

Effectiveness of Educational Program about Telenursing for Nursing Intern on Their Knowledge and Attitude

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Abstract: Telenursing is methods of remote care for improving the quality of patient's care. Nurses have a key role to play in the application and implementation of telenursing services .It is therefore expected of them to understand their role so as not go behind their locus of duty.

Aim: The present study aimed to determine the effect of educational program about telenursing for nursing intern on their knowledge and attitude at Benha University Hospital.

Design: A quasi-experimental design was used.

Setting: The study was conducted at different clinical departments at Benha University Hospital .

Sample: A systematic random sample was used consisted of (55) nursing intern at the previously mentioned setting.

Tools: two tools were used for data collection.

Tool I: Nursing intern Knowledge Regarding Telenursing Questionnaire and

Tool II: Nursing intern Attitude Scale toward using Telenursing.

Results: The result revealed that more than half of nursing intern had good knowledge scores (58.2%) regarding telenursing post-program as compared to preprogram there was the majority and they had nursing intern have a positive attitude toward using telenursing immediate post -program and follow up (after 3months)of the program.

Conclusion: The current study concluded that, a statistically significant difference with an improvement in knowledge and attitude scores among nursing intern total knowledge and total attitude immediate post- program and follow up (after 3 months)as compared to preprogram in all dimensions. Also the statistically significant correlation between total knowledge and total attitude before the program and follow up (after 3months)of the program .

Recommendations: The study recommended that enhance telenursing in nursing practice and it should be provided in the nursing administration curriculum.

Keywords: Attitude, Educational program, Knowledge, Nursing intern, Telenursing.

1. INTRODUCTION

The healthcare delivery environment is dramatically changing and professional has found in the midst of these revolutionary changes. Healthcare providers are in prospect to be able to give safe, highly competent care in a highly technical and digital environment. Using the technology in delivering healthcare is the ability to ensure that the right information is available at all stages of the health care process, especially during critical times of transition. All members of the healthcare team—including patients and family caregivers—need access to key pieces of information in order to make transitions of care smoothly, safely, and effectively (Sewell, 2016).

Telenursing is defined as the delivery of nursing care at a distance using electronic communication devices. The College has developed different guidelines to provide clear direction to registered nurses who engage in this professional or plan

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to engage in this practice, so as to improve their ability to be safe, competent, and compassionate and obtain moral care. These guidelines are based on the principles of telenursing, which state that effective telenursing should be: augment existing health care services, enhance optimum access and, where appropriate and necessary, provide immediate access to health care. Services follow position descriptions that define comprehensive, flexible roles and responsibilities, improve and/or enhance the quality of care, reduce the delivery of unnecessary health services, protect the confidentiality/privacy and security of information related to nurse-client interactions (*College of Registered Nurses of Nova Scotia, 2013*).

Telenursing is a component of telehealth that occurs when staff nurses meet the health needs of patients using information, communication and web-based systems. This has been defined as the delivery, management and coordination of care, and services provided through information and telecommunication technologies (*Schlachta et al., 2015*). Nursing intern contribute to the development of healthcare in the general practice setting. Internship year is considered as a time of transition from undergraduate nursing students to a beginning level of registered nurses (*Abd-Elaziz, 2017*).

Although telenursing changes the method in which professional nursing services are delivered, it does not change the nature of nursing practice. Registered nurses engaged in telenursing continue to use the steps of nursing process to assess, plan, implement, evaluate and document nursing care. They are involved in the provision of information, referrals, education, and support. However, instead of establishing therapeutic nurse-patient relationships in-person, telenursing relationships are formed through the use of telephones, computers, the internet, or other communication technologies. While support for the concept of telenursing continues to grow, the reality is that technology will continue to change the ways in which registered nurses practice (*Ghorbanzadeh, Fallahi, Seyed&Izadi, 2017*).

Telenursing is the use of technology to deliver nursing care and carry on nursing practice. Although the use of technology changes the delivery medium of nursing care and may necessitate competencies related to its used to deliver nursing care, the nursing process and scope of practice does not differ with telenursing. Nurses engaged in telenursing practice continue to assess, plan, intervene, and evaluate the outcomes of nursing care, but they do so use technologies such as the Internet, computers, telephones, digital assessment tools, and telemonitoring equipment (*Loretta, Victoria & Andrea, 2014*).

Although effective communications are essential in establishing all nurse-patient relationships, this is particularly crucial when using information and telecommunication technologies. To establish and maintain therapeutic relationships in telenursing, nurses should: recognize and communicate that a nurse-patient relationship and a duty to provide care is established from the moment the registered nurse engages with the client (*Wojciech , Katarzyna, & Lena., 2013*), acknowledged that face-to-face interactions are still considered the most effective way in which to communicate, ensure that telenursing practice will be an effective and appropriate method to provide nursing services to meet a specific client's needs provide clients with education/orientation to the telehealth process and communication issues prior to their initial telehealth encounter (*Ghorbanzadeh , Fallahi, Seyed ,&Izadi ., 2017*).

