



THE IMPACT OF NURSING TEAMWORK ON PATIENT SAFETY AND QUALITY OF CARE IN SAUDI ARABIAN HOSPITALS: A CROSS-SECTIONAL SURVEY

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Abstract

Nursing teamwork plays a crucial role in ensuring patient safety and delivering high-quality care in healthcare settings. This study aimed to investigate the impact of nursing teamwork on patient safety and quality of care in Saudi Arabian hospitals. A cross-sectional survey design was employed, and data were collected from a sample of 450 nurses working in three tertiary hospitals in Riyadh, Saudi Arabia. The Nursing Teamwork Survey (NTS) and the Hospital Survey on Patient Safety Culture (HSOPSC) were used to measure nursing teamwork and patient safety culture, respectively. The Quality of Care Scale (QCS) was used to assess nurses' perceptions of the quality of care provided in their units. Descriptive statistics, Pearson's correlation, and multiple linear regression analyses were conducted to examine the relationships between nursing teamwork, patient safety culture, and quality of care. The results revealed a significant positive correlation between nursing teamwork and patient safety culture ($r = 0.612$, $p < 0.001$), as well as between nursing teamwork and quality of care ($r = 0.548$, $p < 0.001$). Multiple linear regression analysis showed that nursing teamwork was a significant predictor of both patient safety culture ($\beta = 0.587$, $p < 0.001$) and quality of care ($\beta = 0.502$, $p < 0.001$), after controlling for demographic variables. The findings highlight the importance of fostering effective nursing teamwork to enhance patient safety and quality of care in Saudi Arabian hospitals. Recommendations for practice include implementing team-building interventions, promoting interprofessional collaboration, and providing leadership support to create a culture of teamwork and safety.

Keywords: nursing teamwork, patient safety, quality of care, Saudi Arabia, cross-sectional survey



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Introduction

Nursing teamwork is a critical component of healthcare delivery, as it directly influences patient safety and the quality of care provided (Manser, 2009). Effective teamwork among nurses is characterized by clear communication, shared decision-making, mutual support, and a common goal of delivering safe and high-quality patient care (Kalisch et al., 2010). In contrast, poor teamwork has been associated with adverse patient outcomes, such as medication errors, hospital-acquired infections, and patient falls (Welp & Manser, 2016).

In Saudi Arabia, the healthcare system has undergone significant reforms in recent years, with a focus on improving patient safety and quality of care (Almalki et al., 2011). However, studies have shown that there are still challenges in achieving optimal levels of patient safety and quality of care in Saudi Arabian hospitals (Al-Ahmadi, 2009; Alahmadi, 2010). One potential factor contributing to these challenges is the level of nursing teamwork in these healthcare settings.

Despite the importance of nursing teamwork in healthcare delivery, limited research has been conducted on this topic in the context of Saudi Arabian hospitals. Therefore, this study aimed to investigate the impact of nursing teamwork on patient safety and quality of care in Saudi Arabian hospitals. The findings of this study can inform the development of strategies to enhance nursing teamwork and ultimately improve patient outcomes in these healthcare settings.

Literature Review

Nursing Teamwork and Patient Safety

Several studies have demonstrated the positive impact of nursing teamwork on patient safety outcomes. A systematic review by Welp and Manser (2016) found that effective teamwork among nurses was associated with reduced medication errors, hospital-acquired infections, and patient falls. Similarly, a study by Rahn (2016) showed that high levels of nursing teamwork were associated with lower rates of patient safety incidents, such as pressure ulcers and catheter-associated urinary tract infections.

In the context of Saudi Arabia, a study by Alayed et al. (2014) investigated the perceptions of nurses regarding teamwork and patient safety in a tertiary hospital. The results showed that nurses had positive perceptions of teamwork and patient safety in their hospital, but there was room for improvement in areas such as communication and error reporting. Another study by Al-Ahmadi (2009) found that teamwork was a significant predictor of patient safety culture in Saudi Arabian hospitals, highlighting the importance of fostering effective teamwork to enhance patient safety.

Nursing Teamwork and Quality of Care

In addition to patient safety, nursing teamwork has also been linked to the quality of care provided in healthcare settings. A study by Kalisch et al. (2010) found that higher levels of nursing teamwork were associated with better quality of care, as evidenced by fewer patient

complaints and higher patient satisfaction scores. Similarly, a study by Wheelan et al. (2003) showed that nursing teams with higher levels of cohesion and communication provided better patient care, as measured by patient outcomes and nurse-reported quality of care.

In Saudi Arabia, a study by Almalki et al. (2012) investigated the quality of work life among primary healthcare nurses and found that teamwork was one of the most important factors influencing their job satisfaction and intention to stay in their current positions. This finding suggests that promoting teamwork among nurses can not only enhance the quality of care provided but also improve nurses' job satisfaction and retention.

