



(RESEARCH ARTICLE)



## Knowledge and attitude of nurses regarding medication errors: A significant element in the role of care complexity

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### Abstract

It is one of the major concerns for patient safety around the world as highlighted by the World Health Organization (WHO) in their report presented in 2001, medication errors are affecting the revenue of healthcare organizations. The key to developing positive conduct to omit the chances of medication errors is to understand how and why they happen. Therefore, this study sought to determine the knowledge, and attitude of nurses regarding medication errors. An analytical cross-sectional study design was used to perform this study at a tertiary care hospital in Lahore, Pakistan over a period of 3 months. A sample size of 150 was calculated using Slovin's formula of probability and descriptive statistics (frequency and percentage) were calculated for the collected responses. By summing up the participants' responses, it was noticed that 67% of the nurses possess good knowledge & attitude towards medication errors and 33% of nurses are required to update their knowledge to minimize the vulnerability for the incidence. In conclusion to the findings of this study, the majority of the nurses possess good knowledge and attitudes regarding medication errors. Safe administration of drugs is one of the basic responsibilities of nurses and it is vital to prevent and report such errors as soon as possible in the process of medication administration.

**Keywords:** Medication error; Patient safety attitude; Behavior; Knowledge

### 1. Introduction

According to the National Coordinating Council for Medicine Error Reporting and Prevention in the United States, a medication error is an avoidable event committed by healthcare professionals that may lead to inappropriate drug use and/or long-term impairments<sup>1</sup>. It is one of the major concerns for patient safety around the world as highlighted by the World Health Organization (WHO) in their report presented in 2001, medication errors are affecting the revenue of healthcare organizations<sup>2</sup>. Numerous researchers have examined the reasons behind medication errors, implying that they may be due to various variables inside the care complexity, as well as personnel characteristics<sup>3</sup>. A few of the major elements accounting for medication errors are prescription errors, dosage-related errors, look-alike sound-alike drugs, fatigue among employees, knowledge deficiencies, and environmental conditions that can affect the productivity of healthcare staff<sup>4</sup>. Medicine-related mistakes can happen at any stage of the drug administration process beginning from medicine orders from the physician to dosage preparation and dispensing of the drugs from pharmacy to the unit and administering these drugs to patients<sup>5</sup>. Findings from a study suggest that the staff members have to deal with different instructions from doctors regarding the treatment plans like handwritten prescriptions, and verbal orders in some situations creating opportunities for such blunders at the beginning of the process<sup>6</sup>. The key to developing positive conduct to omit the chances of medication errors is to understand how and why they happen<sup>7</sup>.

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Therefore, this study sought to determine the knowledge, and attitude of nurses regarding medication errors.

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## 2. Material and methods

### 2.1. Study design

An analytical cross-sectional study design was used to perform this study at a tertiary care hospital in Lahore, Pakistan over a period of 3 months.

### 2.2. Study population

All the nurses working in different areas of the hospital (240 nurses) were taken as the study population.

### 2.3. Sample Size

Slovin's sampling formula was second-handed for determining the sample size.

$$n = \frac{N}{1 + Ne^2}$$

Where, n=sample size, N=population size, e= margin of error (0.05) when the confidence interval is 95%.

If the total population is 240, according to the formula:

$$n = \frac{240}{1 + 240(0.05)^2}$$

$$n = \frac{240}{1 + 240(0.0025)}$$

$$n = \frac{240}{1 + 0.6}$$

$$n = \frac{240}{1.6}$$

Hence the (sample size) n= 150

### 2.4. Inclusion Criteria

Nurses meeting the following criteria were selected in the sample

- Nurses working in the ICU, CCU, and Emergency room only.

### 2.5. Exclusion Criteria

Nurses meeting the following criteria were not recruited in the sample

- Nurses having any physical and/or mental disability
- Student nurses assigned in the above-mentioned areas.
- Head Nurses and nurse supervisors.

### 2.6. Data Analysis

The collected data was analyzed and tabulated by using version 21 SPSS. Descriptive statistics (frequency and percentage) were calculated for the collected responses.

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## 3. Results and discussion

This research study was directed at a tertiary care hospital in Lahore, Pakistan to regulate how the knowledge, attitude, and behavior of nurses regarding intravenous medication can reduce intravenous medication error: the role of care complexity.

The study results are categorized into binary sections, to begin with segment; there are insights on demographic variables and the conduct of nurses with respect to intravenous medicine. The age of participants in the questionnaire was divided into 5 classes and it was measured that the majority of the participants were aged between 21 to 40 years with 58 (38%) subjects being 21-30 years old and 59 (39%) of them were 31-40 years old and a vast number of subjects were females i.e. 109 (73%). Answering about candidates' work experience, 63 (42%) had been working for 4-6 years and 41 (27%) had a work experience between 1-3 years. The qualification of the participants was found as 88 (58%) participants studied diplomas in general nursing, 26 (17%) of them were graduates of diploma in midwifery, 19 (13%) stood to grasp a degree of BSc Nursing and 24 (16%) held a degree of Post RN, BSN. Table 1 illustrates the demographic traits of the subjects interviewed in the phase of data collection.

