

Perception and challenges of telehealth among healthcare providers in Najran, Saudi Arabia

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ABSTRACT

Background/Aim: Recently the developments in technology have had a positive impact on various sectors, including healthcare. This study aims to identify the perception and barriers of tele-health in Saudi Arabia.

Methods: A cross-sectional study was carried out between October 2022 to May 2023 in Najran, Saudi Arabia. It was conducted among 520 healthcare workers (HCWs) working at Najran hospitals who completed the online survey. The data was collected by an online questionnaire and analyzed by SPSS version 24.

Results: The findings showed that the study was conducted among both male (60%) and female (40%). Among them, nurses constituted 25.4% (n=132), followed by physicians 21.9% (n=114), respiratory and physiotherapists 21% (n=109), radiology technicians 18.7% (n=97), and pharmacists 13.1% (n=68). Out of 520, only 213 (41%) had used tele-health applications. Around 43% of HCWs felt relaxing while using the application, and 45.45% perceived it as being useful for patients with transportation difficulties. Additionally, 38% believed that it provides a confidential way of protecting patients' information, and 36% would like to receive more training. In terms of beliefs, 42.5% of HCWs strongly agree that the application implied major modifications in their routine practice. Moreover 72% of the participants reported that technical issues could be one of the top challenges that may face tele-health usages. **Conclusion:** The HCWs perceived the use of tele-health as positive, valuable and confidential in monitoring and providing health care. However, obstacles such as the lack of time or a busy schedule delayed the use of tele-health among HCWs in Najran, Saudi Arabia.

Keywords: tele-health; healthcare workers; nurses; barriers; perception

INTRODUCTION

Communication between health care providers and patients plays an essential and important role in developing the healthcare services¹. Efficient and adequate communications in timely manners may be associated with reduction in patient anxiety, improvement in compliance to treatment and interpretation of results, decreasing of various diagnostic tests, optimizing times and resources, and generally, an improvement in patients' perceived quality of medical care processes².

It is believed that the core aim of digital health is to help in facilitating the circulation of information between patients and healthcare workers. The term digital health describes healthcare interventions that use digital technologies for improving healthcare outcomes. During the last two decades, the healthcare industry has experienced dramatic changes. Globally, the use of technology has revolutionized all aspects of life including healthcare services in terms of tools or means for enhancing quality of health care and reducing resources consumption^{3,4}.

The growth of the digital health market could be several reasons, such as increasing having smartphones and other devices. Numerous studies documented that digital health tools have many benefits. In addition to reducing medical errors and improving day-to-day medical processes, electronic health management tools can improve revenue and making it easier for new patients to access care⁵. Furthermore, these tools have proved their worth during the pandemics by enhancing access to healthcare, early identifying cases, and managing supply chains⁶.

It had been stated that digital health could play a significant role in overcoming the medical shortcomings, beside avoiding the tragedy of people in some developing communities, low incomes, and inadequate staffed health facilities which mainly located in urban areas^{7,8}.

On the other hand, data protection and privacy are major concerns for E-services' developers, and users because users will adopt digital services that could face heavy barriers in the long term. Additionally, numerous studies stated that the most challengeable factors that face tele-health could be costs of healthcare services, medical errors, accessibility organizational change. As a result of cost pressures, the entire healthcare delivery system must examine how to provide appropriate care in a more cost-effective way^{8,9}.

Moreover, number of studies conducted in the United Arab Emirates showed that digital health reduced the COVID-19's burden on the health system and enhanced accessibility to the services¹⁰. Furthermore, tele-pharmacy services and mobile health applications such as Teldoc, Amwell have demonstrated an effectiveness in minimizing unnecessary hospital visits during pandemics, thus relieving pressure on the healthcare facilities^{11,12}.

However, the high need for application of tele-health in health care settings, many obstacles have been reported in the use of its services, it was reported from the perspectives of the public and healthcare providers¹³.

However, the consistent implementation and delivery of tele-health services is often hindered by immense technical and legal challenges in developing countries. In order to transform healthcare in these regions, it is imperative that these barriers be effectively addressed¹⁴.

Moreover, the World Health Organization and such other international organizations are expected to contribute by providing technical as well as logistic support and funding. Meanwhile, continuous academic researches may provide a roadmap, pinpointing challenges and assessing the success of technological services¹⁵.

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MATERIAL AND METHODS

Study Design: This study used a cross-sectional descriptive design, it was conducted through an online platform (Survey Monkey), in the period between October 2022 to May 2023.

Study Population: A convenience sampling technique was used for recruiting participants. The targeted population for this study is healthcare practitioners.

