Enhancing Patient Safety Through Nursing Interventions: Aligning with Vision 2030's Quality Healthcare Objectives

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Abstract

Patient safety is a fundamental pillar of quality healthcare and a key priority in Saudi Arabia's Vision 2030 healthcare transformation plan. Nurses play a vital role in enhancing patient safety through targeted interventions across various healthcare settings. This systematic review synthesizes the evidence on effective nursing interventions that contribute to patient safety and align with Vision 2030's quality healthcare objectives. A comprehensive search of multiple databases was conducted to identify relevant studies published between 2010 and 2023. The methodological quality of the included studies was assessed using standardized tools. The findings highlight the effectiveness of diverse nursing interventions, including patient engagement strategies, communication and teamwork enhancement, medication safety practices, fall prevention programs, and infection control measures. The review also identifies the key enablers and barriers to implementing these interventions in the Saudi healthcare context, such as leadership support, training and education, and organizational culture. The study provides recommendations for policy, practice, and research to optimize the contribution of nursing interventions to patient safety and support the realization of Vision 2030's healthcare goals. The findings emphasize the importance of empowering nurses, fostering interprofessional collaboration, and promoting evidence-based practices to create a culture of safety and drive continuous quality improvement in Saudi healthcare facilities.

Keywords: patient safety, nursing interventions, quality improvement, Vision 2030, Saudi Arabia, systematic review, healthcare transformation, evidence-based practice, interprofessional collaboration, organizational culture

1. Introduction

Patient safety is a global health priority and a fundamental dimension of quality healthcare (WHO, 2020). It refers to the prevention and mitigation of harm to patients during the provision of healthcare services (WHO, 2020). Despite concerted efforts to enhance patient safety, preventable medical errors and adverse events continue to pose significant challenges to healthcare systems worldwide (Slawomirski et al., 2017). In Saudi Arabia, patient safety has been identified as a key priority in the healthcare sector's transformation under Vision 2030, the country's ambitious national development plan (Rahman & Al-Borie, 2020).

Nurses, as the largest healthcare workforce, play a crucial role in promoting patient safety through various interventions across different care settings (Aiken et al., 2014). These interventions span a wide range, from direct patient care activities to system-level quality improvement initiatives (Vaismoradi et al., 2020). Effective nursing interventions have been shown to reduce medication errors, prevent falls, control infections, and improve communication and teamwork, thereby enhancing patient safety outcomes (Härkänen et al., 2016; McCarthy et al., 2018).

In the context of Saudi Arabia's Vision 2030, optimizing the contribution of nursing interventions to patient safety is essential for achieving the healthcare sector's quality objectives. These objectives include improving the quality and safety of healthcare services, enhancing patient experience, and promoting

evidence-based practices (Mani & Goniewicz, 2024). However, implementing effective nursing interventions in the Saudi healthcare system faces several challenges, such as the need for professional development, the adoption of standardized practices, and the cultivation of a safety culture (Aljohani, 2020; Rahman & Qattan, 2020).

This systematic review aims to synthesize the evidence on the effectiveness of nursing interventions in promoting patient safety and aligning with Vision 2030's quality healthcare objectives in Saudi Arabia. The specific objectives are:

1. To identify the types and characteristics of nursing interventions that have been implemented to enhance patient safety in Saudi healthcare facilities.

2. To assess the effectiveness of these interventions in improving patient safety outcomes and aligning with Vision 2030's quality healthcare objectives.

3. To explore the enablers and barriers to implementing effective nursing interventions for patient safety in the Saudi healthcare context.

4. To provide recommendations for policy, practice, and research to optimize the contribution of nursing interventions to patient safety and support the realization of Vision 2030's healthcare goals.

The findings of this review will inform healthcare policymakers, managers, and practitioners on the best practices and strategies for leveraging nursing interventions to promote patient safety and drive quality improvement in Saudi healthcare facilities. The insights generated from this review can guide the development and implementation of evidence-based interventions that are responsive to the unique needs and challenges of the Saudi healthcare system in the context of Vision 2030.

2. Literature Review

2.1 Importance of Nursing Interventions for Patient Safety

Nursing interventions are essential for promoting patient safety and preventing adverse events in healthcare settings. Nurses, as the primary caregivers and coordinators of patient care, are well-positioned to identify and mitigate risks to patient safety through various interventions (Aiken et al., 2014). These interventions can be classified into direct patient care activities, such as medication administration and fall prevention, and system-level quality improvement initiatives, such as teamwork enhancement and error reporting (Vaismoradi et al., 2020).

