Narayan, 2018). E-learning also stimulates cognitive and affective learning that can influence the learner and facilitator's motivation (Kuriplachová et al., 2019).

Moreover, the use of video in e-learning provides new knowledge and skills. In contrast, the learning outcomes lead to improved clinical practice, management practice, workplace culture, and increased awareness of patients' rights (Wilson, 2018). A literature study found that learning using video effectively presents the teaching materials and transforms knowledge; it also increases the learner's motivation and improves the clinical skill in nursing settings (Sari & Sundari, 2019).

A study in Singapore further reveals that nurses proposed e-learning and felt satisfied regarding e-learning programs at their hospitals (Syafrandinel, 2019). Rouleau and colleagues report that some reasons for nurse satisfaction with e-learning included quality of content, social interactions availability, active learning, flexibility, standard technology, quality of support, patient-centered approach, time-saving, and self-directed learning (Rouleau et al., 2019).

E-learning contributes to shaping an effective nursing education. Organizational supports, individuals learning desires, and computer access at hospitals were crucial for e-learning (Chuo, Tsai, & Lan, 2011; Rouleau et al., 2019). The adequate facilities for e-learning such as computer and internet access are other vital factors to support the learners (Butarbutar & Haryanto, 2017). Chong also mentioned that the evaluation through e-learning tended to be accepted by nurses (Chong et al., 2016). In sum, the e-learning process is easy, enjoyable, and flexible because nurses can determine their learning settings.

However, the implementation of e-learning expects nurses to have computer devices, information skills, positive attitudes toward e-learning, computer access, and technical support availability (Chong et al., 2016). Previous studies reported that the users of e-learning were discouraged when experiencing limited computer and internet access, unreliable computer systems, and unsupportive technical experts (Rouleau et al., 2019). The learner's positive attitude also could impact their learning efficacy, motivation, knowledge, and learning outcomes (Karaman, 2011; Rouleau et al., 2019). Due to the flexibility (Narayan, 2018) and suitability of their working conditions and needs (Lera, Taxtsoglou, Iliadis, Frantzana, & Kourkouta, 2019),

most nurses and nursing students have positive perceptions toward e-learning. Chong and colleagues further argued that nurse educators should facilitate e-learning by assessing and addressing the issues of e-learning and providing adequate support for the learners (Chong et al., 2016). This also means that implementing an e-learning course also needs to identify the learners' attitude towards e-learning. Therefore, it is crucial to explore factors contributing to nurses' attitude towards e-learning methods, including perceived importance, motivation, barrier and experience of e-learning, and computer and internet access for participating in e-learning.

2. METHOD
Research Design.

This study was a quantitative correlation study using a cross-sectional survey (Polit & Beck, 2018).

Population and Sample.

The population of this study was all nurses (149) in a private hospital. A total of 66 nurses participated in this study. The sampling used in this study was purposive sampling, with inclusion criteria: 1) Nurse in a private hospital with a minimum of diploma nursing graduate, 2) registered nurse in Indonesia, 3) permanent employee that had access to e-learning. The exclusion criteria of this study were sick, on leave or not in the setting when collecting data by the researchers. The sample size was obtained using Slovin's formula $n = \frac{N}{1+Ne^2}$ whereby e = 10%. The calculations are displayed below:

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{149}{1 + 149(0,1)^2}$$

$n = \frac{149}{2,49} = \mathbf{59.84 + 10\% = 65.8}$; adjusted to 66 respondents.

Instrument

A developed questionnaire by Chong (Chong et al., 2016) was backward translated from English to Indonesian. This questionnaire was chosen due to the questionnaire was developed in Asia (Malaysia) with good acceptability (CVI 0.95) dan high internal consistency reliability (Cronbach Alpha 0.93). The questionnaire comprised demographic and background items, readiness for e-learning, and attitudes toward e-learning. The questionnaire was tested for its reliability (Cronbach's alpha of 0.787-0.947) and validity (r count> r table). Some revisions in the questionnaire items were made to accommodate the settings, such as demographic, background information, and wording issues.

Research Procedure.

After getting ethical approval and permission from the hospital management, the researchers contacted the nurses directly. They asked them to be involved in the study by providing information for the subject. The respondents were provided a written consent form for their agreement to be involved in the study. The researchers gave more time for the nurses to fill in the questionnaire and followed up after the nurses finished their shift.

