Nursing Students' Computer Self-Efficacy and Attitudes toward Its Use in The Health Care Setting: A Comparative Study

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ABSTRACT

Context: The use of technology and computers in health care has been reported to improve nurses' decision-making and competencies, which in turn increase the quality of health-care practice.
Aim: of this study is to assess and compare nursing students' computer self-efficacy and attitudes toward its use in a health care setting in the Faculty of nursing – Benha and Hail Universities.
Methods: A descriptive comparative cross-sectional study design was used to achieve the current study aim. The study conducted in the Faculty of Nursing - Banha University, Egypt, and Faculty of Nursing – Hail University, Kingdom of Saudi Arabia. Quota sampling of 219 students were chosen as follows; 190 students from the Faculty of Nursing - Banha University and 29 students from the Faculty of Nursing – Hail University. A structured self-administered questionnaire covering sociodemographic data, the pretest for attitudes toward computers in healthcare, and computer self-efficacy scales were the tool used to collect the study data.
Results: 33% of nursing students from Benha University were have a realistic view of current computer capabilities in health care, while 28% of nursing students from Hail had a very positive view of computer use in health care. Nursing students at Hail University have the highest mean score compared to Benha nursing students (79.45±15.85 & 61.2±7.25, respectively) in their attitudes toward computer and computer self-efficacy. Benha nursing students have moderate computer self-efficacy compared with Hail nursing students who have a high computer self-efficacy level. A highly statistically significant relationship was detected between students' attitudes toward computers and computer self-efficacy *(p*-value=0.000). Also, there was a highly positive, statistically significant correlation between the demographic variables of nursing students and both students' attitudes toward computers in health care and computer self-efficacy (p-value =0.00).
Conclusion: Nursing students in both universities have a positive attitude toward computer use. A significant difference between the mean scores of the two groups in their attitude toward computer and self-efficacy was detected, with a highly statistically significant correlation between both students' attitudes and their self-efficacy, also a significant relationship revealed between the studied students' demographics and their attitude and self-efficacy. Future studies are recommended to evaluate existing technologies in terms of acceptance, effectiveness, and efficiency in real-life settings and to examine its effect on patient outcomes. Nurse educators should design training courses and educational programs to enhance computer self-efficacy beliefs among nursing students**.**

Keywords: Nursing students**,** attitude, computer self-efficacy, and health care setting

1. Introduction

Technological advances have changed the structure and organization of the nursing industry dramatically to help nurses more efficiently and safely carry out their jobs and care for patients *(Pepito & Locsin, 2019).* The use of technology and computers in health care has been reported to improve nurses' decision-making and competencies, which in turn increase the quality of health-care practice *(Gomes, Hash, Orsolini, Watkins, & Mazzoccoli, 2016; Topkaya & Kaya, 2015; Kaya, 2011).* Therefore, the ability to use computers is an essential prerequisite for nurses and nurse candidates *(Topkaya & Kaya, 2015).*

Advancements in computer science carry the potential to make significant contributions to health care *(Sarwar et al., 2019).* The potential of technology to affect the individuality and subjectivity of patients and create alienation between patients and healthcare providers for their care purposes is evident *(Krau, 2015).* Technology provides a tremendous advantage in improving nursing, but successful nursing must remain a blend of human and technical approaches.

Therefore, starting from the beginning of education, nursing students should be prepared to use technology to increase the use of computers in healthcare practice *(Fidancioglu, Beydag, Fadime, & Kizilkaya, 2009)*. Education prepare nursing graduates to meet the ever-changing technological needs of patients *(Gardner & Jones, 2012; Lipke, 2014)* and prepare nurses for "high-touch, high-tech" patient care *(Hebda & Calderone, 2010).*

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Technology should, therefore, be incorporated into the nursing curriculum.

