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Original research article

KNOWLEDGE AND ATTITUDE OF NURSES ABOUT MEDICATION ERROR IN THE EMERGENCY DEPARTMENT AT TERTIARY CARE HOSPITAL

FATIMA SS*, SADDIQUE H, JABEEN R

Department of Nursing, The Superior University Lahore, Pakistan
**Correspondence author email address:* bukharisyeda161@gmail.com

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Abstract: *Medication errors are a significant concern in healthcare, particularly in emergency departments where high workloads and resource limitations increase the risk of errors. Nurses play a critical role in minimizing medication errors through proper knowledge and positive attitudes toward error reporting. However, in Pakistan, the prevalence of medication errors remains high, and little is known about the knowledge and attitudes of nurses in this context.* ***Objective:*** *To assess the knowledge and attitudes of nurses regarding medication errors in emergency departments of tertiary care hospitals.* ***Methods:*** *A descriptive cross-sectional study was conducted among 135 nurses using a validated questionnaire. Data were analyzed using SPSS version 26, with descriptive statistics summarizing knowledge and attitude scores.* ***Results:*** *All participants (100%) identified medication errors as a significant preventable cause of harm. While most nurses demonstrated moderate knowledge, 54.1% expressed reluctance to report errors due to fear of being labelled troublemakers, and 76.3% agreed that fear of blame influenced their decision to avoid reporting errors. Nearly half (49.6%) were neutral regarding the impact of managerial reactions on their willingness to report errors.* ***Conclusion:*** *Despite moderate knowledge, negative attitudes toward reporting medication errors persist among nurses. Addressing these issues through education, policy reform, and fostering a culture of safety and accountability is essential for improving patient safety in Pakistan's emergency departments.*

Keywords: Medication errors, nurse attitudes, error reporting, emergency department, patient safety, Pakistan.

Introduction

Medication errors are a significant public health concern and a major source of preventable harm in healthcare systems worldwide. In Pakistan, where healthcare resources are often limited and emergency departments operate under high-pressure environments, the risk of medication errors is amplified. These errors, which may include incorrect dosages, wrong drug administration, or missed doses, can lead to severe patient outcomes, including prolonged hospital stays, permanent harm, or even death (1, 2).

Globally, nurses play a crucial role in medication administration, making their knowledge and attitudes toward medication errors essential for ensuring patient safety. In Pakistan, however, factors such as understaffing, lack of training, communication gaps, and inadequate reporting systems contribute to an increased likelihood of errors (3, 4). Studies from various regions of the country have highlighted a high prevalence of medication errors in healthcare facilities, with limited initiatives in place to address the underlying causes (5).

The emergency department is particularly vulnerable to medication errors due to its fast-paced and unpredictable nature. Nurses working in this environment often face challenges such as heavy workloads, interruptions, and insufficient resources, which can compromise their ability to administer medications safely (6, 7). Addressing these issues requires targeted strategies, including the enhancement of nurses' knowledge, fostering a positive attitude toward error reporting, and establishing robust systems for preventing and managing medication errors.

The importance of education and training in reducing medication errors cannot be overstated. Evidence suggests that nurses who receive adequate training are more likely to adhere to the "five rights" of medication administration, which are critical for minimizing errors (8). However, in Pakistan, training programs specific to medication safety are often lacking, leaving nurses underprepared to handle the complexities of modern healthcare delivery (9).

This study focuses on assessing the knowledge and attitudes of nurses regarding medication errors in emergency departments of tertiary care hospitals in Pakistan. By identifying gaps and challenges, this research aims to inform the development of strategies to improve medication safety and foster a culture of accountability in healthcare settings.

Methodology

This study employed a descriptive cross-sectional design to assess the knowledge and attitudes of nurses regarding medication errors in emergency departments of tertiary care hospitals. The study population consisted of nurses working in emergency, medical, and surgical wards. A purposive sampling technique was utilized to select participants who met the inclusion criteria, which required nurses to have at least two years of professional experience. The sample size was calculated using Slovin's formula, and the study duration was eight months.