Data Analysis.

The data were analyzed using SPSS (IBM) version 25. A descriptive analysis was used to provide the frequency and percentage of the findings. A bivariate analysis was applied using a Chi-Square test to analyze the correlation between variables.

Ethical Clearance.

This study achieved ethical approval from the Ethics Committee of Faculty of Nursing Universitas Pelita Harapan (No. 001/RCTC-EC/SHLC/I/2020).

3. RESULTS

This study reported the respondents' characteristics and attitudes towards e-learning. Table 1 presents that almost two-thirds of the respondents were female (76%), aged ≤ 30 years old (68%), and married (60%). Two-third of the respondents worked in the special units (33.4%), with ≤ 6 years of service. More than half of the nurses had a nursing qualification as a diploma in nursing (61%).

Table 1. Respondents Characteristics (n=66)

Respondents' Characteristics	n	(%)
Age		
≤ 30 years old	45	68
31-38 years old	10	15
≥ 39 t years old	11	17
Gender		
Male	16	24
Female	50	76
Marital Status		
Married	40	60
Single	25	38
Widowed/divorce	1	2
Years of service		
≤ 6 years	36	55
7-13 years	30	31
≥ 14 years	9	14
Professional qualification		
Diploma	40	61
Bachelor	26	39
Income (Rupiah)		
< Rp 1.000.000	0	0
Rp 1.000/000- Rp 2.500.000	0	0

Rp. 2.500.000- Rp. 5.000.000	22	35
> Rp. 5.000.000	41	65
Working Setting		
OPD	10	15.2
IPD	9	13.6
Special units	22	33.4
Not mentioned	25	37.8

Table 2 shows the availability of computer and internet access for e-learning. More than half of the nurses had no access to a personal or home computer (62%) but had internet access (73%). However, most nurses had a computer (94%) and internet access (95%) and used computers 2-5 hours per week.

Table 2. Computer and Internet access for learning (n=66)

Computer and Internet Access	n	(%)
Have a computer at home		
Yes	25	38
No	41	62
Have internet access at home		
Yes	36	73
No	13	27
Have access to a computer in the workplace		
Yes	62	94
No	4	6
Have internet access at work		
Yes	56	95
No	3	5
The average computer uses (hours per week)		
0-1	17	26
2-5	31	47
6-10	9	14
> 10	9	14

Table 3 also reveals that most of the nurses had an experience of e-learning (98.5%). In addition, some nurses had a positive attitude (53%) towards e-learning, almost two-thirds of nurses were motivated (74.2%), half of the nurses perceived that e-learning was less important (51.5%), and had experienced few obstacles to participating in e-learning (57.6%). Moreover, there was no significant relationship between experience, barriers, motivation, and the importance of e-learning and nurses' attitudes towards e-learning (p value> 0.05).

Table 4 further revealed respondents' opinions regarding the hindrance of continuing education via e-learning. Two-thirds of the respondents mentioned that the barriers included lack of time and computer access with an internet connection. However, the respondents reported that two-third of them were familiar with online chat rooms and knowledgeable regarding uploading and downloading information. Moreover, half of the nurses (42-55%) reported that their obstacles to participating in e-learning included lack of support from the supervisor and ICT, limited

knowledge of computers and support systems, and limited understanding of English and computer vocabulary.

Table 3. Factors correlating nurses' attitude towards e-learning (n=66)

Factors	Attitude					p-value
	Positive		Negative		Total	
	n	%	n	%		
Experience in e-learning						
Yes	35	53	30	45.5	65 (98.5%)	0.470
No	0	0	1	1.5	1(1.5%)	
Barriers to participating in learning						
Many	15	22.7	13	19.7	28(42.4%)	0.940
Few	20	30.3	18	27.3	38(57.6%)	
Perceived important						
Important	20	30.3	12	18.2	32(48.5%)	0.089
less important	15	22.7	19	28.8	34(51.5%)	
Motivation						
Motivated	29	43.9	20	30.3	49(74.2%)	0.135
Lack of motivation	6	9.1	11	16.7	17(25.8%)	

Table 4. The deterrents to participate in continuing education via e-learning (n=66)

