

A STUDY TO ASSESS THE KNOWLEDGE AND ATTITUDE OF TELEMEDICINE TECHNOLOGY AMONG NURSES IN DUBAI, UAE

Mrs. Merlin Samuel John*

*Manager, Operations Network and Business Development Manager at Whealth International, Dubai.

DOI: <http://doi.org/10.47211/tg.2021.v08i02.009>

ABSTRACT

Nurses often play a key role in the success of treatment by remotely collaborating with the physician either in the patient's home or from a medical setting, as they have different roles in telemedicine. The objective of the study was to assess the knowledge and attitude of telemedicine technology, to find out the correlation of knowledge, attitude and socio-demographic variables among the nurses. The data was collected remotely and face-to-face with study participants physically distanced. Samples were from different clinics and hospitals in Dubai, UAE. A sample of 120 nurses were included in the study. Data were collected after an extensive literature review; a self-designed and well-structured questionnaire was primed using a five-point Likert scale. The gathered data was analysed by calculating the mean, median, standard deviation and chi-square. Variables like age, educational status, employment status and years of experience were included and were matched. Tables were used to present the findings of the study. The correlation between knowledge and attitude on telemedicine were found by using Karl Pearson's coefficient of correlation. The correlation, r obtained was 0.341 ($p < 0.001$), indicating a moderate positive correlation. The correlation obtained was also found to be significant ($p < 0.001$). Data showed that the highest percentage (48.8%) of samples were above 40 years followed by 31 to 35 years (23.1%), and (52.1%) of samples were qualified with BSc Nursing. The employment status showed that most of the nurses (76.9%) were registered nurses, with (50.4%) of the nurses having above 15 years of experience. Majority of the samples (48.8%) agreed and 14.9% of samples strongly agreed that telemedicine improves the quality-of-care delivery. About (63.6%) agreed that and 23.1 strongly agreed that every nurse should receive training in telemedicine as a part of their professional accountability. Majority of the samples (69.4%) agreed and 19.0% strongly agreed that telemedicine technology should be implemented in all healthcare facilities. A significant association was found between knowledge score and educational qualification ($\chi^2 = 9.376$, $p < 0.05$), attitude score, and educational qualification ($\chi^2 = 8.369$, $p < 0.05$). However, no association was found between knowledge score and age, employment status, years of experience. Similarly, no association was found between attitude score and age, employment status, years of experience. It reveals that most of the demographic variables of the nurses do not affect the level of knowledge.

Key Words: Telemedicine, Healthcare, Technology, Knowledge, Attitude

ABOUT AUTHOR:



Author Mrs. Merlin Samuel John is the Operations, Network and Business Development Manager at Whealth International, Dubai, with more than 20 years of experience in the insurance and healthcare industry.

INTRODUCTION

Telemedicine is the use of electronic information to communicate technologies to provide and support healthcare when distance separates the participants. “Tele” is a Greek word meaning “distance” and “mederi” is a Latin word meaning “to heal”. Telemedicine has the potential to bridge the distance and facilitate healthcare in the remote areas. Time magazine called telemedicine “healing by wire”.

In early days, telemedicine was mostly used to connect doctors working with a patient in one location to specialists somewhere else. This benefited the rural or hard to reach populations where specialists aren’t readily available. But the equipment necessary to conduct remote visits remained expensive and complex, so the use of the approach, while growing, was limited.

The rise of internet age brought with it profound changes for the practice of telemedicine. The proliferation of smart devices, high-quality video transmission, opened up the possibility of delivering remote healthcare to patients in their homes, workplaces or assisted living facilities as an alternative to in-person visits for both primary and speciality care.

In one of the recent study, doctors using telemedicine were to successfully treat the patients virtually 83% of the time. According to the American Medical Association and Wellness Council of America, nearly 75% of all regular doctor, urgent doctor and ER visits are either unnecessary or could be handled effectively via phone or video, which includes patients with cold or flu, sinusitis, urinary tract infections, the most common diagnosis in the study conducted. About 60% of the consultations ended up only with prescription.