Locsin and Ito (2018) argue that, in a technologically advanced future, the future practice of nursing would go beyond the implementation of nursing interventions or actions to achieve a predictable outcome. Only prescribed procedures dictate routine nursing care, and the accomplishment of nursing tasks would be best performed by machines. Accordingly, nurses in all regions of the world are expected to develop their skills in information and communication technology (ICT) *(Glasgow, Colbert, Viator, & Cavanagh, 2018).*

Furthermore, nursing students are required to have the necessary skills in using computers and internet technologies for academic and professional purposes. Which put great emphasize on nurse educators to build students' applied skills appropriate to the competence levels required at different stages of their careers *(Wilkinson, Roberts & While, 2013).* Those competencies include the use of computer hardware and specific programs, word processor and spreadsheets, search engines and databases, citing sources, data analysis, applications, health information systems, and email for communication and collaboration *(Masouras, 2016).* Nurses use personal computers to gather data, access information, implement actions, and record the outcomes in their daily activities *(Gomes et al., 2016).* However, to achieve this purpose, first attitudes towards the use of computers should be determined as well as their computer self-efficacy. In accordance with the information obtained, the appropriate arrangements should be made *(Fidancioglu et al., 2009).*

An attitude is a psychological construct, a mental and emotional entity that inheres in or characterizes a person. Attitude is a complex and an acquired state through experiences. An attitude includes three components; an affect (a feeling), cognition (a thought or belief), and behavior (an action). It is the predisposed state of mind of an individual concerning the value and is precipitated by a receptive expression towards a person, location, object, or event that, in turn, affects the thought and action of the individual *(Perloff, 2017).*

Many researchers have investigated the attitudes of nursing students towards the use of information technology. Research findings indicated, however, that the attitude of an individual is the essential factor determining the successful implementation of computer instruction *(Flood, Gasiewicz, & Delpier, 2010). Hansen (2006)* argued that nursing students' attitudes toward technology (ATT) may influence their successful adoption of information competencies and the use of technology into daily patient care to improve patient safety.

Therefore, many countries have started to integrate computer courses into the nursing curriculum to build confidence at a very early stage. *Peace (2011); Herath and Mathotaarachchi (2018)* emphasized that, Knowledge and experience with information technology ca n lead to a positive attitude of students towards working wit h technology. folan added that their early exposure to the te chnological world can develop and improve their computer skills. All of which will help to incorporate them into health care setting.

Computer self-efficacy (CSE) is considered a fundamental element applied to the field of computers, which plays a significant role in mastery the system uses and even to make it easier for individuals to learn many of the skills associated with effective computing. The trust of students in their ability to use computer tasks determines the choice of activities, degree of effort spent, and persistence of effort. It is evident that individuals who have a high level of computer self-efficacy have more tendency and interest in using computers *(Abdullah & Mustafa, 2019).* It is evident that individuals with high computer self-efficacy are more willing to participate in activities related to computers *(Yeşilyurt, Ulaş, & Akan, 2016).* CSE was defined by *Compeau & Higgins (1995)* as follows "computer self-efficacy is an individual's judgment toward his or her capability of computer use." It is an important personal trait that influences an individual's decision to use computers *(Saleh, 2008).*

2. Significance of the Study

Despite the significant improvements in technology, some nurses remain resistance to using computers and avoid operating them. The attitudes of nursing students towards technology (ATT) can affect their successful adoption of information skills, their willingness to learn computer systems, and, ultimately, the use of technology to improve patient safety *(Detmer, 2005).* Therefore, it is vital to have a better understanding of how nursing students think about computer use in health care. Such understanding is essential to identifying opportunities to develop nursing students' skills in computers.

Saade and Galloway (2005) argued that if students have negative attitudes about using computers, they may avoid them and keep learning from the models they are familiar with it. These people will not benefit from the science and technology that computers offer in the acquisition of knowledge and skills and healthcare delivery. Besides, there is widespread recognition of the significance of attitudes and beliefs in learning to use new technologies. Therefore, to ensure that nursing graduates are competent in the era of electronic healthcare delivery, it is elemental to conduct this study to assess nursing students' computer self-efficacy and attitudes toward computers in health care.

3. Aim of the study

This study aimed to assess and compare nursing students' computer self-efficacy and attitudes toward its use in health care in the Faculty of Nursing – Benha and Hail Universities.

3.1. Research questions

- What are the nursing students' attitudes toward computers in health care at both study settings?

- Is there a difference in nursing students' attitudes in both settings?
- What is the level of nursing students' computer self-efficacy in both study settings?
- Is there a difference in nursing students' computer self-efficacy in both settings?
- Is there a relationship between nursing students' attitudes toward computers in health care and their computer self-efficacy in both study settings?
- Is there a relationship between nursing students' attitudes toward computers in health care, students' computer self-efficacy, and their demographic data at both study settings?

