

A Descriptive Study to Assess the Knowledge Regarding Medication Error and Safe Medication Administration Practice Among Staff Nurses Working in Selected Hospitals of Aurangabad

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Abstract

Background: Medication administration is one of the most important responsibilities of nurses in hospital settings. Medication errors are preventable events that may lead to inappropriate medication use and patient harm. Since nurses are directly involved in medication administration, their knowledge and practice play a vital role in preventing medication errors and ensuring patient safety.

Aim: The present study aimed to assess the knowledge regarding medication error and safe medication administration practice among staff nurses working in selected hospitals of Aurangabad.

Methods: A descriptive survey research design was adopted. A total of 196 staff nurses working in selected hospitals were selected by using non-probability convenient sampling technique. Data were collected by using a self-structured knowledge questionnaire on prevention of medication error and an observational checklist for safe medication administration practice. Ethical clearance was obtained from the Institutional Ethics Committee and informed consent was taken from the participants. The data were analysed by using descriptive statistics such as frequency, percentage, mean, standard deviation and mean percentage.

Results: Out of 196 staff nurses, 18 were males and 178 were females. The study revealed that majority of staff nurses, 119 (61%), had good knowledge regarding prevention of medication error, while 77 (39.28%) had average knowledge. No staff nurse had poor knowledge. Regarding safe medication administration practice, majority of staff nurses, 105 (53.57%), had poor practice, whereas 91 (46.42%) had good practice.

Conclusion: The study concluded that majority of staff nurses had good knowledge regarding prevention of medication error; however, their safe medication administration practice was poor. This indicates a gap between knowledge and actual clinical practice. Regular training,

supervision, medication safety audits and reinforcement of safe medication administration protocols are needed to improve nursing practice and patient safety.

Keywords: Knowledge, Medication error, Prevention, Safe medication administration, Staff nurses, Nursing practice

Introduction

Human life, illness and treatment are closely connected. Medicines are widely used for the prevention, diagnosis and treatment of different health problems. Advances in medical science have made many diseases treatable and manageable through appropriate medication therapy. However, medicines can produce benefit only when they are prescribed, dispensed and administered correctly. Any mistake in the process of medication use can cause harm to the patient and reduce the quality of health care.

Medication error is one of the important patient safety concerns in health care settings. It may occur at any stage of medication management, including prescribing, transcribing, dispensing, administering, monitoring and documentation. Medication errors may result from human factors, lack of knowledge, poor communication, heavy workload, interruptions, similar drug names, unclear prescriptions, improper documentation and non-adherence to standard protocols.

Nurses play a major role in medication administration because they are usually the final health care professionals who check and administer medicines to patients. Their responsibility includes checking the medication order, identifying the patient correctly, calculating the correct dose, preparing the drug, administering it by the correct route, monitoring the patient for therapeutic and adverse effects and documenting the administration properly. Therefore, nurses must have adequate knowledge and correct practice regarding medication safety.

Safe medication administration is based on standard principles such as right patient, right drug, right dose, right route, right time, right documentation, right reason, right response, right education and right evaluation. These principles help nurses prevent errors and promote patient safety. However, knowledge alone is not sufficient. Nurses must also apply this knowledge consistently during clinical practice. A nurse may know the principles of medication safety but may fail to follow them due to workload, emergency situations, lack of resources or poor supervision.

Medication errors can have serious consequences for patients, families, nurses and health care institutions. They may lead to prolonged hospitalization, disability, increased treatment cost, loss of trust, legal issues and even death. Hence, prevention of medication errors is an essential component of quality nursing care.

The present study was conducted to assess the knowledge regarding medication error and safe medication administration practice among staff nurses working in selected hospitals of Aurangabad. The study also aimed to identify the gap between knowledge and practice so that appropriate educational and administrative measures can be planned.

Need for the Study

Medication safety is a global health priority. Unsafe medication practices and medication errors are among the leading causes of preventable harm in health care. In hospital settings, patients often receive multiple medicines, especially in medical, surgical, emergency and critical care units. This increases the possibility of medication errors if proper safety measures are not followed.

Staff nurses are directly involved in medication administration and are responsible for ensuring safe drug delivery to patients. They must be aware of medication error, its causes, prevention strategies and safe administration practices. They should also be able to identify high-alert medications, look-alike and sound-alike drugs, allergies, contraindications, adverse drug reactions and proper documentation requirements.

In many clinical areas, nurses work under pressure due to high patient load, shortage of staff, long duty hours and frequent interruptions. These conditions may increase the risk of medication errors. Therefore, assessment of nurses' knowledge and practice is important to understand the existing situation and to plan corrective measures.

A descriptive study on this topic is useful because it helps to identify whether staff nurses have adequate knowledge and whether they are following safe medication administration practices in real clinical settings. The findings can help nursing administrators organize continuing nursing education, medication safety workshops, bedside supervision, checklist-based monitoring and periodic audits.