Patients also enjoy the benefits of telenursing and medical care. The biggest advantage for patients is access to the medical facility. Patients can have immediate, quick and instant access to the Medicare. Patients get educated about their illnesses which help them in being involved in the decision-making process related to their treatments. When patients with chronic illness such as diabetes and asthma know that the help is just a call away, they show more enthusiasm in taking responsibility for their self-care. Patients also save time and money when under telenurse care because they do not need to travel to see the doctors or nurses (*Lynn, 2015*).

Among many advantages of telenursing in nursing care are improved accessibility to health care, faster services development, an increase in the prestige of the profession, data security, better information flow, convenience, facilitated communication between nursing staff and hospitals, available for both personal and patients, and improvement of time and resource allocation. Also, there are few disadvantages as telenurses may not be able to handle the emergency care from a distance, at times, patients are unable to explain their situations on calls and telenursing might not be able to see the scars and wounds properly from a distance (*American Association of Critical Care Nurses, 2013*).

Significance of the Study:

As models of care delivery continue to change and new technologies emerged, telenursing practice will continue to evolve. In turn, as the scope of nursing practice further expands, registered nurses will need to ensure that they possess the necessary technical and clinical competencies to practice telenursing safely, competently, compassionately and ethically.

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To guide them in their practice. is one of various innovative and improved methods of providing nursing care that directly affects nurses and their capacity to practice ensuring is a relatively new arena as well as directly affecting clients (*College of Registered Nurses of Nova Scotia, 2017*).

Patients have access to various types of telenursing such as nurse on the call where a nurse is participating in a kind of telephone triangle system and consultation through call center of the helpline. Telenurse is also available in home care, emergency support, and diseases management centers. In order to become a telenurse, one needs high-quality training and professional commitment (*Schlachta & Fairchild, 2015*).

Internship year represents major challenges for nursing intern. These include the need to acquire and regularly demonstrate communication and clinical skills, including history taking, examination, providing patient information and performing practical procedure. During this period nursing intern learn their role as a registered nurse on the unit they have worked (*Abd-elaziz, 2017*).

Aim of the study

This study aims to determine the effectiveness of the educational program about telenursing for nursing intern on their knowledge and attitude.

Research Hypothesis:

The implementation of the educational program will enhance nursing intern knowledge and attitude about telenursing at Benha University Hospital.

2. MATERIAL AND METHODS

Research Design:

A quasi-experimental design (pretest and post- test) used in this study.

Setting:

Study setting included different clinical departments of Benha University Hospital where nursing intern are trained, in addition to hospital service administrators work sites. These departments were as follows: medical department consisted of (intensive care unit, coronary care unit, kidney dialysis units; adult & pediatric and premature unit) surgical department consisted of (operating rooms; general operating, ENT, urology & orthopedic, emergency unit; department & operating room and labor & caesarian section).

Subjects:

The subjects included in the present study consisted of (55) nursing intern:

A systematic random sample was used through choosing every 5 of nursing intern from (205) who is training in Benha University Hospital in the academic year 2017-2018. (5) Nursing intern were excluded from the study for the pilot study.

Tools

Data were collected by using the following instruments.

Tool (I): Nursing Intern Knowledge Regarding Telenursing Questionnaire: It was developed by the researchers after reviewing related literature (*Dwayne, 2012 & Anna, Cornelis, Helianthus, 2014 & College of Registered Nurses of Nova Scotia, 2017*). It consists of two parts:

Part I: personal characteristics of the nursing intern included age, gender, and educational level, place living and attending training courses.

Part II: Questionnaire sheet was constructed to assess nursing intern knowledge regarding telenursing before and immediately after implementation of the program and follow up (after 3 months) which includes the definition of telenursing, types, uses, advantages and disadvantages, reasons for using telenursing and their roles. It was written in English language.

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It consisted of 29 questions multiple choice and list covering the following dimensions: definition of telenursing (1 questions), uses (5 questions), types (2 questions), advantages of using telenursing (4 questions) and disadvantages (3 questions), reasons of using telenursing (6 questions), and their role (8 questions).

The scoring system for questionnaire sheet was calculated for each item as follows: correct and the complete answer was scored (two points), incomplete answer was scored (one point), and the wrong answer was scored (zero points).

Scores were transferred into numbers and percentage the total score for all questions: The score of the items was summed-up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into a percent score.

The total knowledge scores (58 degrees) and it was considered good if the scores of the total knowledge $\geq 75\%$ (≥ 43.5 degrees) while considered average if it equals $60 - < 75\%$ (from $34.8 - < 43.5$ degree), and considered poor if it is $< 60\%$ (< 34.8 degree) (El sayed, 2017).

Tool(II): Nursing intern Attitude Scale toward using Telenursing :It was developed by (Anna, Cornelis, Houwelingen & Helianthe, 2014) to assess nursing intern attitude toward using telenursing. It consisted of 21 items it divided into two categories regarding him/her self (5 items) and regarding health system (16 items).