**Table 1** Demographic characteristics

Demographic Variables		Frequency	Percentage	Cumulative Percentage
Age	21-30 years	58	39	39
	31-40 years	59	39	78
	41-50 years	26	17	95
	51-60 years	7	5	100
Gender	Male	41	27	27
	Female	109	73	100
Work Experience	1-3 year	41	27	27
	4-6 year	63	42	69
	7-9 year	37	25	94
	10-12 year	9	6	100
Qualification	Diploma in General Nursing	88	54	54
	Bachelor in Science in Nursing (BSN)	19	13	67
	Post RN BSN	24	16	83
	Diploma in Midwifery	26	17	100

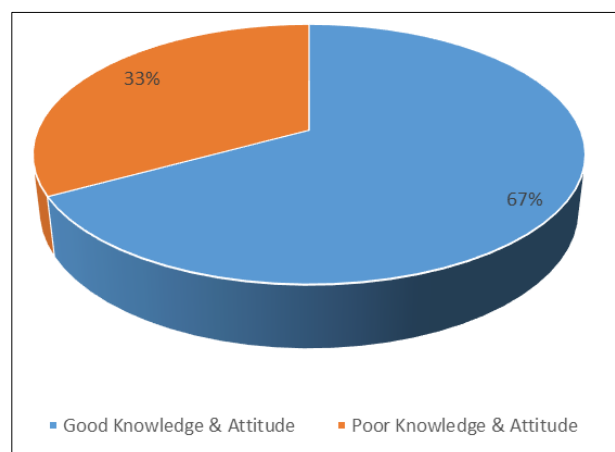
Participants' responses were measured to calculate their frequencies and percentages. Out of 150 participants, 105 (70%) answered that they possess good knowledge about medication errors and how they happen, and 92 (61%) nurses attributed the medication errors to the increased workload in the patient care areas and the shortage of manpower. Responding to another item, 110 (73%) subjects highlighted that medication errors occur due to improper and unclear prescriptions by the treating doctors. Dosage preparation and complex designs of equipment are also very significant factors, that can result in medication errors and they should be handled discretely, and it was endorsed by 102 (68%) and 76 (51%) nurses, respectively.

Medication errors are reversible in most cases if reported in a timely manner and proper corrective action is taken, 112 (75%) agreed with the statement while only 51 (34%) reported that these errors must not be reported at all as it can leave a negative impact on patients. One hundred and twenty-one (81%) nurses appreciated that their organizations have a clear policy regarding medication errors in place and 99 (66%) of them responded that non-compliance to that policy actually results in the incidence. A vast majority of participants blamed frequent distractions are the main cause of such errors. Table 2 below enlists the participants' responses to the research tool.

**Table 2** Participants' responses to each item of the self-administered questionnaire

No.	Statements	Frequency	Percentage
1	I have good knowledge of medication errors and how they happen	105	70%
2	Medication errors mostly occur when nurses are facing work overload and staff shortage	92	61%
3	Improper and unclear prescription leads to medication errors	110	73%
4	Lack of knowledge about the drug preparation procedures, dose calculation, and rate of administration leads to medication errors	102	68%
5	Complex design of equipment results in medication error?	76	51%
6	All medication errors must be reported immediately to the nurse managers and pharmacy department	112	75%
7	I think it will have a negative impact on patients if I report any medication errors	51	34%
8	My organization has a policy to train new staff nurses regarding medication errors.	121	81%
9	I think nurses fail to adhere to the organization's policies or guidelines in reporting medication errors.	99	66%
10	I think frequent interruptions and distractions are the main reason of medication errors.	130	87%

By summing up the participants' responses, it was noticed that 67% of the nurses possess good knowledge & attitude towards medication errors and 33% nurses are required to update their knowledge to minimize the vulnerability for the incidence. Fig. 1 below demonstrates the percentage of participants according to their knowledge and attitude.

**Figure 1** Percentage of participants' knowledge and attitude

#### 4. Conclusion

In conclusion to the findings of this study, the majority of the nurses possess good knowledge and attitudes regarding medication errors. Safe administration of drugs is one of the basic responsibilities of nurses and it is vital to prevent and report such errors as soon as possible in the process of medication administration. The experience and competence of healthcare professionals are pivotal for objectifying suitable conduct in order to minimize the occurrence of medication errors. Knowledge and attitude play a key role, as they enable nurses to behave in a proficient manner to avoid medication errors. Healthcare organizations should implement strict policies and monitor the compliance of healthcare workers to this policy. These organizations must create opportunities for continuing education for their staff to keep their knowledge and skills updated. Prospective researchers should plan interventional studies to explore how these errors can be minimized.

### *Limitations*

This study was conducted as a partial fulfillment of the requirement for degree of bachelors in the science of nursing hence, the biggest limitation was time.

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### **Compliance with ethical standards**

#### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

#### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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