The present study is significant because it focuses not only on knowledge but also on actual safe medication administration practice among nurses. The result may help improve patient safety and quality of nursing care in selected hospitals of Aurangabad.

Objectives of the Study

1. To assess the knowledge regarding medication error among staff nurses working in selected hospitals of Aurangabad.
2. To assess the safe medication administration practice among staff nurses working in selected hospitals of Aurangabad.

3. To find the association between knowledge regarding medication error and selected socio-demographic variables.
4. To find the association between safe medication administration practice and selected socio-demographic variables.

Assumptions

The study was based on the following assumptions:

1. Staff nurses may have some level of knowledge regarding medication error.
2. Safe medication administration practice may vary among staff nurses.
3. There may be a difference between knowledge and actual clinical practice.
4. Socio-demographic variables may influence knowledge and practice regarding medication safety.

Research Methodology

Research Approach

A quantitative research approach was used for the present study.

Research Design

A descriptive survey research design was adopted to assess the knowledge and safe medication administration practice among staff nurses.

Setting of the Study

The study was conducted in selected hospitals of Aurangabad.

Population

The population of the study consisted of staff nurses working in selected hospitals of Aurangabad.

Sample and Sample Size

The sample consisted of 196 staff nurses who fulfilled the inclusion criteria.

Sampling Technique

A non-probability convenient sampling technique was used to select the participants.

Inclusion Criteria

Staff nurses who:

1. Were working in selected hospitals of Aurangabad.
2. Were available during the period of data collection.
3. Were willing to participate in the study.
4. Had direct responsibility for medication administration.

Exclusion Criteria

Staff nurses who:

1. Were not willing to participate in the study.
2. Were on leave during the period of data collection.
3. Were working only in administrative areas and not involved in medication administration.

Description of the Tool

The tool consisted of three parts.

Part I: Socio-Demographic Variables

This section included information such as age, gender, professional qualification, area of work, years of experience, previous training on medication safety and type of hospital unit.

Part II: Self-Structured Knowledge Questionnaire

This section was prepared to assess knowledge regarding medication error and its prevention. It included questions related to meaning of medication error, causes, types, prevention, high-alert drugs, rights of medication administration, documentation, reporting and patient safety measures.

Part III: Checklist for Safe Medication Administration Practice

This section was used to assess safe medication administration practice among staff nurses. The checklist included important steps such as checking medication order, hand hygiene, patient identification, checking drug name, dose, route, time, expiry date, allergy status, preparation technique, documentation and monitoring after administration.

Ethical Consideration

Ethical clearance was obtained from the Institutional Ethics Committee. Permission was obtained from the concerned hospital authorities. The purpose of the study was explained to the participants. Written informed consent was taken before data collection. Confidentiality and anonymity of the participants were maintained throughout the study.

Data Collection Procedure

Data were collected from staff nurses working in selected hospitals of Aurangabad. After obtaining permission and consent, socio-demographic data were collected. The self-structured knowledge questionnaire was administered to assess knowledge regarding medication error and its prevention. Safe medication administration practice was assessed by using a structured checklist. The collected data were organized, coded and analysed using descriptive statistics.

Plan for Data Analysis

The data were analysed by using descriptive and inferential statistics. Frequency and percentage were used to describe socio-demographic variables, level of knowledge and practice. Mean, standard deviation and mean percentage were used to assess knowledge and practice scores. Chi-square test was used to find association between knowledge and practice with selected socio-demographic variables.

Results

Section I: Distribution of Staff Nurses According to Gender

Out of 196 staff nurses, 18 were males and 178 were females. This shows that majority of the participants were female nurses.

Table 1: Distribution of Staff Nurses According to Gender

Gender	Frequency	Percentage
Male	18	9.18%
Female	178	90.82%
Total	196	100%

Section II: Level of Knowledge Regarding Prevention of Medication Error

The study findings showed that majority of staff nurses, 119 (61%), had good knowledge regarding prevention of medication error. About 77 (39.28%) had average knowledge. No staff nurse had poor knowledge.

Table 2: Level of Knowledge Regarding Prevention of Medication Error

Level of Knowledge	Frequency	Percentage
Poor knowledge	0	0%
Average knowledge	77	39.28%
Good knowledge	119	61.00%
Total	196	100%

The findings indicate that most staff nurses were aware of medication error prevention. This may be due to their nursing education, clinical experience, hospital policies and exposure to medication administration during routine patient care.

Section III: Safe Medication Administration Practice Among Staff Nurses

The study findings revealed that majority of staff nurses, 105 (53.57%), had poor practice regarding safe medication administration, whereas 91 (46.42%) had good practice.

Table 3: Safe Medication Administration Practice Among Staff Nurses

Level of Practice	Frequency	Percentage
Poor practice	105	53.57%
Good practice	91	46.42%
Total	196	100%

The findings show that although majority of nurses had good knowledge, more than half of them had poor practice. This indicates a gap between knowledge and actual implementation of safe medication administration principles in clinical practice.

