

# The information literacy levels of nursing students who take the course on information techniques

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## Abstract

**Aim:** This study was conducted with the purpose of determining the information literacy levels of nursing students who take the course on information techniques in nursing and those who do not.

**Material and Methods:** This descriptive study was conducted. The population of the study consisted of the 1st and 2nd year students of a school of nursing located in Eastern Turkey. The study was completed with 265 students. A personal information form and an information literacy scale were used to collect the data.

**Results:** In the study, it was found that the mean information literacy scores of the participants who took the course on information techniques in nursing and those who did not were respectively  $3.92 \pm 0.6$  and  $3.41 \pm 0.6$ , and the difference between the groups was statistically significant ( $p < 0.05$ ). The relationship between the information literacy levels of the participants and their weekly times of using the internet and levels of computer usage was significant.

**Conclusion:** As a result of the study, it was found that taking the course on information techniques in nursing, affected information literacy to a significant extent. It is recommended to increase information and communication courses and research on this topic in the education system for nursing.

**Keywords:** Information literacy; information techniques; nursing

## INTRODUCTION

Health informatics is generally accepted as the mutual operation of resources and methods for health information management. Record systems, medical technologies, clinical teams and health information exchange standards form the basis of health informatics. Health informatics not only helps reduction of healthcare costs and increasing healthcare efficiency but also allow researchers to obtain more useful healthcare data to be utilized in medical research (1,2). In the world, health informatics plays a reliable and critical role in making strategic decisions within and outside the healthcare sector (3).

Nursing informatics is both a system and a science (4). Information techniques in nursing support decision-making of patients, nurses and other healthcare professionals in various different situations. While doing this, they make it easier to integrate data, knowledge and

experience. All these processes are possible by usage of information structures, information processes and information technologies (5). Trainings, regulations and practices regarding information techniques in nursing are actively carried out in various countries in the world (6-9).

Information literacy supports evidence-based practice and is a significant skill for healthcare professionals as it achieves the best patient care (10). Nurses need reaching information and skills of using such information in an appropriate way fast. Weak information literacy skills lead to getting lost among data (11). Information literacy is also necessary for development of evidence-based practices. Definition of the information that is needed, and finding, assessing and effectively using the relevant evidence require development of information literacy skills (12).

Nursing students need to be equipped with literacy skills such as determining the information they need, being

Received: 21.10.2019 Accepted: 12.02.2020 Available online: 06.03.2020

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able to search for information, using different sources of information and utilizing the information they access (13). Today's nursing students will be the nurses of the future. In today's world, the quality of the service and care of nursing is directly related to technology. The literature review did not reveal any study that investigated information literacy among nursing students. This study was carried out with the purpose of determining the information literacy levels of nursing students who take the course on information techniques in nursing and those who do not.

## MATERIAL and METHODS

This descriptive study was conducted at a nursing school of a university located in Eastern Turkey. The population of the study consisted of a total of 598 students who were receiving their education in their 1st and 2nd years at the school of nursing. The course on information techniques started to be offered for 2nd-year students of the school of nursing at İnönü University in the spring semester of 2016, and the sample of this study was the first class that took this course. The sample consisted of 265 students with a significance level of 0.05, confidence interval of 0.95 and population representation rate of 0.95 based on the power analysis. 138 of the students were 2nd-year students and they took this course, while 127 were 1st-year students who did not take the course.

### Data collection

The data were collected between the dates of 15 September and 15 October 2017. The students were given and asked to complete the forms in their breaks. Filling out each form took about 10-15 minutes. The data were collected by a personal information form and the Information Literacy Scale.

### Data collection instruments

Personal Information Form; the form that was developed by the researchers consisted of 8 questions on the sociodemographic characteristics of the participants and their levels of using information techniques.

Information Literacy Scale; this scale was developed by Aldemir (2004). It is a 5-point Likert-type scale consisting of a total of 35 questions. The scoring in the scale is in the form of (1) I find it very difficult and (5) I do not find it difficult at all. Higher scores in the scale indicate higher information literacy levels. The original Cronbach's  $\alpha$  coefficient of the scale was 0.85 (14), while it was found as 0.95 in this study.

### Data analysis

The data were analyzed by using descriptive statistics, independent-samples t-test, one-way ANOVA, Kruskal-Wallis test, Bonferroni correction and Cronbach's  $\alpha$  reliability analysis. The results were analyzed in a 95% confidence interval and on the significance level of  $p < 0.05$ .

## RESULTS

It was found that the students who participated in the study were homogenous in terms of their mean ages,

genders and computer usage characteristics, and the difference between the groups was insignificant ( $p > 0.05$ ) (Table 1).

The mean ILS score of the students who took the course on information techniques in nursing was  $3.92 \pm 0.6$ , while those who did not take this course had a mean score of  $3.41 \pm 0$ , and the difference was statistically significant ( $p < 0.05$ ) (Table 2).

