GLAND SURGERY

NURSES' PERCEPTIONS TOWARD MEDICATION ERRORS IN SAUDI ARABIA

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Abstract

In healthcare contexts, medication administration errors (MAEs) pose a substantial patient safety challenge, particularly for nurses who are responsible for medication delivery. The objective of this investigation was to investigate the perceptions of MAEs among nurses in Saudi Arabia, as well as to identify the factors that contribute to these perceptions and to devise strategies to improve patient safety. Five germane studies published between 2021 and 2024 were identified through a systematic literature evaluation. The analysis identified four predominant themes: the influence of MAEs on patient safety, nurses' perceptions of error prevalence, the factors that contribute to medication errors, and proposed strategies for error reduction. The results showed that a significant number of nurses reported experiencing MAEs; however, many nurses were hesitant to disclose them due to the perception of culpability and the lack of adequate support systems. High responsibilities, inadequate training, and systemic deficiencies were among the contributing factors. The recommended strategies to reduce these errors included the enhancement of medication awareness, the cultivation of a culture of safety, and the enhancement of training programs for nurses. The study emphasizes the importance of addressing the knowledge and reporting practices disparities among nurses in order to enhance the quality of care and overall patient safety in Saudi Arabian healthcare systems. These insights are essential for the purpose of fostering a secure healthcare environment and guiding targeted interventions.

Introduction

Medication administration errors (MAEs) are a serious patient safety concern (Schroers et al., 2021). Nurses are frequently responsible for providing medicine to patients, thus their perspectives of reasons of errors can give significant direction for the creation of treatments targeted at reducing errors (Schroers et al., 2021). Medication administration errors (MAEs) have short- and long-term consequences for patients' health, as well as hospital accreditation and financial stability (Salami et al., 2019). A pharmaceutical mistake is defined as neglecting the condition of causing damage, risk, or any evadable frequency to occur during the procedure from medicine ordering to patient consumption (Alrabadi et al., 2021).

Medical errors are defined as accidental blunders made by omission or conduct, medical errors are classified as errors of execution or errors of planning, which are explained as the unsuccessful process

Gland Surg
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of deliberate action or utilization of an improper plan to achieve a goal, respectively, or by deviating from the process of care that may potentially cause harm to the patient (Mutair et al., 2021). The publication of the World Health Organization (WHO) Third Global Patient Safety Challenge: Medication Without Harm in March 2017 brought the global attention to the burden of risk associated with medication safety at the transfer of care. Transitions were identified as one of three priorities for action (Alqenae et al., 2020).

Medication errors may manifest during the procuring, storage, prescribing, preparing, or administration of medication by a healthcare professional (Brabcová et al., 2023). In medical institutions, medication administration blunders by nurses account for a significant portion of medical errors (Jin et al., 2023). Research has demonstrated that these errors are closely associated with the workload of nurses (Jin et al., 2023). Human errors and systemic deficiencies can both contribute to the occurrence of medical and medication errors (Alansari et al., 2023). Conversely, healthcare professionals are considerably affected by these variables (Alansari et al., 2023).

Medication errors have a substantial economic impact in Saudi Arabia and on a global scale (Tobaiqy & MacLure, 2024). This encompasses expenses associated with legal fees, hospital re-admissions, additional treatments, and lost productivity (Tobaiqy & MacLure, 2024). The financial resources of the healthcare system in Saudi Arabia are substantially strained by preventable medication errors, despite the scarcity of precise national figures (Tobaiqy & MacLure, 2024). The percentage of medication error incidents in Saudi Arabian hospitals is estimated to be 44.4%, a remarkably high figure (Almalki et al. 2021). Little research has been conducted in Saudi Arabia to investigate the causes and consequences of medication errors (ALSubaei & Alkarani, 2023).

Nurses, who comprise the largest group of primary health care providers, are essential components of the healthcare system; consequently, they are accountable for patient safety in hospitals (Alrasheadi et al., 2022). The health care system, including nursing personnel, is significantly affected by the mere suggestion of a medical error (Alrasheadi et al., 2022). Consequently, one of the factors that contributes to the development of a safer environment and the reduction of medication errors is the assessment of nurses' attitudes toward healthcare safety culture (Khalifa, & Farghally, 2020).

