BARRIERS TO REPORTING OF MEDICATION ADMINISTRATION ERROR AMONG NURSES WORKING IN A TEACHING HOSPITAL, KATHMANDU

S. Shrestha*[1] and S. Sharma[2]

[1]School of Nursing and Midwifery (LNC), Patan Academy of Health Science, Lalitpur, Nepal.
[2]Pokhara Nursing Campus (TUIOM), Pokhra, Nepal.

*Corresponding author: S. Shrestha

School of Nursing and Midwifery (LNC), Patan Academy of Health Science, Lalitpur, Nepal.

ABSTRACT

Introduction: Medication administration error reporting has been accepted as a basic attempt for the improvement of patient safety. The main objective of the study is to identify the perceived barriers to reporting of the medication administration error among nurses. **Methods:** Descriptive cross sectional research design was used. All the registered nurses working on various inpatient units of Tribhuvan University Teaching Hospital, Maharajgunj, Kathmandu were taken as study population. Proportionate stratified random sampling technique was used to select 228 nurses. A structured questionnaire was used to collect data. The collected data were entered into EPI DATA3.1 and transferred onto the statistical package for social science 16 version. Data was analyzed and interpreted by descriptive; mean, median, standard deviation, frequency and percentages and inferential statistics; independent t test. **Results:** Possible medication administration error was wrong dose (66.7%). Fear (1.76±0.36) and administrative response (1.46±0.39) related barrier was major barrier to reporting of medication administration error among nurses. It was observed that nurses who had less than five years of work experience present higher perception level regarding administrative response barriers in reporting MAEs. There was significant difference between disagreement over error related barrier and socio-demographic characteristics such as age (p=.02, marital status (p=.01), work experience (0.006). **Conclusion:** In this study, fear and administrative response related barriers are present as influential barrier to reporting of Medication Administration Error. So it is necessary to establish communicative environment in inpatient unit to reduce fear and provide positive reinforcement to encourage reporting.

KEYWORDS: Barrier, medication administration error, reporting.

INTRODUCTION

Patient safety is a concern worldwide and is a significant challenge faced healthcare systems today.[1] Medication errors are one of the most important causes of injury in hospital settings,[2] which extensively consume the financial resources of hospitals. Errors may occur during prescribing and administration phase of the medication leading to adverse effects on the health of the patients.[3] In Ethiopia, the incidence of medication administration error is 56.4%,[4] where in Jordan, the rate of medication errors reported to nurse managers was 42.1%.[5] In Turkey, 41.6% of medication administration errors were reported among nurses.[6] Medication error reporting is a basic effort for the improvement of patient safety and error reporting barriers is considered one of the most important healthcare problems worldwide.[7]

Reporting errors is fundamental to error prevention. Study on barriers to reporting of medication administration errors (MAEs) in Nepal is still limited. Hence, the present study was undertaken to identify perceived barriers to reporting of MAEs among nurses.

MATERIALS AND METHODS

A descriptive cross-sectional research design was conducted Tribhuvan University Teaching Hospital (TUTH), Maharajgunj in Kathmandu to identify perceived barriers to reporting of medication administration errors among nurses from 17, June 2017 to 16th September 2017. Nurses who had completed at least Proficiency Certificate Level with post of either staff nurse or in charge/sister, and having work experience of more than three months in the hospital were included in this study. Nursing Director, supervisor, senior supervisor and ANMs were excluded in this study. The sample size was determined by assuming the prevalence of barriers to reporting of medication administration errors among nurses to be 50 percent and

at 95 percent confidence interval with non response rate of 10 percent, the sample size was 228. A proportionate stratified random sampling technique was used to obtain the desired sample from each stratum. All the inpatient units were selected and categorized under eight units as operation theatre, critical, pediatric, medicine, obstetrics and gynecology, general, surgery and emergency. Each unit was considered as one stratum. From each strata the required number of sample were selected randomly from the list of the respondents from 1/03/2074 to 05/31/2074 in the respective ward.

Before data collection, ethical approval was obtained from Institutional Review Committee (IRC) of Institute of Medicine, Tribhuvan University and Research committee of Pokhara Nursing Campus. Formal administrative approval was obtained from the hospital authority of the TUTH. All the respondents were asked for permission before interview by explaining the objective of study, duration, process and time of data collection. Informed written consent was taken from all the participants before data collection. Data was collected by using pretested structured self-administered questionnaire. The reference was taken from Wakefield questionnaire for medication administration error survey 2005,[8] nurses' perceptions of medication errors; Gladstone 2001.[5] Participation was voluntarily and the respondent had all rights to withdraw from the study at any time of data collection. The researcher herself distributed self-administered questionnaire to selected nurses in each inpatient unit in order to prevent contamination of the data and gain feasibility. Data was collected in separate room during lunch break or after duty shift without causing any hindrance to ward activities. Anonymity was maintained by keeping code number. All information was obtained with confidentiality.

