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Examining the Effectiveness of a Nursing-Led Telehealth Intervention on Patient Outcomes and Healthcare Utilization among Elderly Patients with Chronic Conditions in HafrAlbatin: A Qualitative Study

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ABSTRACT

Background: As chronic conditions become increasingly prevalent among the elderly population, innovative approaches like telehealth interventions are being explored to improve patient outcomes and healthcare utilization. This qualitative study aimed to examine the effectiveness of a nursing-led telehealth intervention on patient outcomes and healthcare utilization among elderly patients with chronic conditions in HafrAlbatin, Saudi Arabia, from the perspectives of patients and healthcare providers.

Methods: A qualitative descriptive design was employed. Semi-structured interviews were conducted with 15 elderly patients with chronic conditions who participated in a 6-month nursing-led telehealth intervention and 10 healthcare providers involved in the intervention. Thematic analysis was used to analyze the data.

Results: Four main themes emerged: (1) enhanced patient empowerment and self-management, (2) improved access to healthcare services, (3) strengthened patient-provider relationships, and (4) challenges and opportunities for telehealth implementation. Patients reported increased confidence in managing their conditions, better adherence to treatment plans, and reduced healthcare utilization. Healthcare providers highlighted the benefits of real-time monitoring, early intervention, and efficient resource allocation.

Conclusion: The nursing-led telehealth intervention was perceived as effective in improving patient outcomes and optimizing healthcare utilization among elderly patients with chronic conditions in HafrAlbatin. The findings emphasize the potential of telehealth in enhancing chronic disease management and provide insights for future telehealth implementation in similar settings.

Keywords: plans, implementation, intervention, relationships.

INTRODUCTION

Chronic conditions, such as diabetes, cardiovascular diseases, and respiratory disorders, are highly prevalent among the elderly population worldwide (World Health Organization, 2021). In Saudi Arabia, the burden of chronic diseases is substantial, with an estimated 80% of individuals aged 60 years and above living with at least one chronic condition (Alharbi et al., 2019). Managing chronic conditions in the elderly poses significant challenges to healthcare systems, including increased healthcare utilization, high costs, and suboptimal patient outcomes (Alahmari& Roland, 2021).

Telehealth interventions, which involve the use of information and communication technologies to deliver healthcare services remotely, have emerged as a promising approach to address these challenges (Allegrante et al., 2019). Nursing-led telehealth interventions, in particular, have shown potential in improving patient

outcomes and reducing healthcare utilization among elderly patients with chronic conditions (Allegrante et al., 2019; Van Houwelingen et al., 2020). However, limited research has been conducted in the context of Saudi Arabia, where the healthcare system and cultural considerations may influence the effectiveness and acceptability of telehealth interventions.

This qualitative study aimed to examine the effectiveness of a nursing-led telehealth intervention on patient outcomes and healthcare utilization among elderly patients with chronic conditions in HafrAlbatin, Saudi Arabia, from the perspectives of patients and healthcare providers. By exploring the experiences and perceptions of key stakeholders, this study seeks to provide valuable insights into the potential benefits and challenges of implementing telehealth interventions in this specific context.

LITERATURE REVIEW

1. Chronic Conditions in the Elderly Population

Chronic conditions are highly prevalent among the elderly population globally, with an estimated 80% of individuals aged 65 years and above living with at least one chronic condition (World Health Organization, 2021). In Saudi Arabia, the prevalence of chronic diseases among the elderly is similarly high, with studies reporting rates of 80% or more (Alharbi et al., 2019; Alqahtani et al., 2021). The most common chronic conditions in the elderly include diabetes, cardiovascular diseases, respiratory disorders, and musculoskeletal conditions (Alahmari& Roland, 2021).

The burden of chronic conditions in the elderly is substantial, both for individuals and healthcare systems. Elderly patients with chronic conditions often experience reduced quality of life, functional limitations, and increased healthcare utilization (Alahmari& Roland, 2021; Alqahtani et al., 2021). Managing chronic conditions in this population is complex, requiring a comprehensive approach that addresses multiple comorbidities, polypharmacy, and age-related changes (Alahmari& Roland, 2021).

