Short Communication

Prerequisites for electronic learning: Iranian postgraduate nursing students' points of view

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Abstract

Background: Nursing education is mostly conducted through electronic educational programs. We aimed at assessing the Iranian postgraduate nursing students' skills and attitudes regarding the electronic education.

Materials and Methods: Ninety-seven postgraduate nursing students were surveyed using questionnaires assessing their individual-social and educational characteristics, electronic education skills, and attitudes toward the electronic education.

Results: Scores of the students' skills in using computer and the Internet were significantly associated with gender and the number of hours working with computer and the Internet at home and work.

Conclusion: Prerequisites for performing electronic education programs are present at moderate levels in Iran.

Key words: Attitude, electronic learning, nursing students, skill

Introduction

Information and communication technology is increasingly used[1] due to the increased number of the students and huge amounts of data in different fields of human sciences.[2] Electronic education can be defined as the usage of net technology to fulfil and maintain learning process.[3] Numerous studies have revealed that nursing students and nurses have positive opinions regarding electronic education.[4-6] One of the prerequisites for performing electronic educational programs is to have basic knowledge of working with computer and using the Internet. Studies have shown that nurses and nursing students are not skilled enough in this regard.[7-9] In Iran, there have been significant improvements in the field of electronic learning.[10-12] However, the evaluation of the skills and attitudes of the students is considered as an essential basis of the preparation for the universities to carry on through the electronic learning system.

Materials and Methods

The present descriptive study was carried out in the Faculty of Nursing and Midwifery, Tabriz University of Medical Sciences, in 2011. Postgraduate nursing students ($N = 120$) with educational experience of at least one term were recruited. The checklist consisted of three sections. The first section studied some of the individual-social and educational characteristics. The second section evaluated the skills of students regarding electronic education in two categories. The first category, consisting of eight questions, is a tool to evaluate skills of students in using computers. The questions were answered based on the five-choice Likert scale from "*very little*" to "*very much*," being scored from 1 to 5, and therefore the minimum and maximum of the scores were 8 and 40, respectively, which were later divided into three skill levels of "*poor*" (8-19), "*moderate*" (20-30), and "*excellent*" (31-40). The second category of the checklist studied the skills of using the Internet, which was provided by Watkins in 2004.[13] Translated into Persian, Kamalian and Fazel (2009) approved the validity and reliability of this checklist in Iran.[14] The third section evaluated the students' opinions regarding electronic education. This questionnaire, consisting of 23 questions based on five-choice Likert scale, was already provided and used by Mossadegh *et al*. (2011).[15] The choices were scored from 1 to 5 and the final scoring of the questionnaire was from 23 to 115. The higher the scores were, the more positive the attitudes of the students regarding electronic education would be. The present study was confirmed by the regional ethics committee of Tabriz Medical Sciences University. The analysis of the data was performed using SPSS version 17.

Results

The mean age of the students was 31.1 (6.3) years. The mean score of the students' skills in using computer was

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35.6 (8). In addition, most students (63.9%) were reported to have moderate skill levels and 11.3% to have low skill levels in using computer. The associations between some educational and individual-social characteristics of the students with their skills in using computer are presented in Table 1. There were significant associations between the scores of the students' skills in using computer and gender and the number of hours working with computer at home and work ($P < 0.05$) [Table 1].

The mean score of the students' skills in using Internet was 35.6 (8). Furthermore, the majority of the students (86.6%) were reported to have moderate skill level in using the Internet, while only 9.3% of the students were reported to have low online skills levels in this regard. The associations between educational and individual-social characteristics of the students with their skills in using the Internet are presented in Table 1. There were significant associations between the students' skills in using the Internet and the gender and the number of hours working with the Internet at home and work ($P < 0.05$) [Table 1].

The mean score of the students' opinions about the electronic education was 81.2 (8.2). Moreover, most students (82.5%) had moderate attitudes in this regard. No student was reported to have negative attitude on the electronic education. There was a negative correlation between the age and the attitude score ($P = 0.02$, $r = 0.2$). The associations between other educational and individual-social characteristics of the students with their attitudes about the electronic education are presented in [Table 1].