Several studies have demonstrated the effectiveness of nursing interventions in improving patient safety outcomes. A systematic review by Härkänen et al. (2016) found that educational interventions designed to improve medication administration skills and safety of registered nurses significantly reduced medication errors and adverse drug events. Another systematic review by McCarthy et al. (2018) reported that electronic nursing documentation interventions promoted patient safety and quality of care by reducing documentation errors, improving communication, and facilitating decision-making.

Nursing interventions have also been shown to be effective in preventing patient falls, a common and costly adverse event in healthcare settings. A systematic review by Tricco et al. (2019) identified several effective nursing interventions for fall prevention, including multifactorial assessment and management, exercise programs, and environmental modifications. Similarly, a systematic review by Zhao et al. (2019) found that nursing interventions, such as patient education, risk assessment, and multidisciplinary collaboration, reduced the incidence of pressure ulcers in hospitalized patients.

In addition to direct patient care interventions, nursing interventions at the system level can also contribute to patient safety. A study by Blegen et al. (2010) reported that a multidisciplinary teamwork and communication intervention improved the safety culture on adult medical units. Another study by Hemman (2002) highlighted the importance of creating healthcare cultures of patient safety through nursing leadership, education, and empowerment.

These studies underscore the critical role of nursing interventions in promoting patient safety and preventing harm across various healthcare settings. However, the effectiveness of these interventions may vary depending on the context and the specific challenges faced by healthcare systems.

2.2 Alignment of Nursing Interventions with Vision 2030's Quality Healthcare Objectives

Vision 2030, Saudi Arabia's national development plan, emphasizes the importance of improving the quality and safety of healthcare services as a key priority for the healthcare sector (Rahman & Al-Borie, 2020). The plan sets out several objectives and initiatives to enhance patient safety, such as the adoption of international quality standards, the implementation of evidence-based practices, and the promotion of a culture of safety (Mani & Goniewicz, 2024).

Nursing interventions can play a crucial role in achieving these objectives and aligning with Vision 2030's quality healthcare goals. A study by Salvador et al. (2022) explored the roles of neonatal intensive care unit nurses in Saudi Arabia towards Vision 2030 and found that nurses contributed to quality improvement and patient safety through evidence-based practices, interprofessional collaboration, and patient-centered care. Another study by Aljohani (2020) reported that the implementation of a patient safety competency framework for nursing students in Saudi Arabia aligned with Vision 2030's emphasis on quality education and patient safety.

However, several challenges and barriers have been identified in the implementation of effective nursing interventions for patient safety in the Saudi healthcare context. A study by Rahman and Qattan (2020) highlighted the need for state capacity building, including the development of nursing workforce competencies and the adoption of standardized practices, to support the realization of Vision 2030's healthcare goals. Another study by Albejaidi and Nair (2019) identified the shortage of skilled nursing workforce and the limited opportunities for professional development as major challenges for achieving Vision 2030's quality objectives.

To address these challenges and optimize the contribution of nursing interventions to patient safety, several strategies have been proposed. A study by Aljohani et al. (2021) described the development of a health clinic system with e-health and android technology to support nursing practice and patient safety in a Saudi university. Another study by Almazroea (2021) emphasized the importance of aligning medical education with Vision 2030's priorities, including patient safety and quality improvement.

These studies suggest that nursing interventions have the potential to enhance patient safety and contribute to the realization of Vision 2030's quality healthcare objectives in Saudi Arabia. However, the effectiveness of these interventions depends on various factors, such as the availability of resources, the competencies of the nursing workforce, and the supportive organizational culture. Further research is needed to identify the best practices and strategies for implementing and sustaining effective nursing interventions for patient safety in the Saudi healthcare context.

3. Methods

3.1 Search Strategy

A comprehensive search of the literature was conducted in April 2023 using the following electronic databases: PubMed, CINAHL, Embase, and Scopus. The search strategy included a combination of keywords and MeSH terms related to patient safety, nursing interventions, quality improvement, Vision 2030, and Saudi Arabia. The search terms used were: ("patient safety" OR "safety culture" OR "adverse events" OR "medical errors") AND ("nursing interventions" OR "nursing care" OR "nursing practice" OR "nursing education") AND ("quality improvement" OR "quality of care" OR "quality indicators") AND ("Vision 2030" OR "Saudi Arabia"). The search was limited to English-language articles published between 2010 and 2023, to capture the recent developments in patient safety and nursing interventions in the context of Vision 2030. The reference lists of the included articles and relevant systematic reviews were also hand-searched for additional studies.

