



Assessment of knowledge attitude and practice on medication error reporting among clinical pharmacists

Binu Mathew*, Anjali Thomas, Doddayya Hiremath

Department of Pharmacy Practice, N. E. T. Pharmacy College, Raichur, Karnataka - 584103, India.

ARTICLE HISTORY

Received: 13.05.2021

Accepted: 15.06.2021

Available online: 30.06.2021

DOI:

10.5530/ajphs.2021.11.8

Keywords:

Medication error, Clinical pharmacist, Knowledge, Attitude, Practice

*Corresponding author:

Phone : +91 - 8971698943

Email : binum2@gmail.com

ABSTRACT

Among the problems associated with drug use, medication errors are an important issue which can be avoided by multiple strategies. Reporting medication error is essential for learning near misses as well as actual errors, thus preventing future errors from occurring. This study was conducted to assess the knowledge, attitude and practice of clinical pharmacists on medication error reporting and to evaluate the necessity of medication error reporting systems in hospitals. This was a questionnaire based cross-sectional study conducted among registered clinical pharmacists from November 2020 to January 2021. A total of 100 participants participated in the study by filling out the questionnaire. The study sample consisted of 100 subjects, with a response rate of 100%. Approximately 57% had sufficient knowledge and a favourable attitude (33.33%) towards medication error reporting. With regard to reporting practices, some participants (15%) preferred to educate those who made a medication error, rather than reporting it. Approximately 11% had rarely reported medication errors during their work experience. The study concluded that implementation of proper medication error reporting system along with educational interventions and training programmes can enhance the reporting process and ultimately improve the health care provided for the patients.

INTRODUCTION

Understanding the importance of improving the drug safety has acquired enhanced focus among researchers. Among the problems associated with drug use, medication errors are an important issue which can be avoided by multiple strategies. The United States National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) defines medication error as “any 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 labelling, packaging and nomenclature compounding, dispensing, distribution, administration, education, monitoring and use”. [1]

A medication treatment process is undertaken in stages by a multidisciplinary team. The process commences with a doctor's

prescription, followed by the pharmacist's check-up and the medication is finally administered to the patient by medical staff. Medication errors can occur at any of these 3 stages. The European Medicines Agency has estimated the rate of medication error in European hospital settings to be 0.3% to 9.1% during the prescription stage, 1.6% to 2.1% during the dispensing stage and 10.5% during the administration stage. A review of medication errors in Middle Eastern countries found that prescribing error rates varied from 7.1% to 90.5%, while administration error rates varied from 9.4% to 80%. [2, 3]

Medication errors are mostly associated with the patient, health care professional or medication and the fundamental factors leading to the occurrence of medication errors are health care setting, route of drug administration and clinical scenario. Generally, medication errors lead to adverse outcomes such as increased mortality, morbidity, length of hospital stay and medical expenses. In India, 5.2 million injuries have been reported each year due to medication errors and adverse events.

While in US 7000 deaths have been reported in hospitals per year due to medication error. It is estimated that medication errors cost for the National Health Services of the UK are about £1.1 billion annually. Hence, in the current population, medication errors are a serious patient safety issue that needs to be monitored and resolved. [4]

Medication errors may be committed by both inexperienced and experienced persons like doctors, pharmacists, dentists, patients, manufacturers and other healthcare providers. The American Hospital Association lists some common types of medication errors such as incomplete patient information, unavailable drug information, miscommunication of drug orders, which can involve poor handwriting, confusion between drugs with similar names, misuse of zeroes and decimal points, confusion of metric and other dosing units, inappropriate abbreviations, lack of appropriate labelling as a drug is prepared and repackaged into smaller units, environmental factors such as lighting, heat, noise and interruptions that can distract health professionals from their medical tasks. [5]

Reporting Medication Error is essential for learning near misses as well as actual errors, thus preventing future errors from occurring. Encouraging medication error reports from various healthcare professionals such as doctors, pharmacists and nurses, who are frequently involved in the medication process, allow a clearer picture of the actual medication error occurrences, thus improving the approach to prevent errors that are potentially harmful or even fatal. [6]

This cross-sectional study analyzes the knowledge, attitude and practices on medication error reporting among clinical pharmacists using a specially designed questionnaire. The present study would highlight the need for rectifying the problematic issues associated with medication error reporting and also may act as an eye-opener for current medication error reporting systems in hospitals. This would lead to the creation or improvement in the existing policies that will promote patient safety as a whole.

MATERIALS AND METHODS

This questionnaire based cross-sectional study was conducted for 3 months from November 2020 to January 2021, among the registered clinical pharmacists from Kerala. This study was performed using a self-administered questionnaire, which was distributed among the participants by email. The study included 100 clinical pharmacists who were willing to complete the questionnaire. Clinical pharmacists with experience of less than 1 year were excluded from the study.

The questionnaire used in the study was developed and validated by the co-investigators of an original research based on extensive literature reviews. The questionnaire was divided into 4 sections: demographic data including age, gender and years of experience; knowledge of medication error reporting; attitude towards medication error reporting and practice of medication error reporting. Knowledge, attitude and practice sections were assessed using a 5-point Likert scale, ranging from 'strongly disagree' to 'strongly agree'. All the responses were summed and the mean scores were calculated for each section. Sufficient/favorable knowledge/attitude were assessed based on the responses and the medication error reporting section was assessed by asking 5 questions about the practice of reporting during their clinical experience.