Scoring system: nursing intern response were ranged from (2) always and (1) sometimes and (0) never. While the range of total scores for nursing intern attitude (25) expressed as follow; positive $\rightarrow \geq 60$ (≥ 25.2 degree) and negative < 60 (< 25.2 degrees) (Abd-Elziz, 2017).

The data collection tools was revised by a panel of five experts in the field of nursing administration. Modifications were done based on a jury and experts comments such as modifying some words to give the right meaning for the phrase which did not understood clearly.

Content validity and reliability:

A bilingual group of five specialists was chosen to test the content and face validity of the tool. Some modifications and deleting of some questions were done to reach the final valid version of the tool. The tool was valid from the experts' perspective. Additionally, the tools were tested for reliability by measuring their internal consistency using Cronbach's alpha coefficient method. This turned out to be ($\alpha = 0.83$) for nursing intern knowledge regarding telenursing questionnaire tool and, ($\alpha = 0.80$) for nursing intern attitude scale toward using telenursing tools. This indicates a high degree of reliability for the study tools.

Ethical Considerations:

- Official permission from the dean of the faculty of nursing to conduct this study.
- Privacy and confidentiality of the collected data were assured.
- Participation in research is voluntary and nursing intern were assured that withdrawing from the study was at any stage without responsibility.

Pilot study:

A pilot study was carried out on 10% of the sample (5 nursing intern) before starting the actual data collection to ascertain the clarity, and applicability of the study tools. Based on the results of the pilot study, modifications and rearrangement of some statements were done.

Fieldwork:

Preparation of data collection tools was carried out over a period of 6 months from December 2017 to May 2018. After extensive literature of review. Then the tools were revised for content validity by 5 juries who were experts in the related field, for clarity, relevance, comprehensiveness, and applicability.

1. The intervention program contained 4 phases, the preparatory phase started from the beginning of from December 2017 to May 2018, covering six months and including the following: Reviewing the national and international related literature using journals, magazines, periodicals, textbooks, internet and theoretical knowledge of the various aspects concerning the telenursing.

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2. Preparation for training program objective to promote and enforce nursing intern knowledge and attitude related to telenursing through a number of learning session included all information about telenursing
3. A time schedule suitable for nursing intern was developed to conduct the program that included; date, place, topic, time and duration of each session. Nursing intern are divided into five groups. The program time is 10 hours for each group .one session every day for 5 days, every session for 2 hours. These sessions were conducted for each department all nursing intern and a copy of the educational program contents was given to each nursing intern participated in the educational program.
4. Implementation phase beginning by assess nursing intern knowledge and attitude regarding telenursing(by using tool I and II as pretest) before starting the educational program topics include (definition of telenursing, types of telenursing, uses telenursing, , advantages and disadvantages telenursing, reasons and their roles),in the program were discussion, paper, data show, pen and paper, handouts. The teaching course included a theoretical part which included 5 lectures, 2 hours for each. It was given within 11 days.
5. Evaluation phase, post-test immediately after implementation of the program (by using a tool I and II) to evaluate the change in the nursing intern knowledge and attitude regarding telenursing
6. The researchers follow up (after 3 months) of the program.

Statistical design:

A compatible personal computer was used to store and analyze data. The statistical Package for Social studies (SPSS) version 20 was applied. Data were coded and summarized percentage distribution for qualitative variables. The comparison was performed using chi -square test and statistical significance was considered at p-value $p < 0.05$, considered highly statistical significant at p-value $p < 0.001$ and considered non significance at $P > 0.05$. Correlation among variables was done using the Pearson correlation coefficient (Pearson’s r, test) to measure the strength and direction of the linear relationship between the study variables.

3. RESULTS

Table (1): Frequency distribution of nursing intern regarding personal characteristics at study setting(n=55)

personal characteristics	(n=55)	
	No	%
Age		
From 20 ≤ 22	11	20.0
from 22 ≥ 24	44	80.0
Gender		
Male	27	49.1
Female	28	50.9
Previous graduation school		
Technical Institute	38	69.1
General Secondary School	17	30.9
Place of living		
Urban	7	12.7
Rural	48	87.3
Having previous training course about telenursing		
Yes	25	45.5
No	30	54.5

Table (1); Shows the distribution of nursing intern according to personal characteristics. The majority (80%) of the nursing intern were aged between 22 ≥ 24 years, female, had technical institute and lived in rural and don’t have previous training course about telenursing.