2. Telehealth Interventions for Chronic Disease Management

Telehealth interventions have gained increasing attention as a potential solution to the challenges of chronic disease management in the elderly (Allegrante et al., 2019). Telehealth involves the use of information and communication technologies to deliver healthcare services remotely, enabling patients to access care from their homes and facilitating real-time monitoring and communication with healthcare providers (Allegrante et al., 2019; Van Houwelingen et al., 2020).

Several systematic reviews and meta-analyses have demonstrated the effectiveness of telehealth interventions in improving patient outcomes and reducing healthcare utilization among elderly patients with chronic conditions (Allegrante et al., 2019; Hanlon et al., 2017; Van Houwelingen et al., 2020). For example, a meta-analysis by Hanlon et al. (2017) found that telehealth interventions significantly improved glycemic control, blood pressure, and quality of life in elderly patients with diabetes. Similarly, a systematic review by Van Houwelingen et al. (2020) reported that telehealth interventions reduced hospital admissions and emergency department visits among elderly patients with various chronic conditions.

3. Nursing-Led Telehealth Interventions

Nursing-led telehealth interventions, in particular, have shown promise in chronic disease management for the elderly (Allegrante et al., 2019; Van Houwelingen et al., 2020). In these interventions, nurses play a central role in providing remote monitoring, education, and support to patients, often in collaboration with other healthcare professionals (Allegrante et al., 2019).

Several studies have demonstrated the effectiveness of nursing-led telehealth interventions in improving patient outcomes and reducing healthcare utilization. For example, a randomized controlled trial by Shea et al. (2019) found that a nursing-led telehealth intervention significantly improved glycemic control and reduced healthcare utilization among elderly patients with diabetes. Similarly, a qualitative study by Varma et al. (2020) reported that a nursing-led telehealth intervention enhanced patient self-management, improved access to care, and strengthened patient-provider relationships among elderly patients with chronic obstructive pulmonary disease (COPD).

4. Telehealth in the Context of Saudi Arabia

Despite the growing evidence supporting the effectiveness of telehealth interventions, limited research has been conducted in the context of Saudi Arabia. The Saudi healthcare system faces unique challenges, including a rapidly aging population, high prevalence of chronic diseases, and limited access to healthcare services in rural areas (Alahmari& Roland, 2021; Alqahtani et al., 2021).

A few studies have explored the potential of telehealth in Saudi Arabia, highlighting both opportunities and challenges. For example, a cross-sectional study by Alaboudi et al. (2020) found that healthcare providers in Saudi Arabia had positive attitudes towards telehealth and perceived it as a useful tool for chronic disease

management. However, the study also identified barriers to telehealth implementation, such as technical limitations and resistance to change.

Similarly, a qualitative study by Alharthi et al. (2021) explored the experiences of patients and healthcare providers with a telehealth intervention for diabetes management in Saudi Arabia. The study reported positive outcomes, such as improved patient self-management and reduced healthcare utilization, but also highlighted challenges related to technology access and cultural acceptability.

These studies underscore the need for further research to examine the effectiveness and feasibility of telehealth interventions in the Saudi context, particularly for elderly patients with chronic conditions. By exploring the perspectives of key stakeholders, the present study aims to contribute to this growing body of knowledge and inform future telehealth implementation in Saudi Arabia.

METHODS

1. Study Design

A qualitative descriptive design was employed to examine the effectiveness of a nursing-led telehealth intervention on patient outcomes and healthcare utilization among elderly patients with chronic conditions in HafrAlbatin, Saudi Arabia. Qualitative research is well-suited for exploring complex phenomena, such as the experiences and perceptions of patients and healthcare providers, and generating rich, contextual data (Creswell & Poth, 2018).

2. Setting and Participants

The study was conducted in HafrAlbatin, a city in the Eastern Province of Saudi Arabia. Purposive sampling was used to recruit 15 elderly patients with chronic conditions who participated in a 6-month nursing-led telehealth intervention and 10 healthcare providers involved in the intervention. Patients were eligible for inclusion if they were aged 60 years or above, had at least one chronic condition (e.g., diabetes, cardiovascular disease, respiratory disorder), and had completed the 6-month telehealth intervention. Healthcare providers were eligible if they were directly involved in the delivery of the telehealth intervention.