Discussion

The present study was conducted to assess knowledge regarding medication error and safe medication administration practice among staff nurses working in selected hospitals of Aurangabad. The study included 196 staff nurses. Among them, 18 were males and 178 were females, showing that the majority of participants were female nurses.

The study findings revealed that 119 (61%) staff nurses had good knowledge regarding prevention of medication error, while 77 (39.28%) had average knowledge. No staff nurse was found to have poor knowledge. This indicates that staff nurses had a satisfactory level of theoretical knowledge regarding medication error prevention. The possible reasons may include nursing curriculum, clinical exposure, hospital protocols and professional experience.

However, the findings related to practice showed a different picture. Majority of staff nurses, 105 (53.57%), had poor safe medication administration practice, whereas 91 (46.42%) had good

practice. This reveals that knowledge was not fully translated into actual clinical practice. Such a gap between knowledge and practice is an important concern in patient safety.

The poor practice may be due to several factors such as heavy workload, shortage of staff, lack of time, emergency situations, interruptions during medication preparation, unclear prescriptions, insufficient supervision, inadequate reporting culture and lack of regular skill-based training. In busy hospital settings, nurses may sometimes skip important safety steps such as checking two patient identifiers, verifying allergy status, checking expiry date, documenting immediately after administration or monitoring the patient after giving medication.

Medication administration is not only a routine nursing activity but also a high-risk clinical responsibility. Even a small error in dose, route, time or patient identification can lead to serious patient harm. Therefore, nurses must follow standard medication safety protocols during every medication administration procedure.

The present study also found significant association between knowledge regarding prevention of medication error and safe medication administration practice with some selected socio-demographic variables. This suggests that factors such as education, experience, training and work area may influence medication safety behaviour. Therefore, hospitals should provide regular continuing nursing education and practical training programmes based on the needs of staff nurses.

The findings of the present study are important for nursing service and hospital administration. They show that knowledge assessment alone is not enough. Direct observation of practice, clinical supervision and medication safety audits are also necessary. Hospitals should develop a non-punitive medication error reporting system so that nurses can report errors and near-miss events without fear. Such reporting can help identify system problems and prevent future errors.

Medication safety can be improved through multiple strategies such as standard operating procedures, medication administration checklist, double-checking of high-alert drugs, proper labelling, avoiding interruptions during medication rounds, patient identification protocols, staff training, electronic medication records and involvement of clinical pharmacists. Nurse managers should ensure that these safety measures are implemented consistently in clinical areas.

At the end of the discussion, it is important to mention that this study was limited to selected hospitals of Aurangabad and used a convenient sampling technique. Therefore, the findings cannot be generalized to all hospital settings. The practice assessment may also be influenced by observation bias, as staff nurses may modify their behaviour when they know they are being observed. Further studies with larger sample size and different hospital settings are recommended.

Nursing Implications

Nursing Practice

Nurses should strictly follow safe medication administration principles while administering every medicine. They should check the right patient, right drug, right dose, right route, right time, right documentation, right reason and right response. Special care should be taken while administering high-alert medications.

Nursing Education

Nursing students and staff nurses should be trained regularly on medication error prevention, safe medication administration, documentation and reporting of medication errors. Simulation-based training can improve practical skills.

Nursing Administration

Nurse administrators should conduct medication safety audits, bedside supervision and periodic competency assessment of staff nurses. Hospitals should maintain clear medication administration policies and encourage non-punitive error reporting.

Nursing Research

Further research can be conducted to identify causes of poor medication administration practice and effectiveness of structured teaching programmes, simulation training or medication safety protocols.

Recommendations

1. A similar study can be conducted with a larger sample size.
2. A comparative study can be conducted between government and private hospitals.
3. An interventional study can be conducted to assess the effectiveness of training on safe medication administration practice.
4. Regular medication safety workshops should be organized for staff nurses.
5. Medication administration checklists should be introduced in hospital wards.
6. High-alert medications should be double-checked before administration.
7. A non-punitive medication error reporting system should be encouraged.

Conclusion

The study concluded that majority of staff nurses had good knowledge regarding prevention of medication error, but majority had poor practice regarding safe medication administration. This shows that there is a gap between knowledge and actual clinical performance. Medication administration is an important nursing responsibility and requires careful attention, proper checking, accurate documentation and patient monitoring.

Safe medication administration is essential to prevent patient harm and improve quality of care. Nurses should not only know the principles of medication safety but must also apply them consistently during clinical practice. Hospital administrators and nurse managers should provide regular training, supervision, checklist-based monitoring and supportive work environments. Medication errors should be viewed as patient safety issues rather than individual blame. A positive safety culture can encourage reporting, learning and improvement.

The findings of the study highlight the need for continuous education and practical reinforcement among staff nurses. Improving safe medication administration practice will help reduce medication errors, protect patients and enhance the standard of nursing care.

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