Table (2): frequency distribution of nursing intern regarding to telenursing knowledge throughout the program phases at study setting (n=55)

Knowledge Dimensions	preprogram						Immediate Post program						Follow up (After 3 months)						X ²	P-Value
	correct and complete answer		Incomplete		wrong answer		correct and complete answer		Incomplete		wrong answer		correct and complete answer		Incomplete		wrong answer			
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
Definition	11	20.0	10	18.2	34	61.8	36	65.5	15	27.3	4	7.3	29	52.7	18	32.7	8	14.5	50.01	0.000
Type	15	27.3	22	40.0	18	32.7	38	69.1	10	18.2	7	12.7	34	61.8	10	18.2	11	20.0	22.43	0.000
Uses	13	23.6	26	47.3	16	29.1	40	72.7	11	20.0	4	7.3	32	58.2	17	30.9	6	10.9	29.44	0.000
Advantages	10	18.2	19	34.5	26	47.3	37	67.3	13	23.6	5	9.1	34	61.8	13	23.6	8	14.5	37.66	0.000
disadvantages	4	7.3	36	65.5	15	27.3	22	40.0	24	43.6	9	16.4	17	30.9	27	49.1	11	20.0	16.33	0.003
Reasons of using	14	25.5	17	30.9	24	43.6	32	58.2	16	29.1	7	12.7	28	50.9	15	27.3	12	21.8	18.01	0.001
Role	11	20.0	33	60.0	11	20.0	32	58.2	14	25.5	9	16.4	25	45.5	25	45.5	5	9.1	19.91	0.001

**Highly statistically significant at (p≤ 0.001)

* statistically significant at (p≤0.05)

Table (2): Shows that there were highly statistically significant differences, with an improvement in the knowledge scores immediate post -program and follow up (after 3 months) as compared to preprogram in all dimensions. As observed, regarding to regard definition, type, uses and advantages regarding telenursing (65.5%, 69.1%, 72.7%, 67.3%) of nursing intern responded correctly and completely of immediate post- program as compared to only (6.5%, 11.9%, 20.5%, 14.6%) of nursing intern in preprogram (20.0%, 27.3%, 23.6%, 18.2%).

Table (3): frequency distribution of nursing intern attitude toward using telenursing throughout the program phases at study setting (n=55)

Attitude Items	preprogram						Immediate Post program						Follow up (After 3 months)						X ²	P-Value
	Always		Sometime		Never		Always		Sometime		Never		Always		Sometime		Never			
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
Regarding him/herself																				
like the idea to use(telenursing) in nursing care	7	12.7	32	58.2	16	29.1	35	63.6	16	29.1	4	7.3	29	52.7	19	34.5	7	12.7	33.51	0.000
Have positive attitude toward telenursing not be afraid of using them	16	29.1	9	16.4	30	54.5	23	41.8	29	52.7	3	5.5	20	36.4	31	56.4	4	7.3	28.68	0.000
Telenursing may reduce costs.	5	9.1	32	58.2	18	32.7	4	7.3	29	52.7	22	40.0	4	7.3	25	45.5	26	47.3	2.46	0.65
To evaluate whether students of nursing see a need for telenursing services in the national healthcare system	22	40.0	4	7.3	29	52.7	32	58.2	17	30.9	4	7.3	30	54.5	21	38.2	4	7.3	33.52	0.000
Telenursing should be added to the curriculum.	9	16.4	41	74.5	5	9.1	35	63.6	10	18.2	10	18.2	36	65.5	11	20.0	8	14.5	49.25	0.000
Regarding health system																				
Have positive attitude toward telenursing as a good nursing tool	15	27.3	20	36.4	20	36.4	32	58.2	17	30.9	6	10.9	32	58.2	18	32.7	5	9.1	21.1	0.000
Will use telenursing in nursing care effectively when I know the copyrights regarding advanced devices program and electronic files	6	10.9	26	47.3	23	41.8	37	67.3	15	27.3	3	5.5	28	50.9	20	36.4	7	12.7	44.8	0.000
know that telenursing can be used as a precise tool for staffing scheduling and quality control	18	32.7	26	47.3	11	20.0	34	61.8	18	32.7	3	5.5	32	58.2	16	29.1	7	12.7	12.8	.012
Doubt that a patient would trust my advice if I obtained the information from medically related telenursing applications	9	16.4	25	45.5	21	38.2	17	30.9	27	49.1	11	20.0	14	25.5	30	54.5	11	20.0	7.56	.10
Think it's distracting to use medically related telenursing applications	9	16.4	22	40.0	24	43.6	23	41.8	21	38.2	11	20.0	17	30.9	25	45.5	13	23.6	12.5	.014
Think it's time consuming to use medically related telenursing applications when attending to patient	3	5.5	31	56.4	21	38.2	30	54.5	21	38.2	4	7.3	26	47.3	26	47.3	3	5.5	45.44	.000
Believe It's confidently concerns in regards to recording patient information via telenursing applications & via secure internet site	12	21.8	14	25.5	29	52.7	27	49.1	21	38.2	7	12.7	26	47.3	25	45.5	4	7.3	37.54	.000
Find it's unprofessional to use related telenursing applications & to use medically related internet site s when attending to patient	16	29.1	17	30.9	22	40.0	32	58.2	17	30.9	6	10.9	33	60.0	10	18.2	12	21.8	18.76	.001
Think that the use of telenursing devices by nurses has a positive impact on patient care	19	34.5	31	56.4	5	9.1	27	49.1	27	49.1	1	1.8	27	49.1	24	43.6	4	7.3	5.25	.26
Think that the use of telenursing developed in nursing care can be a serious distraction during work performance	6	10.9	30	54.5	19	34.5	27	49.1	16	29.1	12	21.8	27	49.1	13	23.6	15	27.3	24.68	.000
Ready to integrate telenursing utilization in nursing care	18	32.7	26	47.3	11	20.0	33	60.0	14	25.5	8	14.5	39	70.9	9	16.4	7	12.7	18.14	.001
want to use telenursing services in their future practice.	4	7.3	39	70.9	12	21.8	21	38.2	29	52.7	5	9.1	24	43.6	25	45.5	6	10.9	21.3	.000
	2	3.6	31	56.4	22	40.0	26	47.3	19	34.5	10	18.2	23	41.8	17	30.9	15	27.3	29.89	.000