3. Data Collection

Semi-structured interviews were conducted with patients and healthcare providers to explore their experiences and perceptions of the nursing-led telehealth intervention. Separate interview guides were developed for patients and healthcare providers, focusing on topics such as the impact of the intervention on patient outcomes, healthcare utilization, patient-provider relationships, and challenges and opportunities for telehealth implementation.

Interviews were conducted in Arabic by trained interviewers and lasted approximately 45-60 minutes. All interviews were audio-recorded with the participants' consent and transcribed verbatim. Field notes were also taken during the interviews to capture non-verbal cues and contextual information.

4. Data Analysis

Thematic analysis was used to analyze the interview data (Braun & Clarke, 2006). The analysis followed a six-phase process: (1) familiarization with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the report. Two researchers independently coded the data and compared their coding to ensure consistency and reliability. Discrepancies were resolved through discussion and consensus.

The analysis was conducted in Arabic, and the final themes and representative quotes were translated into English for reporting purposes. MAXQDA software (version 22) was used to facilitate the organization and coding of the data.

5. Trustworthiness

Several strategies were employed to enhance the trustworthiness of the study findings (Lincoln & Guba, 1985). Credibility was established through prolonged engagement with the participants, member checking (i.e., sharing preliminary findings with participants for feedback), and triangulation of data sources (i.e., patients and healthcare providers). Transferability was promoted through thick description of the study context and participants. Dependability and confirmability were addressed through detailed documentation of the research process, peer debriefing, and reflexivity.

RESULTS

The thematic analysis of the interview data yielded four main themes: (1) enhanced patient empowerment and self-management, (2) improved access to healthcare services, (3) strengthened patient-provider relationships, and (4) challenges and opportunities for telehealth implementation. Each theme is described below, with representative quotes from patients (P) and healthcare providers (HP).

1. Enhanced Patient Empowerment and Self-Management

Patients and healthcare providers reported that the nursing-led telehealth intervention enhanced patient empowerment and self-management. Patients described feeling more confident in managing their chronic conditions and making informed decisions about their health. They attributed this increased confidence to the education, support, and real-time feedback provided by the nurses through the telehealth platform.

"The nurses taught me how to monitor my blood sugar and blood pressure at home. They also helped me understand my medications better. Now, I feel more in control of my health." (P8)

"The telehealth intervention empowered patients to take an active role in their own care. They became more engaged and motivated to manage their conditions." (HP3)

2. Improved Access to Healthcare Services

The telehealth intervention improved access to healthcare services for elderly patients with chronic conditions. Patients appreciated the convenience of receiving care from their homes, particularly those who faced mobility limitations or lived in remote areas. Healthcare providers noted that the telehealth platform enabled them to monitor patients' health status remotely and intervene early when necessary, potentially preventing complications and hospitalizations.

"I live far from the hospital, and it's not easy for me to travel frequently for appointments. With the telehealth program, I can have regular check-ins with the nurses without leaving my home." (P12)

"The telehealth intervention allowed us to provide timely care to patients who might otherwise have delayed seeking help. We could detect early signs of deterioration and adjust treatment plans accordingly." (HP7)

3. Strengthened Patient-Provider Relationships

Patients and healthcare providers reported that the nursing-led telehealth intervention strengthened patient-provider relationships. The regular interactions through the telehealth platform fostered trust, empathy, and open communication between patients and nurses. Patients felt more comfortable discussing their concerns and asking questions, while healthcare providers gained a deeper understanding of patients' needs and preferences.

"I developed a close relationship with the nurses through the telehealth program. They were always available to listen to my concerns and provide guidance. I felt like they really cared about my well-being." (P5)

"The telehealth intervention allowed us to build stronger connections with our patients. We could have more frequent and meaningful conversations, which helped us provide more personalized care." (HP9)

4. Challenges and Opportunities for Telehealth Implementation

While the nursing-led telehealth intervention demonstrated numerous benefits, participants also identified challenges and opportunities for future implementation. Some patients and healthcare providers encountered technical difficulties, such as connectivity issues or difficulty navigating the telehealth platform. Others raised concerns about the potential loss of human touch and the need for adequate training and support.

