Journal of Population Therapeutics & Clinical Pharmacology

Impact of an Educational Brochure on Nurses' Knowledge, Perception, and Attitude Towards Telenursing in Hospitals

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Abstract

Background: Telenursing has revolutionized healthcare delivery, enabling nurses to provide comprehensive care remotely. Nurses' proficiency in telenursing is crucial for delivering quality care. This study aims to assess the influence of an educational brochure on nurses' knowledge, perception, and attitude towards telenursing in isolation hospitals.

Subjects and Methods: A quasi-experimental research design was employed for this study. The participants included all available nurses (n=120) working in wards across hospitals in Najran who consented to participate. Three tools were used: a nurses' knowledge questionnaire on telenursing, a nurses' attitude scale towards telenursing, and a nurses' perception scale towards telenursing.

Results: The study revealed significant enhancements in nurses' knowledge, perception, and attitude towards telenursing post-intervention ($p \leq 0.001$). The educational brochure demonstrated a positive impact on nurses' understanding and acceptance of telenursing.

Conclusion: The findings indicate that the educational brochure effectively improved nurses' knowledge, perception, and attitude regarding telenursing. Future research should involve a larger and more diverse sample, including various healthcare professionals, to enhance the integration of telenursing into clinical practice and further explore optimal strategies for telenursing education.

Keywords: Attitude, Educational brochure, Knowledge, Perception, Telenursing.

Introduction

Telenursing, defined as the utilization of technology to deliver nursing services via computers and mobile devices, has emerged as a pivotal component in modern healthcare (Dai, 2023). With the widespread availability and accessibility of mobile devices, telenursing presents an increasingly appealing alternative for healthcare delivery. Patients now have the freedom to access medical assistance without being confined to specific clinical facilities. This approach facilitates seamless communication between nurses and patients through various mediums such as mobile applications, video technologies, and computer interfaces. Moreover, it enables the monitoring of patients residing in remote locations, thereby bridging gaps in healthcare accessibility (Dai, 2023).

Telenursing represents a novel application of technology and an efficient practice for providing healthcare services across diverse settings characterized by inadequate facility placement, a shortage of specialized nursing staff, and limited access to healthcare amenities (Haleem, 2021). Its implementation aims to address challenges associated with insufficient transportation systems and geographical distances, ensuring the delivery of quality care to underserved populations (Haleem, 2021).

In the wake of global efforts to ensure the safety of healthcare workers, optimize the utilization of personal protective equipment, and maintain patient connectivity, hospitals worldwide are increasingly turning to innovative solutions (Greenhalgh et al., 2020; Marhefka, Lockhart & Turner, 2020). Particularly in isolation hospitals, where nurses face heightened risks due to the scarcity of staff, inadequate infection prevention facilities, diagnostic resources, and therapeutic tools, there is a pressing need to develop comprehensive clinical care guidelines and practices (Anwar et al., 2021).

Prominent methods for transmitting data to medical professionals and gathering patient information in touchless care settings include websites, video chats, and other forms of information technology (Hollander & Carr, 2020). These technologies are instrumental in delivering health programs aimed at minimizing social interaction among hospitalized or isolated individuals (Scott & Mars, 2020). Moreover, they enable quarantined nurses to remotely care for patients, effectively addressing staffing shortages (Canady, 2020).

One effective technique within the realm of telenursing is the provision of distance education by nurses. This approach addresses patient demands for comprehensive knowledge about disease outcomes, health status monitoring, adherence to care standards, dietary guidelines, health

counseling tailored to individual needs, and awareness of medication side effects—all of which can be efficiently delivered through telenursing (Li et al., 2020).

Telenursing not only reduces the risk of direct human-to-human transmission of infectious pathogens but also enhances access to care while optimizing resource utilization in healthcare facilities (De Simone et al., 2022). The broader availability of nursing services contributes significantly to public safety, patient well-being, and healthcare professionals' welfare, making telenursing a desirable, practical, and cost-effective option (Pfaar et al., 2021; Zhou et al., 2020).

Nurses adept in telenursing can administer comprehensive care encompassing assessment, planning, implementation, and outcome evaluation. Particularly in cases of infectious diseases, nurses can provide patients with vital psychological support, information dissemination, educational resources, and practical coping strategies (Mataxen & Webb, 2019).

