ASSESSMENT OF KNOWLEDGE ATTITUDE AND PRACTICE REGARDING ADMINISTRATION OF ORAL MEDICATION AMONG NURSES AT TERTIARY CARE HOSPITAL LAHORE

Original Article

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Conflict of Interest:	None Grant Support & Financial Support: None
Acknowledgment:	The authors express sincere gratitude to the nursing staff who participated in this study and to the hospital administration for their support in facilitating data collection.

ABSTRACT

Background: Medication administration is a critical aspect of nursing practice, with the oral route being the most commonly used due to its convenience and cost-effectiveness. However, medication errors remain a significant concern, often attributed to inadequate adherence to best practices. Nurses play a pivotal role in ensuring safe drug administration, educating patients, and monitoring for adverse reactions. Despite having sufficient pharmacological knowledge, gaps in practice and attitudes toward oral medication administration may compromise patient safety, necessitating further investigation into this issue.

Objective: The study aimed to assess the knowledge, attitude, and practices of nurses regarding the administration of oral medication in a tertiary care hospital setting.

Methods: A cross-sectional research design was employed, utilizing a simple random sampling technique to select 125 nurses working in medical units. Data were collected through a structured questionnaire assessing knowledge, attitude, and practice, with responses recorded on a categorical scale (Yes/No). Ethical approval was obtained, and informed consent was secured from participants. Data were analyzed using SPSS version 21, applying descriptive statistics for frequency distribution and percentage analysis.

Results: Among the participants, 60.8% were married, and 60.0% were aged between 18-25 years. A total of 52.0% held a nursing diploma, while 48.0% had specialized training. Regarding experience, 62.4% had 6-10 years of practice. The majority demonstrated sufficient knowledge, with 91.2% correctly identifying that antibiotics should be given after meals, 93.6% recognizing that glyceryl trinitrate is administered sublingually, and 96.0% acknowledging the importance of timely antibiotic administration. Despite strong knowledge, gaps in practice were evident, with 84.0% admitting to placing medications on patient lockers when busy, and 18.4% opting to administer drugs single-handedly instead of seeking assistance.

Conclusion: While nurses exhibited adequate knowledge of oral medication administration, deficiencies in practice and attitude were observed. Strengthening adherence to safety protocols, reinforcing patient education, and implementing continuous professional training are essential to enhancing medication safety and reducing preventable errors.

Keywords: Drug administration, medication errors, nurse education, nursing practice, oral medication, patient safety, pharmacology.

INTRODUCTION

Medication administration is a fundamental aspect of nursing practice, directly influencing patient safety and healthcare outcomes. Among various routes of drug delivery, oral administration remains the most common, cost-effective, and convenient method. However, despite its routine use, medication errors continue to pose a significant challenge in healthcare settings, contributing to increased morbidity, prolonged hospital stays, and financial burdens. Nurses, being at the forefront of patient care, play a crucial role in ensuring the safe administration of medications. Their knowledge, attitude, and practices (KAP) significantly impact the accuracy and effectiveness of drug delivery(1, 2). Medication errors can occur at any stage of the medication process, from prescribing and transcribing to dispensing and administration. While nurses are often held accountable for such errors, the issue extends beyond individual responsibility. Factors such as physician-related errors (illegible handwriting, incorrect dosing, verbal miscommunication), patient-related complexities (pediatric, critically ill, or cognitively impaired patients), and systemic challenges (workload, understaffing, time pressure) all contribute to the risk of medication errors. A lack of adequate pharmacological knowledge, including an understanding of pharmacokinetics, pharmacodynamics, and drug interactions, further exacerbates the issue. Insufficient training in dosage calculations, outdated protocols, and inadequate competency levels among nurses have been identified as key contributors to medication administration errors(3, 4).