The current literature emphasizes the prevalence and impact of medication administration errors (MAEs) in Saudi Arabia; however, there is a significant void in comprehensive research that specifically addresses nurses' perceptions of these errors. Although research has identified a variety of contributing factors, including systemic deficiencies and burden, there has been a lack of attention paid to the perspective of nurses on their role in the context of medication safety and the broader healthcare environment. The development of targeted interventions that could improve patient safety and decrease the occurrence of MAEs is impeded by this gap. Additionally, the insights and experiences of nurses are indispensable for the development of effective strategies to cultivate a culture of safety in healthcare settings in Saudi Arabia, as they play a critical role in the medication administration process. It is imperative to address this disparity in order to advance the knowledge and practices that are required to reduce medication errors and enhance the overall quality of patient care. This study aimed to explore and analyze nurses' perceptions of medication administration errors in Saudi Arabia in order to identify contributing factors and develop strategies for enhancing patient safety and reducing the incidence of such errors within healthcare settings.

Gland Surg
VOL-9 NO 2 (2024)
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Methods

Introduction

This section outlines the methodologies that were implemented to investigate the perceptions of nurses regarding medication errors in Saudi Arabia. It encompasses the search strategy, the criteria for inclusion and exclusion, the selection process, and the data extraction methods employed to analyze pertinent literature.

Search Strategy

A thorough literature search was conducted using a variety of electronic databases, such as Scopus, Google Scholar, and PubMed. In order to guarantee the incorporation of the most pertinent and recent studies, the search was conducted using keywords: "nurses' perceptions," "medication errors," "Saudi Arabia," and "patient safety" and was limited to publications from the past decade (2021 to 2024). Boolean operators (AND, OR) were employed to refine the search results, with a particular emphasis on systematic reviews, research studies, and peer-reviewed articles.

Inclusion Criteria

Studies included in this review met the following criteria:

1. Focus on nurses' perceptions or experiences related to medication errors.
2. Conducted in Saudi Arabia or involving Saudi healthcare settings.
3. Published in English from (2021-2024)
4. Empirical research, including qualitative and quantitative studies.
5. Studies that specifically address factors contributing to medication errors or their implications.

Exclusion Criteria

The following criteria were used to exclude studies from the review:

1. Articles not related to nursing or patient medication management.
2. Studies conducted outside of Saudi Arabia.
3. Non-peer-reviewed articles, opinion pieces, and editorials.
4. Research focusing solely on other healthcare professionals without involving nurses' perspectives.
5. Duplicated studies or articles with insufficient data regarding medication errors.

Selection process

In 2024, the review search returned 90 results. After deleting duplicates, 60 studies remained. After evaluating the titles and abstracts, 40 studies were removed for not meeting the inclusion criteria. Thus, 20 studies were thoroughly examined to assess eligibility; 15 studies were excluded since they did not describe the original investigations. As a result, our systematic review comprised 5 papers (see Table 1 and Figure 1).

Data Extraction

A review search was conducted, with all titles and abstracts provided, inclusion and exclusion criteria applied, reasons for inclusion and removal indicated, and duplicates eliminated. A PRISMA flowchart was developed to show the four stages of the systematic review method. Figure 1 displays the steps of a systematic review. Table 1 summarizes the characteristics of the five included studies. The summarized data was then evaluated. The author(s), study design, findings, and conclusions were all collected and analyzed.

