

Original Article

Awareness of Medication Error, Medication Management and Prevention among Staff Nurses in IMS & Sum Hospital, Odisha

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Abstract

Aims : The study aimed to assess the knowledge of staff nurses about medication error, prevention of medication error and its management.

Background : Accomplishment of medical order and medication administration are the prominent part of nurse's job.

Methods : A descriptive approach was under taken and data was collected in the month of March and April, 2014, from 100 staff nurses of IMS & SUM HOSPITAL.

Results : A significant proportion of staff nurses (39%) believed that carefully reading of instruction and labeling of the drug before administrating can prevent medication error followed by heavy workload and high nurse/patient ratio(16%) and insufficient work experience(11%) due to huge turnover were mostly cited by nurses to prevent medication error.

Conclusion : Medication administration is the basic function of nurse. So the nurses should be well equipped with skill and knowledge needed for error free medication.

Implications for nursing management : Error free medication administration process requires a continuous educational initiative on medication error with regards to prevention of medication error and its reporting and the short-term course on medication error should be added in orientation class by every health care organization.

Introduction

Medication error is a globally prevalent problem which may lead to various disasters like therapeutic failure, adverse effect of drug, longer hospital stay as well as wastage of resources, even death.⁽¹⁾ Medication error is the foremost hindrance in patient safety as ever increasing demand medical care, as population ages. Medication error is the third most leading cause of death in U.S and 440,000 patients die every year from avoidable medical error.⁽²⁾ Not even a single health care institution is immune to medication error. So every patient is vulnerable to at least one medication error every day.⁽²⁾ In the third world and modern era, it is very difficult to find out the accurate figure of medication error, due to lack of proper reporting system, lack of proper achieving as well as absence of proper data registration system.⁽³⁾ As per NCC MERP, medication error is preventable event that may cause or lead to inappropriate medication use or patient harm while

the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing, order communication, product labeling, packaging, and nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use. "Medication error can occur in any setting, like from prescribing to popping of drug by the patient. The most common causes of medication errors are bad hand writing practice of prescriber, abbreviations, drug delivery and stocking problems, lack of pharmacological knowledge of nurses, improper drug distribution, preparation error, wrong administration, lack of proper instruction to the patient and lack of awareness of patient."^(3,4) Nurses are the backbone of patient care as they are directly involved in activities related to patient care. So nurses are the well positioned compared to other care providers to detect,

report and prevent medication error.^(5,6) Various type of medication errors are found in every health setting ranging from prescription error to clerical error and 70% of total errors are found to be prescription error only. Error rates varied from 7.1 % to 90.5 % for prescribing and from 9.4 % to 80 % for administration. The most common types of prescribing errors reported were incorrect dose (with an incidence rate from 0.15 % to 34.8 % of prescriptions), wrong frequency and wrong strength. Computerized physician order entry and clinical pharmacist input were the main interventions evaluated. Poor knowledge of medicines was identified as a contributory factor for errors by both doctors (prescribers) and nurses (when administering drugs).⁽²³⁾

The underlying reasons of medication errors are often undiagnosed but situational analysis shows that the leading causes of medication error encompass clogging of health care professionals with huge number of patients because of alarming shortage of health-care professionals, especially in developing countries like India.^(5,7) Mohammad Al conducted a study on Jordan nurses' perspective about medication error reveal that wrong dose(26.2%) and wrong patient(26.2%) were the major types of medication error. The highest medication mishap is caused by the nurses, physicians and pharmacists are evident in the obtained figure at 48.4%, 31.7% and 11.1% respectively. In addition, heavy workload is the highest cause of medication errors at 41.4%, reported by the nurses and 20.6% were due to the new staff. Ignorance of nurses with patient condition (1.6%) was the lowest contributing factor of medication errors.⁽⁸⁾ Fu-in Tang ET. Al carried out a study on nurses related to the contributing factors involved in medication error showed that 76.4% nurses suggested that several factors were responsible for medication error. From the eight categories personal negligence (86.1%), heavy workload (37.5%) and new staff (37.5%) were the three leading factors of medication error. The errors are mainly incorrect drug (26.4%) and incorrect dose (36.1%) and the two topmost error prone places are medical ward and intensive care unit respectively at 36.1% and 33.3%.⁽⁹⁾ Seyyedah R. E. et al conducted a study on

