

Nursing students' use of Internet and Computer for their Education in the College of Nursing

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Abstract

Objective: Computer and Internet literacy helps student nurses to achieve their learning goals. Increasing number of Saudi nurses is entering to work in the health care settings. It is vital that they have the abilities to use enhanced electronic means to find and utilize research findings throughout their career. There are limited numbers of nursing students' information technology usage and no studies of Saudi nursing students' computer and Internet utilization in their education were ring the literature review. The aim of this study is to investigate located du how student nurses use Computer and Internet for their studies in the College of Nursing, Jeddah. And the objectives are: To describe nursing students' use of computer and Internet during their education in College of Nursing, Jeddah.

Materials and Methods: A relative frequency survey was conducted. The self-administered instrument's validity was tested by using expert evaluations and by conducting a pilot study. A convenient sample of 100 female nursing students was used and response rate was 89%.

Results: The average age of the respondents was 22.3 years. Most of the students, 95.5% had their own computer and 68% had Internet connection at home. Only 41, 6% used Blackboard and 77.5% used e-mail in communication with their instructor. 80.9% of respondents searched nursing journals from the internet and only 12 students (n=89) used database(s) for information search. 82% of students found relevant nursing information for their studies from the Internet.

Conclusion: This study shows that nursing students are not using systematic ways to retrieve evidence based information from the databases. National Guard Health Affairs Universities have a good and relevant collection of databases for nursing students. Nursing students also need further training in using Blackboard, Word processor, Excel, and reference managers.

Background

Computer and Internet literacy are important skills for nursing students. During their studies they need to use the computer and Internet in finding information from web sites and using different software. Computer and Internet literacy helps student nurses to achieve their learning goals. These skills are also important for their future career. So, the ability to use Information Technology (IT) is becoming a pervasive need in nurse education [1]. Nurses need to obtain Internet skills not only for their studies but to help patients to find relevant information for their health related questions. Nurses working in health care settings play a crucial educative role with patients who increasingly access Internet sources of health information to guide health management decisions [2]. Nurses as well as nursing students need to be knowledgeable about online health information resources and be able to evaluate relevant information online in order to assist patients and patients' families' to access reliable and relevant information. Nursing students in College of Nursing -Jeddah, Saudi Arabia have had computer science course during their second year since 2005.

Terminology Clarification

During the past decade, IT has been rapidly integrated into healthcare. Consequently, nursing programs have had to meet the challenge of educating students to deal with advancing technology, from clinical information systems to computerized medical equipment [3]. The terminology in the field of IT is rapidly evolving and new terminology is continuously introduced. Sometimes the words used in the health related IT is confusing. Some researchers talk about IT in health care whereas others prefer to use the term e-health. In their cross-sectional survey among undergraduate second year nursing students focusing on attitudes and perceptions towards e-health Edirippulige et al. [4] concluded that 77 % (n=43) of the respondents admitted

they were not familiar with the term e-health. Furthermore Edirippulige et al. [4] state that over 50 % (34) said they were not sure if e-health has any relevance to their future practice. E-health is the transfer of health related resources and health care by electronic means. It encompasses three main areas: The delivery of health information, for health professionals and health consumers, through the Internet and telecommunications [5], and it is related to computer and Internet enhancement, but as such does not include the evidence based information search from the databases. All in all in some references the use of Internet and Computer is included in the concept of e-learning. Nurses use computer programs and Internet for many purposes, for instance writing assignments, preparing seminar presentations, watching videos, communicating with their peers and instructors, finding evidence based nursing (EBN) resources and web sites, keeping themselves up to date of the latest developments in nursing, and lastly by using library databases.

Literature Review

A selective literature review was conducted in College of Nursing Jeddah using the Medical library databases using keywords such as: Nursing student, Saudi, Computer, Internet and education. Databases such as CINAHL and Medline were used. The literature search yielded 16 relevant articles published between 2002 and 2014. The time frame for the literature review was

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relevant articles published between 2002 and 2014. The time frame for the literature review was expanded to health care professionals other than only nursing students due to the small number of references found. The literature search was narrowed to the past 12 years because the topic is rapidly evolving. It has to be acknowledged that some of the articles are old, but were included due their relevance to the study in question.