The data collection tool was an adapted and validated questionnaire designed to measure the knowledge and attitudes of nurses about medication errors. The tool underwent reliability and validity checks to ensure its appropriateness for the study context. Ethical approval was obtained from the Ethics Committee of the Nursing

Department at The Superior University Lahore, ensuring compliance with ethical standards. Nurses were informed about the study's purpose, assured of their confidentiality, and provided with the option to withdraw at any point without repercussions. Informed consent was obtained from all participants before data collection.

The data collection process involved the distribution of questionnaires to eligible participants after obtaining permission from the respective institutions. Participants were given adequate time to complete the questionnaire independently. The collected data were entered into SPSS for analysis, and descriptive statistics were applied. Frequency distributions and percentages were used to summarize the data, and the normality of the data was tested to confirm its distribution.

Ethical considerations were strictly adhered to throughout the study. Participants were assured of the privacy and confidentiality of their responses, and their participation was entirely voluntary. Adequate information about the study's objectives and procedures was provided to ensure informed consent. No harm or coercion was involved during the data collection process.

This robust methodological framework ensured a comprehensive evaluation of nurses' knowledge and attitudes regarding medication errors, providing insights that are crucial for improving patient safety and reducing medication errors in healthcare settings.

Results

This study aimed to assess the knowledge and attitudes of nurses regarding medication errors in emergency departments of tertiary care hospitals. A total of 135 nurses participated, and their demographic characteristics are summarized in Table 1. Most participants were aged between 26–30 years (60.6%), with females making up the majority (82.2%). The predominant marital status was single (83%), and most nurses (58.5%) had 6–10 years of professional experience. The highest educational qualification for the majority was Post RN (57.0%), and the emergency department was the most common area of practice (51.5%).

The knowledge assessment revealed that 100% of participants recognized medication errors as the most common preventable cause of adverse outcomes in healthcare settings. A high percentage (97%) understood that errors should be reported to patients and acknowledged that medication errors can occur in various forms. Additionally, 94.8% of participants were aware of the need to inform physicians or head nurses about errors, and 95.6% emphasized the importance of understanding reporting systems. These findings are presented in Table 2.

Regarding attitudes, Table 3 shows mixed responses. While 76.3% of participants agreed that they would avoid reporting a medication error due to fear of blame, 41.5% were neutral about concerns regarding their manager's reaction. Notably, 54.1% agreed that they would avoid reporting errors to avoid being labelled troublemakers, and nearly half (49.6%) expressed neutrality about reporting errors when they feared repercussions.

Table 1: Demographic Characteristics of Nurses

Variable	Category	Frequency (%)
Age	21–25 years	4 (3.0%)
	26–30 years	82 (60.6%)
	31–35 years	43 (31.9%)
	Above 35 years	6 (4.4%)
Gender	Male	24 (17.8%)
	Female	111 (82.2%)
Marital Status	Single	83 (83.0%)
	Married	52 (17.0%)
Experience	1–5 years	43 (13.9%)
	6–10 years	79 (58.5%)
	10–15 years	13 (9.6%)
Qualification	Diploma in Nursing	42 (31.1%)
	Post RN	77 (57.0%)
	BSN (Generic)	16 (11.9%)
Department	Emergency	69 (51.5%)
	Medical Wards	16 (11.9%)
	Surgical Wards	45 (33.3%)
	Others	5 (3.7%)

Table 2: Knowledge About Medication Errors

Question	Correct Response (%)
Medication errors are the most common preventable cause	135 (100.0%)
Errors should be reported to patients	131 (97.0%)
Errors occur in various forms	131 (97.0%)
Errors should be informed to physicians or head nurses	128 (94.8%)
Nurses should understand reporting systems	129 (95.6%)

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Table 3: Attitudes Toward Reporting Medication Errors