It was observed that the relationship between the weekly internet usage times of the students who took the course on information techniques and their mean ILS scores was significant ( $p < 0.05$ ). As a result of the advanced statistical analyses that were carried out, it was seen that this difference was caused by the group who used the internet for more than 36 hours a week (Table 3).

While it was determined that there was no significant relationship between the ILS mean scores of the students who did not take the course on information techniques in nursing and their gender, having regular access to the internet at home and internet usage times ( $p > 0.05$ ), the relationship between the computer usage levels or the students and their levels of information literacy was significant ( $p < 0.05$ ) (Table 3).

## DISCUSSION

Nurses who provide care by closely monitoring a healthy/ill person are decision-makers in determining the needs of the individual, choosing the materials needed for their care and time management. Nurses constitute one of the occupational groups that utilize information technologies the most while performing these functions (13). Information literacy refers to knowing about the strategies that are related to accessing accurate information and when and how information needs to be accessed (14). Increasing the usage of information technologies and levels of information literacy will increase the quality of nursing care in several fields such as training and counseling, research and care inspection and provide positive outcomes.

The information literacy levels among the students in this study who took the course on information techniques were significantly higher than those among the students who did not take the course. Schulte stated that the course on information techniques in nursing affected information literacy positively (15). Information techniques have started to be used in several fields in nursing from training to management, from research to care practices (13). Our finding was in agreement with the literature.

In both groups in this study, there was no significant difference based on gender in terms of the participants' information literacy levels. Similarly, Bakırcı and Günbatır also found no difference in information literacy based on gender (16). Hupfer and Detlor have demonstrated many gender-specific differences in attitudes towards computers, information search preferences on the Internet, the use of electronic information services, and verbal skills (17). In a study, it was seen that women used the

Table 1. Sociodemographic Characteristics of the Participants and Their Characteristics of Usage of Information Techniques

Individual Characteristics		Took the Course on Information Techniques in Nursing		Did not Take the Course on Information Techniques in Nursing		Statistical test and significance
		n	%	n	%	
<b>Age</b>		19.5±1.2		18.7±1.1		X <sup>2</sup> =46.701 p=0.065
<b>Gender</b>	Female	85	52.8	76	47.2	X <sup>2</sup> =1.165 p=0.558
	Male	53	51	51	49	
<b>Has Regular Access to the Internet at Home</b>	Yes	79	56.8	60	43.2	X <sup>2</sup> =1.229 p=0.339
	No	59	46.8	67	52.8	
<b>Weekly Time of Internet Usage</b>	Never	1	12.5	7	87.5	
	1-7 hours a week	45	59.2	31	40.8	X <sup>2</sup> =6.656 p=0.155
	8-21 hours a week	51	51.5	48	48.5	
	22-35 hours a week	13	43.3	17	56.7	
	More than 36 hours a week	28	53.8	24		
	Gaming	38	50	42	51.2	X <sup>2</sup> =0.023 P=0.502
	Reaching sources about learning-teaching	56	73.7	59	72	X <sup>2</sup> =0.060 P=0.859
<b>Purpose of Using Information and Communication Technologies</b>	Watching movies / listening to music	60	77.8	70	85.4	X <sup>2</sup> =0.725 P=0.407
	Scientific research	43	56.6	56	68.3	X <sup>2</sup> =2.313 P=0.141
	Chatting / discussion groups	53	69.7	53	64.6	X <sup>2</sup> =0.465 P=0.504
	Homework	59	77.6	53	64.6	X <sup>2</sup> =3.229 P=0.082
	Highly Competent	19	36.5	33	63.5	
<b>Level of Computer Usage</b>	Competent	63	61.2	40	38.8	X <sup>2</sup> =9.157 p=0.543
	Medium-Level Competency	44	53	39	47	
	Incompetent	13	56.5	10	43.5	
	Highly Incompetent	2	50	2	50	

Table 2. Comparison of the Information Literacy Mean Scores of the Students

Status of Taking the Information Techniques Course	n	X±SD	Statistical test and significance
Took	138	3.92±0.6	t=-2.328
Did not take	127	3.41±0.6	p=0.021

Table 3. Comparison of Sociodemographic Characteristics and Information Literacy Scale Average of Students