Stastical Methods
Data was entered using Epi Data Version 3.1, and analyzed it using SPSS-16.The descriptive analysis such as mean, standard deviation, median, frequency and percentage were used for identifying the respondents' socio-demographic characteristics possible medication administration errors related variables and perceived

barrier scale to reporting of medication administration errors related variables. Inferential statistics independent t test was used to determine the difference between socio-demographic characteristics and perceived barriers to reporting of MAEs.

RESULTS

In the sociodemographic characteristics of the nurses, 69.3% were less than 30 years and more than half (56.1%) were married. Regarding academic qualification, two third of the participant (66.7%) completed the Bachelor and Master degree and majority (88.6%) worked as staff nurse (Table 1).

Table 1: Socio-demographic Characteristics of the Nurses (n=228).

Characteristics	Number	Percentage
Age Groups		
< 30 years	158	69.3
≥ 30 years	70	30.7
Mean± SD = 28.89 ± 6.837		
Marital Status		
Married	128	56.1
Unmarried	100	43.9
Academic Qualification		
BN and above	152	66.7
PCL Nursing	76	33.3
Designation		
Staff Nurse	202	88.6
Sister/Ward incharge	26	11.4
Work Experience		
<5 years	112	49.1
≥ 5 years	116	50.9
Median=5 years		

Table 2 shows, that about two third (66.7%) of the nurses responded the wrong dose of medication as possible medication administration errors and 64% nurses stated that reporting of medication administration errors to the incharge and 63.2% to colleague whereas 0.4% to patient and family. Among the total participants, 70.2% stated that they did not report of any incident of medication administration errors.

Table 2: Information regarding Medication Administration Errors n=228.

Variables	Number	Percentage
**Possible MAE ** **		
Wrong Dose	152	66.7
Administered Discontinued Medication	122	53.5
Wrong Time	91	39.9
Wrong Route	78	34.2
Wrong Medication	77	33.8
Wrong Patient	60	26.3
**Identified Person for Reporting MAEs ** **		
Incharge	146	64.0
Colleagues	144	63.2
Physician	134	58.8

Supervisors	76	33.3
Patient and Family	1	0.4
Seen/heard any MAE	209	91.7
Not reporting of MAE	164	70.2

**multiple response

Concerning the perceived barriers to reporting of MAEs, the overall mean was 1.54 (SD=0.24). Based on the mean of subscale, fear related response was the top perceived barriers (mean±SD=1.76±0.36). The patient or family may doubt the competency of the nurse (mean ±SD=1.93±0.58) and nurses are afraid of being blamed (mean ±SD=1.84±0.59) were the major fear related barriers. The next perceived barriers was administrative response related barrier (mean ±SD=1.46±0.39) among nurses. No positive feedback is given for administering medication (mean ±SD=1.69±0.69) was top administrative response related barriers (Table 3).

Table 3. Perceived Barriers to Reporting of Medication Administration Errors n=228.

Response	Item mean±SD	Overall mean±SD
Fear Related		**1.76 (0.36)**
Nurses believe that coworker will think they are incompetent	1.54 (0.62)	
The patient or family may doubt the competency of the nurse	1.93 (0.58)	
Fear of being blamed	1.84 (0.59)	
Fear of abuse by patient, relatives, coworker, and seniors	1.79 (0.61)	
Fear that the administrators will response negatively	1.79 (0.61)	
Fear of the termination of job	1.64 (0.59)	
Fear of being legally sued	1.83 (0.55)	
Fear of media exposure	1.73 (0.59)	
Reporting Effort		**1.41(0.39)**
Reporting of MAEs takes too much time	1.42 (0.56)	
Lack of information on reporting of MAE	1.55 (0.61)	
The error reporting system does not help to improve the quality and safety nursing care	1.27 (0.56)	
Administrative Response		**1.46 (0.39)**
The nursing administrator does not provide solution	1.32 (0.54)	
The response of nursing administrator may not match the severity of MAEs	1.53 (0.56)	
The administrator considers that the mistake is only minor, so no need to report	1.32 (0.52)	
No positive feedback is given for administering medication correctly	1.69 (0.69)	
Disagreement over error		**1.22 (0.37)**
Nurses could not recognize the MAE	1.22 (0.49)	
The patient was not harmed, so there is no need to report.	1.25 (0.48)	
Nurses may not think that the error is important enough to be reported	1.22 (0.47)	
Perceived barriers to reporting of MAEs		**1.54 (0.24)**

There was significant difference between age (0.021), marital status (0.018) and working experience (0.006) with disagreement over error related barriers (Table 5).