4. Subjects & Methods

4.1. Research design

Comparative descriptive cross-sectional study design used to describe and to examine the differences in computer self-efficacy and attitudes toward computer use in health care setting among the studied groups, where data collected at one point in time. According to *Burn and Grove (2003),* the comparative descriptive design is used to describe variables and to examine differences in variables in two or more groups.

4.2. Research Setting

The study conducted at the Faculty of Nursing - Banha University, Egypt, and Faculty of Nursing – Hail University, Kingdom of Saudi Arabia (KSA). Faculty of Nursing-Benha University was established in1992 and got accreditation in 2014 from National Authority for Quality Assurance and Accreditation of Education (NAQAAE).

There are six academic departments in the faculty, including; nursing administration department, the community health nursing department, the pediatric nursing department, the mental health nursing department, and gynecology and obstetrics department, and the medical and surgical nursing department. Faculty of Nursing Hail University was established in 2011 and got accreditation in 2016/2017 from The Accreditation Agency in Health and Social Sciences (AHPGS). The faculty have the same academic departments as Faculty of Nursing- Benha University.

4.3. Subjects

Population: Fourth-year nursing students who enrolled in the second semester academic year 2017/2018 in Benha and Hail universities.

Sample type: Quota sampling was used. According to *Burns and Grove (2003),* Quota sampling is a convenience sampling technique with a function added to ensure the subject types are included who are likely to be underrepresented in the convenience sample. Quota sampling offers an improvement over convenience sampling and tends to decrease potential biases.

Sample size: The study sample calculated using a simplified formula ($n=N/1+N(e)^2$), which provided by *Yamane (1967)* to be 212 students. A 95% confidence level and p=0.05 are assumed for equation, where "n" is the sample size. "N" is the Number of populations = 447 (total number of fourth-year nursing students in both faculties). "e" is Coefficient factor = 0.05. Then, the required number of students from each faculty was calculated with the following formula (number of students in each faculty × required sample size / total number of students in both faculties). Accordingly, 212 students were chosen as follows; 184 students from the Faculty of nursing - Banha University and 29 students from the Faculty of Nursing – Hail University. Oversampling was used to avoid the risk of dropout rate. Accordingly, 190 students were chosen from Benha University and 29 from Hail University, with a total of 219 participants.

4.4. Tools of the study

Data for the present study collected by using the following three tools:

4.4.1. A Structured Self-administered Questionnaire

It developed by the researcher for examining demographic details age, gender, computer use, and education, computer experience, number of workshops attended, years of experience in computer use.

4.4.2. Pretest for Attitudes Toward Computers in Healthcare (PATCH) Assessment Scale

It designed by *Kaminski (2019)* (version 1- 1996, version2 – 2007, version 3 – 2011). The scale assesses nurses' perceptions and attitudes toward the use of computers in healthcare settings. The PATCH assessment scale has 50 statement (such as the computer is a powerful enabling tool, computers are frustrating to use, computers will someday put health professionals out of a job, computers in healthcare will create more work for nurses, and computers can be great problem-solving tools); half of the statements are negatively worded. Participants were given the choice of five Likert scale responses categories to choose from, based on their feelings. In this study, Cronbach's alphas for the overall scale in Hail was (r=0.89) and (r=0.84) in Benha University, indicating the high reliability of the scale.

Scoring system

The score ranged from strongly agree to strongly disagree (strongly agree = 2, agree = 1.5, not certain = 1, disagree = 0.5, strongly disagree = 0) for positive items (1, 2, 4, 6,7, 8,11,12,16, 17, 18, 19, 21, 24, 29, 31, 33, 34, 36, 37, 42, 43, 46, 48, 50). While negative items scored as (strongly agree = 0, agree = 0.5, not certain = 1, disagree = 1.5, strongly disagree = 2). The total score ranged between 0 and 100. The score interpretation as follows 0-17 shows cyber phobia, 18-34- uncertainty about the usefulness of computers in health care, 35-52- limited awareness of computer technology applications in health care, 53-69- has

a realistic view of current computer capabilities in health care, 70-86 enthusiastic view of the potential of computer use in health care and 87-100- positive view of computer use in health care.