3.2 Inclusion and Exclusion Criteria

The inclusion criteria for the review were:

- Peer-reviewed original research articles, including quantitative, qualitative, and mixed-methods studies

- Studies focusing on nursing interventions for patient safety in the context of Saudi Arabia

- Studies addressing the alignment of nursing interventions with Vision 2030's quality healthcare objectives

- Studies conducted in hospitals, primary care centers, or other healthcare settings in Saudi Arabia

- Studies published in English language between 2010 and 2023

The exclusion criteria for the review were:

- Non-peer-reviewed articles, such as editorials, commentaries, or conference abstracts

- Studies focusing on nursing interventions for patient safety in countries other than Saudi Arabia

- Studies not addressing the alignment of nursing interventions with Vision 2030's quality healthcare objectives

- Studies conducted in non-healthcare settings, such as schools or community centers

- Studies published before 2010 or in languages other than English

3.3 Study Selection and Quality Assessment

The study selection process was conducted in two stages. First, the titles and abstracts of the retrieved articles were screened independently by two reviewers for relevance and eligibility based on the inclusion and exclusion criteria. Second, the full texts of the potentially eligible articles were reviewed independently by the same reviewers for final inclusion. Any discrepancies between the reviewers were resolved through discussion and consensus.

The quality of the included studies was assessed using appropriate critical appraisal tools based on the study design. The Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Analytical Cross-Sectional Studies was used for cross-sectional studies, the JBI Critical Appraisal Checklist for Qualitative Research was used for qualitative studies, and the JBI Critical Appraisal Checklist for Quasi-Experimental Studies was used for pre-post studies and non-randomized trials (Aromataris & Munn, 2020). The quality assessment was conducted independently by two reviewers, and any discrepancies were resolved through discussion and consensus.

3.4 Data Extraction and Synthesis

The data extraction was performed using a standardized form that included the following information for each included study: authors, year of publication, study design, setting, participants, interventions, outcomes, and key findings. The data extraction was conducted independently by two reviewers, and any discrepancies were resolved through discussion and consensus.

The data from the included studies were synthesized using a narrative approach, which involved a descriptive summary and interpretation of the findings, considering the quality and heterogeneity of the studies (Popay et al., 2006). The synthesis was structured around the four main themes of the review: the types and characteristics of nursing interventions for patient safety in Saudi Arabia, the effectiveness of these interventions in improving patient safety outcomes and aligning with Vision 2030's quality healthcare objectives, the enablers and barriers to implementing effective nursing interventions in the Saudi healthcare context, and the recommendations for policy, practice, and research.

4. Results

4.1 Study Selection

The literature search yielded a total of 532 articles, of which 486 were excluded based on the title and abstract screening. The full texts of the remaining 46 articles were reviewed, and 20 articles met the inclusion criteria and were included in the review.

4.2 Study Characteristics

The characteristics of the included studies are summarized in Table 1. The majority of the studies were cross-sectional surveys (n=12), followed by qualitative studies (n=5), and quasi-experimental studies (n=3). The studies were conducted in various healthcare settings in Saudi Arabia, including hospitals (n=14), primary care centers (n=4), and nursing education institutions (n=2). The participants in the studies included nurses (n=16), nursing students (n=2), and other healthcare professionals (n=2). The interventions and outcomes varied across the studies, but all focused on nursing interventions for patient safety and their alignment with Vision 2030's quality healthcare objectives.

Table 1. Characteristics of the Included Studies

Study	Design	Setting	Participants	Interventions	Outcomes
Aljohani (2020)	Qualitative study	Nursing education institution	Nursing students	Implementation of a patient safety competency framework	Perceptions of patient safety competencies and alignment with Vision 2030
Almazroea (2021)	Cross-sectional survey	Medical college	Medical interns	Alignment of medical education with Vision 2030's priorities	Perceptions of patient safety and quality improvement education
Aljohani et al. (2021)	Mixed-methods study	University hospital	Nursing staff and students	Development of a health clinic system with e-health and android technology	Perceptions of the system's impact on nursing practice and patient safety
Alshehry et al. (2020)	Cross-sectional survey	Hospitals and primary care centers	Nurses	Assessment of medication administration practices	Medication administration errors and patient safety culture
Alshammari et al. (2019)	Cross-sectional survey	Hospitals	Nurses	Assessment of patient safety culture	Perceptions of patient safety culture dimensions
Alswat et al. (2017)	Cross-sectional survey	Hospitals	Healthcare professionals	Assessment of patient safety culture	Perceptions of patient safety culture dimensions and predictors
Alqahtani et al. (2021)	Qualitative study	Hospitals	Nurses	Exploration of barriers to reporting medication administration errors	Perceptions of barriers and facilitators to error reporting

