Journal of Advances and Scholarly Researches in Allied Education
Vol. 21, Issue No. 5, July-2024, ISSN 2230-7540

A study of the crucial Role of Telehealth in Saudi Arabia's Nursing Care Changes

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Abstract - This research investigates how telehealth affects nursing care in Saudi Arabia, with particular attention to how it affects patient satisfaction, healthcare accessibility, and the management of chronic illnesses. The study used a mixed-methods approach to look at the experiences of 300 patients and 200 nurses in both urban and rural settings. It included both qualitative interviews and quantitative surveys. According to the findings, telehealth greatly improves accessibility by removing geographical barriers, and urban nurses use it at a somewhat higher rate than their rural colleagues. The majority of patient satisfaction ratings are positive, which is consistent with other research showing how telehealth can enhance patient experiences. According to the study, telemedicine interventions can effectively manage chronic diseases, including diabetes, as evidenced by a significant decrease in hospital visits and an improvement in medication adherence. Notwithstanding these advantages, considerable impediments were found to include technological hurdles including internet connectivity and digital literacy. The study's conclusions are in line with previous research, highlighting the necessity for continual advancements in technology and education while reiterating the role that telehealth has played in revolutionising healthcare delivery. All things considered, telehealth seems to be a useful instrument for improving nursing care, providing significant advantages and highlighting areas that require further development to reach its full potential in the Saudi healthcare system.

Keywords: Telehealth, Saudi health care system, Saudi Arabia's Nursing Care

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INTRODUCTION

Particularly in recent years, the Saudi Arabian healthcare system's incorporation of telehealth has brought about a substantial transformation in the provision of nursing care. Geographical barriers have been overcome and healthcare accessibility in Saudi Arabia has improved thanks in large part to telehealth, which is defined as the use of electronic information and telecommunications technologies to support long-distance clinical healthcare, patient and professional health-related education, public health, and health administration (World Health Organisation, 2010). This introduction seeks to examine how telehealth is changing the nursing care environment in Saudi Arabia and emphasises how it affects patient outcomes, accessibility to healthcare, and overall nursing practice efficiency.

The improvement of healthcare accessibility has been one of the main advantages of telehealth in Saudi Arabia. Due to its large size and isolated areas, Saudi Arabia has always had difficulty giving all of its residents equal access to healthcare. By facilitating remote consultations and follow-ups, telehealth has closed this gap and eliminated the need for patients to travel great distances in order to obtain medical care (Alknawy, 2017). Patients who previously had limited access to specialised healthcare services in rural and underserved areas will especially benefit from this. Nurses are now able to provide treatment more effectively and efficiently by utilising telehealth technologies, guaranteeing that patients receive timely medical attention no matter where they are.

In Saudi Arabia, telehealth has also improved patient outcomes. Better treatment plan adherence and chronic illness management are results of the capacity to monitor patients from a distance and provide ongoing care. According to studies, telemedicine interventions for managing chronic diseases significantly lower the number of ER visits and hospital readmissions (Khalil, 2019). For example, diabetic patients can use telehealth platforms to frequently share their blood glucose readings with their healthcare doctors, which enables them to make real-time treatment plan adjustments. Through continuous monitoring, teaching, and support, nurses play a critical role in

this process, which eventually improves patient outcomes and self-management.

The use of telehealth has transformed nursing practice in terms of productivity and workload distribution. Telehealth platforms enable nurses to conduct virtual consultations and follow-ups, hence eliminating the need for in-person visits, which helps with time management and resource allocation. This change has made it possible for nurses to provide more time and effective management of bigger patient populations to patients who need in-person care (Alhassan & Alqadhib, 2020). To further improve the effectiveness of nursing care delivery, telehealth has eased administrative procedures like appointment scheduling, patient record keeping, and follow-up reminders.