Given the pivotal role of nurses, especially those working in isolation hospitals, in infection prevention and control, it is imperative for them to continually enhance their skills and knowledge (Bhagavathula et al., 2020; Fawaz et al., 2020). The effectiveness of nursing practice hinges on factors such as knowledge, beliefs, and attitudes, which serve as significant drivers of behavior change. Competent care delivery while prioritizing patient safety underscores the fundamental skills of nursing professionals (Zhou et al., 2020).

However, telenursing implementation may encounter challenges, including limited availability of healthcare providers and patient difficulties in utilizing technology due to insufficient support, education, and guidance. Therefore, nurses aspiring to provide telenursing services must cultivate optimism, possess a forward-thinking mindset, acquire proficiency in technology usage, and understand its limitations. Additionally, they should be adept at assessing the necessity for hospitalization or modifications in care plans (Rizk & Siam, 2021).

Overall, telenursing emerges as a vital solution for enhancing healthcare delivery, especially in challenging environments such as isolation hospitals. By leveraging technology, telenursing not only ensures the continuity of care but also mitigates risks for both healthcare providers and patients.The aim of the study is to assess the impact of an educational brochure on nurses' knowledge, perception, and attitude towards telenursing in isolation hospitals.

Subjects and Methods:

Research Design:

A quasi-experimental research design, specifically the one-group pretest-posttest design, was employed for this study.

Setting:

The study was conducted within the hospitals of Najran

Subjects:

The study included 87 nurses working in the isolation wards of the aforementioned hospitals who consented to participate.

Tools of Data Collection:

Two tools were utilized for data collection:

Nurses' knowledge questionnaire regarding telenursing: This questionnaire consisted of two parts: Part 1 included demographic data, while Part 2 assessed nurses' knowledge regarding telenursing across various domains such as factors affecting telenursing practice, barriers to telenursing, and additional services provided by telenursing. The scoring system categorized knowledge into poor, average, and good levels.

Nurses' attitude scale toward using telenursing: This scale assessed nurses' attitudes towards telenursing, including their perceptions of themselves and the health system. The scoring system categorized attitudes as positive or negative based on predetermined cutoff points.

Nurses' perception scale toward using telenursing: This scale evaluated nurses' perceptions of telenursing, covering aspects such as its definition, uses, types, technology devices involved, advantages, and disadvantages. Nurses' perceptions were categorized as either low or high based on the mean scores.

Validity and Reliability:

The content validity of the tools was ensured by subjecting them to review by specialists in Medical-Surgical Nursing. Reliability was established through Cronbach's alpha test, yielding satisfactory results for all tools.

Ethical Considerations:

The study received approval from the Mansoura University Faculty of Nursing Research Ethics Committee, and all participants provided informed consent. Measures were taken to ensure confidentiality, privacy, and anonymity throughout the study, and participants were assured of their right to withdraw at any time.

Data Collection:

Data collection occurred over a three-month period, involving three phases: preparation, implementation, and evaluation. During the implementation phase, nurses' knowledge, perception, and attitude regarding telenursing were assessed through pretest evaluations, followed by educational sessions and distribution of educational brochures. Posttest evaluations were conducted one month after the educational intervention.

Preparation Phase:

Following a thorough review of current literature on nurses' knowledge, perception, and attitudes towards telenursing and its significance in patient care, researchers formulated necessary data collection tools. Approval was obtained from hospital authorities, and sessions were scheduled for nurses' meetings during morning and afternoon shifts. An educational brochure in Arabic was prepared to highlight the importance of telenursing in facilitating caregiving and enhancing nursing efficiency. The brochure's content, addressing telenursing applications, barriers, advantages, disadvantages, and support services, was tailored based on nurses' identified needs from the pre-assessment stage.

Implementation Phase:

Assessment of nurses' knowledge, perception, and attitude towards telenursing occurred twice weekly using the designated tools (I, II, and III) in a pretest format, with each nurse undergoing a 45-minute interview. Subsequently, teaching sessions on telenursing were conducted over four sessions, each divided into two segments and lasting 20 to 30 minutes. Educational materials such as graphics, PowerPoint presentations, and colored brochures were utilized to impart theoretical knowledge about telenursing and its practical applications. Nurses were encouraged to seek clarification on any topics covered, and each participating nurse received a colored brochure.

