

Outcomes of Medication Errors: Assessing the Opinion of Nurses in a Tertiary Institution in Southern Nigeria

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Abstract: Background: Medication errors cause a number of negative outcomes directly on the patient or indirectly on the nurse and healthcare system.

Objective: To assess the outcomes of medication errors based on respondents'.

Methods: A cross-sectional descriptive study was conducted among nurses in a tertiary institution in Nigeria. Total population was 596 while the sample size of 119 Nurses was randomly selected. Instrument for data collection was a validated self-developed questionnaire. Descriptive statistic was used to analyze data.

Results: Findings of the study revealed that 72 (60.5%) of the respondents have been involved in medication errors. Outcomes of medication errors varied. A total of 16 (22.2%) indicated that death was the outcome of medication errors on the patient. Furthermore, 20 (27.8%) felt guilty and a similar proportion lost confidence in their clinical practice, while 23 (32.0%) of respondents indicated increased financial burden on the hospital as the outcome of medication errors on the hospital where they practice.

Conclusion: Outcomes of medication errors affect patients, nurses and healthcare settings. Based on the findings, strategies to address medication errors and improving the quality of medication handling safety in hospital settings is paramount to minimise its prevalence.

Keywords: medication errors, outcomes, Nurses,

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I. Introduction

Medications are offered by health services throughout the world ^[1]. It's on record that every nurse administers an average of 10 medication doses for every hospital patient every day ^[2]. With substantial and increasing medication use comes a growing risk of harm. Surprisingly, a substantial amount of literature about medication errors (MEs) is based in the hospital setting ^[3].

Furthermore, it ^[3] is affirmed that there is no consensus about the definition of a medication error and that given the sheer number of prescriptions issued in primary care, there is the potential to cause considerable harm in absolute terms.

Medication errors as suggested ^[3] are particularly important given the large and growing global volume of medication use. A report ^[4] has an estimation that in some countries approximately 6%-7% of hospital admissions appear to be medication related, with over two-thirds of these considered avoidable and thus, potentially due to errors. The problem as claimed ^[5] is likely more pronounced in the elderly, because of multiple risk factors, one of which is polypharmacy.

II. Literature Review

There is ^[6] a conclusion that medication errors can happen at any step of the medication process (prescription, transcription, dispensing and administration) where physicians, pharmacists and nurses are involved. Findings of previous studies ^[7] shows that medication errors most commonly occur during the administration step of the medication process (i.e. giving medicine to patients), accounting for 87% of all medication errors. The most common types of MEs as recorded ^[8] were administering medications at the wrong time (24.0%), dosage errors (16.8%), and administering medications to the wrong patient (13.8%).

Documentation ^[9] of undesirable outcomes of medication errors includes adverse drug reactions, drug-drug interactions, lack of efficacy, suboptimal patient adherence and poor quality of life and patient experience. In turn, these may have significant health and economic consequences, including the increased use of health services, preventable medication-related hospital admissions and death.

Opinions about medication safety education is characterised by a focus on the role of nurse educators and mentors in the development of students' abilities, creation of a supportive culture, and enhancement of students' creativity, motivation and ethical behaviour. This will prepare nursing graduates with the competencies necessary to be diligent about medication safety and the prevention of errors ^[10].

In her opinion, Durhan ^[11] stated that Nurses must be prepared to not only catch their own errors, but also the errors of healthcare providers, pharmacists, and others in the chain of medication administration. Hence, the study under review will attempt to investigate nurses' opinion on the direct and indirect outcomes of medication errors.

Objectives: To assess the outcomes of medication errors based on respondents' opinions.

Specific objectives are to:

- Identify the proportion of respondents who were involved in medication error.
- Assess outcomes of medication error on the patient
- Assess outcomes of medication error on the respondents
- Assess outcomes of medication error on the healthcare system

III. Methods

This study used a descriptive research design to investigate the outcomes of medication errors. The study setting commenced operation in 1980 but was established by law in 1985 via Decree No 10 of 1985. It is a centre for tertiary-care and teaching and it's currently the major research facility in the region. The study was carried out among nurses working in a tertiary institution in Nigeria. A total of 119 Registered Nurses were selected through a simple random sampling method. Instrument for data collection was a researcher-structured questionnaire.

Prior to data collection, a formal application seeking for permission to conduct the study was made to the Research Ethics Committee of study setting (UPTH/ADM/90/S.II/VOL.XI/44 on 13th July 2016). In addition, informed consent of participants was sought after the participants were informed about the nature of the study and how confidentiality and anonymity of participants will be guaranteed.