**Highly statistically significant at (p≤ 0.001)

* statistically significant at (p≤0.05)

Table(3): Demonstrates that there was highly a statistically significant difference among nursing intern scores regarding attitude toward using of telenursing, high percent(70.9%) of nursing internreported that they usually have attitude toward(telenursing may improve contacts with patient telenursing, and telenursing in long-term care)immediate post-program .while (1.8%,5.5%) of nursing intern reported that (think that the use of telenursing devices by nurses has a positive impact on patient care and - think it's time- consuming to use medically related telenursing applications when attending to patient) ,respectively.

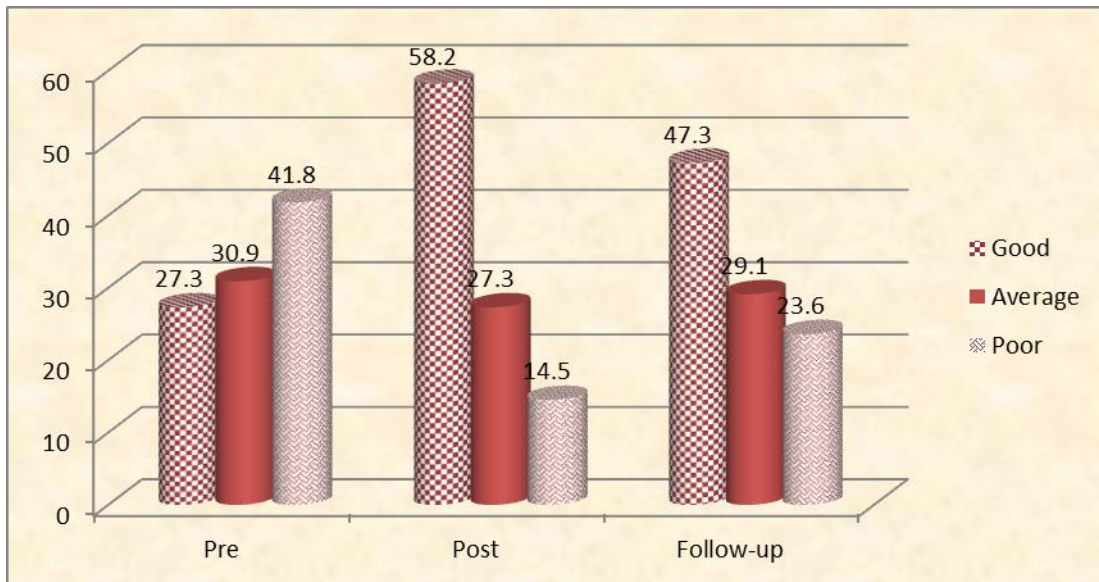


Figure (1): Percentage distribution of nursing intern total knowledge level regarding telenursing through program phases at study setting

Figure (1); clearly indicates that more than half of nursingintern had good knowledge scores (58.2%) regarding telenursing immediate post-program as compared to preprogram (41.8%) and follow up (after 3 months) of the program (47.3%).