Evaluation Phase:

Following the educational intervention, nurses' knowledge, perception, and attitude towards telenursing at isolation hospitals were assessed using the designated tools (I, part 2, II, and III) in a posttest format after one month.

Statistical Analysis:

Data were analyzed using the Statistical Package for Social Sciences (SPSS version 20). Descriptive statistics were used to summarize categorical and continuous data, and inferential statistics, including t-tests and chi-square tests, were employed for between-group comparisons.

Results:

Table 1 presents the demographic characteristics of the studied nurses. The majority were female (65.5%), aged between 20 and 40 years (88.5%), and held a nursing bachelor's degree (52.9%). Additionally, a considerable portion had less than 5 years of experience (56.3%), resided in urban areas (66.7%), and reported using the internet for more than 3 hours daily (62.1%). Notably, 57.5% of nurses did not attend training courses on telenursing.

Figure 1 illustrates a notable improvement in nurses' knowledge levels from pretest to posttest. A minority of nurses demonstrated poor knowledge posttest compared to around three-quarters in the pretest. Conversely, around two-thirds of nurses exhibited good knowledge posttest, contrasting with less than one-tenth in the pretest. This improvement was statistically significant ($p=0.000$).

Table 2 demonstrates a significant enhancement in nurses' perception of telenursing posttest compared to pretest ($p=0.000$).

Table 3 reveals a substantial shift in nurses' attitudes towards telenursing posttest compared to pretest. While only 17.2% of nurses had a negative attitude posttest, this figure was 72.4% pretest. Conversely, 82.2% of nurses exhibited a positive attitude posttest, compared to 26.6% pretest. This change was statistically significant ($p=0.000$).

Table 4 highlights a positive and significant correlation between nurses' knowledge and attitude pretest. Similarly, posttest results indicate a positive and significant correlation between nurses' attitude and both their knowledge and perception of telenursing ($p\leq0.05$).

Table 1: Demographic Characteristics of Studied Nurses

Demographic Characteristic	Percentage
Female	65.5%
Age (20-40 years old)	88.5%
Nursing Bachelor's Degree	52.9%
Experience (<5 years)	56.3%
Residence (Urban)	66.7%
Internet Usage (>3 hours/day)	62.1%
Attended Training Courses on Telenursing	42.5%