		Students Who Took the Course ILS		Students Who Did Not Take the Course ILS	
		X±SD	Statistical test and significance	X±SD	Statistical test and significance
Gender	Female	3.74±0.5	t=1.05	3.66±0.6	t=0.714
	Male	3.58±0.6	p=0.298	3.56±0.6	p=0.428
Has Regular Access to the Internet at Home	Yes	3.63±0.5	t=-0.743	3.75±0.6	t=1.591
	No	3.73±0.6	p=0.46	3.53±0.5	p=0.116
	Never	3.61±0.6		3.12±0.6	
Weekly Time of Internet Usage	1-7 hours a week	3.6±0.5		3.74±0.5	
	8-21 hours a week	3.91±0.5		3.55±0.6	
	22-35 hours a week	3.84±0.6	KW=7.94 p=0.047	3.57±0.6	KW=5.088 p=0.278
	More than 36 hours a week	3.4±0.6		3.8±0.6	
Level of Computer Usage	Highly Competent	3.8±0.6		3.58±0.7	
	Competent	3.62±0.6		3.7±0.5	
	Medium-Level Competency	3.73±0.5	KW=2.994 p=0.045	3.69±0.5	KW=0.996 p=0.025
	Incompetent	3.4±0.2		3.2±0.5	
	Highly Incompetent	3.1±0.1		4±0.1	

t: Independent-Samples t-Test, KW: Kruskal-Wallis

internet more for entertainment and men more for news and business. However, in another study, it was found that women viewed academic websites more frequently and men preferred entertainment sites more regularly and preferred sites with video and audio (18,19). Lim and Kwon found that males had a higher level of Wikipedia's information quality and ability to evaluate Wikipedia entries than females (20). According to Deborah, while men are more satisfied with the search results to obtain information, women are more patient and careful to experience the same satisfaction and experience more unrest and anxiety at the beginning of the information research process (21). In a study conducted by Burdick in high school students; female students spend more time researching subjects and find it difficult to be sure of the results they found. However, he determined that men focused on gathering information and completing missing information. According to Burdick's research, boys were more confident in their search skills and wanted less help than girls (22). According to Neely's research, while women try to find sources of information that have been previously used by others and used for scientific purposes, men do research without making this distinction (23). Kwon and Song examined both personality traits and gender in relation to information literacy competencies, and reported that, unlike other studies, there was a self-perception of higher competences in assessing information sources in women (24). It may be stated that gender is an individual characteristic, both men and women utilize technology, their scores in the university entrance exams are similar, and additionally, the sample here consisted of individuals with similar sociocultural characteristics.

In the study, for both the students who took the course and those who did not, there was no significant relationship between their information literacy levels and status of having a computer connected to the internet. No similar study was encountered in the literature. This finding of the study may be explained by the fact that the internet is being actively used today via smartphones and internet cafes, too.

While the study found a significant relationship between the weekly internet usage times of the students who took the aforementioned course and their information literacy levels, this relationship was statistically insignificant among the students who did not take the course. Previous studies, in similarity to our findings, determined significant relationships between internet usage times and information literacy levels (15, 25-27). Not finding a significant difference among the students who did not take the aforementioned course may be explained by that they used the internet with the purposes of listening to music / watching movies more.

Technological developments offer options beyond what is accustomed to especially in terms of production and sharing information. For this reason, active and effective usage of technology in the process of accessing and utilizing information has become an important factor in information literacy (28). In this study, it was found

that the computer usage levels of the students in both groups affected their information literacy levels. Likewise, according to the results of the study that was carried out by Demiralay and Karadeniz, level of computer usage affected information literacy (25). Their finding was in agreement with ours. Akkoyunlu found a positive relationship between information literacy self-efficacy perceptions and computer self-efficacy perceptions and observed that information literacy self-efficacy perceptions increased with computer self-efficacy perceptions (29). It may be stated that higher competency in computer usage not only allows easy access to large amounts of information but also allows reaching more information more easily and faster, and this increases the information literacy levels of individuals.

## LIMITATIONS

The limitation of the study was that only the students of one nursing school were included in the study. This is why the results may be generalized only for this group of participants.

## CONCLUSION

This study was carried out with the purpose of comparing the information literacy levels of students who took the course on information techniques in nursing and those who did not. In the study, it was found that the participants considered themselves to be competent in terms of computer usage, and the most frequently stated purpose of using computers was found as watching movies / listening to music. The information literacy levels of the students who took the aforementioned course varied to a significant extent based on their weekly internet usage times and computer usage levels.

The faculties of nursing education need to develop infrastructure about information technologies and determine how information technologies should be integrated into undergraduate level which will have a positive effect on students' learning experience. Nursing students are expected to perform tasks requiring informatics competencies in order to practice in technologically advanced health care environments in order to provide care for patients safely and efficiently. Integrating information and technology into nursing education is vital in fulfilling this task.

Information literacy, which refers to acquisition of skills towards accessing information and using it, is one of the important skills a person needs to have in the formation of an information society. In curricula, applied contents should also be added to information techniques courses that aim to improve the information literacy skills of students. Students should be encouraged in terms of using scientific databases. Moreover, it is recommended to conduct studies with larger and different samples and investigate information literacy levels.

*Competing interests: The authors declare that they have no competing interest.*



*Financial Disclosure: There are no financial supports.*

*Ethical approval: Ethical approval was received from the Scientific Research and Publication Ethics Committee of Health Sciences at İnönü University.*

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