Gland Surg
VOL-9 NO 2 (2024)
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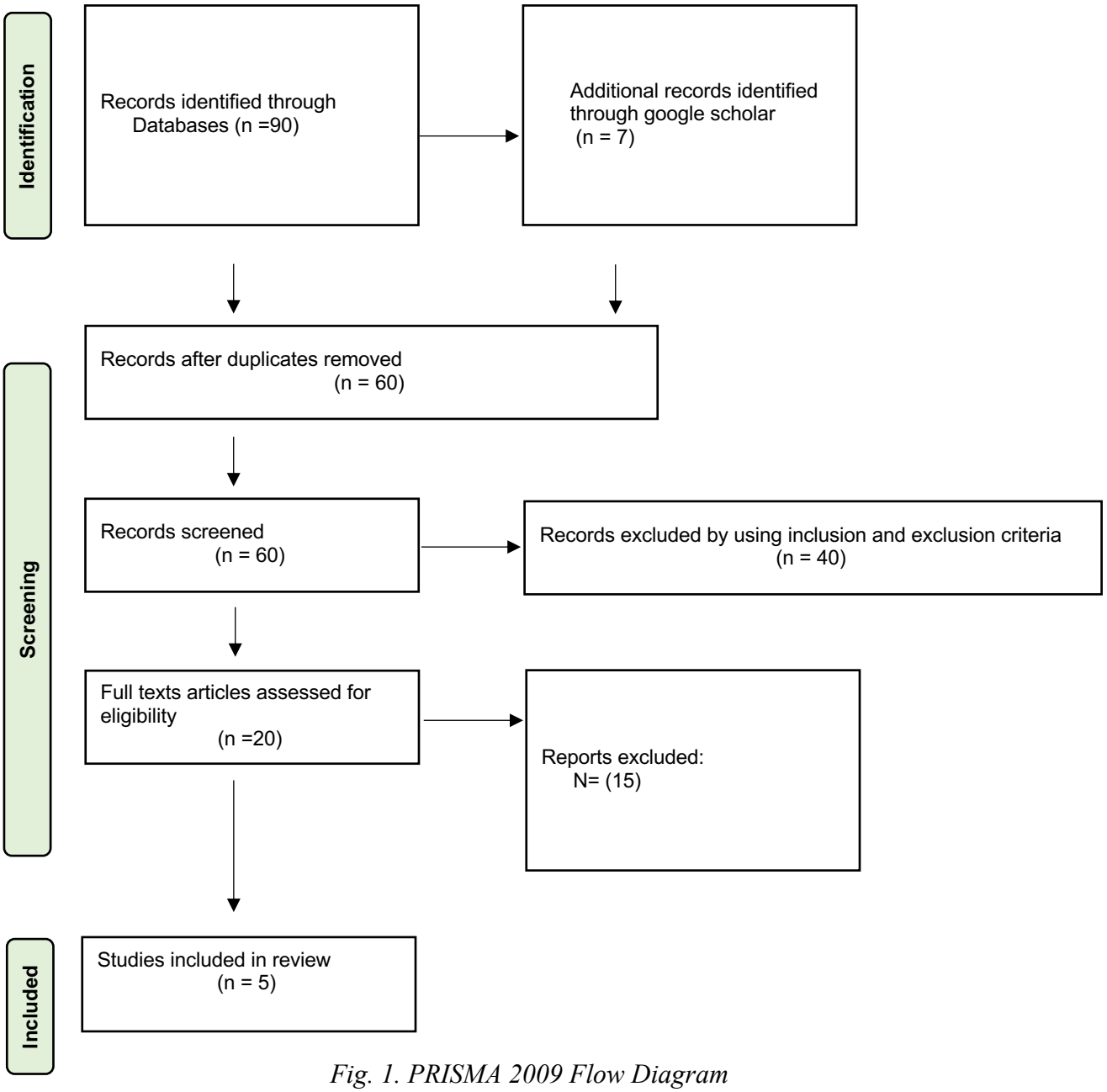

Fig. 1. PRISMA 2009 Flow Diagram

Results

The results of our investigation into the perceptions of medication administration errors by nurses in Saudi Arabia are presented in this chapter. The findings are the result of a systematic review of pertinent literature, which yielded a variety of themes and insights into the factors that contribute to medication errors, as well as the implications for patient safety and nursing practice.

The results are categorized into four primary categories: the impact on patient safety, the perceptions of error prevalence, the contributing factors identified by nurses, and the suggested strategies for error reduction. Each section offers a comprehensive examination of the data extracted from the chosen studies, underscoring the intricacies of medication administration in healthcare environments. Our

Gland Surg
VOL-9 NO 2 (2024)
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objective is to illuminate the critical role that nurses play in medication safety and to provide actionable recommendations for enhancing practices within the Saudi healthcare system through this examination.