Telemedicine enables patients to receive quality, affordable healthcare remotely. Real time audio and video can decrease the barriers such as distance, access to specialist and shortage of healthcare providers. Telemedicine has multiple application in patient care, education, research, administration and public health, with the help of wireless tools, email, smartphones and other methods of communication technology. Through major advancements in technology such as wireless networking, cloud computing, efficiency of data storage, complexity of electronic medical records software in telemedicine is becoming a much more feasible aspect of modern medicine. Initially telemedicine was considered as “Futuristic” and “Experimental” but today it’s a “Reality”.

NEED FOR THE STUDY

A key component to success is acceptance and support of the staff. Nurse often plays a key role in the success of new treatment technology that aids in treatment decision-making. They work in different roles in telemedicine to interact virtually with the physician while caring for a patient in the community by remotely collaborating with them from a medical setting. Patient consultation can also be initiated through teleconferencing within an office or a facility with the nurse’s assistance. The nurse also monitors the equipment and the patient while checking vitals and performing other tests. this information will be sent for the review which helps in the early detection, early initiation of treatment and improved patient care and allows for better long-term care management and patient satisfaction. The skills on new technology like telemedicine will help them educate and work with their patients on the use of telemedicine.

PROBLEM STATEMENT

A STUDY TO ASSESS THE KNOWLEDGE AND ATTITUDE OF TELEMEDICINE TECHNOLOGY AMONG NURSES IN DUBAI, UAE

OBJECTIVES

- To evaluate the knowledge of Telemedicine among nurses
- To assess the attitude of nurses on telemedicine technology

RESEARCH METHODOLOGY

Research approach: Quantitative Approach

Research design: Descriptive Survey Design

The setting of the study: The study was conducted among nurses in different hospitals and clinics in UAE

Population: All nurses working in clinics and hospitals of the United Arab Emirates, during the period of data collection constituted the population of the study.

SAMPLE AND SAMPLING TECHNIQUE:

Sample: The nurses working in clinics and hospitals in the United Arab Emirates are the samples for this study

Sample Size: The sample size is 120

Sample Technique: Convenience sampling

Development of tool: Data were collected after an extensive literature review, a self-designed and well-structured questionnaire was primed using a five-point Likert scale, to assess the knowledge and attitude of telemedicine technology among nurses in UAE.

The steps are selected for preparing the tools:

- ✓ Review of related literature
- ✓ Database search for journal articles
- ✓ Preparation of questionnaire and blue print
- ✓ Consultation with guide
- ✓ Preparation of final draft
- ✓ Tool requirement and specification
- ✓ Translation of the tool

FINDINGS OF THE STUDY

Data revealed that the majority of nurses (77.7%) of nurses had good knowledge and only 22.3% had moderate knowledge (figure 1). The mean knowledge score on telemedicine was 12.39 ± 1.30 , score ranging from 9-15 with a mean percentage of 82.6% (table 1). Data also revealed that the majority of nurses (84.3%) of nurses had a positive attitude and only 15.7 % had a moderately positive attitude (figure 2). The mean attitude score on telemedicine was 52.7 ± 5.93 , a score ranging from 32-66 with a mean percentage of 75.3% (table 2).