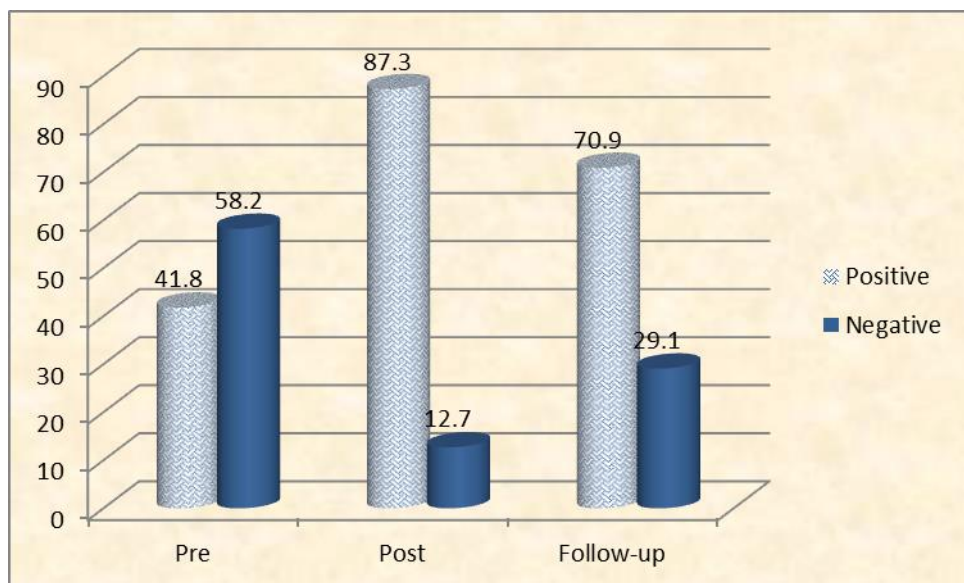


Figure (2): Percentage distribution of nursing intern feeling level of attitude toward using telenursing through program phases

Figure (2): clearly indicates that high percent(87.3%,70.9%)of nursing intern have the positive attitude toward using telenursing immediate post- program and follow up (post 3 months) of program , respectively as compared to pre program (41.8%) .

Table (4): Relation between total knowledge and total attitude among nursing intern throughout the program phases (n=55)

Knowledge	Attitude	
	r	P value
Before program	0.37	0.005*
Immediate post program	0.76	0.001**
Follow up (After 3 months)	0.63	0.003*

Table(4):reveals that there was a statistically significant positive correlation among nursing intern between total knowledge and total attitude throughout the program. It displayed highly statistically significant correlation between total knowledge and total attitude immediate post- program.As observed (r=0.76, p = 0.001**), Also a statistically significant correlation between total knowledge and total attitude before program and follow up (after 3 months) of the program.

4. DISCUSSION

The nursing internship program provides tremendous opportunities for nursing intern to successfully transfer from educational classroom to the clinical setting .Under one -year supervision nursing intern are guided toward mastery of nursing skills and improved patient service. The internship provides them the opportunity to explore various responsibilities in different nursing fields through rotations (*Halema,Shabaan ,Hamouda & Elsayed ,2014*).

Telenursing is defined as the use of telecommunication technology to deliver nursing services to the patients at a distance .It is a subset of telehealth in which the focus is on the specific profession (*World Health Organization,2015*). Now a day's nurses use technologies such as internet, computers, telephones, digital assessment tools and tele monitoring equipment in their practice to assess, plan , intervene and evaluate the outcomes of nursing care (*Koivunen ,Niemia,Hupli ,2015 ; International Council of Nurses ,2015*).

By telenursing, nurses can provide monitoring, education, follow-up, remote data collection and interventions, pain management, family support, and multidisciplinary care in an innovative way. It is a good tool to deliver care in remote regions and to facilitate practice (*Niemi ,Hupli & Koivunen ,2016*).

The result of the present study revealed that statistically significant improvement in knowledge scores of nursing intern post program and follow up (after three months)as compared to pre-program in all dimensions. Apparently ,the nursing program was effective for improving those nursing intern regarding to telenursing knowledge. The fact is that nursing intern became knowledgeable for the definition of telenursing,type,uses, advantages,disadvantages, reasons for nursing telenursing and their roles.

Najafi ,Shaabani ,Momennassab , & Aghasadeghi ,(2016) mentioned that ,to day information and communication technology is widely used to eliminate the limitations of health care systems and for better patient care . Telenursing is a part of electronic health (e-health) has promoted the possibility to deliver nursing care and conduct nursing practice through communication devices, like movies, internet and telephone.

In the same line *Reierson ,Solliand Bjork, (2015)* concluded that undergraduate nursing students were enthusiastic about simulating telenursing via real -time audio and video technology . They viewed telenursing as future -oriented and argued that nursing education must prepare students for this reality. Telenursing was viewed as a complex way of delivering care and should be taught over time throughout undergraduate nursing education (*Tschetter ,Lubeck , &Fahrenwald,2013*).

The findings of the present study are supported by *Ghorbanzadeh et al .,(2017)* who found that the majority of nursing students were familiar with telenursing.

The result of the current study found that the majority of nursing intern have a positive attitude toward using telenursing . This finding may be due to the current generation of nursing intern seems to be well skilled for medical informatics and technology use (personal computer, personal email ..,ect.) .They are better prepared for information society membership including the practice of telenursing (telehealth) .

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Tuckett & Turner, (2016) mentioned that, nowadays nurses communicate with other professional though using a variety of applications on mobile phones, laptop computers, and handheld tablets. Increasing computer and internet use more people have possibilities to communicate with professionals(*Official Statistics of Finland, 2015*). Dramatically hospital-based health care is diminished and the care takes place in outpatient clinics (*Melby, Bratheim & Helleso, 2015*).