Use of Internet among other health care students

Ogur et al. [6] explored medical students Internet usage in Turkey for their studies and concluded that the most common usage of computers was connecting to the Internet (91.9%), and the most common use of the Internet was e-mail communication (81.6%). The most preferred site category for daily visit was newspaper sites (62.8%). Approximately 44.1% of students visited medical sites when they were surfing. Also, Ogur et al. [6] continue that there was a negative correlation between school performance and the time spent on computer and Internet use (-0.056 and -0.034, respectively). It was concluded that medical students used the computer and Internet essentially for nonmedical purposes. This study again is 10 years old and the results could be different today.

Romanov & Nevgi [7] assessed the association between the uses of multimedia materials, such as video clips, and collaborative communication tools with learning outcome among medical students. One hundred and twenty-one third-year medical students attended a course in medical informatics (0.7 credits) consisting of lectures, small group sessions and eLearning material. The eLearning material contained six learning modules with integrated video clips and collaborative learning tools in WebCT (Course Tools). Learning outcome was measured with a course exam. Approximately two-thirds of students (68.6%) viewed two or more videos. Female students were significantly more active video-watchers. No significant associations were found between video-watching and self-test scores or the time used in eLearning. Video-watchers were more active in WebCT; they loaded more pages and more actively participated in discussion forums. Video-watching was associated with a better course grade. Almost 20% of third year medical students neglected video clips as a multimedia learning tool [7].

Ghabili & Alizadeh [8] analyzed the results of a study performed on 800 medical students, all Iranian, who entered the Faculty of Medicine in Tabriz, Iran between 2000 and 2006. A self-administered, anonymous questionnaire was used to determine how medical students use computers and the worldwide web. Data analysis revealed that approximately 45% of medical students used computers for less than 1 hour per week, and only 18.3% of students devoted 6-7 hours to working with the computer. The most common usage of computers involved connecting to the Internet (80%). However, of the 320 students who used the Internet, a third did so for recreational purposes. Nearly 35% and 5% indicated that they connected to the Internet in order to check e-mails and read electronic newspapers, respectively, and 32% mentioned the Internet as a resource for searching for medical articles. Among these, nearly 40% visited medical sites while they were surfing the web. The results of this study showed a relatively low level of computer use by a group of Iranian medical students [8]. Also in this study connection to the Internet by medical students was largely for non-scientific purposes.

Faculty using Information technology in their work

In the study of Hsu [9] it was concluded (response rate 41%) that higher technology use was significantly related to faculty with six or

years of teaching and if they had completed at least ten hours of professional development on web-based instruction. Although there is limited web-based nursing instruction among community colleges, faculties use technology to support their teaching. Faculty who understand their learning style preference and how it influences their teaching may be more sensitive to their students' learning styles and use technology more effectively. Factors that will increase the use of technology in nursing education include more professional development, technology support, and release time [9]. This study serves as important base line information for future studies, even though the response rate was low and new data collection was not conducted to raise the response rate.

Nursing students using the Internet

Nurses have several roles in using the Internet, namely to gain information themselves during their studies and then later on when working to help their patients to obtain reliable information related to patients' personal health related issues. Nurses, as well as nursing students, need to be knowledgeable about online health information resources and able to evaluate relevant information online in order to assist patients and patients' families' access [10].

Gilmour et al. [2] found that online health information is commonly used by patients with chronic illness to support their education needs. Nurses have a critical role in assisting patients to access and use this information. Gilmour et al. [2] continue that their descriptive cross-sectional survey of a random sample of 540 nurses employed in medical wards was carried out in 2009. The response rate was 58% (sample size 293) and most respondents (78%) were satisfied with work Internet access and 52% believed that the use of online information improved care delivery. Nearly half the group was aware of patient misconceptions about their illness due to incorrect interpretations of online information, but only 24% checked if patients used online information. There was a significant association between assessing patients use and awareness of patient misconceptions. The conclusions of the Gilmour et al. [2] study was that the findings highlight that while online resources add to education opportunities, the ongoing nursing assessment required to determine online information needs is not always incorporated into nursing practice. Patient misunderstandings of online material were also identified and it must be admitted that assessing the patients' understanding of as well as the relevance of the information which patients' retrieved from Internet is time consuming in the current setting of busy wards where the patient turnover is rapid.