Despite being a shared responsibility among healthcare professionals, medication administration is primarily executed by nurses. Their proficiency in drug administration, comprehension of potential adverse reactions, and adherence to safety protocols are essential in mitigating risks associated with medication errors. Studies indicate that gaps in nursing education, particularly in pharmacology, limit nurses' ability to administer medications safely. Theoretical deficiencies in nursing curricula, lack of structured post-graduate training, and insufficient emphasis on patient education regarding medication use contribute to these challenges. Nurses are not only responsible for delivering medications but also for educating patients about dosage schedules, potential side effects, and precautions. Their ability to assess and monitor patients after medication intake is critical in preventing adverse drug reactions and ensuring optimal therapeutic outcomes(5, 6). Given the complexity and high-stakes nature of medication administration, addressing these gaps is imperative. Enhancing nurses' pharmacological knowledge, improving communication between healthcare professionals, and implementing standardized procedures can significantly reduce medication errors. Hospital administrations must also focus on policy reforms, resource allocation, and workforce optimization to support nurses in their role. Strengthening training programs and emphasizing practical skills in medication management can foster a more competent nursing workforce capable of ensuring patient safety(7, 8).

This study aims to assess the knowledge, attitude, and practices of nurses regarding oral medication administration in a tertiary care hospital setting. By identifying gaps in understanding and practice, the research seeks to highlight the need for enhanced pharmacological education, professional training, and systemic improvements to minimize medication errors and improve patient care outcomes(9).

METHODS

This study employed a cross-sectional research design to assess the knowledge, attitude, and practices of nurses regarding the administration of oral medication in a tertiary care hospital setting. The study was conducted at General Hospital Lahore, with staff nurses from the medical units serving as the target population. A simple random sampling technique was utilized to ensure equal representation, and the sample size was determined to be 125 based on Slovin's formula(10). Only staff nurses working in the medical units were included in the study, while individuals from other departments or non-nursing personnel were excluded to maintain the study's focus. Data were collected using a structured questionnaire designed to evaluate the variables of knowledge, attitude, and practices related to oral medication administration. The questionnaire utilized a categorical scale with binary responses (1 for "Yes" and 2 for "No"). The instrument was adapted from a previously validated source to ensure reliability and validity. Prior to data collection, ethical approval was obtained from the institutional review board (IRB) or ethical committee, ensuring that all research procedures complied with ethical standards. Participants were provided with informed consent forms, detailing the purpose of the study, confidentiality assurances, and the voluntary nature of participation(11).

Data collection was conducted over a predefined timeframe, adhering to a structured schedule. The process began with the development of the introduction, literature review, and methodology, followed by data collection from April 16 to May 10. After data collection, responses were entered and coded systematically from May 11 to May 30. Data analysis was performed using SPSS version 21, employing descriptive statistics to summarize findings. The final phase, including result interpretation, discussion, recommendations,

and abstract writing, was completed between June 1 and June 25, followed by the final compilation, binding, and submission by June 30(12).

RESULTS

The study included 125 female nurses working in the medical units of a tertiary care hospital. Among the participants, 60.8% were married, while 39.2% were single. The majority (60.0%) belonged to the age group of 18-25 years, followed by 28.0% in the 26-35 years range, and 12.0% in the 36-50 years category. Regarding educational qualifications, 52.0% of the nurses held a nursing diploma, while 48.0% had a specialty certification. Experience levels varied, with 62.4% having 6-10 years of work experience, 24.0% having 1-5 years, and 13.6% having less than one year of experience. The knowledge assessment revealed that 91.2% of the participants correctly identified that antibiotics should be given after meals, while 8.8% responded otherwise. Similarly, 92.0% recognized that lozenges should not be chewed, and 93.6% correctly stated that glyceryl trinitrate (GTN) is administered sublingually. A high percentage (95.2%) correctly identified an antibiotic when presented with an example. Furthermore, 92.0% understood that drugs administered intravenously act more rapidly than those administered locally. A total of 93.6% of nurses agreed that irritating drugs should be given with food to minimize gastrointestinal discomfort, and 96.0% recognized the importance of administering antibiotics at the correct time.