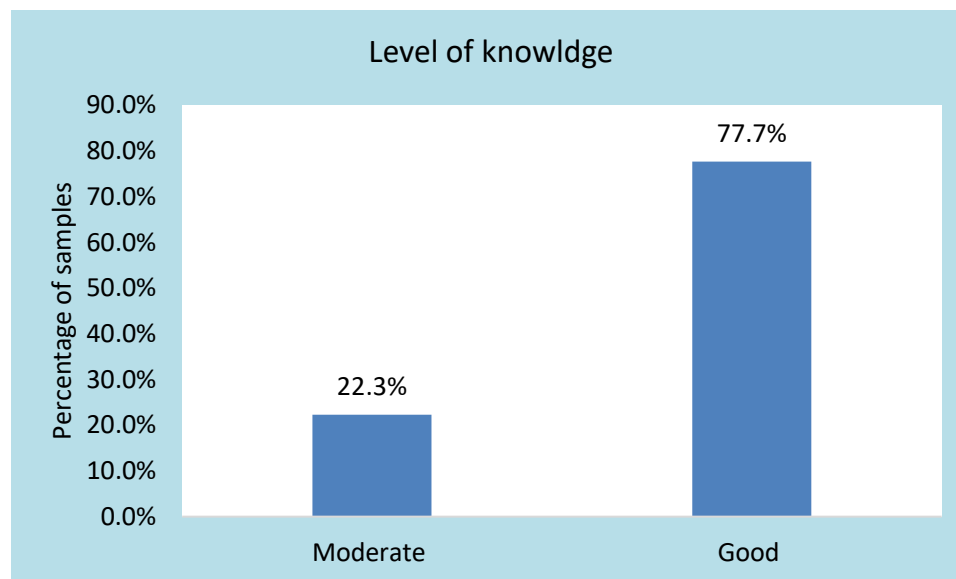


Figure 1: Percentage of samples according to the level of knowledge

Table 1: Range, mean, median, standard deviation, and mean percentage of knowledge on telemedicine among nurses

N=121				
Range	Mean	Median	Standard deviation	Mean percentage
9-15	12.39	12.0	1.30	82.6

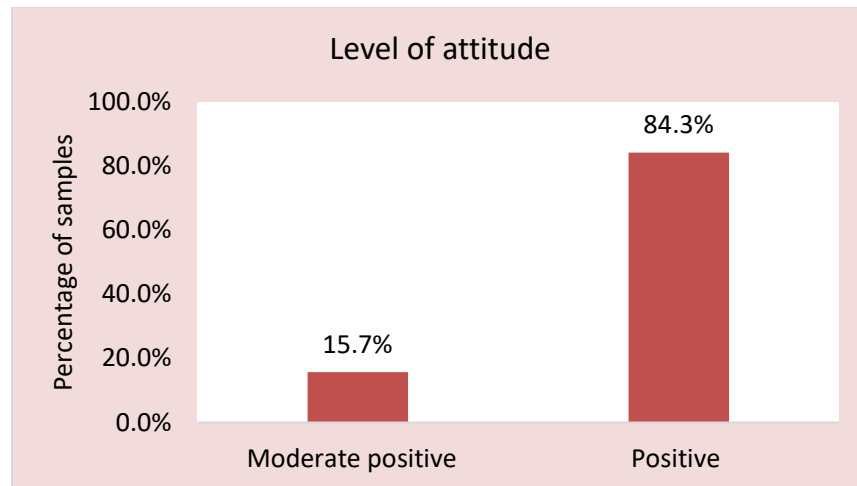


Figure 2: Percentage of samples according to the level of attitude

Table 2: Range, mean, median, standard deviation, and mean percentage of attitude on telemedicine among nurses
N=121

Range	Mean	Median	Standard deviation	Mean percentage
32-66	52.7	52.0	5.93	75.3

Correlation between knowledge and attitude

The correlation between knowledge and attitude on telemedicine were found by using Karl Pearson's coefficient of correlation. The correlation, r obtained was 0.341 ($p < 0.001$), indicating a moderate positive correlation. The correlation obtained was also found to be significant ($p < 0.001$).