Question	Response (%)
Avoid reporting to avoid blame.	Agree: 103 (76.3%)
Concern about the manager's reaction	Neutral: 56 (41.5%)
Avoid reporting to avoid being labeled a troublemaker	Agree: 73 (54.1%)
Avoid reporting due to fear of repercussions	Neutral: 67 (49.6%)

Discussion

This study assessed the knowledge and attitudes of nurses regarding medication errors in emergency departments at tertiary care hospitals in Pakistan. The findings revealed that while nurses demonstrated moderate knowledge of medication errors, their attitudes toward reporting such errors were largely negative. These results align with prior studies conducted both locally and internationally, highlighting common challenges in addressing medication errors in high-pressure environments like emergency departments.

The study found that 100% of nurses recognized medication errors as the most common preventable cause of adverse patient outcomes. This is consistent with findings by Dirik et al., who reported that nurses universally acknowledge the significance of medication errors in compromising patient safety (4). Similarly, a study by Alsulami et al. emphasized the importance of nurses' understanding of the different forms of medication errors, which was reflected in the 97% of participants in this study who correctly identified various forms of errors (1).

Despite adequate knowledge, the attitudes of nurses toward error reporting were concerning. Over half (54.1%) of participants agreed that they would avoid reporting medication errors for fear of being labelled troublemakers, while 49.6% expressed neutrality about reporting errors due to potential repercussions. This is in line with findings by Escrivá Gracia et al., who reported that fear of blame and punitive actions were significant barriers to error reporting among nurses (3). Moreover, Alrabadi et al. highlighted that organizational culture plays a critical role in shaping nurses' attitudes toward error reporting, with punitive environments discouraging open communication and transparency (2).

The study also highlighted that 76.3% of nurses agreed they would avoid reporting errors due to fear of blame, which mirrors the results of Raja and Badil, who found that hierarchical workplace structures and fear of managerial reactions were key factors discouraging nurses from reporting medication errors in Pakistani healthcare settings (5). Internationally, Billstein-Leber et al. have stressed that creating a non-punitive culture is essential for fostering error reporting and ensuring patient safety (7).

The findings underscore the need for targeted interventions to address both knowledge gaps and negative attitudes. Educational programs focusing on the importance of error reporting and non-punitive mechanisms for addressing errors can significantly enhance nurses' willingness to report errors. Studies by Paul et al. and Shitu et al. suggest that regular training sessions and workshops can improve nurses' confidence in reporting errors and adhering to safety protocols (6, 9).

Additionally, integrating error reporting systems into hospital policies and promoting a culture of safety and accountability are essential. As highlighted by Gawande, systemic approaches to reducing medication errors, such as electronic prescribing and double-checking mechanisms, can minimize errors and reduce the burden on nursing staff (8). In the Pakistani context, these strategies need to be tailored to address the unique challenges faced by emergency departments, including high workloads and resource limitations.

In conclusion, this study reveals significant gaps in nurses' attitudes toward medication error reporting, despite their moderate knowledge. Addressing these issues through education, policy reform, and cultural change within healthcare settings is crucial for improving patient safety and fostering a culture of accountability in Pakistan.

Conclusion

This study highlights that while nurses demonstrated moderate knowledge about medication errors, their attitudes toward reporting such errors were predominantly negative, driven by fears of blame and punitive actions. These findings underscore the critical need for educational programs, organizational policy reforms, and a shift toward a non-punitive culture to enhance medication safety in emergency departments. By addressing these barriers, healthcare institutions can foster transparency, improve error reporting, and ultimately ensure better patient safety outcomes.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate.
Approved by the department Concerned. (IRBEC-SNU-550/24)

Consent for publication
Approved

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Conflict of interest

The authors declared an absence of conflict of interest.

Authors Contribution

SYEDA SIDRA TESNEEM (Director of Nursing)
Final Approval of version
HUMAIRA SADDIQUE (AP)
Revisiting Critically & Data Analysis
RUBINA JABEEN (Principle)
Drafting, Concept & Design of Study

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