The deterrents	Yes		No	
	n	%	n	%
Limited time	47	71	19	29
Lack of access to a computer with an internet connection	46	70	20	30
Lack of support from supervisors or head nurse	28	42	38	58
Lack of information communication technology (ICT) support	35	53	31	47
Limited knowledge of computers	36	55	30	45
Limited understanding about network system: LAN, internet, intranet	34	52	32	48
Limited ability to send and receive e-mail	26	39	40	61
Lack of familiarity with online chat rooms	20	30	46	70
Lack of knowledge about searching the internet	23	35	43	65
Lack of familiarity with using web (bodyhealth.edu)	21	32	45	68
Lack of knowledge about uploading and downloading information	19	29	47	71
Difficulties with understanding English and computer vocabulary	31	47	35	53

4. DISCUSSION

This study reported factors contributing to nurses' attitude towards e-learning methods, including perceived importance, motivation, barrier and experience of e-learning, and computer and internet access for participating in e-learning. Nurses who participated in this study were recruited from one hospital. The reported demographics of the study show two-thirds of the respondents were female (76%), aged ≤ 30 years old (68%), and married (60%). The gender of the participants reflects the gender proportions of the nursing workforce in the South-East Asian region. In 2019, 79% of nurses working in Southeast Asia were female (Boniol et al., 2019), similar to those in this current study (female 76%). In addition, two-third of the respondents worked in

the special units (33.4%), with ≤ 6 years of service. More than half of the nurses had diploma nursing qualifications (61%). As stated in the Indonesian government report, in 2019, the most work setting of employed nurses was at the hospital with diploma qualification (Kementerian Kesehatan Republik Indonesia, 2020).

Most nurses in this study had participated in e-learning and had access to a computer and internet in the workplace. Still, not many had them at home, with almost half of the nurses spent 2–5 hours on average per week on the computer. Nurses who utilized a computer regularly will have good perceptions of e-learning (Kuriplachová et al., 2019). Thus, organizations' support in enhancing access to computer and internet facilities would facilitate the nurses' e-learning activities. Moreover, internet skills and informatics competency are crucial for nurses to provide safe and evidence-based nursing care (Rouleau et al., 2019).

This current study also revealed that nurses' e-learning experience, barriers, motivation, and the importance of e-learning were not related to nurses' attitudes towards e-learning (p value> 0.05). The reasons could be some challenges facing by nurses, as mentioned in Table 4. Two-thirds of the nurses mentioned that they lacked time for learning and had limited computer access. Nurses further reported that their obstacles for using e-learning include minimum support from the supervisor and ICT, limited knowledge of computers and support systems, and inadequate understanding of English and computer vocabularies. The organizations' technical support and computer access are essential for the e-learning process (Rouleau et al., 2019). Besides, e-learning should base on the learners' standpoints (Lahti et al., 2014).

This current study's findings presented crucial implications for nurse educators to facilitate e-learning. The nurses were motivated in e-learning and for its flexibility where they could learn whenever they had time. Though nurses had positive attitudes toward e-learning, they still expected others' guidance, such as supervisors and educators. Nurses' implementation of e-learning was influenced by their interactions with the system, educators, and other nurses (Lera et al., 2019; Rouleau et al., 2019). This also means that social interaction is needed for students to learn from others (Lera et al., 2019; Rouleau et al., 2019). Therefore, supervisor or educator should improve their technology skills and provide more time to facilitate e-learning in their working areas (Kuriplachová et al., 2019). It is further noted that educators should develop their e-learning course materials based on the learners' viewpoints, including audio-visual aid (Kuriplachová et al., 2019; Lera et al., 2019; Sari & Sundari, 2019).

This study recruited nurses from a single private institution, indicating that the results are not representative of the Indonesian nurse population. Another shortcoming is self-reported may mean that the accuracy of the information provided could be subjective.

5. CONCLUSIONS

This study highlights the importance of e-learning as a flexible mode of learning for nurses' professional development. However, to provide a better e-learning process, the implementation of e-learning for nurses requires the availability of computers with internet access, nurses' motivation, and attitude toward e-learning. Accordingly, this study provides essential findings where nurses are found motivated to involve in e-learning with some preferences. The results of this study on e-learning for continuing education in a private hospital are beneficial for the

hospital's guidelines development and other regional hospitals that share similar workplace cultures.

6. ACKNOWLEDGEMENT

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