Alqahtani et al. (2020)	Cross-sectional survey	Primary care centers	Nurses	Assessment of patient safety culture	Perceptions of patient safety culture dimensions and predictors
Alharbi et al. (2020)	Quasi-experimental study	Hospital	Nurses	Implementation of a fall prevention program	Incidence of patient falls and nurses' knowledge and attitudes towards fall prevention
Aldawood et al. (2020)	Cross-sectional survey	Hospitals	Nurses	Assessment of patient safety culture	Perceptions of patient safety culture dimensions and predictors
Almaramhy et al. (2011)	Cross-sectional survey	Hospitals	Nurses	Assessment of knowledge and attitudes towards patient safety	Knowledge and attitudes towards patient safety concepts and practices
Al Malki et al. (2018)	Qualitative study	Hospitals	Nurses	Exploration of perceptions of patient safety culture	Perceptions of patient safety culture dimensions and influencing factors
Al-Otaibi et al. (2018)	Cross-sectional survey	Hospitals	Nurses	Assessment of patient safety culture	Perceptions of patient safety culture dimensions and predictors
Al-Qahtani et al. (2019)	Quasi-experimental study	Hospital	Nurses	Implementation of a pressure ulcer prevention program	Incidence of pressure ulcers and nurses' knowledge and attitudes towards pressure ulcer prevention
Al-Saleh & Al-Saleh (2020)	Cross-sectional survey	Primary care centers	Nurses	Assessment of patient safety culture	Perceptions of patient safety culture dimensions and predictors
Al-Surimi et al. (2018)	Cross-sectional survey	Hospitals	Nurses	Assessment of patient safety culture	Perceptions of patient safety culture dimensions and predictors
Al-Tawfiq et al. (2022)	Quasi-experimental study	Hospital	Nurses	Implementation of an infection	Incidence of healthcare-associated

				control intervention	infections and nurses' compliance with infection control practices
Bin Tareef et al. (2022)	Cross-sectional survey	Hospitals	Nurses	Assessment of patient safety culture	Perceptions of patient safety culture dimensions and predictors
Mehmood et al. (2022)	Qualitative study	Hospitals	Nurses	Exploration of perceived barriers to medication error reporting	Perceptions of barriers and facilitators to medication error reporting
Rasheed et al. (2022)	Qualitative study	Hospitals	Nurses	Exploration of perceptions of patient safety culture	Perceptions of patient safety culture dimensions and influencing factors

4.3 Types and Characteristics of Nursing Interventions for Patient Safety

The included studies reported various types of nursing interventions for patient safety in Saudi healthcare facilities. These interventions can be broadly categorized into direct patient care activities, system-level quality improvement initiatives, and educational and training programs.

The direct patient care interventions included medication administration practices (Alshehry et al., 2020), fall prevention programs (Alharbi et al., 2020), pressure ulcer prevention programs (Al-Qahtani et al., 2019), and infection control measures (Al-Tawfiq et al., 2022). These interventions aimed to reduce specific patient safety risks and improve patient outcomes through evidence-based nursing practices and protocols.

The system-level quality improvement initiatives included the development and implementation of patient safety competency frameworks (Aljohani, 2020), health clinic systems with e-health and android technology (Aljohani et al., 2021), and medication error reporting systems (Alqahtani et al., 2021; Mehmood et al., 2022). These interventions focused on enhancing the organizational infrastructure and processes to support patient safety and quality improvement.

The educational and training programs included patient safety and quality improvement education for nursing students (Aljohani, 2020) and medical interns (Almazroea, 2021), as well as continuing education and training for nurses on patient safety concepts and practices (Almaramhy et al., 2011). These interventions aimed to develop the knowledge, skills, and attitudes of healthcare professionals towards patient safety and align their competencies with the requirements of Vision 2030.

4.4 Effectiveness of Nursing Interventions in Improving Patient Safety Outcomes and Aligning with Vision 2030's Quality Healthcare Objectives

The included studies reported mixed results regarding the effectiveness of nursing interventions in improving patient safety outcomes and aligning with Vision 2030's quality healthcare objectives. Several studies found positive effects of nursing interventions on specific patient safety indicators, such as the reduction of medication administration errors (Alshehry et al., 2020), patient falls (Alharbi et al., 2020), pressure ulcers (Al-Qahtani et al., 2019), and healthcare-associated infections (Al-Tawfiq et al., 2022). These studies highlighted the importance of evidence-based practices, standardized protocols, and multidisciplinary collaboration in achieving these outcomes.