Sampling Process: Employing a cross-sectional approach, the current study was conducted. Snowball Sampling Technique (SST) was utilized. Six hundred fifty-eight healthcare practitioners were contacted and requested to participate in the current study. Among them, 52 people didn't respond, and therefore, the response rate was 92.1%(n=606). After checking the data, 86 questionnaires were noticed to be incomplete or completed incorrectly. Accordingly, they had been omitted. Therefore, 520 individuals were included in this study sample as displayed in Figure (1).

Inclusion Criteria: All healthcare workers of all nationalities are currently working in hospitals whether public or private sectors.

Exclusion Criteria: Anyone who declined to be a part of this study.

Process of Collecting Data: An online survey was used to collect data from the participants. The participation was voluntary, and the participants have the right to withdraw from the study.

The questionnaire includes three parts. Part one for demographic variables, such as age, gender, profession, years of clinical experience. Part two includes the perception of HCWs, consisting of some statements using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The third part consists of questions about barriers and challenges while using the application.

The tool was validated after translation into Arabic language; it was reviewed by 5 experts. The pretest showed that the internal consistency was acceptable by Cronbach's alpha above 0.8.

Statistical Analysis: The study was analyzed by the Statistical Package for Social Sciences (SPSS software version 24, IBM, Armonk, NY, USA), version 24. Descriptive and inferential analysis were applied for analyzing the variables.

RESULTS

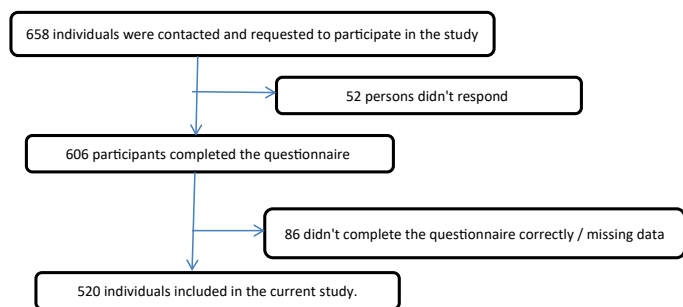


Figure 1. Participants' recruitment flowchart

Overall, 520 HCWs enrolled in the current survey, 310 male (59.6%) and 210 females (40.4%) completed the online survey during the period from October 2022 to May 2023. The mean age of the respondents was

28±13.4 years. Ages ranged between 22–54 years. Among them, nurses constituted 25.4% (n=132), followed by physicians 21.9% (n=114), respiratory and physiotherapists 21% (n=109), radiology technicians 18.7% (n=97), and pharmacists 13.1% (n=68) (Table 1). The mean and SD of clinical experience for all HCWs was 7 (±3) years.

Table 1. Socio-demographic characteristics of participants (n=520)

Variable	Characteristics	Frequency	Percent (%)
Age in years	(Mean ±SD)	28±13.4	
Gender	Male	310	59.6%
	Female	210	40.4%
Marital Status	Single	116	54.5%
	Separated, divorced, widow	36	16.9%
	Married	61	28.6%
Specialty	Physicians	114	21.9%
	Nurses	132	25.4%
	Respiratory & physiotherapists	109	21%
	Radiology technicians	97	18.7%
	Pharmacists	68	13.1%
Clinical experience in years	(Mean ±SD)	7 (±3)	
Usages of tele-health	Yes	244	45.1%
	No	276	54.9%

In regard to awareness about tele-health, the findings show high awareness in regard to tele-health applications in clinical settings (78.1%). Additionally, around 38.7% of HCWs strongly agree that tele-health was useful in raising the quality of healthcare services. Moreover, almost 16% of participants stated that tele-health was easy to use.

Attitude Domain: Concerning the attitude, the results show that 19.4% of HCWs felt comfortable with using the tele-health, and almost 32% of the them had intention of using tele-health when possible.

Beliefs Domain: In terms of beliefs, 38.5% of participated HCWs who use tele-health applications, are strongly agree that tele-health changed their routine. Moreover, 27.3% strongly agree that the application was also a good facilitator for patient care, and 28.8% strongly agree that tele-health is considered a confidential care delivery tool respectively.

Training Domain: For training domain, it had been reported that 31.7% of HCWs stated that they suggest having more training workshops on tele-health, while 24.3% feel satisfied about their training for using tele-health in clinical setting.

Practices Domain: In regard to practice domain, around 31.8% of participants were strongly agree that tele-health applications have reformed their work conditions, and 29.03% strongly agree that tele-health applications have assisted them quickly access required data.

Tele-health Usages Rates Per Profession: As shown in figure (2), physiotherapists and nurses were the most common users of the application (73% and 55%, respectively). The least frequent group were general physicians and dentists (34% and 25%, respectively). The overall utilization rate was 58.9%.