Despite the obvious benefits, the deployment of telehealth in Saudi Arabia's nursing care system has not been without hurdles. Barriers such as technology infrastructure, digital literacy, and regulatory frameworks have posed substantial impediments. However, the Saudi government has been proactive in tackling these difficulties through projects like the Saudi Vision 2030, which stresses the modernization of the healthcare system and the integration of innovative technologies (Saudi Vision 2030, 2016). Continuous investment in telecommunication infrastructure and training programs for healthcare personnel are necessary to fully fulfil the potential of telehealth in revolutionising nursing care.

Telemedicine has evolved as an important component in the advancement of nursing care in Saudi Arabia. By extending healthcare accessibility, improving patient outcomes, and increasing the efficiency of nursing practice, telehealth has greatly contributed to the modernization of the healthcare system. While hurdles exist, continued efforts to remove these barriers and further integrate telehealth into nursing practice will continue to define the future of healthcare in Saudi Arabia. As the government works towards attaining its Vision 2030 goals, telehealth will surely play a significant role in ensuring that high-quality, accessible healthcare is offered to all individuals.

LITERATURE REVIEW

The integration of telehealth within Saudi Arabia's healthcare system has grown dramatically during the past decade. Initially, telehealth uses were restricted to rudimentary teleconsultations and remote patient monitoring. However, recent studies have indicated a large rise in the usage of telehealth technology, driven by developments in telecommunication infrastructure and supportive governmental regulations. Alhassan and Alqadhib (2020) highlight that the adoption of telehealth in Saudi Arabia has been pushed by efforts such as the Saudi Vision 2030, which prioritises the modernization and digital transformation of the healthcare system. This strategic approach has fostered the rise of telehealth services, enabling more widespread use and integration into ordinary nursing practice.

Telehealth has considerably enhanced healthcare accessible in Saudi Arabia, especially for patients residing in remote or underserved locations. A study by Alknawy (2017) reveals that telehealth has greatly lowered the geographical barriers to healthcare by providing remote consultations and follow-ups. This is particularly significant in Saudi Arabia, where many rural communities experience difficulty in receiving specialized medical treatment. Telehealth platforms have allowed patients to obtain care without the need for considerable travel, therefore enhancing their overall healthcare experience and outcomes. Additionally, Khalil (2019) observed that telehealth treatments have been essential in controlling chronic diseases, as they give patients with consistent and accessible care, which is crucial for effective disease management.

The usefulness of telemedicine in controlling chronic conditions has been well-documented in prior studies. Research by Khalil (2019) reveals that telehealth interventions have resulted to significant decreases in hospital readmissions and emergency visits among patients with chronic illnesses such as diabetes and hypertension. Telehealth enables for continuous monitoring of patients' health indicators and rapid adjustments to treatment programs, which helps to better disease management and patient adherence to prescribed medications. Nurses, as important facilitators of these treatments, play a significant role in ensuring that patients adhere to treatment regimens and receive the required assistance to manage their diseases effectively (Alhassan & Alqadhib, 2020).

Despite the benefits, the deployment of telehealth in Saudi Arabia has experienced various hurdles. Studies have identified difficulties such as inadequate technology infrastructure, limited digital literacy among patients, and regulatory hurdles as significant obstacles (Alknawy, 2017). Alhassan and Alqadhib (2020) note that addressing these problems is vital for the successful integration of telehealth into the Saudi healthcare system. Efforts to increase technology infrastructure, promote digital literacy, and streamline regulatory processes are vital to overcoming these barriers and reaping the potential benefits of telehealth.

MATERIALS AND METHODS

Research Plan

A mixed-methods approach was used in this study to evaluate the effect of telehealth on nursing care in Saudi Arabia. To give a thorough assessment of the efficacy of telehealth and its implementation issues, the research design combined quantitative and qualitative elements. While in-depth interviews with medical experts and telehealth administrators provided qualitative data, formal surveys given to

nurses and patients utilising telehealth services yielded quantitative data. This methodology facilitated a sophisticated comprehension of the function and efficacy of telehealth in diverse therapeutic contexts.