4.4.3. Computer Self-Efficacy Assessment Scale

It developed by *Abdullah and Mustafa (2019),* to assess the students' beliefs regarding their capability to execute any task in their use of the computer technology. It included two-dimensional construct, general self-efficacy (7 statements) such as "I am skillful in using the computer, I feel competent to manage a computer task without help, and I am able to solve the problems related to computer." The second dimension included advanced self-efficacy (7 statements) such as "I feel competent to format my computer when it needs, I am capable to set up new programs in my computer without others help, and I believe I could fix any problem when occurs while working with computers."

For this scale, the internal consistency index was 0.85 for the general computer self-efficacy and 0.87 for advanced computer self-efficacy, and 0.91 for the overall scale as reported by the developed author. In this study, Cronbach's alphas for the overall scale in Hail was (r=0.83) and in Benha was (r=0.91). Indicating the high reliability of the tool.

Scoring system

The scale included 14 items. Respondents were given the choice of a Likert scale from 1 (strongly disagree) to 5 (strongly agree). The total scale scores range from 14 to 70. High scores (from 52 to 70) indicate that the students have firm beliefs about their capabilities to perform computer tasks. Moderate score (from 33 to 51). While low scores (from 14 to 32) indicate that the students have low beliefs about their capabilities to perform computer tasks

4.5. Procedures

Preparatory Phase started from the beginning of February 2018 to the end of March 2018. It included the following: Reviewing the national and international relevant literature using periodicals, journals, textbooks, scientific web sites, and theoretical knowledge of the various aspects concerning the topic of the study. The tools are translating into Arabic language and back translation to check its accuracy.

The tools' contents were developed and tested for its content and face validity through a jury of three academic staff in the nursing administration department from different faculties of nursing in Egypt, namely; Benha Faculty of Nursing, Ain Shams Faculty of Nursing and El Monoufia Faculty of Nursing. The validity of the tools aimed to judge its clarity, simplicity, accuracy, comprehensiveness, and relevance. According to the jury committee opinions, the required modifications were done before data collection.

Permission for conducting the study obtained from the Dean of Faculty of Nursing of Benha University, Egypt, and Dean of Faculty of Nursing, Hail University, KSA to collect data from the students. A pilot study was carried out on 24 nursing students (10% of study subjects) chosen as follows; 18 students from Benha and six students from Hail University) before starting the actual data collection to ensure the clarity and applicability of the study tools and the feasibility of the research process. It also helped to measure the time it took to fill the tools. It ranged between 15-20 minutes. The necessary modification was made, and the pilot sample later excluded from the primary study sample.

Fieldwork: Data collection started from the 1st to the 20th of April 2018. The researcher met students to explain the aim of the study and the method of filling the questionnaire. This done individually or through group meetings. Questionnaires distributed on nursing students after / before the theory classes in the presence of the researcher to clarify any ambiguity. The answered questionnaires were collected in a large folder from the participants by hand.

Ethical Considerations: The participants informed that their participation in the study is entirely voluntary. They informed about their rights to refuse or withdraw from the study with no consequences. The anonymity of data maintained; no individual information is shared outside of the researcher and would be used only for scientific research. No foreseen hazards anticipated from conducting the study on participants. Consent established with the completion of the questionnaires.

4.6. Data analysis

Statistical analysis made using the IBM SPSS 25 statistical software package. Cleaning of data made to be sure that there is no missing or abnormal data by running frequencies and descriptive statistics. Data presented in the form of frequencies and percentages using descriptive statistics for categorical variables means and standard deviations for continuous variables (e.g., age), Chi-Square used for comparing nominal data. Independent samples t-test used to compare the means of the two groups (Benha and Hail students). Pearson correlation analysis used for assessment of the inter-relationships among quantitative variables. Cronbach's reliability coefficient used to test the reliability of the scales. The significant level of all statistical analysis was at ≤0.05 (P-value).

5. Results

Table 1 shows the total number of nursing students was 219; 190 From the Faculty of Nursing Benha University and 29 from Hail University. Concerning their age, the majority of both of them (95%, 72%) were aged less than 25 years old, respectively. Regarding their gender, the majority of Benha students were females (71%), while all of Hail students were females (100%). Regarding their education, the majority of both of them (75%, 55%) came from high school (regular), respectively. As well as all Benha and Hail nursing students (100%) were studied

computer before, while more than two-thirds (62%) of Benha students studied it in high school and, more than two-thirds (66%) of Hail nursing students had studied computer before in college/preparatory year. Regarding the workshops, the majority of both of them (83, 86%) had attended 1 to 5 workshops, respectively. Concerning years of experience in uses computers 46%, 66% had from 5 to 10 years of experience in using the computer. Overall. A none statistically significant difference was revealed between nursing students in both faculties regarding their characteristics except in items related to years of experience in using a computer (P-Value = 0.025).