Factors Influencing Nursing Teamwork

Several factors have been identified as influencing the level of nursing teamwork in healthcare settings. A study by Kalisch et al. (2009) found that nursing staff shortages, inadequate communication, and lack of leadership support were significant barriers to effective teamwork among nurses. Similarly, a study by Al-Yami et al. (2017) identified workload, time constraints, and lack of resources as challenges to nursing teamwork in Saudi Arabian hospitals.

Other factors that have been found to influence nursing teamwork include interprofessional collaboration, organizational culture, and individual nurse characteristics such as job satisfaction and burnout (Al-Yami et al., 2017; Regan et al., 2016). These findings highlight the need for a multifaceted approach to promoting nursing teamwork, which addresses both organizational and individual factors.

Research Objectives

The main objective of this study was to investigate the impact of nursing teamwork on patient safety and quality of care in Saudi Arabian hospitals. Specifically, the study aimed to:

1. Assess the level of nursing teamwork in Saudi Arabian hospitals using the Nursing Teamwork Survey (NTS).
2. Examine the relationship between nursing teamwork and patient safety culture using the Hospital Survey on Patient Safety Culture (HSOPSC).
3. Investigate the relationship between nursing teamwork and quality of care using the Quality of Care Scale (QCS).
4. Identify the predictors of patient safety culture and quality of care among nursing teamwork dimensions.

Methodology

Study Design and Setting

A cross-sectional survey design was employed to collect data from nurses working in three tertiary hospitals located in Riyadh, Saudi Arabia. The hospitals were selected based on their size, location, and willingness to participate in the study.

Sample and Sampling Technique

A convenience sampling technique was used to recruit nurses from the participating hospitals. The inclusion criteria were: (1) registered nurses, (2) working in inpatient units, and (3) with at least one year of experience in their current hospital. The exclusion criteria were: (1) nurses working in outpatient units, (2) nurses with less than one year of experience, and (3) nurses on leave during the data collection period.

The sample size was calculated using G*Power software (Faul et al., 2009), with a medium effect size ($f^2 = 0.15$), a power of 0.80, and an alpha level of 0.05 for multiple linear regression analysis. The minimum required sample size was 432. To account for potential non-response and incomplete surveys, a total of 500 nurses were invited to participate in the study.

Instruments

1. Nursing Teamwork Survey (NTS): The NTS is a 33-item instrument that measures nursing teamwork in five dimensions: trust, team orientation, backup, shared mental model, and team leadership (Kalisch et al., 2010). The items are rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The total score ranges from 33 to 165, with higher scores indicating higher levels of nursing teamwork. The NTS has demonstrated good reliability and validity in previous studies (Kalisch et al., 2010).
2. Hospital Survey on Patient Safety Culture (HSOPSC): The HSOPSC is a 42-item instrument that measures patient safety culture in 12 dimensions, such as teamwork within units, organizational learning, and overall perceptions of patient safety (Sorra & Dyer, 2010). The items are rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The total score ranges from 42 to 210, with higher scores indicating a more positive patient safety culture. The HSOPSC has shown good psychometric properties in various healthcare settings (Sorra & Dyer, 2010).
3. Quality of Care Scale (QCS): The QCS is a 10-item instrument that assesses nurses' perceptions of the quality of care provided in their units (Aiken et al., 2002). The items are rated on a 4-point Likert scale, ranging from 1 (poor) to 4 (excellent). The total score ranges from 10 to 40, with higher scores indicating better quality of care. The QCS has demonstrated good reliability and validity in previous studies (Aiken et al., 2002).

Data Collection Procedure

After obtaining ethical approval from the participating hospitals and the university's institutional review board, the researchers approached the nursing directors of each hospital to facilitate the recruitment process. The nursing directors provided a list of eligible nurses based on the inclusion criteria. The researchers then distributed the survey packets, which included the NTS, HSOPSC, QCS, and a demographic questionnaire, to the eligible nurses during their work shifts. The nurses were informed about the purpose of the study, the voluntary nature of their

participation, and the confidentiality of their responses. The completed surveys were collected by the researchers after two weeks.

Data Analysis

Data were analyzed using SPSS version 26.0. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were used to summarize the demographic characteristics and the scores of the NTS, HSOPSC, and QCS. Pearson's correlation coefficient was used to examine the relationships between nursing teamwork, patient safety culture, and quality of care. Multiple linear regression analysis was conducted to identify the predictors of patient safety culture and quality of care among the nursing teamwork dimensions, while controlling for demographic variables such as age, gender, education level, and work experience.