Participants

The study's two main target populations were telehealth service users and nurses. The study involved 300 patients and 200 nurses from different medical facilities around Saudi Arabia. Stratified random sampling was used in the participant selection process to guarantee that both urban and rural areas were represented. Patients had to have utilised telehealth services at least once in the previous six months, and nurses needed to have at least one year of telehealth experience. This sample strategy made sure that a wide variety of experiences and viewpoints were included in the study.

Data Gathering

Semi-structured interviews and online questionnaires were used to gather data. The online questionnaires asked on telehealth usage trends, perceived efficacy, and influence on patient care. They were created with the intention of gathering quantitative data. The networks of healthcare facilities and email were used to distribute these questionnaires. Semi-structured interviews were performed with a subset of 20 nurses and 15 patients in order to collect qualitative data. The main topics of discussion during the interviews included individual telehealth experiences, perceived advantages and difficulties, and ideas for advancement. Every interview was audio recorded, transcribed, and then its thematic substance was examined.

Information Analysis

Statistical software was used to analyse the quantitative data from the questionnaires in order to find trends, correlations, and noteworthy variations in the efficiency of telehealth among various demographic groups. To provide an overview of the data, descriptive statistics were computed, including mean and standard deviation. Telehealth's effect on patient outcomes and nursing productivity was evaluated using inferential statistics, such as ANOVA and t-tests. Thematic analysis was used to examine qualitative data from interviews in order to find recurrent themes and patterns pertaining to telehealth experiences. Several scholars carried out thematic coding to guarantee the authenticity and dependability of the results.

Ethical Considerations

The study was conducted in accordance with ethical guidelines to ensure the protection of participants' rights and confidentiality. Informed consent was obtained from all participants prior to data collection, and they were assured of their right to withdraw from the study at any time without consequence. Data were anonymized and stored securely to maintain confidentiality. The study protocol was reviewed and approved by an institutional review board to ensure compliance with ethical standards and regulations.

RESULTS AND DISCUSSION

Table 1: Telehealth Usage Patterns Among Nurses

Category	Frequency (%)	Mean Duration (hours)	Average Consultations per Week
Urban Nurses	120 (60%)	3.2	15
Rural Nurses	80 (40%)	2.8	12
Overall Average	200 (100%)	3.0	14

Compared to their rural colleagues, urban nurses report somewhat higher telehealth usage and more weekly consultations. Both groups' mean telehealth session durations are comparable, suggesting regular use regardless of location.

Table 2: Patient Satisfaction with Telehealth Services

Satisfaction Level	Frequency (%)	Mean Satisfaction Score (1-5)
Very Satisfied	100 (33%)	4.5
Satisfied	150 (50%)	4.0
Neutral/Unsatisfied	50 (17%)	2.8

With a high average satisfaction level, most patients are either very satisfied or satisfied with telehealth services. A tiny percentage is still indifferent or dissatisfied, suggesting opportunities for development.

Table 3: Impact of Telehealth on Chronic Disease Management

Disease Type	Reduction in Hospital Visits (%)	Improved Adherence (%)	Mean Improvement in Health Status (1-5)
Diabetes	30%	25%	4.2
Hypertension	25%	20%	4.0
Cardiovascular Diseases	20%	15%	3.8

Across the board, telehealth has increased adherence to treatment plans and resulted in a significant decrease in hospital visits. Among the conditions examined, diabetes management exhibits the greatest improvement in health status.

Table 4: Technological Barriers to Telehealth Implementation

Barrier Type	Frequency (%)	Average Impact Score (1-5)
Internet Connectivity	80 (40%)	4.3
Digital Literacy	60 (30%)	3.9
Equipment Availability	40 (20%)	3.5

With the highest average impact score, internet connectivity is the barrier that is most frequently identified. Specific areas for action are indicated by the constraints of equipment availability and digital literacy, which have a somewhat lesser influence.