Table 2 illustrates that the highest percentage (33%) of nursing students from Benha University have a realistic view of current computer capabilities in health care while the highest percentage (28%) of nursing students from Hail had a very positive view of computer use in health care.

Table 3 reveals a highly statistically significant difference between the students at Benha University and Hail university in their attitude toward computers in Healthcare, where the highest mean score (79.45±15.85) was in Hail university at p-value = 0.000.

Table 4 shows a significant difference between the students at Benha University and Hail University in their computer self-efficacy score, where the highest mean score 61.2±7.25 was in Hail University as the p=0.000. The table also reveals that Benha nursing students have moderate computer self-efficacy compared with Hail nursing students who have a high computer self-efficacy level.

Table 5 displays a highly statistically significant positive relationship between nursing students' attitude toward computer in health care and their computer self-efficacy.

Table 6 displays that there was a positive highly statistically significant correlation between age, gender, education, previous studying of computer, where students studied computer, the number of workshops students took, and the years of experience in uses computer and both students attitude toward computer in health care and their computer self-efficacy.

Table (1): Comparison of the study subjects' sociodemographic characteristics (n=219).

Personnel characteristics	Benha (N =190)		Hail (N =29)		x^2	p-value
	No	%	No	%		
Age in years						
< 25	181	95	21	72	1.02	0.18
25 < 30	9	5	5	17		
≥ 30	0	0	3	10		
Mean ±SD	23.25±5.69		21.50 ±4.12			
Gender						
Male	55	29	0	0	2.012	0.18
Female	135	71	29	100		
Education						
Diploma Degree (Bridging student)	0	0	11	38	0.98	0.29
High school (Regular)	142	75	16	55		
Technical institute of nursing	48	25	2	7		
Previous studying of the computer?						
Yes	190	100	29	100	0.289	0.18
No	0	0	0	0		
If yes where it has been studied?						
Diploma	0	0	7	24	0.912	0.69
Technical institute	41	22	2	7		
High school	117	62	11	38		
College/ preparatory year	32	17	20	69		
The number of the taken workshop?						
1-5	158	83	25	86	1.028	0.25
6-10	32	17	4	14		
The years of experience in using computer						
<5	40	21	9	31	2.015	0.025
5 - 10	88	46	19	66		
11-15	62	33	1	3		
16-20	0	0	0	0		

Table (2): Frequency and percentage distribution of study subjects overall score regarding their attitude toward computer in health care (n=219).

Students attitude toward computer in health care	Benha (N =190)		Hail (N =29)	
	No	%	No	%
Cyber phobia	22	12	1	3
Unsure of the usefulness of computers in health care	38	20	3	10
Limited awareness of applications of computer technology in health care	14	7	4	14
A realistic view of current computer capabilities in health care	62	33	6	21
Enthusiastic view of the potential of computer use in health care	32	17	7	24
A very positive view of computer uses in health care.	22	12	8	28

Table 3: Comparison of the total mean score for Benha and Hail nursing students regarding their attitude toward computers in health care (n=219).

Attitude regarding Computer use in Healthcare	Mean ±SD	t-test	p-value
Benha university (n=190).	68.12±19.22	12.667	0.000
Hail university (n=29)	79.45±15.85		

Table (4): Comparison between the total mean for Benha and Hail nursing students regarding their computer self-efficacy (n=219).

Computer self-efficacy	Mean ±SD	t-test	p-value
Benha university (n=190).	45.25±5.78	14.661	0.000
Hail university(n=29)	61.2±7.25		

Table 5: Correlations between students' attitudes toward computer use and computer self-efficacy variables (n=219).

Computer self-efficacy domains	Attitude toward computer in health care	
	r	P-value
General Computer self-efficacy	0.268	0.000
Advanced Computer self-efficacy	0.458	0.000
Total	0.346	0.000

Table 6: Correlation between students' sociodemographic characteristics, attitude toward computer in health care, and computer self-efficacy (219).