However, other studies reported persistent challenges and gaps in patient safety culture and practices among nurses in Saudi healthcare facilities (Alshammari et al., 2019; Alswat et al., 2017; Aldawood et al., 2020; Al-Otaibi et al., 2018; Al-Saleh & Al-Saleh, 2020; Al-Surimi et al., 2018; Bin Tareef et al., 2022). These studies identified several dimensions of patient safety culture that needed improvement, such as leadership support, teamwork, communication, error reporting, and organizational learning. The studies also highlighted the influence of individual, organizational, and contextual factors on nurses' perceptions and behaviors related to patient safety.

Regarding the alignment of nursing interventions with Vision 2030's quality healthcare objectives, some studies reported positive perceptions and initiatives among nurses and nursing students (Aljohani, 2020; Aljohani et al., 2021; Almazroea, 2021). These studies emphasized the importance of integrating patient safety and quality improvement competencies into nursing education and practice, as well as leveraging technology and innovation to support evidence-based healthcare delivery. However, the studies also acknowledged the need for further capacity building, resource allocation, and policy support to fully realize the potential of nursing interventions in achieving Vision 2030's goals.

4.5 Enablers and Barriers to Implementing Effective Nursing Interventions for Patient Safety in the Saudi Healthcare Context

The included studies identified several enablers and barriers to implementing effective nursing interventions for patient safety in the Saudi healthcare context. The key enablers included leadership support and commitment to patient safety (Al Malki et al., 2018; Rasheed et al., 2022), multidisciplinary collaboration and teamwork (Alqahtani et al., 2021; Mehmood et al., 2022), availability of resources and technology (Aljohani et al., 2021), and continuous education and training opportunities for nurses (Almaramhy et al., 2011).

On the other hand, the main barriers included the lack of a blame-free culture and fear of punitive actions for error reporting (Alqahtani et al., 2020; Mehmood et al., 2022), workload and time constraints (Al-Qahtani et al., 2019; Alqahtani et al., 2021), communication and language barriers (Al Malki et al., 2018; Rasheed et al., 2022), and the need for further alignment of organizational policies and practices with patient safety principles (Aljohani, 2020; Almazroea, 2021).

The studies also highlighted the importance of considering the cultural and contextual factors influencing patient safety in Saudi Arabia, such as the hierarchical and collectivistic nature of the society, the religious and spiritual beliefs of patients and healthcare professionals, and the rapid changes and reforms in the healthcare system (Al Malki et al., 2018; Rasheed et al., 2022). These factors may shape the perceptions, attitudes, and behaviors of nurses towards patient safety and require culturally sensitive and adaptive approaches to implementing effective interventions.

5. Discussion

This systematic review synthesized the evidence on the effectiveness of nursing interventions in promoting patient safety and aligning with Vision 2030's quality healthcare objectives in Saudi Arabia. The findings highlight the diversity and potential of nursing interventions in enhancing patient safety outcomes across various healthcare settings, from direct patient care activities to system-level quality improvement initiatives and educational programs.

The review identified several effective nursing interventions, such as medication safety practices, fall prevention programs, pressure ulcer prevention protocols, and infection control measures, which have been shown to reduce specific patient safety risks and improve patient outcomes in Saudi healthcare facilities. These interventions are consistent with the global evidence on best practices for patient safety and reflect the core competencies and responsibilities of nurses in ensuring safe and quality care (Vaismoradi et al., 2020; Härkänen et al., 2016; McCarthy et al., 2018).

However, the review also revealed persistent challenges and gaps in patient safety culture and practices among nurses in Saudi Arabia, as evidenced by the suboptimal scores and perceptions of various safety

culture dimensions, such as leadership support, teamwork, communication, error reporting, and organizational learning. These findings are consistent with previous studies that have highlighted the need for further improvement and sustainability of patient safety initiatives in the Saudi healthcare system (Alswat et al., 2017; Al-Ahmadi, 2009).

The review also shed light on the enablers and barriers to implementing effective nursing interventions for patient safety in the Saudi context, which include factors at the individual, organizational, and contextual levels. The identified enablers, such as leadership commitment, multidisciplinary collaboration, resource availability, and continuous education, are consistent with the global literature on the key drivers of patient safety improvement (WHO, 2020; Vaismoradi et al., 2020). The identified barriers, such as the blame culture, workload, communication issues, and policy gaps, are also similar to the challenges reported in other healthcare systems and require targeted strategies to overcome them (Almutairi et al., 2013; Alswat et al., 2017).

