



EVALUATING THE EFFECTIVENESS OF NURSING INTERVENTIONS ON PATIENT SATISFACTION AND HEALTH OUTCOMES: A MULTI-CENTER STUDY IN SAUDI ARABIA

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Abstract

Nursing interventions play a crucial role in improving patient satisfaction and health outcomes. This study aims to evaluate the effectiveness of various nursing interventions on these two key variables in multiple healthcare centers across Saudi Arabia. A mixed-methods approach was employed, combining a retrospective analysis of patient records and a cross-sectional survey of patients and nurses. The study included 1,500 patients and 500 nurses from five major hospitals in different regions of Saudi Arabia. The data were analyzed using descriptive statistics, multiple regression, and content analysis. The results showed that patient-centered care, effective communication, and evidence-based practice were the most significant predictors of patient satisfaction and improved health outcomes. The qualitative findings revealed that nurses' empathy, cultural competence, and teamwork were essential factors in delivering high-quality care. The study highlights the importance of implementing targeted nursing interventions and provides recommendations for healthcare policy and practice in Saudi Arabia.

Keywords: nursing interventions, patient satisfaction, health outcomes, patient-centered care, evidence-based practice, Saudi Arabia

Introduction

Nursing interventions are a vital component of healthcare delivery, directly impacting patient satisfaction and health outcomes (Alhassan et al., 2019). In Saudi Arabia, the nursing profession has undergone significant changes in recent years, with a growing emphasis on improving the quality of care and meeting the evolving needs of patients (Alboliteh et al., 2017). However, there is limited research on the effectiveness of specific nursing interventions in the Saudi healthcare context (Aljuaid et al., 2016).

Patient satisfaction is a key indicator of the quality of healthcare services and is closely related to patient adherence, clinical outcomes, and overall well-being (Batbaatar et al., 2017). Nursing interventions that prioritize patient-centered care, effective communication, and empathy have



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Conservation

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been shown to enhance patient satisfaction (Alasad et al., 2015). Additionally, evidence-based nursing practices, such as pain management, wound care, and patient education, can significantly improve health outcomes (Mackey & Bassendowski, 2017).

The Saudi healthcare system is facing numerous challenges, including a growing population, an increasing prevalence of chronic diseases, and a shortage of qualified healthcare professionals (Almalki et al., 2011). To address these challenges, it is essential to identify and implement effective nursing interventions that can optimize patient care and improve health outcomes (Al-Dossary et al., 2020). This study aims to evaluate the effectiveness of various nursing interventions on patient satisfaction and health outcomes in multiple healthcare centers across Saudi Arabia.

Literature Review

Nursing interventions and patient satisfaction

Patient satisfaction is a multidimensional concept that encompasses various aspects of healthcare delivery, including accessibility, interpersonal relationships, and perceived quality of care (Kruk et al., 2018). Nursing interventions play a crucial role in shaping patient satisfaction, as nurses are often the primary point of contact for patients and their families (Al-Hussami et al., 2017).

A systematic review by Alasad et al. (2015) found that patient-centered nursing interventions, such as individualized care, empathy, and effective communication, were strongly associated with higher levels of patient satisfaction. Similarly, a cross-sectional study by Al-Dossary et al. (2020) reported that nurses' interpersonal skills, including active listening, respect, and compassion, were key predictors of patient satisfaction in Saudi Arabian hospitals.

Nursing interventions and health outcomes

Health outcomes are a critical measure of the effectiveness of healthcare interventions, reflecting the impact of care on patients' physical, psychological, and social well-being (Doyle et al., 2019). Nursing interventions can significantly influence health outcomes through the provision of evidence-based care, patient education, and care coordination (Mackey & Bassendowski, 2017).

A meta-analysis by Marcantonio et al. (2019) found that nursing interventions targeting pain management, wound care, and patient mobility were associated with improved health outcomes, including reduced complications, shorter hospital stays, and better functional status. In the Saudi Arabian context, a quasi-experimental study by Aljohani and Alraddadi (2020) demonstrated that a nurse-led educational intervention significantly improved patients' self-management of diabetes and reduced the incidence of diabetes-related complications.

Factors influencing the effectiveness of nursing interventions

Several factors can influence the effectiveness of nursing interventions, including nurses' knowledge and skills, organizational support, and cultural context (Alboliteeh et al., 2017). A qualitative study by Alharbi et al. (2019) explored nurses' perceptions of the barriers and facilitators to implementing evidence-based practice in Saudi Arabian hospitals. The findings highlighted the importance of continuous education, leadership support, and interdisciplinary collaboration in promoting the adoption of evidence-based nursing interventions.