medication errors of nurses in the emergency department revealed that most common cause of medication mishaps were 48.93% due to abbreviated drugs name, 27.65% for insufficient pharmacological knowledge of nurses and 19.14% from massive work load.⁽¹⁰⁾ The principal reasons of medication errors were found to be insufficient pharmacological knowledge, lack of drug administration skills and proper attitude of nurses. Zayed et al (2013) reported that 5.41% medication error occurred due to improper in following prescription and poor skill of drug administration.⁽²⁴⁾ As per M. Eric et al lack of pharmacological knowledge, poor skill, communication failure and failure to follow the prescription are the crucial causes of medication errors.⁽²⁵⁾ Determining the causes and sources of errors is the prime step to prevent errors. As researcher was faced this issue in clinical observations, researcher decided to evaluate the knowledge of nurses about the causes and prevention of medication errors.

Materials and Methods

The descriptive survey approach was undertaken for the present study. The setting of the study was IMS & SUM HOSPITAL. The samples were 100 staff nurses choose by probability random sampling technique from various wards. The inclusion criteria for samples were they must possess RN, RM number, at least worked for the last 6 months in the same ward and available during the data collection procedures. Prior permission was taken from hospital authority before data collection and written consent was obtained from the participants and assured about the non-disclosure of data. A structured questionnaire was developed by the researcher, based on MAEs (Medical Administration Error) reporting questionnaire by Wakefield et al and extensive literature review. The structured questionnaire was validated by 7 expert from various nursing colleges. The reliability score was 0.72, which implies that the questionnaire was reliable. The questionnaire comprised of two sections and one section gathered data about socio-demographic variables like age, gender, marital status, religion, qualification and years of experience etc. The other section divided into 3 sub-sections, named as medication error,

prevention of medication error and management of medication error comprising 21, 14 & 5 items respectively. Each items had four options with only one appropriate answer scored as "1" and wrong one was "0".

Data Analysis

Data was collected, coded, and entered in SPSS version 17.0 and subjected to statistical analysis.

Results

Table-1 represents the socio-demographic characteristics of subjects. The highest percentage (40%) of staff nurses were in the age of 20-22 years, whereas only (35%) were in the age group of 23-25 years. (15 %) were in 26-28yrs age group, (10 %) were >28yrs age group. Hence, it is interpreted that most staff nurses in the study were young adults, this might be because of fresher's recruitment in hospital. Percentage wise distributions of staff nurses as per gender revealed that highest percentages (95%) were female, whereas only (5%) were male. Majority of the samples were unmarried (53%), 38% were married, whereas 5% were divorced and 5% were widows. Most (45%) people had been educated in GNM, whereas 43% were B.Sc. (N) and 22% were Post Basic B.Sc. (N). With respect to years of experience, 43% nurses were under 0-1 year of experience, whereas 27% were under 1-3 years and above 3 years' experience were 30%.

In Table-2 it has been found to be good knowledge in 67.6% and 33.4% in average knowledge of the total respondents and no samples under poor knowledge. Thus it was conveyed that none of the staff nurse had poor knowledge and almost they had good knowledge about medication error and its prevention. According to the findings the mean and SD of knowledge scores of staff nurses were (16.1±1.18) in the area "medication management" and "medication error" (10.37±1.53) with mean percentage (74%) revealing good knowledge. However the lowest mean score was obtained by the staff nurses for "prevention of medication error" (3.3±0.8) hence it represented average knowledge of staff nurses regarding how to avoid or prevent medication mishap.

A significant proportion of staff nurses(39%)believed that careful reading of instruction and labeling of the drug before administrating can prevent medication error, followed by heavy workload and high nurse/patient ratio(16%) and insufficient work experience(11%)due to huge turnover, were mostly cited by nurses to prevent medication error.(Figure-1)

There was no significant difference found between knowledge score and age (P ± 0.22), gender (P ± 0.80), professional qualification (P ± 0.41) and years of experience (P ± 0.63) at a level of significance (P< 0.05).