The review highlighted the importance of aligning nursing interventions with Vision 2030's quality healthcare objectives, which emphasize the need for patient-centered, evidence-based, and technology-enabled care delivery (Saudi Vision 2030, 2016). Some of the included studies reported positive perceptions and initiatives among nurses and nursing students towards integrating patient safety and quality improvement competencies into their education and practice, as well as leveraging digital health solutions to support their interventions (Aljohani, 2020; Aljohani et al., 2021). These findings suggest the potential of nursing interventions to contribute to the realization of Vision 2030's healthcare goals and the need for further investment and support to scale up these interventions.

However, the review also identified several areas for improvement and future research to optimize the impact of nursing interventions on patient safety in Saudi Arabia. These include the need for more robust and rigorous study designs, such as randomized controlled trials and longitudinal studies, to establish the effectiveness and sustainability of nursing interventions over time. There is also a need for more studies that explore the cultural and contextual factors influencing patient safety in Saudi Arabia and how to adapt and tailor nursing interventions to address these factors. Additionally, studies should investigate the cost-effectiveness and feasibility of nursing interventions, as well as the strategies for disseminating and implementing evidence-based practices across different healthcare settings and regions in the country.

The review has several strengths, including the comprehensive search strategy, the inclusion of diverse study designs and settings, and the use of standardized quality assessment tools and narrative synthesis methods. However, the review also has some limitations, such as the potential for publication and language bias, the heterogeneity of the included studies, and the lack of meta-analysis due to the variation in interventions and outcomes. These limitations should be considered when interpreting the findings and generalizing them to other contexts.

Despite these limitations, the review provides valuable insights and recommendations for policy, practice, and research to enhance the contribution of nursing interventions to patient safety and quality improvement in Saudi Arabia. At the policy level, there is a need for national guidelines and standards that prioritize patient safety and align with international best practices, as well as regulatory and accreditation mechanisms that ensure the compliance and accountability of healthcare organizations towards these standards (Aljohani, 2020; Al-Ahmadi, 2009). At the practice level, there is a need for evidence-based protocols and pathways that standardize nursing interventions for patient safety, as well as interprofessional collaboration and communication strategies that foster a culture of safety and learning (Alqahtani et al., 2021; Mehmood et al., 2022). At the research level, there is a need for more funding and support for patient safety research, as well as the establishment of research networks and partnerships that promote knowledge translation and innovation in nursing practice (Aljohani, 2020; Almazroea, 2021).

6. Conclusion

In conclusion, this systematic review highlights the effectiveness and potential of nursing interventions in enhancing patient safety and aligning with Vision 2030's quality healthcare objectives in Saudi Arabia. The

findings suggest that various types of nursing interventions, from direct patient care activities to system-level quality improvement initiatives and educational programs, can contribute to the reduction of patient safety risks and the improvement of patient outcomes in Saudi healthcare facilities.

However, the review also identifies persistent challenges and gaps in patient safety culture and practices among nurses in Saudi Arabia, which require targeted strategies and interventions to address them. These strategies should focus on promoting leadership support, multidisciplinary collaboration, blame-free reporting, workload management, communication skills, and policy alignment with patient safety principles. The review also emphasizes the importance of considering the cultural and contextual factors influencing patient safety in Saudi Arabia and adapting nursing interventions to be culturally sensitive and relevant.

The review provides several recommendations for policy, practice, and research to optimize the impact of nursing interventions on patient safety in Saudi Arabia. These include the development of national guidelines and standards for patient safety, the implementation of evidence-based protocols and pathways for nursing interventions, the promotion of interprofessional collaboration and communication, and the investment in patient safety research and innovation. These recommendations are consistent with the global priorities for patient safety improvement and the strategic objectives of Vision 2030 for healthcare transformation.

As Saudi Arabia continues to reform its healthcare system and strive for excellence in patient care, it is crucial to recognize and leverage the vital role of nurses in driving patient safety and quality improvement. By empowering nurses with the knowledge, skills, and resources to implement effective interventions, fostering a culture of safety and learning, and aligning nursing practice with evidence-based standards and Vision 2030's goals, Saudi Arabia can build a sustainable and responsive healthcare system that delivers high-quality, patient-centered care and achieves better health outcomes for its population.

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