Results

Demographic Characteristics

A total of 450 nurses completed the survey, yielding a response rate of 90%. The majority of the participants were female (92.2%), with a mean age of 29.5 years (SD = 5.7). Most of the nurses had a bachelor's degree in nursing (88.4%) and worked in medical-surgical units (60.2%). The average work experience was 5.2 years (SD = 3.8). Table 1 presents the detailed demographic characteristics of the participants.

Table 1. Demographic Characteristics of the Participants (N = 450)

Characteristic	n (%)
Gender	
Female	415 (92.2%)
Male	35 (7.8%)
Age (years)	
20-29	270 (60.0%)
30-39	150 (33.3%)
≥40	30 (6.7%)

Characteristic	n (%)
Education Level	
Diploma	30 (6.7%)
Bachelor's	398 (88.4%)
Master's	22 (4.9%)
Work Unit	
Medical-Surgical	271 (60.2%)
Critical Care	120 (26.7%)
Pediatrics	59 (13.1%)
Work Experience (years)	
1-5	285 (63.3%)
6-10	120 (26.7%)
>10	45 (10.0%)

Nursing Teamwork, Patient Safety Culture, and Quality of Care Scores

The mean score for nursing teamwork, as measured by the NTS, was 117.5 (SD = 14.2), indicating a moderate level of teamwork among the nurses. The mean score for patient safety culture, as measured by the HSOPSC, was 148.3 (SD = 20.1), suggesting a positive perception of patient safety culture in the participating hospitals. The mean score for quality of care, as measured by the QCS, was 32.7 (SD = 4.5), indicating a high level of perceived quality of care in the nursing units.

Relationships between Nursing Teamwork, Patient Safety Culture, and Quality of Care

Pearson's correlation analysis revealed a significant positive correlation between nursing teamwork and patient safety culture ($r = 0.612$, $p < 0.001$), indicating that higher levels of nursing teamwork were associated with more positive perceptions of patient safety culture. Similarly, there was a significant positive correlation between nursing teamwork and quality of care ($r = 0.548$, $p < 0.001$), suggesting that higher levels of nursing teamwork were associated with better perceived quality of care in the nursing units.

Predictors of Patient Safety Culture and Quality of Care

Multiple linear regression analysis was conducted to identify the predictors of patient safety culture and quality of care among the nursing teamwork dimensions, while controlling for demographic variables. The results showed that trust ($\beta = 0.285$, $p < 0.001$), team orientation ($\beta = 0.216$, $p < 0.001$), and backup ($\beta = 0.197$, $p < 0.001$) were significant predictors of patient safety culture, explaining 48.5% of the variance ($R^2 = 0.485$, $F(8, 441) = 51.83$, $p < 0.001$). For quality of care, the significant predictors were trust ($\beta = 0.263$, $p < 0.001$), team leadership ($\beta = 0.221$, $p < 0.001$), and shared mental model ($\beta = 0.192$, $p < 0.001$), explaining 41.6% of the variance ($R^2 = 0.416$, $F(8, 441) = 39.27$, $p < 0.001$). None of the demographic variables were significant predictors of patient safety culture or quality of care.

Discussion

The findings of this study highlight the importance of nursing teamwork in promoting patient safety and quality of care in Saudi Arabian hospitals. The moderate level of nursing teamwork observed in this study is consistent with previous research in Saudi Arabia (Alayed et al., 2014) and underscores the need for ongoing efforts to enhance teamwork among nurses.

The significant positive correlations between nursing teamwork, patient safety culture, and quality of care support the existing literature on the benefits of effective teamwork in healthcare settings (Rahn, 2016; Kalisch et al., 2010). These findings suggest that investing in strategies to improve nursing teamwork can lead to better patient outcomes and higher quality of care.

The identification of trust, team orientation, and backup as significant predictors of patient safety culture aligns with previous research highlighting the importance of these teamwork dimensions in fostering a positive safety culture (Kalisch et al., 2009). Similarly, the finding that trust, team leadership, and shared mental model are significant predictors of quality of care underscores the role of effective communication, coordination, and shared understanding among nursing team members in delivering high-quality patient care (Wheelan et al., 2003).

The lack of significant associations between demographic variables and patient safety culture or quality of care suggests that nursing teamwork is a more critical factor in influencing these outcomes, regardless of nurses' individual characteristics. This finding emphasizes the need for targeted interventions to enhance nursing teamwork, rather than focusing solely on individual nurse attributes.

Limitations and Recommendations

This study has several limitations that should be considered when interpreting the results. First, the cross-sectional design limits the ability to establish causal relationships between nursing teamwork, patient safety culture, and quality of care. Future research should employ longitudinal designs to examine the impact of nursing teamwork on these outcomes over time.

Second, the use of self-reported measures may be subject to social desirability bias, as nurses may have overestimated their level of teamwork or the quality of care provided in their units. Future studies should consider using objective measures, such as patient outcomes or observational data, to validate the findings.