Table 5: Difference in Disagreement over Error related Perceived Barriers and socio-demographic characteristics n=228.

Variables	Number	Mean Score	SE Mean	Test Value	*p*-value
Age					
< 30 years	158	1.26	.03	2.32**	**.021***
≥30 years	70	1.15	.03		
Marital Status					
Unmarried	100	1.29	.04	2.38**	**.018***
Married	128	1.17	.02		
Work Experience					
<5 years	112	1.29	.04	2.77**	**0.006***
≥5 years	116	1.16	.03		

SE: Standard Error

*=*p* value significant at <.05

** = Independent *t* test

DISCUSSION

Administration of wrong dose of medication was the most common possible medication administration errors found in this study and this finding is similar with previous studies.[9-12] Wrong dose administration errors are likely to occur during medication preparation and may be caused by unfamiliarity with the drug, failure to recheck under heavy workload.[10] Therefore, nurses should have sufficient knowledge about medication and need to be competent in its usage and also able to concentrate on their work during medication preparation to prevent these errors. Another important finding of the study was that only 0.40 percent of nurses disclosed the medication administration errors to the patient and family. Unless there is a serious harm involved to the patient, nurses tend not to disclose medication errors because the highest perceived barriers to reporting of MAEs was that the patient and family may doubt the competency of nurse mean ±SD=1.93±0.58. The finding is similar with the findings of study conducted in Macau, China.[13]

Nurses identified number of barriers that impede the reporting of MAEs. Findings of this study illustrated that fear and administrative related perceived barrier were the major two perceived barriers to reporting of MAEs. The fear subscale had highest mean of 1.76 (SD=0.36) and this findings is similar with earlier studies.[12,14,15] whereas administrative related perceived barrier was highest in the study.[16-18] But, different with the study conducted in Northwest Ethiopia where reporting effort and disagreement over error was uppermost perceived barrier.[19]

Regarding fear related perceived barrier, the nurse indicated agreement that the strongest fear related barrier was the fear of patient and family may doubt the competency and fear of being blamed when reporting MAEs. These findings are similar with other prior studies done in Iran;[17] in North Carolina;[20] in Saudi Arabia,[16] in Malta;[21] in Jordan;[6] in Taiwan.[12,15] These similar findings may reveal that MAE reporting barriers are similar among nurses in different locations. Fear of termination from the job and legally sued were next highest fear related barriers to reporting of MAEs in this study; however, the private hospital survey conducted in Iran demonstrated strongest fear related barriers to reporting of MAEs.[22]

The present study identified administrative barriers as the second highest perceived barrier to MAE reporting mean ±SD=1.46±0.39 among nurses. The present study discovered the receiving no positive feedback from nursing administrator and response from administrator does not match the severity of errors were the major perceived barrier among nurses. This finding is similar with other earlier findings.[16,17,20] Some of the studies considered only receiving no positive feedback as a strongest administrative related barrier.[12,21] Providing positive feedback to nurses and adopting a non-punitive approach that supports a policy of anonymous reporting of errors might improve the situation.[21]

This study presents the lowermost perceived barrier was disagreement over error (mean ±SD=1.22±0.37). In this study highest mean of disagreement over error related perceived barrier is the patient does not harmed so there is no need to report of MAEs (mean ±SD=1.25±0.48) among three individual item. Other previous studies indicated that the nurses may not think the error is important enough to be reported as reason of not reporting MAEs.[6,12,16,17,20,24]

This study presents there is significant difference in disagreement over error related barrier with age (*p*=0.02), marital status (*p*=0.01) and working experience (*p* =0.006). This finding contradicts the previous study where education level influences the disagreement over error related perceived barrier.[14]

CONCLUSION

Wrong dose was the possible medication administration error and fear and administrative response barriers were found to be the major perceived barriers for reporting medication administration errors among nurses. Fear is one of the foremost individual barriers that impede error reporting among nurses. There is significantly difference between disagreement over error related barrier and age, marital status and work experience. This study recommends that there is a need to create free and communicative environment within the unit of the hospital to improve patient safety.

Conflict of Interest: None.