Park & Lee [10] conducted a study the purpose of which was to assess eHealth literacy among undergraduate nursing students in South Korea. This study used a descriptive comparison design. One hundred and seventy-six undergraduate nursing students in South Korea participated. Participants were asked to complete the eHealth Literacy Scale. Collected data were analyzed using a descriptive statistical method and t-tests. In Park & Lee [10] study participants responded that the Internet is a useful or very useful tool in helping them make health-related decisions. Furthermore, participants felt that it is important to be able to access health resources on the Internet. The majority of the participants either agreed or strongly agreed that they felt comfortable using the Internet and had awareness of what information is available and of their skill in finding information. Only a few respondents agreed or strongly agreed that they had the ability to differentiate between a high quality and a low quality health resource on the Internet. Students

enrolled in nursing scored higher means in all eHealth literacy items than students enrolled in pre-nursing. Six out of ten eHealth literacy items showed significant differences between the two groups [10].

In the literature it has been mentioned that nurses face many barriers while trying to use computer programs and the Internet for their studies. Many studies show that nurses are interested in using IT [11]. These studies are relatively old and the situation may have changed. In spite of the expressed positive attitudes of nurses regarding scientific nursing knowledge, the use of research results is impaired by different barriers among nurses such as the barrier identified with regard to using databases on the Internet and limited experience in using the online library [12].

Nurses future qualifications in Saudi Arabia

Nurses play an important role in health care in Saudi Arabia and an increasing number of Saudi nurses are entering the work force in the health care settings. It is vital that they have the abilities to use enhanced electronic means to find and utilize research findings throughout their career. No studies of Saudi nursing students' computer and Internet utilization in their education were located during the literature review and this is the gap which this study aims to address.

Aim of The Study

The aim of this study is to investigate how student nurses use computers and the Internet during their studies in to College of Nursing Jeddah.

Main question: To describe nursing students' use of computers and the Internet during their education in CON-J.

Materials and Methods

At this stage it was important to get the general overview of student nurses computer and Internet utilization. It was anticipated that the research results could be used to tailor nursing student's educational programme to systematically develop their IT literacy. The design of this study was guided by the assumption that a student nurse would conduct this study and therefore the study design was simple. Survey research is common in studies of health and health services and the term 'survey' is used in a variety of ways, but generally refers to the selection of a relatively large sample of people from a pre-determined population followed by the collection of a relatively small amount of data from those individuals [13]. The researchers of this study used information from a sample of study respondents to make some inference about the wider population. For the simplicity of the study design a relative frequency survey was conducted. The study area was at National Guard Health Affairs College of Nursing in Jeddah, Saudi Arabia. The study subjects were level 3 or above nursing students who were willing to participate in the study. A convenience sample was used. The sample size was 100. The total number of students in the College of Nursing is estimated around +/- 320 students.

The validity and reliability

The questionnaire was evaluated by two Research Committee members and amendments to the questionnaire were made. Ten (10) questionnaires were distributed to nursing students as a pilot study and afterwards these students were interviewed and they found the questionnaire understandable and easy to answer and had no comments for improvement. No statistical method such as Cronbach's

Alpha was used. Pilot study results were included because no changes to the questionnaire were made.

Data collection

After the pilot study, on 25th December 2012 100 questionnaires were distributed among nursing students at the College of Nursing - Jeddah and after the first round 75 forms were returned. For the second round of this survey 25 questionnaires were distributed on 29th December 2012 and the final response rate was 89% (n=89).

Data analysis: the data was analyzed by using Excel and frequencies and percentages were calculated.

Ethical considerations

Anyone involved in collecting data from individuals has an ethical duty to respect each individual participant's autonomy [13]. Any survey should be conducted in an ethical manner and one that accords with best research practice. It is important to adhere to two ethical issues when conducting a survey. These are firstly to maintain confidentiality and secondly to obtain informed consent. In this study the anonymity was guaranteed, no identification details were collected, and respondents gave their consent after reading the information of the study and data handling procedures and lastly when agreeing to answer the questions in the questionnaire. Same information was also given orally when questionnaires were distributed to the students. There was no place for any coercion or manipulation from the researcher's side. Signed ethical approval was obtained from the Dean's office on 24th December 2012. The College's Scientific Committee also approved the study to be commenced.