Third, the convenience sampling method and the focus on tertiary hospitals in Riyadh may limit the generalizability of the findings to other healthcare settings or regions in Saudi Arabia. Future research should include a more diverse sample of hospitals and nurses to enhance the external validity of the results.

Despite these limitations, the findings of this study have important implications for nursing practice and healthcare policy in Saudi Arabia. Nurse managers and hospital administrators should prioritize the development and implementation of team-building interventions, such as teamwork training programs, interprofessional collaboration initiatives, and communication skills workshops, to enhance nursing teamwork and ultimately improve patient outcomes.

Additionally, healthcare policymakers should consider incorporating nursing teamwork as a key performance indicator in hospital accreditation and quality improvement programs. This would encourage healthcare organizations to allocate resources and support for nursing teamwork initiatives and foster a culture of teamwork and safety in the workplace.

Conclusion

In conclusion, this study provides empirical evidence for the impact of nursing teamwork on patient safety and quality of care in Saudi Arabian hospitals. The findings highlight the importance of fostering effective teamwork among nurses to create a positive safety culture and deliver high-quality patient care. Nurse managers, hospital administrators, and healthcare policymakers should prioritize the development and implementation of strategies to enhance nursing teamwork, such as team-building interventions, interprofessional collaboration initiatives, and communication skills training.

Future research should employ longitudinal designs, objective measures, and more diverse samples to further investigate the relationships between nursing teamwork, patient safety, and quality of care in various healthcare settings. By investing in nursing teamwork, healthcare organizations can improve patient outcomes, enhance nurse satisfaction and retention, and ultimately contribute to the overall quality and efficiency of the healthcare system in Saudi Arabia.

References

- Aiken, L. H., Clarke, S. P., & Sloane, D. M. (2002). Hospital staffing, organization, and quality of care: Cross-national findings. *International Journal for Quality in Health Care*, 14(1), 5-13.
- Al-Ahmadi, H. (2009). Factors affecting performance of hospital nurses in Riyadh Region, Saudi Arabia. *International Journal of Health Care Quality Assurance*, 22(1), 40-54.
- Alahmadi, H. A. (2010). Assessment of patient safety culture in Saudi Arabian hospitals. *Quality and Safety in Health Care*, 19(5), e17.
- Alayed, A. S., Lööf, H., & Johansson, U. B. (2014). Saudi Arabian ICU safety culture and nurses' attitudes. *International Journal of Health Care Quality Assurance*, 27(7), 581-593.
- Almalki, M., FitzGerald, G., & Clark, M. (2011). Health care system in Saudi Arabia: An overview. *Eastern Mediterranean Health Journal*, 17(10), 784-793.
- Almalki, M. J., FitzGerald, G., & Clark, M. (2012). Quality of work life among primary health care nurses in the Jazan region, Saudi Arabia: A cross-sectional study. *Human Resources for Health*, 10(1), 1-13.
- Al-Yami, M., Galdas, P., & Watson, R. (2017). Factors influencing nurses' intention to leave their current job in Saudi Arabia. *Journal of Nursing Management*, 25(7), 528-539.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160.
- Kalisch, B. J., Lee, H., & Salas, E. (2010). The development and testing of the nursing teamwork survey. *Nursing Research*, 59(1), 42-50.
- Kalisch, B. J., Weaver, S. J., & Salas, E. (2009). What does nursing teamwork look like? A qualitative study. *Journal of Nursing Care Quality*, 24(4), 298-307.
- Manser, T. (2009). Teamwork and patient safety in dynamic domains of healthcare: A review of the literature. *Acta Anaesthesiologica Scandinavica*, 53(2), 143-151.
- Rahn, D. J. (2016). Transformational teamwork: Exploring the impact of nursing teamwork on nurse-sensitive quality indicators. *Journal of Nursing Care Quality*, 31(3), 262-268.
- Regan, S., Laschinger, H. K., & Wong, C. A. (2016). The influence of empowerment, authentic leadership, and professional practice environments on nurses' perceived interprofessional collaboration. *Journal of Nursing Management*, 24(1), E54-E61.
- Sorra, J. S., & Dyer, N. (2010). Multilevel psychometric properties of the AHRQ hospital survey on patient safety culture. *BMC Health Services Research*, 10(1), 199.
- Welp, A., & Manser, T. (2016). Integrating teamwork, clinician occupational well-being and patient safety: Development of a conceptual framework based on a systematic review. *BMC Health Services Research*, 16(1), 281.
- Wheelan, S. A., Burchill, C. N., & Tilin, F. (2003). The link between teamwork and patients' outcomes in intensive care units. *American Journal of Critical Care*, 12(6), 527-534.