Data collection commenced with daily distribution and retrieval of self-administered questionnaire from one unit of the hospital to the other until all questionnaires were recovered. Data collection spanned through a period of 4 weeks and participation was voluntary. The questionnaires completely responded to by the nurses were returned resulting to high response rate of 100%.

IV. Results

Respondents' socio-demographic Data

Table 1 shows that 15 (12.6%) are between 21-30 years while a larger proportion 40 (33.6%) of respondents are between 31-40 years. A total of 65 (54.6%) are males while 54 (45.4%) are females. The professional cadre of participants varied. Out of 119 nurses who participated in the survey, 56 (47.1%) are in the rank of Nursing Officer, 12 (10.1%) are Senior Nursing Officers, 32 (26.9%) are Principal Nursing Officers, 19 (15.9%) are Chief Nursing Officers. In addition, 15 (12.6%) have 1-10 years working experience, while 41 (34.5%) have 21-30 years working experience. All the respondents had formal education. However, the table shows the following as the educational qualification of nurses who participated in the survey. 55 (46.2%) have Diploma in nursing- midwifery, 23 (19.3%) are B.NSc degree holders, 7 (5.9%) are M. Sc degree holders.

Proportion of respondents who were involved in medication errors

Data presented on figure 1 shows that 72 (60.5%) of nurses have been involved in medication error while 47 (39.5%) have not experienced medication error.

Outcomes of Medication Error on patients

Table 2 shows the outcomes of medication errors on the patients nursed by the respondents. 16 (22.2%) respondents indicated that death was the outcome of MEs; nausea was witnessed by 5 (6.9%) of nurses; edema was witnessed by 8 (11.1%) respondents; 7 (9.7%) of nurses indicated that itching was witnessed; 1 (1.4%) respondents noted that patients had increased intracranial pressure and rashes.

Outcomes of medication errors on respondents

Table 3 records the varied outcome of MEs on the respondents. From the proportion 72 (60.5%) respondents that were involved in MEs, a total of 20 (27.8%) felt guilty and the same number of nurses lost confidence in their clinical practice. However, 3 (4.1%) felt angry at themselves.

Outcomes of Medication Error on the hospital

Table 4 shows that 23 (32.0%) of respondents indicated increased financial burden on the hospital where medication errors occurred.

V. Discussion

Respondents' opinions about outcomes of medication errors

A finding of this study shows high prevalence of medication errors among respondents. This report corroborates with a study ^[12] that documented 29% of participating nurses reported medication errors in 2015 but it is low compared to the findings of our study.

The study findings include direct and indirect outcomes of medication errors and revealed that outcomes of errors in medication vary. Such outcomes include death, hypotension, nausea, abscess, hypoglycaemia, etc. However, a larger proportion of the respondents indicated death as a medication error outcome. This is similar to a survey ^[13] which documented that medication errors can lead to adverse outcomes such as increased mortality rates, increased length of hospital stay, and high medical expenses. Another study recorded that nine nurses who participated in the survey indicated ^[14] that error committed caused harm to the patient which includes death. Even though majority of the respondents were involved in medication errors, only 22.2% enlisted death as an outcome of their error. The implication is that death is not the only outcome of medication error although no harm caused by medication error is mild enough to ignore.

In another study, ^[15] hypoglycaemia was stated to be an outcome of medication errors as a result of the use of Glibenclamide tablets in wrong drug combination. In our study, hypoglycaemia was reported as an outcome of medication errors but was not linked to drug interaction.

Findings revealed that some nurses felt guilty of their involvement in medication errors while others lost confidence in their clinical practice. This is in line with the study among randomly selected Registered Nurses at multiple setting (private, government, military, and health maintenance organization hospitals) which noted that medication errors causes harm on nurses' confidence and practice ^[16]. This similarity is due to similar characteristics of study settings. Furthermore, medication errors can result in stress and ethical conflicts of nurses as recorded elsewhere ^[17].

The study under review found out that medication errors result in increased financial burden on the hospital. To support our findings, the volume and complexity of medication administration ^[18] contribute to the risk of medication errors, which take a heavy financial and human toll on the U.S. healthcare system.