Discussion

Most students tended to have moderate degrees of familiarity in this regard similar to the study of Zolfaghari *et al*.[16] Liaw *et al*., proposed that the skill levels of the Taiwanese students were considerable for participating in electronic learning.[17] In contrast to the previous similar studies by Rajab *et al*. (2005) and Dørup (2004),[18,19] in the present survey, female students tend to have higher scores than males. Similar to the previous studies carried out in Iran by Mosadegh *et al*., Zegordi *et al*., and Pournagi and Abazari (2008),[15,20,21] most students in our study had moderate skill levels of using the Internet. Likewise, in a study by Liaw (2008) assessing the Blackboard e-learning system, Taiwanese university students ($N = 424$) had a very high ability of using the Internet.[22] In contrast, Bond (2004) reported low levels of this skill among the British nursing students.[23] Furthermore, in the present study, significant association between gender and online skills was reported and males were reported to be more efficient than females. This finding is inconsistent with that of the study by Kamalian *et al*., carried out on second-semester Iranian university students, revealing no such significant relation.[14]

The present study demonstrated that the nursing students had moderate attitudes toward the electronic learning, which is similar to that reported in the study carried out in

Table 1: The frequency and the association between educational and individual-social characteristics of postgraduate nursing students with their skills in using computer, the Internet, and their attitudes toward electronic learning

Variable	Subgroups	Frequency (%)	Using computer		Using the internet		Attitude toward e-learning	
			Mean (SD)	*P* value	Mean (SD)	*P* value	Mean (SD)	*P* value
Gender	Male	34 (35.4)	25.4 (6.3)	0.01	39.0 (7.0)	0.03	82.3 (7.3)	0.35
	Female	62 (64.6)	28.8 (5.8)		28.8 (5.8)		80.6 (8.7)	
Educational level	MSc	86 (88.7)	26.3 (6.4)	0.24	35.4 (8.3)	0.56	81.5 (8.5)	0.38
	PhD	11 (11.3)	28.8 (5.8)		36.9 (5.5)		79.2 (5.1)	
Working hours with computer at home (hours per week)	<5	31 (32.0)	23.5 (5.9)	0.001	32.5 (7.6)	0.02	80.7 (7.0)	0.12
	5–10	27 (27.8)	25.9 (5.5)		34.4 (7.2)		79.1 (8.2)	
	11–15	16 (16.5)	27.7 (7.0)		36.2 (8.3)		81.4 (8.7)	
	16–20	6 (6.2)	31.6 (6.0)		44.1 (5.6)		81.1 (3.5)	
	>20	17 (17.5)	23.2 (5.1)		39.7 (7.2)		85.7 (9.7)	
Working hours with computer at work (hours per week)*	<5	30 (31.6)	22.9 (5.8)	0.001	30.9 (8.8)	0.001	82.3 (7.6)	0.12
	5–10	21 (22.1)	22.7 (5.3)		35.3 (5.8)		78.0 (9.0)	
	11–15	19 (20)	28.1 (7.7)		39.5 (7.3)		80.6 (8.1)	
	16–20	9 (9.5)	28.5 (4.8)		37.6 (6.3)		80.4 (6.3)	
	>20	15 (15.8)	29.8 (4.5)		40.1 (5.4)		84.9 (8.3)	
Internet availability	Yes	82 (84.5)	27.0 (6.3)	0.13	35.9 (8.4)	0.47	35.9 (8.4)	0.49
	No	15 (15.5)	24.3 (6.2)		34.2 (5.6)		34.2 (5.6)	

*Some of the participants did not reply to this question

Iran by Roudsari *et al*., who found that university students' attitudes toward the electronic learning scored 37 out of 55.[24] Similarly, Häggström *et al*., investigated Swedish nursing students' opinions about a web-based distance learning course.[25] They discovered that the attitude of the students toward the web-based course was very positive.[25] In contrast, students' attitudes toward electronic learning have been reported to be in low levels in the study of Keller and Cernerud (2002).[26] According to Liaw and colleagues (2007), individual characteristics of the students could affect their attitudes toward the electronic learning.[17] Zoghi and colleagues (2010) have revealed that age can affect the attitudes of the students; students of younger ages would have more positive attitudes.[27]

The present study had some limitations as it was performed only among the postgraduate students and the data regarding the skills were collected self-reportedly. Therefore, further studies with more objective methods for assessing the students' skills in the field of electronic learning and the related prerequisites are recommended.

Prerequisites for performing electronic education programs are present at moderate levels in Iran. Moreover, the familiarity of the students with the electronic education and skill levels of using the Internet are at moderate levels. Therefore, further educational programs focusing on increasing electronic education skills are required.

Acknowledgment

We would cordially thank all the students who participated in this study.

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How to cite this article: Yaghoubi A, Abdollahzadeh F, Rahmani A, Kazemi L, Ghabili K, Golzari SEJ, *et al*. Prerequisites for electronic learning: Iranian postgraduate nursing students' points of view. Iranian J Nursing Midwifery Res 2013;18:171-3.

Source of Support: None, **Conflict of Interest:** None.