In addition, the use of electronic communication may produce cost and time -saving. The use of electronic devices for interaction with patients unavoidably leads to changes in nursing staff work. These changes require new skills and attitudes, and nurses need to be more flexible and open to new working methods. *Niemi et al.*, (2016) found that nurses were used electronic devices at all phases of nursing process.

The present study result is congruent with *Gund et al.*, (2012) who reported that the majority of healthcare professionals have a positive attitude towards current and future electronic communication tools. Also, *Ghorbanzadeh et al.*, (2017) study finding is similar with the current study result who found that most of the nursing students have a positive attitude toward the use of telenursing.

The finding of the present study found that there was a statistically significant correlation between total knowledge and total attitude before and after the program among nursing intern. This result may be due to nursing intern education for the use of the new system and their perception of the usefulness of the solutions may be a key component in the successful implementation of electronic devices. According to a study by *Gund et al.*, (2012) the majority of healthcare professionals have a positive attitude towards current and future electronic communication tools.

In this respect, *Fujino & Kawamoto*, (2013) found that education in the use of new technology is a key component in the successful implementation of technology application. Therefore, nurses have mainly learned to use computers independently at their work, through supplementary training at work, or during their own free time. Even though information technology is very topical in today's workplace, it does, however, seem that nursing education does not focus on technology training.

In addition, *Casella, Mills & Usher*, (2014) concluded that, nursing staff should be able to use modern communication systems throughout the nursing process for interaction with patients. Also, using of electronic devices for communication with patients requires new skills and attitudes for nursing staff (*Koivunen et al.*, 2015, *Leino-Kilpi et al.*, 2015 & *Niemi et al.*, 2016).

Conclusion: The result concluded that more than half (58.2%) of nursing intern had good knowledge scores regarding telenursing post- program as compared to pre program. The majority of them have a positive attitude toward using telenursing post -program and follow up (post 3 months) of program. There was a statistically significant difference with an improvement in knowledge and attitude scores among nursing intern immediate post program and follow up (after 3 months) as compared to preprogram in all dimensions.

5. RECOMMENDATIONS

The study recommended that, these findings have the potential to enhance telenursing use in nursing practice, and it should be provided in the nursing administration curriculum.

-Health care education organizations especially Faculty of Nursing make sure that the education curricula focus more on promoting electronic communication skills.

Further researches are required to study:

- Effect of telenursing support on different specialties.
- Factors affecting implementation and utilization of telenursing services.

REFERENCES

- [1] *Abd-elaziz, M.*, (2017). Study Relationship of internship Clinical Rotation and Role Ambiguity among Nursing Interns, Unpublished Master Thesis. Faculty of Nursing, Tanta University, 7-11.
- [2] *Abd-Elziz, A.*, (2017). Perceived nursing supervisor support and its relation to work engagement and turnover intention among staff nurses: Master Thesis, published Thesis, Faculty of Nursing, Benha University, 55.