Results

The average age of the respondents was 22.3 years. 85 of the respondents (n=89) had completed a computer science course. The vast majority of respondents, 86.5%, had done their Computing Science course in College of Nursing - Jeddah. The others stated they had participated in computer science courses at King Abdullaziz University or at high school. Most of the students, 95.5%, had their own computer and 68% had Internet connection at home, however, 61% wrote that their Internet connection was not good. 91% used the Internet for their studies during the weekend and 89.9% indicated that the Internet does help them with their studies. Only 41.6% used Blackboard in communication with their instructor but then again 77.5% used email in communication with their instructor. When asked about knowledge management, 80.9% of respondents searched nursing journals from the internet but only 44.9% responded that they used databases. When asked to specify the database only 12 students (n=89) used database for information search. The respondents mentioned databases like National Guard Health Affairs databases, PubMed, Science Direct, and publishers' websites. 66.3% of respondents found the latest information on medicine and 69.7% found latest information on nursing from the Internet. 82% found relevant nursing information for their studies from the Internet. 53.9% were registered to some health related website. Questions related to general software use showed that 77.5% of the student respondents used Word processor, 50% used reference manager, 92.1% used Powerpoint presentation program and 48.3% used Excel (Table 2).

Limitations of the Study

The study limitation is that it is surveying only the student nurse's own opinions of their computer and Internet utilization. This was done in

order to get the basic knowledge of the topic in the nursing college. No further data analysis was conducted and that can be seen as a limitation but it should be borne in mind that this study was designed for a Baccalaureate student to participate in a higher education scientific competition.

as an integral aspect of illness management education. Enhanced search skills should help to reduce the anticipated problems of students working on essays, and in the future, on theses. Furthermore, computer and Internet use by faculty during teaching activities may encourage students to make greater use of electronic information resources.

No of question	Question	Yes	No	Missing
3	Do you have computer of your own?	85	3	1
4	Do you have access to the Internet from your home?	86	1	2
5	If you answered yes is your Internet access good?	68	16	4
6	Do you use computer (own or college computer) at the college for studying?	61	27	1
7	Do you use computer (own or college computer) for chatting?	50	37	2
8	Do you use the Internet during the weekends for your studies?	81	6	2
9	Does Internet help you in your nursing studies?	80	7	2
10	Do you use Blackboard in communicating with your Instructor?	37	51	1
11	Do you use e-mail in communicating with your Instructor?	69	17	3
12	Do you search for nursing journal articles from Internet?	72	13	4
13	Do you use electronic databases available in NGH Nursing College?	40	44	5
14	Science direct (3) Wiley (2) PubMd (5) OVID (1) Blackwell (1)			
15	Do you use Word processor?	69	18	1
16	Do you use Reference Manager in your Word processor?	41	45	3
17	Do you use some other reference manager?	45	40	4
18	Do you use Power Point presentation program?	82	6	1
19	Do you use Excel?	43	44	6
20	Do you use the latest developments in medicine from the Internet?	59	27	3
21	Do you use the latest developments in nursing from the Internet?	62	23	4
22	Do you use relevant information for your studies from the Internet?	73	13	3
23	Are you registered in any health related website?	48	38	3
24	Are there some other ways you are using your computer programs or Internet? Please name below:			

Table 1: Study results in frequencies.

Studies related: Quadramed, Video maker, e-library, Google, Photoshop, FrontPage, Social media: Facebook, Twitter, Blogging
Artistic: Drawing, Music, Entertainment: Playing games, Contact family outside KSA, News, Youtube

Conclusion

The study results show that nurses do not have barriers in accessing Internet or having the capacities and opportunities to use computers. The results of this study show that nurses are using computers at the college and at home for their studies, but this usage could be more effective. This study shows that nursing students are familiar with the Internet and are using it for their studies but they are not using the primary sources for knowledge retrieval. This means that these nursing students are not using systematic ways to retrieve evidence based information from the databases. National Guard Health Affairs has good and relevant collection of databases for nursing students. Less than half of the students reported the usage of Blackboard when communicating with their course instructors. In the College the use of Blackboard is very limited due to continues access problems and malfunction of this software. Surprisingly 22.5% of the respondents did not use Word processor but they may use some other text processor like Notepad, even though they did not mention it. Almost all assignments and homework are expected to be submitted in Word processor format. In Word processor there are tools to improve the spelling and grammar, utilize thesaurus and reference manager. Furthermore, nurses need IT skills and especially Internet search skills when developing patient competency in evaluating open access health information and this should now be seriously recognized

Competing Interests

The authors declare that they have no competing interests.

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