A qualitative descriptive study was conducted in Taif city, Saudi Arabia, from July 2022 to January 2023 to investigate the perceptions of medication errors among nurses in the emergency departments of Ministry of Health hospitals. The study, which involved 15 nurses, identified four primary themes: the causes of medication errors, the reasons for underreporting, the factors that promote error registration, and strategies for reducing error incidence. Enhancing medication awareness, administering medications in the presence of senior nurses, and augmenting the nursing staff were among the recommended strategies. The results underscore the necessity of a culture that advocates for the reporting and learning from errors of errors in order to cultivate a supportive work environment that is designed to enhance patient safety and decrease medication-related adverse events (ALSubaei & Alkarani, 2023).

In healthcare institutions, patient safety is a significant concern, as nurses are the largest group of direct care providers. This is encapsulated in the principle of "primum non nocere," or "first do no harm," and is foundational to medical ethics. It is imperative to comprehend the perspectives of nurses regarding patient safety culture, particularly in the medical-surgical wards (MSW) of the Qassim region of Saudi Arabia. The Hospital Survey on Patient Safety Culture (HSOPSC), a validated cross-sectional survey, was administered to 300 nurses over the course of four hospitals. The results indicated that the safety culture was generally positive, with 69% of registered nurses rating their wards as having an outstanding to exceptional safety culture. Nevertheless, the survey also emphasized the apprehensions regarding the attribution of blame to nurses for reported errors, as well as the discrepancies in error reporting. Although 55.9% of respondents acknowledged reporting all errors or near misses, fewer than half had reported any errors in the previous year. Consequently, the results emphasize a largely positive perception of safety culture among nurses, but they also suggest that there are ongoing issues with risk and accountability that must be resolved in order to improve patient safety (ALSubaei & Alkarani, 2023).

A study conducted in Saudi Arabia investigated the prevalence of medication errors among nurses. The study revealed that medication errors pose a substantial risk, with a prevalence rate of 72.1% among the 408 nurses surveyed across four main public institutions. The study employed a self-administered online questionnaire from January to March 2022 and employed cluster random sampling and proportional stratified sampling techniques, utilizing a cross-sectional design. It is important to note that only 41.2% of medication errors were reported, with the most prevalent form of error being incorrect dosages (46.9%). The results suggested that approximately 55% of respondents demonstrated a positive attitude toward medication errors, while only 50% exhibited a high level of knowledge. Younger age groups (under 25 and 25–35 years old), specific hospitals (King Fahad and King Abdulaziz), lack of prior attendance in medication error training courses, and both poor knowledge and negative attitudes towards medication errors were all factors associated with the prevalence of medication errors. The results of this study underscore the urgent necessity for targeted interventions to address the high prevalence of medication errors and enhance the safety culture among nurses in Saudi Arabia (Alandajani et al., 2022).

Recent research has revealed a substantial disparity in the knowledge and reporting practices of

Gland Surg
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healthcare professionals (HCPs) in Saudi Arabia regarding medication errors. The comprehension of medication error stages and the efficacy of reporting systems among healthcare professionals, including physicians, pharmacists, and nurses, were evaluated in an observational cross-sectional study that was conducted between January and March 2020 in a variety of regions, including Hail, Al-Qassim, Al-Jouf, Al-Madinah, and the eastern and western regionss. The results indicated that only 28.3% of respondents had a comprehensive comprehension of the phases of medication errors, while a concerning 58.8% reported that they had never documented any medication errors in their workplaces. Additionally, 37.7% of respondents identified legal implications as a substantial impediment to reporting. Furthermore, the absence of a distinct electronic reporting system for medication errors was observed by over half of the HCPs, and an astounding 54.8% of them had not participated in any training programs on medication error reporting in the past year. The alarming deficiencies in medication error management within the healthcare system are underscored by these results, which underscore the imperative need for interventions to improve knowledge, reporting practices, and training (Alshammari et al., 2021).