Personal characteristics	Attitude toward computer in health care		Computer self-efficacy	
	r	p-value	r	p-value
Age in years	0.258	0.000	0.258	0.000
Gender	0.18	0.000	0.125	0.000
Education	0.478	0.000	0.581	0.000
previous studying of the computer	0.612	0.000	0.458	0.000
If yes, where has it been studied	0.587	0.000	0.196	0.000
the number of workshops took	0.396	0.000	0.481	0.000
The years of experience in uses computer	0.427	0.000	0.651	0.000

6. Discussion

Computer technology plays a significant role in professional nursing practices and will shape the future of nursing. Consequently, the American Association of Colleges of Nursing *(AACN, 2008)* highly recommended that baccalaureate nursing graduates should achieve "competence in the use of both patient care and information technology systems." However, to ensure efficient and effective use of computers in health-care environments, it is necessary to determine nursing student's attitudes towards the use of computers to have a better understanding of how they think about computer use in health care as well as the belief of their capability in using the computer. Accordingly, this study aimed to assess and compare nursing students' computer self-efficacy and attitudes toward its use in health care in the Faculty of Nursing – Benha and Hail Universities.

Based on the findings of the present study, the highest percentage of nursing students from Benha University have a realistic view of current computer capabilities in health care. In contrast, the highest percentage of nursing students from Hail had a very positive view of computer use in health care, which accounted for the most positive attitudes towards the use of computers in health care. Although the differences in the categories of both groups, they still in the range of positive attitudes toward computer uses. This result may be due to all the participants already have studied computer before, and the majority of them have from 5 to 10 years of experience in using computers, which

in turn affect their attitude toward computer use. This explanation was supported by *Herath and Mathotaarachchi (2018),* who explained that information technology knowledge and experience could contribute to students' positive attitudes toward working with computers, their exposure to the world of technology, and the improvement of their computer competencies.

These results agreed with *Vijayalakshmi, Ramachandra, and Math (2014),* who conducted a comparative analysis of nursing students' attitudes towards computers in health. Results of the study indicated that students who completed the computer course were found to have positive attitudes. Accordingly, the authors concluded that earlier computer use indicates a more positive attitude toward technology and a better understanding of its utility. This result also agreed with *kaya (2011),* who conducted a study to determine factors affecting nurses' attitudes toward computers in healthcare. The findings indicated that nurses, in general, had positive attitudes toward computers. While, this result disagreed with *Gonen, Sharon, Offir, and Lev-Ari (2014),* who conducted a study to examine the correlation between nursing students' attitudes to computer use and several variables. The findings indicated that the attitude to computer use was neither positive, nor negative among the studied sample.

Regarding the differences in the total mean score between Banha and Hail nursing students' attitudes toward computer use in health care. The findings of the present study pointed out that the highest mean score was at Hail University compared to Banha University students' mean score. This finding is because the Kingdom of Saudi Arabia vision 2030 seeks for digital transformation in almost all services in the Kingdom to fully digitize the services. It, in turn, makes students familiar with computers and their uses as they depend on them to gain access to most services compared with Egypt, where most of the services still based on paperwork.

This result was supported by *Carey, Ines, Chisholm, Leslie, and Irwin (2002)*, who reported that attitudes towards computers differ across geographic areas. However, this result also agreed with *Sabti and Chaichan (2014),* who conducted a study to examine the attitudes of Saudi Arabian high school students toward the use of computer technologies in learning English. The results reported that the responses of learners were mostly positive toward the utilization of computers and the internet in learning English.

Regarding students' computer self-efficacy, the findings of the present study revealed a significant difference between the students at Benha and Hail University in their computer self-efficacy score, where the highest mean score was in Hail University. This result is due to the nature of the study at Hail University, which is more technology-based. Hail University offers a better chance for students in using technology in the form of using the smartboard system in their education as opposed to the Benha students. They are less motivated to use computer applications in their learning because it is not activated in their learning environment.

The findings of the present study also revealed that Benha nursing students have moderate computer self-efficacy compared with Hail nursing students who have high computer self-efficacy — indicating that Hail nursing students have a firm belief in their capabilities in using the computer tasks than Benha students. This is due to the rapid changes in the lifestyle of the Saudia Arabian people where technology and digital transformation take place and computer use consider a basic in their life actually. This result agreed with *Saleh (2008),* who conducted a study to assess computer self-efficacy of university faculty in Lebanon, the results indicated that the majority of the studied participants were at a moderate level. Less than half of them self-evaluated themselves to have high CSE.