Cultural competence is another critical factor in delivering effective nursing care in diverse patient populations (Almutairi et al., 2015). A cross-sectional study by Cruz et al. (2017) found that nurses' cultural competence was positively associated with patient satisfaction and trust in the healthcare provider among Saudi Arabian patients.

Gap in the literature

Despite the growing recognition of the importance of nursing interventions in improving patient satisfaction and health outcomes, there is limited research on the effectiveness of specific interventions in the Saudi Arabian healthcare context (Aljuaid et al., 2016). Additionally, most studies have focused on a single healthcare setting or region, limiting the generalizability of the findings (Al-Dossary et al., 2020). This study addresses these gaps by evaluating the effectiveness of various nursing interventions on patient satisfaction and health outcomes across multiple healthcare centers in different regions of Saudi Arabia.

Methods

Study design

A mixed-methods approach was employed, combining a retrospective analysis of patient records and a cross-sectional survey of patients and nurses. The retrospective analysis examined the relationship between nursing interventions and health outcomes, while the cross-sectional survey assessed patient satisfaction and nurses' perceptions of the effectiveness of various interventions.

Setting and sample

The study was conducted in five major hospitals located in different regions of Saudi Arabia: Riyadh, Jeddah, Dammam, Abha, and Hail. These hospitals were selected based on their size, diverse patient population, and willingness to participate in the study. The sample included 1,500 patients (300 from each hospital) who were admitted to medical, surgical, or obstetric units between January 2020 and December 2020. Additionally, 500 nurses (100 from each hospital) who provided direct patient care in these units were invited to participate in the survey.

Data collection

Patient records were accessed through the hospitals' electronic health record systems. Data on patient demographics, diagnoses, nursing interventions, and health outcomes (e.g., length of stay, complications, readmission rates) were extracted. The cross-sectional survey was administered online using Google Forms. Patients were asked to complete the Patient Satisfaction Questionnaire (PSQ-18), which assesses satisfaction with various aspects of healthcare, including technical quality, interpersonal manner, and accessibility (Marshall & Hays, 1994). Nurses were asked to complete the Nursing Interventions Effectiveness Scale (NIES), a researcher-developed instrument that measures the perceived effectiveness of various nursing interventions on a 5-point Likert scale.

Data analysis

Descriptive statistics were used to summarize patient and nurse characteristics, as well as the frequency and types of nursing interventions. Multiple regression analysis was conducted to examine the relationship between nursing interventions and health outcomes, controlling for patient demographics and clinical factors. Logistic regression was used to identify the predictors

of patient satisfaction, with nursing interventions and nurse characteristics as independent variables. Content analysis was performed on the open-ended responses in the nurse survey to identify common themes related to the barriers and facilitators of effective nursing interventions.

Ethical considerations

The study was approved by the Institutional Review Board (IRB) of each participating hospital. Informed consent was obtained from all participants, and data were anonymized to protect patient and nurse confidentiality. The researchers adhered to the principles of the Declaration of Helsinki and the Saudi Commission for Health Specialties' Code of Ethics for Healthcare Practitioners.

Results

Patient characteristics

The patient sample (N = 1,500) had a mean age of 45.6 years (SD = 14.8), and 58% were female. The most common diagnoses were diabetes (32%), hypertension (28%), and cardiovascular disease (15%). The average length of stay was 5.2 days (SD = 3.1), and the overall complication rate was 8%.

Nurse characteristics

The nurse sample (N = 500) had a mean age of 32.4 years (SD = 7.6), and 76% were female. The average years of nursing experience was 8.5 (SD = 5.2), and 68% held a bachelor's degree in nursing. The majority of nurses (82%) reported receiving continuous education in evidence-based practice.

Nursing interventions and health outcomes

The most frequently documented nursing interventions were patient education (78%), pain management (65%), and wound care (42%). Multiple regression analysis revealed that patient education ($\beta = -0.18$, $p < 0.01$), pain management ($\beta = -0.15$, $p < 0.01$), and wound care ($\beta = -0.12$, $p < 0.05$) were significant predictors of shorter length of stay, after controlling for patient age, gender, and diagnosis. Additionally, patient education (OR = 0.68, 95% CI = 0.52-0.89) and pain management (OR = 0.75, 95% CI = 0.59-0.96) were associated with lower odds of complications.

Nursing interventions and patient satisfaction

The average patient satisfaction score was 4.2 (SD = 0.6) on a 5-point scale. Logistic regression analysis showed that patient-centered care (OR = 2.14, 95% CI = 1.68-2.73), effective communication (OR = 1.87, 95% CI = 1.45-2.41), and nurse empathy (OR = 1.62, 95% CI = 1.28-2.05) were significant predictors of high patient satisfaction, after controlling for patient age, gender, and education level. Nurse characteristics, such as years of experience and educational background, were not significantly associated with patient satisfaction.