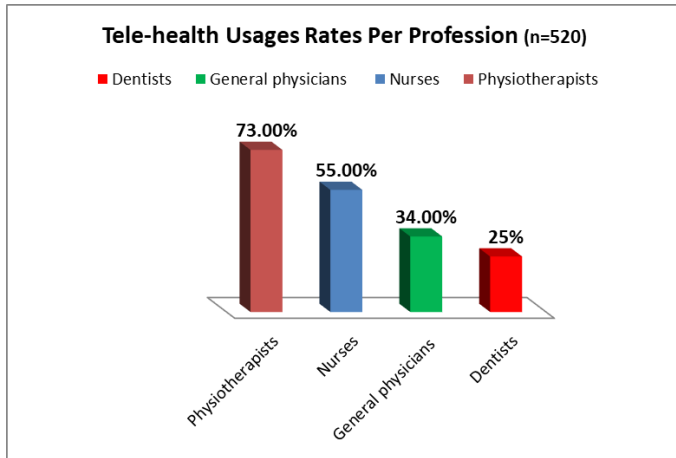


Figure 2. Usages of tele-health among participants

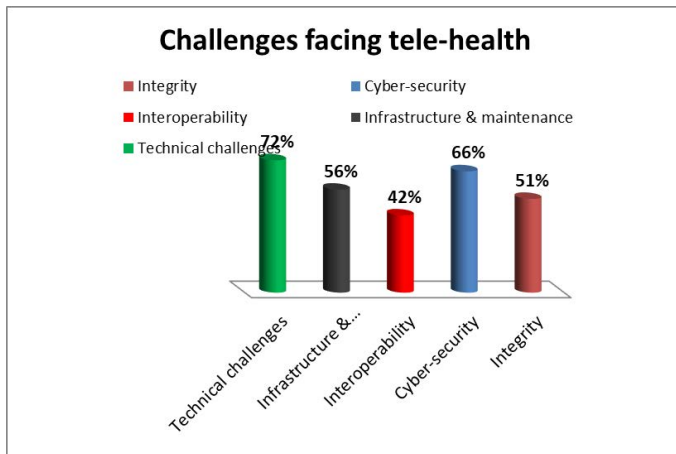


Figure 3. Challenges that face tele-health application

As displayed in figure (3) the most cited challenges that face application and usages of tele-health were technical challenges (72%).

DISCUSSION

The findings of this study showed an acceptable level of knowledge among HCWs, this finding is consistent with what had been reported in previous studies. Moreover, more than one third of HCWs strongly agree that tele-health was useful in raising the quality of healthcare services, which is in the same line with what had been documented previously¹⁶⁻¹⁸.

In terms of attitude, almost one third of the participants had the intention of using tele-health, when possible, which is very near to what had been noticed in other studies. About one third of HCWs strongly agree that tele-health have changed their routine, these findings are similar to other previous studies¹⁹⁻²¹. In regard to practices, around one third of participants strongly agree that the applications have changed their routine, and less than one third strongly agree that the applications have helped to enable easy access to patient data, the same findings had been reported by numerous studies^{4, 21, 22}.

On the other hand, in terms of challenges that facing the integration and implementation of digital health, the current study reveals reported five major challenges. These were technical, cyber-security, infrastructure and maintenance, interoperability, and integrity challenges respectively. Some of these challenges had been documented too in other studies^{15, 23, 24}.

Furthermore, data transmission problems were also investigated because they can cause mistakes and delays when crucial medical data is exchanged electronically, which could impede management planning and diagnosis procedures and render them unreliable or nonexistent in some places with connectivity issues. Furthermore, the lack of availability to qualified personnel and spare parts makes it difficult to maintain and support digital health technology, which can result in extended downtime and problematic device replacement^{25,26}.

The lack of interoperability is another reported barrier which leads to fragmented patient information, making it difficult to gain understanding and delays diagnosis, and may be associated with medical errors. Additionally, another barrier in tele-health is the lack of experience among HCWs to deal with technology, which increase potential risks²⁷⁻²⁹.

CONCLUSION

The study concludes that HCWs perceived positively towards the use of tele-health in monitoring and providing health care services. There are several reported obstacles such as the lack of time or a busy schedule delayed the use of tele-health among HCWs in Najran, Saudi Arabia. Further research can be conducted in terms of context-specific solutions, fostering an enabling environment for the implementation and utilization of digital health. Moreover, Substantial efforts are needed for normalizing the usages of digital health at a community level.

Authorship Contribution: All authors share equal effort contribution towards (1) substantial contributions to conception and design, acquisition, analysis and interpretation of data; (2) drafting the article and revising it critically for important intellectual content; and (3) final approval of the manuscript version to be published. Yes.

Ethical Approval: A written informed consent was a part of the questionnaire that indicated the participant/guardian has the right to decline or withdraw at any point during the course of the study. Furthermore, confidentiality was assured to each participant.

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Potential Conflicts of Interest: None

Competing Interest: None

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