Table 3: Association of knowledge score and attitude score with socio-demographic variable
N=121

Sl. no	Demographic variables	f (%)	Knowledge score	Attitude score
1	Age in years			
	25 – 30 Years	17 (14.0)	$\chi^2 = 5.739$ $p > 0.05$	$\chi^2 = 0.826$ $p > 0.05$
	31 – 35 Years	28 (23.1)		
	36 – 40 Years	17 (14.0)		
	>40 Years	59 (48.8)		
4	Educational qualification			
	GNM	38 (31.4)	$\chi^2 = 9.376$ $p < 0.05$	$\chi^2 = 8.369^*$ $p < 0.05$
	Post-BSc	12 (9.9)		
	BSc	63 (52.1)		
	MSc	8 (6.6)		
5	Employment status			
	Assistant Nurse	16 (13.2)	$\chi^2 = 3.209$ $p > 0.05$	$\chi^2 = 2.817$ $p > 0.05$
	Registered Nurse	93 (76.9)		
	Senior Staff Nurse	10 (8.3)		
	Nurse Supervisor	2 (1.7)		
6	Years of experience			
	0 – 5 Years	14 (11.6)	$\chi^2 = 7.277$ $p > 0.05$	$\chi^2 = 6.309$ $p > 0.05$
	6 – 10 Years	25 (20.7)		
	11 – 15 Years	21 (17.4)		
	>15 Years	61 (50.4)		

*= Significant at 0.05 level

Data showed that the highest percentage (48.8%) of samples were above 40 years followed by 31 to 35 years (23.1%). The highest percentage (52.1%) of samples were qualified with BSc Nursing, followed by GNM (31.4%). Employment status showed that most of the nurses (76.9%) were registered, nurses. Half (50.4%) of the nurses were having above 15 years of experience followed by 20.7% having 6 to 10 years. A significant association was found between knowledge score and educational qualification ($\chi^2 = 9.376$, $p < 0.05$), attitude score, and educational qualification ($\chi^2 = 8.369$, $p < 0.05$). However, no association was found between knowledge score and age, employment status, years of experience. Similarly, no association was found between attitude score and age, employment status, years of experience.

Item wise analysis of attitude scale on telemedicine among staff nurses

Majority of the samples (48.8%) agreed and 14.9% of samples strongly agreed that telemedicine improves the quality-of-care delivery. Majority of samples (61.2%) also agreed and 23.1% of samples strongly agreed that telemedicine is an efficient option for preventive care. More than half of the samples (51.2%) agreed and 40.5% strongly agreed that telemedicine technology reduces exposure to pathogens. Highest percentage of samples (58.7%) agreed and 24.8% of samples strongly agreed that advancement in telemedicine is unavoidable for the progress of medical science. Highest percentage of samples (37.2%) disagreed and 12.4% strongly disagreed to a statement “extensive use of telemedicine will influence the quality of health care negatively”. But a few agreed (15.7%) and strongly agreed (2.5%) to the statement.

Majority of nurses (63.6%) agreed that and 23.1 strongly agreed that every nurse should receive training in telemedicine as a part of their professional accountability. Highest percentage of samples (34.7%) agreed and 11.6% strongly agreed that the practice of telemedicine is a threat to medical ethics in terms of confidentiality. More than half of the samples disagreed to a statement (51.2%) and 21.5% strongly disagreed to a statement “health care delivery is best accomplished only with face-to-face interaction between patients and health professionals”. Only 16.5% agreed to this statement. Majority of the samples (69.4%) agreed and 19.0% strongly agreed that telemedicine technology should be implemented in all healthcare facilities.

CONCLUSION

The findings of the study suggest that the respondents have good knowledge on telemedicine technology. More than knowledge, majority of the nurses have a positive attitude towards telemedicine. A significant association was found between knowledge, attitude and educational qualification ($p < 0.05$). It is the need of the hour to educate and train the practicing physicians, residents, medical students, teaching faculty and other health professionals about telemedicine and their benefits in the health care industry.

RECOMMENDATIONS

Based on the findings of the present study, recommendations offered for the future study includes the following:

- Similar study can be conducted in large sample
- A descriptive study can be conducted to assess the knowledge and practice of telemedicine among doctors
- A study can be conducted among the patients on the same topic
- A comparative study can be conducted in health professionals on knowledge regarding telemedicine
- Training programmes are the need of the hour to popularize telemedicine

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