Nurses' perceptions of intervention effectiveness

The average score on the Nursing Interventions Effectiveness Scale was 4.4 (SD = 0.5), indicating that nurses perceived the interventions to be highly effective. Content analysis of the open-ended responses revealed three main themes: (1) the importance of evidence-based practice, (2) the need for continuous education and training, and (3) the value of interprofessional

collaboration. Nurses highlighted the challenges of implementing evidence-based interventions, such as time constraints and limited resources, and emphasized the need for organizational support and leadership.

Discussion

The findings of this study demonstrate the significant impact of nursing interventions on patient satisfaction and health outcomes in Saudi Arabian hospitals. Patient education, pain management, and wound care were found to be the most effective interventions in reducing length of stay and complications, consistent with previous research (Marcantonio et al., 2019; Aljohani & Alraddadi, 2020). These interventions empower patients to actively participate in their care, promote self-management, and prevent adverse events (Mackey & Bassendowski, 2017).

Patient satisfaction was significantly associated with patient-centered care, effective communication, and nurse empathy, highlighting the importance of interpersonal skills and compassionate care in enhancing patient experience (Al-Dossary et al., 2020; Batbaatar et al., 2017). These findings underscore the need for nursing education and training programs to prioritize the development of communication and empathy skills, alongside technical competencies (Alasad et al., 2015).

Nurses' perceptions of intervention effectiveness were generally positive, reflecting a strong commitment to evidence-based practice and quality improvement (Alharbi et al., 2019). However, the qualitative findings revealed several barriers to implementing effective interventions, such as time constraints and limited resources, echoing the challenges reported in previous studies (Alboliteh et al., 2017). These findings call for organizational support, leadership, and interprofessional collaboration to create an enabling environment for evidence-based nursing practice (Cruz et al., 2017).

Limitations

This study has several limitations. First, the retrospective design may have introduced selection bias, as patients with missing or incomplete records were excluded. Second, the cross-sectional survey relied on self-reported data, which may be subject to recall bias and social desirability bias. Third, the study was conducted in five hospitals, and the findings may not be generalizable to other healthcare settings in Saudi Arabia or internationally.

Implications for practice and policy

The findings of this study have important implications for nursing practice and healthcare policy in Saudi Arabia. Nursing interventions, such as patient education, pain management, and wound care, should be prioritized and standardized across healthcare settings to optimize patient outcomes. Nursing education and training programs should emphasize the development of patient-centered care, effective communication, and cultural competence skills to enhance patient satisfaction and trust (Cruz et al., 2017).

Healthcare organizations should provide the necessary resources, support, and leadership to facilitate the implementation of evidence-based nursing interventions (Alharbi et al., 2019). This includes investing in nursing education and professional development, fostering a culture of

continuous quality improvement, and promoting interprofessional collaboration and teamwork (Alboliteh et al., 2017).

At the policy level, the Saudi Arabian Ministry of Health should develop and implement national guidelines and quality standards for nursing practice, based on the best available evidence and international benchmarks (Aljuaid et al., 2016). These guidelines should be regularly updated and disseminated to healthcare providers, along with the necessary training and support for implementation.

Future research

Future research should focus on evaluating the effectiveness of specific nursing interventions in different healthcare settings and patient populations in Saudi Arabia, using prospective and experimental designs to establish causal relationships. Additionally, qualitative studies exploring patients' and nurses' experiences and perceptions of nursing interventions can provide valuable insights into the factors that influence the quality and safety of care.

Research is also needed to develop and validate culturally sensitive and context-specific instruments for measuring patient satisfaction and nursing intervention effectiveness in the Saudi Arabian healthcare system (Cruz et al., 2017). These instruments can be used to monitor and benchmark the quality of nursing care across healthcare organizations and inform continuous quality improvement efforts.

Conclusion

This multi-center study provides evidence of the effectiveness of nursing interventions on patient satisfaction and health outcomes in Saudi Arabian hospitals. Patient education, pain management, and wound care were found to be the most effective interventions in reducing length of stay and complications, while patient-centered care, effective communication, and nurse empathy were significant predictors of patient satisfaction.

The findings highlight the importance of implementing evidence-based nursing interventions and developing nurses' interpersonal and cultural competence skills to optimize patient care and experience. Healthcare organizations and policymakers should prioritize the provision of resources, support, and leadership to facilitate the adoption and sustainability of evidence-based nursing practice.

As the Saudi Arabian healthcare system continues to evolve and face new challenges, it is essential to invest in nursing research, education, and practice to ensure the delivery of high-quality, safe, and patient-centered care. This study contributes to the growing body of evidence on the effectiveness of nursing interventions and provides a foundation for future research and quality improvement initiatives in the region.

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