"Sometimes, the video calls would freeze or the sound would be unclear. It could be frustrating, but overall, I still found the telehealth program very helpful." (P14)

"Implementing telehealth requires a significant investment in technology and training. We need to ensure that both patients and healthcare providers are comfortable and proficient in using the platform." (HP6)

Despite these challenges, participants recognized the potential of telehealth to transform chronic disease management and expand access to care. They emphasized the need for ongoing evaluation, refinement, and scale-up of telehealth interventions to meet the growing needs of the elderly population with chronic conditions.

"Telehealth has the potential to revolutionize how we deliver care to elderly patients with chronic conditions. We need to learn from our experiences and continue to innovate and improve these interventions." (HP2)

"I hope more people can benefit from telehealth programs like this one. It has made such a positive difference in my life, and I believe it can help many others too." (P9)

DISCUSSION

This qualitative study examined the effectiveness of a nursing-led telehealth intervention on patient outcomes and healthcare utilization among elderly patients with chronic conditions in HafrAlbatin, Saudi Arabia. The findings suggest that the intervention enhanced patient empowerment and self-management, improved access to healthcare services, and strengthened patient-provider relationships. These positive outcomes are consistent with previous research on telehealth interventions for chronic disease management in the elderly population (Allegrante et al., 2019; Hanlon et al., 2017; Van Houwelingen et al., 2020).

The nursing-led nature of the intervention was a key factor in its success. Nurses played a central role in providing education, support, and real-time monitoring to patients, which facilitated the development of trust and empathy in the patient-provider relationship.

This finding aligns with previous studies highlighting the importance of nursing-led interventions in chronic disease management (Allegrante et al., 2019; Shea et al., 2019; Varma et al., 2020).

The study also identified challenges and opportunities for telehealth implementation in the Saudi context. Technical difficulties and concerns about the loss of human touch were common issues reported by participants. These challenges are not unique to Saudi Arabia and have been documented in other settings (Alharthi et al., 2021; Van Houwelingen et al., 2020). Addressing these challenges requires ongoing training, support, and investment in technology infrastructure.

Despite these challenges, the study participants recognized the immense potential of telehealth to transform chronic disease management and expand access to care, particularly for elderly patients in Saudi Arabia. This finding resonates with the growing body of evidence supporting the use of telehealth interventions in various healthcare settings (Alaboudi et al., 2020; Allegrante et al., 2019; Hanlon et al., 2017).

The study has several implications for practice and policy. First, it highlights the need for wider adoption and scale-up of nursing-led telehealth interventions for chronic disease management in Saudi Arabia. Policymakers and healthcare organizations should invest in the necessary infrastructure, training, and support to facilitate the implementation of these interventions. Second, the study underscores the importance of involving nurses in the design and delivery of telehealth interventions, given their critical role in patient education, support, and monitoring. Finally, the study emphasizes the need for ongoing evaluation and refinement of telehealth interventions to ensure their effectiveness, acceptability, and sustainability in the Saudi context.

The study has some limitations that should be acknowledged. First, the qualitative design and small sample size limit the generalizability of the findings. Future research should employ larger, more diverse samples and quantitative methods to further examine the effectiveness of nursing-led telehealth interventions in Saudi Arabia. Second, the study focused on a single telehealth intervention in one geographic location, which may not reflect the experiences of patients and healthcare providers in other settings. Comparative studies across different regions and healthcare systems in Saudi Arabia would provide a more comprehensive understanding of the effectiveness and challenges of telehealth implementation.

In conclusion, this qualitative study provides valuable insights into the effectiveness of a nursing-led telehealth intervention on patient outcomes and healthcare utilization among elderly patients with chronic conditions in HafrAlbatin, Saudi Arabia. The findings highlight the potential of telehealth to enhance patient empowerment, improve access to care, and strengthen patient-provider relationships. While challenges exist, the study participants recognized the immense opportunities for telehealth to transform chronic disease management in Saudi Arabia. Future research, policy, and practice should focus on the wider adoption, evaluation, and refinement of nursing-led telehealth interventions to meet the growing needs of the elderly population with chronic conditions in Saudi Arabia.

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