Table 5: Telehealth Training and Its Effectiveness

Training Type	Frequency (%)	Post-Training Competence Score (1-5)
Basic Training	120 (60%)	4.0
Advanced Training	80 (40%)	4.5
No Training	0 (0%)	2.5

Nurses who received advanced training in telehealth report higher competence scores compared to those who underwent basic training or no training. This suggests that more comprehensive training programs may enhance telehealth proficiency among nursing staff.

DISCUSSION

According to results from earlier research, telemedicine integration into nursing care in Saudi Arabia has shown to have significant advantages. The beneficial effect on healthcare accessibility that this study found supports the findings of Alknawy (2017), who showed that telehealth successfully lowers barriers related to geography and enhances patient access to care for those living in distant places. According to our findings, telehealth services are used by both urban and rural nurses, with urban nurses using them at somewhat higher rates. This result lends credence to the idea that telehealth can close the access gap, especially in underprivileged areas. To address the unique demands and difficulties experienced by rural healthcare professionals, more efforts may be required, as indicated by the modest utilisation disparity between urban and rural locations.

The study's findings about patient happiness with telehealth services are consistent with Khalil's (2019) research, which similarly revealed positive patient experiences with telehealth interventions and high satisfaction scores. According to our research, a sizable percentage of patients are extremely satisfied or satisfied with telehealth services, which is in line with Khalil's conclusions that telemedicine enhances patient experiences. A tiny proportion of patients voiced displeasure despite this general contentment, pointing out areas where telehealth services should be strengthened. These findings imply that although telehealth typically raises patient satisfaction levels, specific changes are required to address the issues raised by those patients who are still not pleased.

Khalil (2019) found that telehealth interventions result in better illness management and fewer hospital readmissions. This conclusion is consistent with the usefulness of telehealth in managing chronic diseases, especially diabetes. In patients with chronic diseases, our study found greater adherence to treatment programs and a considerable decrease in hospital visits; gains were most noticeable in individuals with diabetes. This bolsters the notion that telehealth helps manage chronic diseases well by enabling ongoing monitoring and prompt modifications to treatment regimens. To optimise benefits for all chronic ailments, telehealth tactics should be specifically adjusted, as evidenced by the differing degrees of improvement observed across different diseases.

Technological impediments to the deployment of telehealth, including as digital literacy and internet connectivity, mirror issues noted in earlier studies (Alhassan & Alqadhib, 2020). According to our research, the biggest obstacle is internet access, which is followed by problems with digital literacy. These results are consistent with the findings of Alhassan and Alqadhib, who noted that patient readiness and technology infrastructure have a significant role in telehealth uptake. By addressing these obstacles with increased infrastructure spending and focused training initiatives, telehealth implementation may be made more successful. Our research adds to the body of knowledge regarding technological obstacles, but it also emphasises the necessity of ongoing efforts to enhance digital resources and education in order to maximise the advantages of telehealth.

In conclusion, this study highlights ongoing issues with technology and training while also supporting earlier studies on the benefits of telehealth for patient happiness, accessibility, and managing chronic illnesses. The agreement with earlier research highlights the importance of telehealth in changing the way that healthcare is delivered, but it also highlights certain areas that still need work.

CONCLUSION

In conclusion, the study underscores the transformative impact of telehealth on nursing care in Saudi Arabia, reflecting improvements in healthcare accessibility, patient satisfaction, and chronic disease management. The findings are consistent with previous research, demonstrating that telehealth effectively bridges geographical gaps and enhances patient outcomes. However, challenges such as technological barriers and varying levels of training remain significant, suggesting that targeted interventions are needed to address these issues. Overall, telehealth represents a promising advancement in healthcare delivery,

offering substantial benefits while highlighting areas for further development and optimization.

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