The practice assessment indicated that 92.8% of participants acknowledged the necessity of handwashing before medication administration, while 7.2% did not consider it essential. A significant proportion (88.8%) agreed that they should stay with patients until oral medications are swallowed, while 11.2% did not follow this practice. When encountering issues with drug names or dosages, 90.4% of nurses stated they would seek help from colleagues, whereas 9.6% would not. In situations requiring clarification, 79.2% reported that they would contact a ward pharmacist, whereas 20.8% would not. Regarding workload management, 81.6% of nurses admitted to performing medication administration single-handedly when the ward was busy, while 18.4% refrained from doing so. In contrast, 77.6% preferred seeking help from colleagues, and 83.2% considered asking for assistance from nurse aides. When faced with a busy ward, 84.0% of nurses reported that they might place medications on the patient's locker instead of direct administration.

The findings indicate a strong foundational knowledge of oral medication administration among nurses. However, some gaps in adherence to best practices were noted, particularly in ensuring patient supervision during medication intake and seeking appropriate assistance when needed. Addressing these areas could improve medication safety and reduce the risk of administration errors.

Knowledge Assessment Results

Question	Yes (%)	No (%)
Antibiotic is given after meals	91.2	8.8
Lozenges are to be chewed	92.0	8.0
GTN is given sublingually	93.6	6.4
The following is an antibiotic	95.2	4.8

Practice Assessment Results

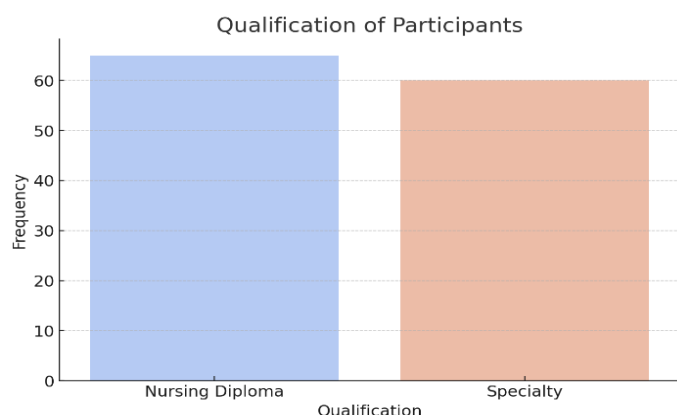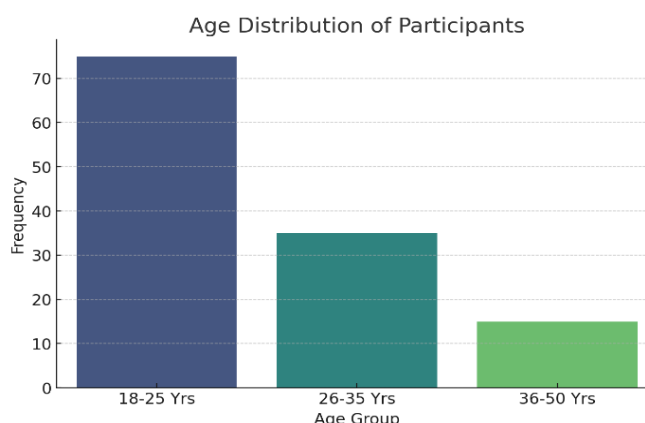| Question	Yes (%)	No (%)
Hand washing is important prior to serving medication	92.8	7.2
Stay with patient until oral drug has been swallowed	88.8	11.2
Call up ward pharmacist when confused with drug name or dosage	79.2	20.8