Table 2 : Mean and Standard deviation of Knowledge of Nurses n=100

SL NO	AREA	MAX SCORE	MEAN	SD	MEAN%
1	Medication management	21	16.14	1.84	77
2	Medication error	14	10.37	1.53	74
3	Prevention of medication error	5	3.39	0.87	68

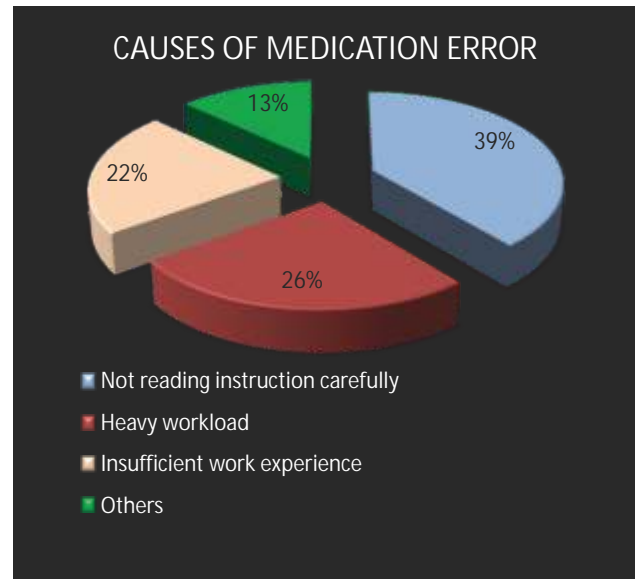


Figure 1 : Various causes of Medication error

Discussion

Medication error is the consequence of individual negligence to system failure leading to various disasters. The present study shows that most of the samples(67.6%) are having good knowledge about medication error and 33.3% having average knowledge and none of the samples has low score. This finding is supported by a study

conducted by Horiatiset.al (2013) who found that 54% samples were having medium score followed by 46% scored high, whereas no one had low score. ⁽¹¹⁾

According to findings of the study most of the nurses (39%) reported that careful reading and following the instruction before drug administration can prevent the medication error to a great extent. A. Shashrokhi et al reported in their study that the elite cause of medication error (98.7%) caused by the nurses' inadequate attention during medication procedure as per the instruction manual. ⁽²¹⁾

Heavy workload and high nurse/patient ratio is also a leading factor of medication error cited by 16% nurses. DM Olds and SP Clarke (2010) suggested that 40 hours or more per week have an increased likelihood to have needle stick injury and medication error particularly wrong dose administration ⁽¹⁴⁾. Many other research findings also referred that tiredness and fatigue are the leading causes of medication error ^(10,11,14,15). Existence of many other irrelevant works which the nurse has to handle along with over-crowded wards generate excess work load, unnecessary stress, increased responsibility among nurses, which is recognized as a prime factor for increasing incidence of medication errors. ^(11,12,13,18)

The present study reveals that fresher and insufficient work experience is the third most leading cause of medication error and suggested by other researches also. ^(11,14,16,17) J. Johnson and M. Thomas(2013) reported that

years of experience act as a prevention for possible medication error. They reported that 35% samples had 8 years of clinical experience presenting 14.25 mean knowledge score where as 22.9% in 4-6 years' experience presenting the mean score 14.89. ⁽¹⁸⁾ Grandell-Neimi et.al reported continuous relationship of educational level, professional experience of nurses with medication errors. ⁽¹⁹⁾

As per the findings there was no significant association in between knowledge score and demographic variables of staff nurses. As per M. A. Cheragi et al there was no significant relationship seen in between the demography of nurses(age, sex, gender, working experience) with knowledge scores of nurses of contributing factors of medication errors($P>0.05$). ⁽²²⁾

Conclusion

Medication error is a grave situation for any health professional, nurses, to a great extent. Through the study it has been concluded that the majority of awareness is present within the nursing group, yet the possibility of awareness in medication error is lower than that of medication management. It has also been observed that the techniques for the prevention of so called medication errors and its awareness are substandard to the awareness to medication error. A prompt continuous nursing programs and awareness programs are a mandate to decrease the medication errors.

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