These errors are a substantial patient safety concern, with the potential for both short- and long-term negative consequences for patients, according to a cross-sectional study that examined the perceptions and attitudes of Saudi pharmacists toward medication errors (MEs). The significance of community pharmacists in the mitigation of MEs is underscored by their critical role in the medication management process. The study employed a semi-structured questionnaire that was disseminated via email to pharmacists. The data was subsequently analyzed using Statistical Product and Service Solutions (SPSS). The results suggested that the majority of pharmacists acknowledged the critical significance of reporting MEs and its role in improving the quality of healthcare. However, they also identified numerous obstacles to effective reporting. These obstacles encompassed a propensity to assign responsibility to patients or healthcare professionals, inadequate communication between healthcare professionals, particularly between pharmacists and physicians, underdeveloped reporting protocols, and a lack of standardized procedures for ME reporting. Consequently, the study concluded that MEs and near misses were underreported among Saudi pharmacists due to these operational and communicative challenges. These insights are valuable for healthcare authorities focused on developing patient safety frameworks for ME reporting and suggest the need for further exploration of attitudes among other healthcare professionals involved in the medication management process (Al Hamid, 2024).

Gland Surg
VOL-9 NO 2 (2024)
ISSN:2227-684XE-ISSN:2227-8575

Table (1): Summary of the related studies

Author	Aim	Study Design	Results
Alshammari et al. (2021).	To investigate healthcare professionals' (HCPs') knowledge about medication errors, their understanding of medication error reporting systems, and the factors influencing their reporting of medication errors in Saudi Arabia.	Observational cross-sectional	The study obtained a response rate of 100%. Only 28.3% of healthcare professionals exhibited a comprehensive comprehension of the stages of medication error. A substantial 58.8% of individuals had never reported medication errors, with 37.7% citing legal implications as a significant obstacle to reporting. Furthermore, 53.5% of respondents reported that the majority of hospitals lacked a distinct electronic reporting system, and more than half (54.8%) had not participated in any medication error reporting training in the previous year. These results suggest that the healthcare system requires enhanced training and reporting mechanisms.
Alrasheadi et al. (2022)	The study aimed to evaluate and measure the existing patient safety culture in medical surgical wards (MSW) in hospitals located in the Qassim region of Saudi Arabia.	Cross-sectional	The research revealed a safety culture that was predominantly positive, with 69% of registered nurses rating their wards as having an outstanding to exceptional safety culture. Nevertheless, there were apprehensions regarding the allocation of responsibility for reported errors. Although 55.9% of participants acknowledged comprehending the significance of error reporting, less than half had actually reported any errors in the previous year.

Gland Surg
VOL-9 NO 2 (2024)
ISSN:2227-684XE-ISSN:2227-8575

Alandajani et al. (2022)	To investigate the knowledge and attitudes toward medication errors and their associated factors among nurses in Saudi Arabia.	Cross-sectional	The study revealed a high prevalence of medication errors at 72.1%, with the most prevalent error being incorrect dosages (46.9%). Only 41.2% of these errors were reported. Approximately 55% of nurses possessed a positive attitude toward medication errors, while 50% possessed a high level of knowledge. Younger age groups, specific hospitals, inadequate medication error training, and inadequate knowledge and attitudes were among the contributing factors. The necessity of targeted interventions to mitigate medication errors among nurses is underscored by these findings.
ALSubaei & Alkarani, (2023)	To explore nurses' perceptions of medication errors in the emergency departments of Ministry of Health hospitals in Taif city, Saudi Arabia	A qualitative descriptive study	The primary causes of medication errors, as identified by nurses, were high work pressure and staff shortages, while reporting was discouraged by the fear of punishment. The recommendations included the enhancement of training, the expansion of personnel, and the cultivation of a culture of open communication in order to enhance medication safety.
Al Hamid (2024)	The study aimed to investigate the perceptions and attitudes of Saudi pharmacists towards reporting medication errors (MEs) and to identify the barriers	A cross-sectional	The research revealed that the majority of pharmacists acknowledged the significance of reporting MEs and its contribution to the enhancement of healthcare quality.

Gland Surg
VOL-9 NO 2 (2024)
ISSN:2227-684XE-ISSN:2227-8575

	they face in the reporting process.		

Discussion

The issue of medication errors (MEs) within healthcare settings, particularly in Saudi Arabia, has emerged as a critical concern that transcends various professional disciplines, including pharmacy and nursing. This chapter examines the multidimensional nature of medication errors, with a particular emphasis on the common themes that are present in numerous studies that examine the perspectives of nurses and pharmacists in various healthcare settings. The results suggest that there are both consistent challenges and distinguishing factors, underscoring the necessity of addressing these matters in order to improve patient safety.