Figure 1: Distribution of Nurses' Knowledge Levels Pretest vs. Posttest

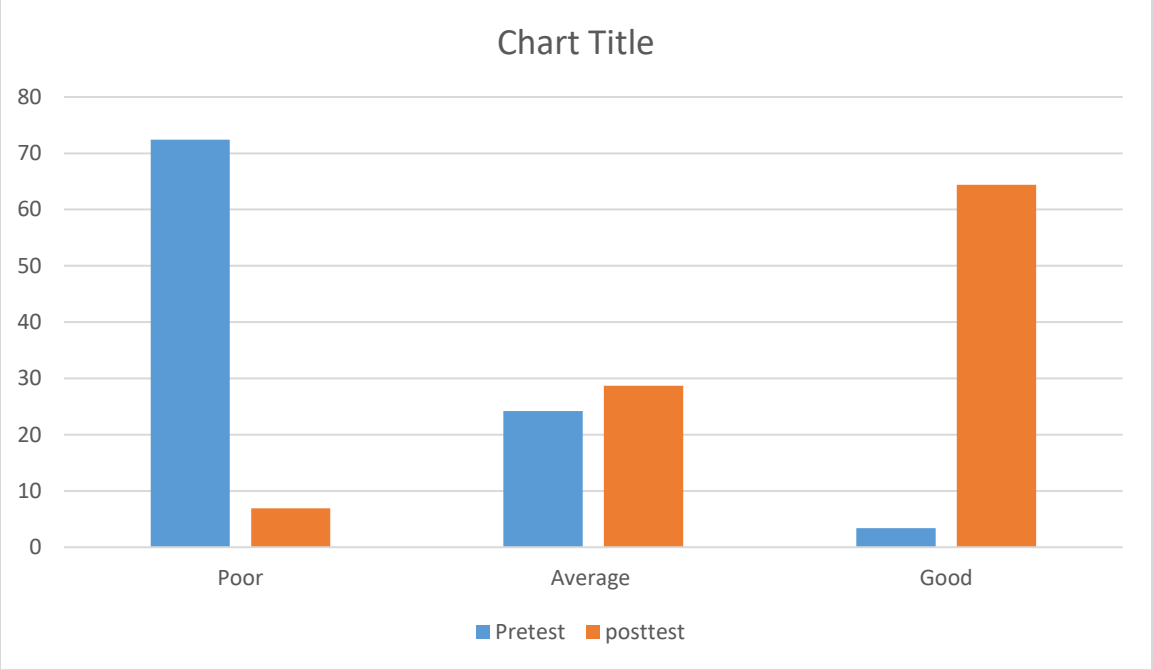

Table 2: Comparison of Nurses' Perception of Telenursing Pretest vs. Posttest

Perception	Pretest (%)	Posttest (%)
Improved	-	100%
Unchanged	0%	-
Decreased	100%	-

Table 3: Nurses' Attitude towards Telenursing Pretest vs. Posttest

Attitude	Pretest (%)	Posttest (%)
Negative	72.4%	17.2%
Positive	26.6%	82.2%

Table 4: Correlation between Nurses' Knowledge, Attitude, and Perception of Telenursing

Factor	Pretest Correlation	Posttest Correlation
Knowledge & Attitude	Positive, Significant ($p \leq 0.05$)	-
Attitude & Perception	-	Positive, Significant ($p \leq 0.05$)
Knowledge & Perception	-	Positive, Significant ($p \leq 0.05$)

Discussion:

Telenursing, leveraging technological advancements, has emerged as a pivotal tool in providing remote healthcare services, particularly in the context of infection control, as evidenced by nurses' crucial role in isolation hospitals (Ghoulami-Shilsari & Esmaeilpour Bandboni, 2019; Bhagavathula et al., 2020). Its applications span interdisciplinary care delivery, pain management, remote data collection, intervention, monitoring, education, and follow-up (Fawaz et al., 2020).

In light of national regulations on social distancing, maintaining the continuity of telenursing necessitated meticulous planning. Various barriers exist, including challenges in handling specialized equipment, resistance to change, and lack of telenursing experience. Overcoming these challenges requires a positive outlook, technological competence, and an understanding of the technology's limitations (Kord et al., 2021). Thus, the present study investigated the impact of an educational brochure on nurses' knowledge, perception, and attitude towards telenursing at isolation hospitals.

Demographically, the majority of nurses in the study fell within the age range of 20 to 40 years, with half holding a bachelor's degree in nursing and less than five years of experience. A significant proportion had not attended telenursing training, aligning with previous studies (Chang et al., 2021).

The study revealed a significant improvement in nurses' knowledge posttest compared to pretest, echoing findings by El-Zayat et al., (2022), who observed similar enhancements following telenursing education sessions. Educational brochures, as highlighted by Alvis et al., (2019), have proven effective in enhancing knowledge and altering beliefs.

Regarding attitudes, a notable shift towards positivity was observed post-test, in contrast to the pre-test findings. This is consistent with the findings of Ebrahim & Elsayed (2018), underscoring the transformative impact of educational interventions via brochures on nurses' attitudes towards telenursing.

Perception of telenursing also significantly improved post-test, reflecting similar outcomes observed by Hendy et al., (2023) following educational interventions. The correlation analysis highlighted a positive and significant association between knowledge and attitude pretest, as well

as between attitude and both knowledge and perception post-test. These findings corroborate the work of Abd Ellatif et al., (2023), indicating the interplay between knowledge, attitude, and perception in shaping nurses' approach to telenursing.

In conclusion, the educational brochure intervention demonstrated substantial efficacy in enhancing nurses' knowledge, perception, and attitude towards telenursing, thus underscoring its potential as a valuable educational tool in promoting the adoption of telenursing practices.

Conclusion

In summary, the study revealed significant improvements in nurses' knowledge, perception, and attitude towards telenursing following the implementation of the educational brochure. The findings underscore the positive impact of the brochure in enhancing nurses' understanding and acceptance of telenursing practices. This highlights the importance of targeted educational interventions in equipping healthcare professionals with the necessary skills and attitudes for effective patient care, particularly in settings like isolation hospitals where remote healthcare services are essential.

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