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- [3] *American Association of Critical Care Nurses.,(2013)*.Tele-I.C.U nursing practice guidelines.California : Author Association of Registered Nurses of New found land and Labrador Telephone nursing Care: Advice and information,78.
- [4] *Anna H ,Cornelis T, Houweling M, & Helianthe,S., (2014)*. An explorative Delphi study to uncover knowledge, attitudes and, skills for nurses using eHealth. Journal of Nurse Education today (open access), Utrecht University, Clinical Health Sciences, Master programme Nursing Science, UMC-Utrecht Internship institute: University of applied sciences Hogeschool Utrecht, Transparency reporting: STROBE statement. a Viable at helianthe.kort@hu.nl.
- [5] *Casella, E, Mills, J, Usher, K.,(2014)*. Social media and nursing practice: Chancing the balance between the social and technical aspects of work. Collegian;21(2):121-126.
- [6] *College of Registered Nurses of Nova Scotia., (2013)*.Personal Health Information Act: Questions & answers for registered nurses. CRNNS, Halifax: Author.47
- [7] *College of Registered Nurses of Nova Scotia.,(2017)*. Standards of practice for registered nurses. Halifax: Author. Anational Initiative for Telehealth (NIFTE). National initiative for tele health framework of guidelines. Ottawa: NIFTE.
- [8] *Dwayne, F.,(2012)*.Introducing tele health to nursing students in the apre-licensure program in fulfillment of the requirements for the Degree of Doctor of Nurse Practice ,A Capstone Project submitted to the faculty of Boiling Springs, North Carolina, Gardner-Webb University School of Nursing,Digital Commons @ Gardner-Webb University.64.
- [9] *El Sayed ,S.,2017*).Nursing staff readiness toward advanced mobile devices utilization in nursing care in critical care units, Master Thesis, published Thesis ,Faculty of nursing, Benha University,60.
- [10] *Fujino, Y, & Kawamoto, R., (2013)*.Effect of information and communication technology on nursing performance. Computer Inform Nurses,31(5):244-250.
- [11] *Ghorbanzadeh, K, Fallahi, M, Seyed S. , & Izadi, M., (2017)*.telehealth and Telenursing Knowledge and Attitude among Students of Nursing in Ardebil University of Medical Sciences, Social Welfare and Rehabilitation Sciences (USWR), Tehran, Iran Journal of Nursing: 30,107: 42- 52.
- [12] *Gund, A, Lindecranz, K, Schaufelberger, M, Patel H, & Sjöqvist B., (2012)*.Attitudes among healthcare professionalstowards ICT and home follow-up in chronic heart failure care. BMC Med Inform Decision Making, 12:138.
- [13] *Halema, W, Shabaan, F, & Hamouda, S.&Elseyd.,(2014)*.Internship Program Strengths and Weaknesses as Perceived by Nursing intern. Mansoura Nursing journal., 1 (1) : 59-70.
- [14] in Nursing, 9(10):5.
- [15] *International Council of Nurses.,(2015)*.Telenursing network.fromhttp://www.icn.ch/networks/telenursingnetwork/. World Health Organization.eHealth at WHO. Retrieved January31, from http://www.who.int/ehealth/about/en/.
- [16] *Koivunen, M, Niemi, A, Hupli M, & Fallahi M., (2015)*.The use of electronic devices for communication with colleagues and other health care professionals – Nursing professionals’ perspectives ,The Journal Advanced Nurses,71(3):620-631.
- [17] *Leino,Kilpi H, Gröndahl W, Pekonen A, Katajisto J, Suhonen R, Valkeapää K, & SalanteräS., (2015)*.Knowledge received by hospital patients – a factor connected with the patient,centred quality of nursing care. International of Journal Nurses Practice . 21(6):689-698.
- [18] *Loretta, S, Victoria E,& Andrea, D.,(2014)*.Patient Safety, Telenursing, and Telehealth, Patient Safety and Quality: An Evidence-Based Handbook for Nurses, moc.cnihtlaehleti@namkcieda, 558-559.
- [19] *Lynn, B., (2015)*.Improving the safety of Health Care: The Leapfrog Initiative,Eff. The Journal Clinical Practice. 6: 313 -316.

International Journal of Novel Research in Healthcare and Nursing

 Vol. 5, Issue 3, pp: (501-511), Month: September - December 2018, Available at: www.noveltyjournals.com

- [20] **Melby L, Bratheim B, & Helleso R.,(2015)**. Patients in transition– improving hospital-home care collaboration via electronic messaging: providers’ perspectives. *The Journal of Clinical nurses*, 24(23-24):3389-3399.
- [21] **Najafi ,S, Shaabani, M, Momennassab ,M, & Aghasadeghi ,K.,(2016)**.The Nurse-Led Telephone Follow-Up on Medication and Dietary Adherence among Patients after Myocardial Infarction: A Randomized Controlled Clinical Trial. 4(3):199-208.
- [22] **Niemi ,A, Hupli, M, Koivunen ,M, Helleso R, & Andrea, D.,(2016)**.The use of electronic communication for the patient, professional interaction – nursing staff’s point of view Fin *The Journal Nursing Administration*;8(4) :200 - 215.
- [23] **Official Statistics of Finland., (2015)** .Use of information and communications technology by individuals [e.publication] Helsinki: Statistics Finland. Available:http://www.stat.fi/til/sutivi/index_en.html [Accessed:30.7. 2018].
- [24] **Reierson, I, Solli, H, & Bjørk, I., (2015)**. April Nursing students’ perspectives on telenursing inpatient care after simulation . *Clinical Simulation in Nursing*, 11(4): 244-250. Available at <http://dx.doi.org/10.1016/j.ecns>.
- [25] **Schlachta-Fairchild, L.,(2015)**.Telehealth and telenursing are live: APN policy and practice implications. *The Journal for Nurse Practitioners*, 6(2):98-106.
- [26] **Sewell,R., (2016)**.Telemedicine and telenursing, Bagiyatallah university Persian, *Journal of Medical sciences*,4(1):7-13.
- [27] **Tschetter, L, Lubeck, P, & Fahrenwald, N. ,(2013)**. Integrating QSEN & technology to address rural health care: Initial outcomes. *Clinical Simulation*.22
- [28] **Tuckett, A, & Turner, C., (2016)**.Do you use social media? A study into new nursing and widwifery graduates’ uptake of social media. *International Journal of Nursing Practice*; 22(2):197-204.
- [29] **Wojciech, G, Katarzyna ,P, & Lena, K., (2013)**.Telehealth and Telenursing Perception and Knowledge Among University Students of Nursing in Poland, *Telemedicine Journal and e-Health*; 19(7): 523-529.
- [30] **World Health Organization., (2015)**. Nursing Students’ Telenursing Perspective eHealth at WHO. , from <http://www.who.int/ehealth/about/en/>. s : Retrieved January,31, 2015,250.