Medication Errors: Perceptions and Reporting Practices

In Taif City, nurses identified key themes related to medication errors, including causes, underreporting reasons, and strategies for improvement, in a qualitative descriptive study (ALSubaei & Alkarani, 2023). In the same vein, a more extensive survey conducted among nurses in the Qassim region demonstrated a generally positive patient safety culture. However, a substantial number of nurses expressed apprehensions about the potential for blame to be associated with reporting errors. This is consistent with the results of the study, which revealed that a high prevalence of medication errors (72.1%) was observed among 408 nurses. However, only 41.2% of the nurses felt compelled to report them (Alandajani et al., 2022).

Moreover, the surveys conducted among healthcare professionals, including pharmacists, revealed alarming disparities in knowledge and reporting practices. Only 28.3% of respondents demonstrated a thorough comprehension of the phases of medication error, and 58.8% had never documented any errors in their workplaces (Alshammari et al., 2021). This scarcity of reporting is reflected in the nursing studies and the findings regarding pharmacist attitudes, where effective reporting was impeded by obstacles such as blame culture and poor communication (Al Hamid, 2024).

The intersections of these studies underscore a shared apprehension among nursing and pharmacy professionals regarding the critical significance of error reporting as a means of enhancing patient safety and acquiring knowledge. A significant point to consider is that, despite the presence of a comprehension of the significance of patient safety, effective execution and communication regarding medication errors continue to be a challenge in these fields.

Obstacles to Effective Reporting

The culture of blame that persists within healthcare environments is a consistent barrier that has been identified in the studies. The nurses in the emergency departments articulated this concern, with a prevailing dread of being blamed for reported errors, which influenced their willingness to operationalize safety protocols (ALSubaei & Alkarani, 2023). This sentiment is reflected in the pharmacists' study, which revealed that participants were discouraged from reporting due to inadequate communication channels and underdeveloped reporting protocols (Al Hamid, 2024).

Furthermore, the investigation, which identified substantial outcomes based on demographic characteristics, including age and prior training, suggests that nurses who were younger or lacked recent training experiences were more likely to commit medication errors (Alandajani et al., 2022). This correlation underscores the necessity of customized educational interventions and supportive

measures to foster a positive error reporting culture and mitigate the stigma associated with reporting mistakes.

Strategies for Enhancement

Several strategies were identified as essential for improving medication error awareness and reporting practices in these studies. Nurses proposed measures such as augmenting nursing staff and administering medications in the presence of senior nurses (ALSubaei & Alkarani, 2023). These recommendations are consistent with those of pharmacists, suggesting that a collaborative approach to medication management could improve safety outcomes.

Furthermore, the significance of comprehensive training in the context of medication error reporting systems was underscored by the results of the broader observational study (Alshammari et al., 2021). The importance of healthcare systems establishing standardized reporting protocols cannot be overstated, as this could facilitate communication and cultivate a sense of trust among healthcare professionals.

Consequences for Patient Safety Culture

The urgent necessity for healthcare institutions in Saudi Arabia to establish a culture of safety is underscored by the overarching implications of these studies. Although there is recognition of the importance of addressing medication errors, substantial structural and cultural changes are necessary to convert the insights obtained from these studies into practical applications. Clear error reporting protocols, enhanced training programs, and stronger multidisciplinary communication pathways are all essential components of fostering a culture of patient safety.

It is important to note that the majority of studies emphasized a generally positive self-assessment among nurses regarding the safety culture of their wards. Nevertheless, the discrepancies in actual reporting practices indicate a disconnect between perception and reality, underscoring the necessity of a persistent emphasis on the establishment of actionable systems and the promotion of a positive safety culture.

Conclusion

In summary, the studies that were examined present a consistent narrative regarding the challenges associated with medication errors among healthcare personnel in Saudi Arabia. However, they also emphasize specific areas for targeted improvement. The establishment of explicit communication channels, the development of comprehensive training programs, and the reinforcement of a non-punitive culture toward error reporting are essential in overcoming the identified barriers. In conclusion, the improvement of the medication safety culture among both nurses and pharmacists will not only improve patient outcomes but also contribute to a more supportive and efficient healthcare environment. Additional research should investigate the long-term effects of implemented strategies on the healthcare community's perceptions of patient safety and overall error reporting rates.

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