Figure 2 Qualification of participants

Figure 1 Age Distribution of Participants

DISCUSSION

The findings of this study highlight the knowledge, attitudes, and practices of nurses regarding oral medication administration in a tertiary care setting. The results indicate that nurses demonstrated a substantial level of knowledge related to medication administration, particularly in identifying correct practices such as the timing of antibiotic administration, the appropriate method of administering lozenges and glyceryl trinitrate, and the rapid action of intravenously administered drugs. A significant proportion of participants correctly recognized the importance of administering irritating drugs with food to minimize gastrointestinal discomfort, emphasizing their understanding of pharmacological principles. The majority also acknowledged the significance of adhering to proper administration timing, particularly for antibiotics, which is crucial in ensuring therapeutic efficacy and preventing antibiotic resistance(13, 14). Despite this strong knowledge base, the findings suggest variations in practice that may impact patient safety. While a high proportion of nurses reported engaging in essential safety measures such as hand hygiene before medication administration and monitoring patients until oral drugs were swallowed, a notable percentage exhibited concerning behaviors, such as placing medications on patient lockers when the ward was busy. This practice, if left unaddressed, may compromise medication adherence and increase the risk of errors. Furthermore, while many nurses indicated they would seek clarification from colleagues or pharmacists when encountering medication-related confusion, a considerable proportion opted to manage medication administration single-handedly, potentially increasing the likelihood of errors in high-workload situations(15, 16).

Professional education and experience were key determinants of nurses' knowledge and practice. The study identified that nurses with specialized training exhibited better medication knowledge compared to those with only a diploma. Experience also played a vital role, with the majority of participants possessing over five years of work experience, which likely contributed to their competency in medication administration. However, experience alone did not guarantee adherence to best practices, as certain behavioral lapses, including a lack of patient education regarding medication intake and insufficient post-administration monitoring, were observed. These findings align with prior research indicating that while experience enhances skill, structured training and reinforcement of protocols remain essential for maintaining high standards of patient care(17, 18). A critical area of concern is the attitude of nurses toward medication administration responsibilities. Although the majority exhibited safe practices, the results indicate that some nurses demonstrated behaviors that could compromise patient safety, such as failing to educate patients on medication schedules, interactions, and potential adverse effects. The observed gaps in patient follow-up after medication administration further highlight the need for reinforcing the role of nurses in patient-centered care. Ensuring that nurses are not only knowledgeable but also committed to proactive patient education and follow-up is essential for optimizing therapeutic outcomes(19, 20).

One of the strengths of this study is its focus on a well-defined sample of nurses in a tertiary care hospital, allowing for a targeted assessment of knowledge, attitudes, and practices in a critical healthcare setting. Additionally, the study provides valuable insights into areas where training and system improvements can be implemented to enhance medication safety. However, certain limitations must be acknowledged. The study was confined to a single hospital, limiting the generalizability of findings to other healthcare settings. Data

collection was conducted at a single time point, restricting the ability to assess variations across different shifts or seasonal influences. Additionally, while the study examined knowledge, attitudes, and practices, other contributing factors, such as institutional policies, workload pressures, and patient-related challenges, were not explored in detail(21). Future studies should expand data collection across multiple hospitals and different shifts to gain a more comprehensive understanding of medication administration challenges. Further research should also investigate additional factors influencing medication safety, including institutional support, staffing ratios, and policy adherence. Addressing these areas through targeted interventions, continuous professional education, and reinforcement of safety protocols can enhance nursing practices, ultimately improving patient outcomes and reducing the risk of medication errors.

CONCLUSION

The findings of this study underscore the significance of nurses' knowledge, attitudes, and practices in ensuring the safe administration of oral medications. While the oral route remains the most commonly used and convenient method of drug administration, it is often overlooked in clinical practice, leading to lapses in patient education and follow-up. Despite possessing adequate knowledge, gaps in practice and attitude were evident, particularly in terms of educating patients about medication schedules, potential side effects, and adverse reactions. Nurses play a critical role in not only administering medications but also ensuring that patients understand how to take them safely, especially when dealing with drugs that may cause gastrointestinal irritation or require specific timing for optimal efficacy. Strengthening nursing education, reinforcing adherence to protocols, and fostering a more proactive approach in patient care can enhance medication safety and reduce preventable errors. Addressing these areas through continuous professional development and institutional support will be crucial in improving patient outcomes and advancing the quality of healthcare delivery.

AUTHOR CONTRIBUTIONS

Author	Contribution
Mehwish Khan*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Saira Aslam	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published

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