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TABLES

Table 1: Respondents’ socio-demographic Data

Demographic data	Options	Nurses (%) n=119
Age range	21 -- 30 years	15 (12.6)
	31 – 40 years	40 (33.6)
	41 – 50 years	34 (28.6)
	51 – 60 years	30 (25.2)
	Total	119 (100)
Gender	Male	65 (54.6)
	Female	54 (45.4)
	Total	119 (100)
Professional Cadre	Nursing Officers	56 (47.1)
	Senior Nursing Officer	12 (10.1)
	Principal Nursing Officer	32 (26.9)
	Chief Nursing Officer	19 (15.9)
	Total	119 (100)
Years of Work Experience	1-10 years	15 (12.6)
	11-20 years	23 (19.3)
	21-30 years	41 (34.5)
	31-40 years	40 (33.6)
	Total	119 (100)
Highest Educational Qualification obtained	Diploma in Nursing-Midwifery	55 (46.2)
	Associate Nursing Degree	34 (28.6)
	Bachelor of Science	23 (19.3)
	Master of Science	7 (5.9)
	Total	119 (100)

Table 2: Showing the outcomes of Medication Error on patients

Parameter	Options	Nurses (%) n= 72
What were the outcomes of medication errors on your patients?	Death	16 (22.2)
	Nausea	5 (6.9)
	Edema	8 (11.1)
	Vomiting	6 (8.3)
	Itching	7 (9.7)
	Hypotension	3 (4.2)
	Bleeding	7 (9.7)
	Increased intracranial pressure	1 (1.4)
	Hypothermia	
	Tremor	2 (2.8)
	Abscess	
	Rashes	5 (6.9)
	Respiratory distress	1 (1.4)
	Hypoglycemia	6 (8.3)
		5 (6.9)
Total	72 (100)	

Table 3 Outcomes of medication errors on respondents

Parameters	Options	Nurses (%) n= 72
What was the effect of medication error on you?	Worry about the patient	13 (18.1)
	Emotionally upset about MEs	12 (16.7)
	Guilty	
	Psychologically terrified about MEs	20 (27.8)
	Loss of confidence in my clinical practice	4 (5.5)
	Feeling angry at myself	20 (27.8)
		3 (4.1)

Total **72 (100)**

Table 4 Outcomes of Medication Error on the hospital

Parameters	Options	Nurses (%) n= 72
What were the outcomes of medication error on the hospital?	Decreased use of health services	33 (45.8)
	Increased hospital admissions	16 (22.2)
	High financial burden	23 (32.0)
	Total	72 (100)

Figures

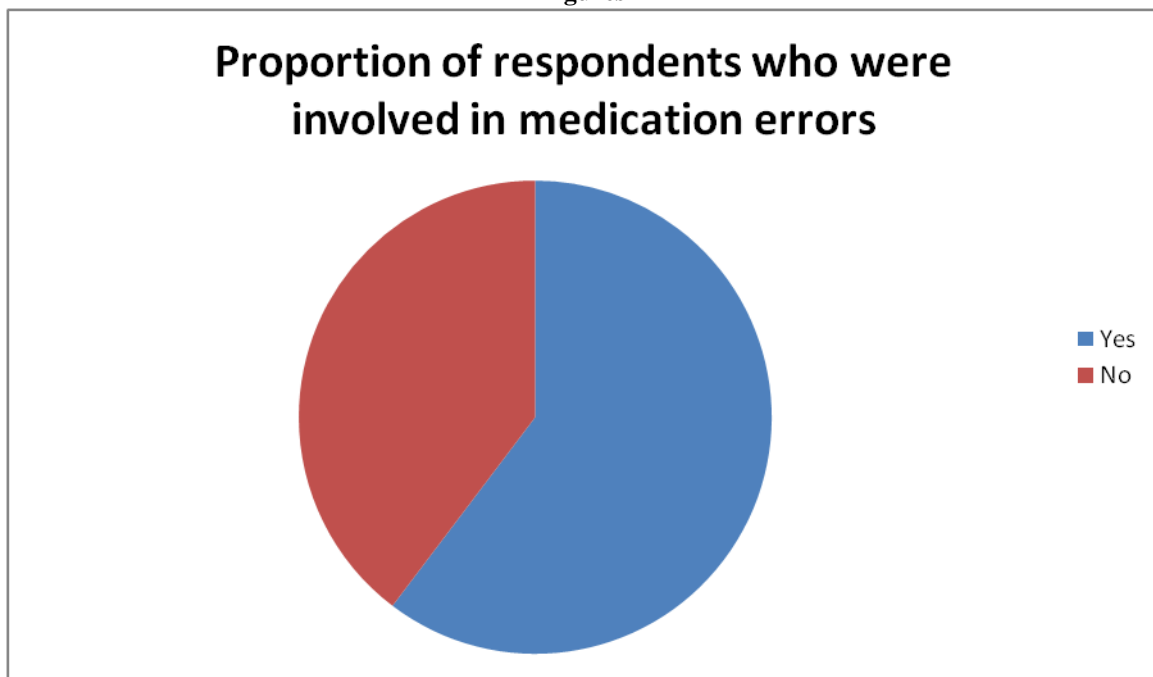


Fig 1: Showing the proportion of respondents that were involved in MEs