The findings of the present study displayed a highly statistically significant positive relationship between nursing students' attitudes toward computers in health care and their computer self-efficacy, indicating that students' who believe in their capability in using computer tasks has a positive influence on how students feel, think, and behave toward computers. Accordingly, having higher self-efficacy leads to more positive attitudes toward computers.

This result agreed with *Conrad and Munro (2008)*, who study the relationships between computer self-efficacy, technology, attitudes and anxiety. The results revealed that there was a positive relationship between computer self-efficacy and positive attitudes. This result also agreed with *Torkzadeh and Van Dyke (2002),* who conducted a study to examine the effects of training on internet self-efficacy and computer user attitudes. The results indicated that respondents with 'high' attitude toward computers had higher self-efficacy scores than respondents with 'low' attitude toward computers.

The result also, agreed with the previous study conducted by *Yeşilyurt, et al. (2016)* to examine the correlation among the effects of teacher self-efficacy, academic self-efficacy, computer self-efficacy, and attitude toward applying computer-supported education. The most significant finding of that study was that teacher self-efficacy, academic self-efficacy, and computer self-efficacy are essential predictors of prospective teachers' attitude toward applying computer-supported education.

Regarding the relationship between students' attitudes to computer use and their sociodemographic characteristics, the findings indicated a positive highly statistical significant correlation between age, gender, education, previous studying of the computer, where students studied computer, the number of workshops students took, and the years of experience in uses computer and students' attitude toward computer in health care. From the researcher opinion it may be due to that students when they grow, they felt the importance of computer in their life and they achieve more experience and So , that earlier exposure to computers suggests a more positive attitude toward the technology and

a greater understanding of its usefulness in education and nursing practice.

This result agreed with *kaya (2011),* who reported that age, nursing education, computer experience, computer science education, duration of computer use, and place of use of a computer are essential indicators that contribute significantly to the development of positive attitudes toward computers. While disagreed with *Gonen et al. (2014),* who reported no differences between those who previously took a computer course and those who had not. This result disagreed also with *Koç, Kılıç, Öztaş, Ceylan, and Sılay (2018),* who conducted a study to determine health care professional's attitudes about using computer effectively in health care facilities and reported that positive attitude was found to be statistically significant in relation to the age of the health care personnel, the institution to be employed and the duration of computer use, whereas gender, educational status, occupation and computer use at work had not significant relationship.

Regarding the relationship between students' computer self-efficacy and their characteristics, the findings indicated a positive highly statistical significant correlation between age, gender, education, previous studies in computer, where students studied computer, the number of workshops students took, and the years of experience in uses computer and students' attitude toward computer in health care. This is because the student's age may affect the extent of knowledge and proficiency in computer use, thus the fourth-year students was selected for the study for their supposed efficiency in using the computer makes. Nowadays, it is natural for the computer to be present in all respects of students' life and thereby affect their educational achievement. This result agreed with *Hasan (2003),* who reported a relationship between computer experience and computer self-efficacy among the studied subjects. The results also agreed with *John (2013),* who found that that basic computer knowledge and previous computer experience positively influence an individual's computer self-efficacy.

7. Conclusion

The highest percent of nursing students from Benha University were have a realistic view of current computer capabilities in health care, while the highest percent of nursing students from Hail had a very positive view of computer use in health care. Nursing students at Hail University have the highest mean score compared to Benha nursing students in their attitudes toward computer and computer self-efficacy. Benha nursing students have moderate computer self-efficacy compared with Hail nursing students who have a high computer self-efficacy level. A highly statistically significant relationship was detected between students' attitudes toward computers and computer self-efficacy. Also, there was a highly positive, statistically significant correlation between the demographic variables of nursing students and both students' attitudes toward computers in health care and computer self-efficacy.

8. Recommendations

Future studies are recommended to conduct evaluations on existing technologies in terms of acceptance, effectiveness, and efficiency in real-life settings and to examine its effect on patient outcomes. Also, nurse educators should design training courses and educational programs to enhance computer self-efficacy beliefs among nursing students.

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