REFERENCES

1. Lo J, Fannie St-Gelais F, Hopewell S. Adverse reaction and incident reporting. Canadian Adverse Reaction Newsletter, 2009; 19(2).
2. Bates DW. Preventing medication errors: a summary. American Journal of Health-System Pharmacy, 2007 Jul 15; 64(14_Supplement_9): S3-9. {Full text} DOI
3. Hartel MJ, Staub LP, Röder C, Eggli S. High incidence of medication documentation errors in a Swiss university hospital due to the handwritten prescription process. BMC health services research, 2011 Dec; 11(1): 199. {Doi}
4. Feleke SA, Mulatu MA, Yesmaw YS. Medication administration error: magnitude and associated factors among nurses in Ethiopia. BMC nursing, 2015 Dec; 14(1): 53.
5. Mrayyan MT, Shishani K, AL-FAOURI IB. Rate, causes and reporting of medication errors in Jordan: nurses' perspectives. Journal of nursing management, 2007 Sep; 15(6): 659-70.
6. Unver V, Tastan S, Akbayrak N. Medication errors: perspectives of newly graduated and experienced

nurses. International journal of nursing practice, 2012 Aug; 18(4): 317-24.

7. Unal A, Seren S. Medical error reporting attitudes of healthcare personnel, barriers and solutions: A literature review. J Nurs Care, 2016; 5(6): 377. {Link}

8. Wakefield BJ, Uden-Holman T, Wakefield DS. Development and validation of the medication administration error reporting survey. Agency For Healthcare Research And Quality Rockville MD, 2005.

9. Cheragi MA, Manoocheri H, Mohammadnejad E, Ehsani SR. Types and causes of medication errors from nurse's viewpoint. Iranian journal of nursing and midwifery research, 2013 May; 18(3): 228.

10. Kim KS, KWON SH, KIM JA, Cho S. Nurses' perceptions of medication errors and their contributing factors in South Korea. Journal of nursing management, 2011 Apr; 19(3): 346-53.

11. Kumar AKS, Venkateswarlu K, Ramesh A. Medication Administration Errors in a Tertiary Care Hospital. Indian Journal of Pharmacy Practice, 2011; 4(2): 37-42.

12. Tang FI, Yung HP. Exploring Nurses' Barriers, Attitudes and Related Factors in Reporting Medication Administration Errors. Virginia Henderson International Nursing e-Repository, 2014.

13. Luk LA, Ng WI, Ko KK, Ung VH. Nursing management of medication errors. Nursing Ethics, 2008 Jan; 15(1): 28-39.

14. Al-Youssif SA, Mohamed LK, Mohamed NS. Nurses' experiences toward perception of medication administration errors reporting. IOSR Journal of Nursing and Health Science, 2013; 1(4): 56-70.

15. Chiang HY, Pepper GA. Barriers to nurses' reporting of medication administration errors in Taiwan. Journal of nursing scholarship, 2006 Dec; 38(4): 392-9.

16. Aboshaiqah AE. Barriers in reporting medication administration errors as perceived by nurses in Saudi Arabia. Middle-East Journal of Scientific Research, 2013; 17(2): 130-6.

17. Koohestani HR, Baghcheghi N. Barriers to the reporting of medication administration errors among nursing students. Australian Journal of Advanced Nursing, The, 2009 Sep; 27(1): 66.

18. Ala'a ZM, Aljasser IA, Sasidhar B. Barriers to reporting medication administration errors among nurses in an accredited hospital in Saudi Arabia. Journal of Economics, Management and Trade, 2016; 1-3.

19. Bifftu BB, Dachew BA, Tiruneh BT, Beshah DT. Medication administration error reporting and associated factors among nurses working at the University of Gondar referral hospital, Northwest Ethiopia, 2015. BMC nursing, 2016 Dec; 15(1): 43.

20. Hanna EJ. Exploring the relationship between reporting medication errors and nurse fear of retribution, 2014.

21. Petrova E, Baldacchino D, Camilleri M. Nurses' perceptions of medication errors in Malta. Nursing Standard (through 2013), 2010 Apr 21; 24(33): 41.

22. Tabatabaee SS, Kalhor R, Nejatzadegan Z, Kohpeima Jahromi V, Sharifi T. Barriers to medication error reporting from nurses' perspective: A private hospital survey. International Journal of Hospital Research, 2014 Jun 1; 3(2): 97-102.

23. Wakefield DS, Wakefield BJ, Uden-Holman T, Blegen MA. Perceived barriers in reporting medication administration errors. Best practices and benchmarking in healthcare: a practical journal for clinical and management application, 1996; 1(4): 191-7.

24. Bayazidi S, Zarezadeh Y, Zamanzadeh V, Parvan K. Medication error reporting rate and its barriers and facilitators among nurses. Journal of caring sciences, 2012 Dec; 1(4): 231.