RESULTS

A total of 100 registered clinical pharmacists were participated in the study during the study period. The demographics and professional experience of the study participants were collected and this is shown in Table 1. Out of the whole clinical pharmacists responded to the survey, 68(68%) were female and 32(32%) were male. Data regarding the age showed that majority of the participants belonged to the age group of 25-28 years 95(95%) and most of them had clinical experience between 1-2 years 65(65%) whereas 35(35%) of the respondents had an experience of above 2 years.

Table 1 : Demographic and professional characteristics of study participants.

Variable	Percentage
Gender	
Female	68
Male	32
Age Group	
25-28 Years	95
Above 28 Years	5
Years of Experience	
1-2	65
>2	35

Table 2 : Knowledge of medication error reporting among clinical pharmacists.

KNOWLEDGE					
Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I would report a medication error if the patient is prescribed an inadequate dose.	1%	0	2%	30%	67%
I would report an error where medication was prevented from reaching the patient.	2%	5%	4%	34%	55%
I would report a medication error if a patient does not receive a medication as prescribed.	0	2%	3%	31%	64%
I believe I have good knowledge of when medication error should be reported.	0	0	12%	62%	26%
All healthcare professionals have responsibility in relation to preventing the occurrence of medication errors.	0	0	1%	27%	72%
I know that the medication errors play a critical role in increased health system costs.	0	5%	3%	34%	58%

The knowledge of the clinical pharmacists regarding medication error reporting is shown in Table 2. More than half of the participants 67(67%) reported that they will report an inadequate dose as medication error and 55(55%) had acknowledged that medication prevented from reaching the patient should be reported as medication error. Majority of them had strongly agreed that patient not receiving medication as prescribed would be reported and believed that they have good knowledge about when medication error should be reported. A strong approval 72(72%) was recorded to the statement that all healthcare professionals have responsibility in relation to preventing the occurrence of medication errors. More than half of them 58(58%) were aware about the critical role of medication errors in increased health system costs.

Attitude towards reporting medication errors in hospital setting were assessed and is summarized in Table 3. Majority of the participants 95(95%) believed the medication errors are

preventable. More than half of them disagreed to the statement that medication errors need no to be reported if detected before reaching the patient. Large number of the respondents 48(48%) did have neutral opinion about considering medication error as an accident. More than half of them 79(79%) were aware about the confidentiality of information in medication error reporting system. Large proportion of participants 82(82%) strongly opposed to the statement that medication errors caused by others need not to be reported however response to another statement about being blamed for reporting medication error greatly varied among the respondents. Most of them reported they would not hesitate to report a medication error. Many participants 57(57%) preferred to educate the persons who made medication error than reporting it. More than 95(95%) of participants agreed that educational interventions and training courses can reduce medication errors.

Practice of medication error reporting among the respondents

Table 3 : Attitude of medication error reporting among clinical pharmacists

ATTITUDE					
Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Medication errors are preventable.	0	1%	4%	49%	46%
Medication errors do not need to be reported if detected before reaching the patient.	36%	33%	12%	18%	1%
A medication error can be considered as an accident	3%	16%	48%	29%	4%
Information I disclose when reporting a medication error will be confidential.	1%	7%	13%	55%	24%
It is not my responsibility to report medication errors caused by someone else	53%	29%	4%	10%	4%
I fear being blamed if I report a medication error I made	18%	33%	29%	19%	1%
I do not hesitate before I decide to report a medication error	0	8%	19%	46%	27%
I prefer to educate people who make medication errors rather than report the errors	4%	14%	25%	42%	15%
Educational interventions and training courses can reduce medication errors	1%	0	0	55%	44%

was collected and it is shown in Table 4. Responses regarding practice of medication error reporting was found to be varying between the participants. Majority of them 44(44%) have reported medication error sometimes in their clinical practice. Some of the participants responded that they always report medication errors in their hospital. Approximately 53(53%) of the

participants have encountered medication errors sometimes in their workplace. None has stated to encounter no medication errors or not to report any medication errors among the total participants. Approximately 10(10%) of the respondents have never received any reports or statistics of reported medication errors. More than half of them 58(58%) rated their management

Table 4 : Practice of medication error reporting among clinical pharmacists

PRACTICE						
Question	Always	Very often	Sometimes		Rarely	Never
I have reported medication errors	16%	29%	44%		11%	0
At your workplace, how often do you encounter medication errors?	7%	26%	53%		14%	0
I have received reports or statistics of reported medication errors	5%	16%	46%		23%	10%
How would you rate the management in handling MEs detected at your workplace?	Excellent	Good	Average		Poor	Not sure
	10%	48%	36%		5%	1%
Can you give one main reason that hinders you from reporting medication errors?	Legal implication	Worried about victimization	Impairs reputation	No time	Concerns with reporting error committed by colleagues	Others
	3%	14%	6%	23%	15%	39%

excellent or good in handling the medication errors and the main reason that hinders them from reporting medication error was primarily being in a busy and hectic work environment.

DISCUSSION

A questionnaire based cross-sectional study was carried out to assess the knowledge, attitude and practice among the registered clinical pharmacists as a community based survey. The demographics of our study participants reflected female majority with less than 5 years of professional experience. A similar study conducted by Bayazidi *et al* also observed the same trend as more females tended to participate more. [7]

The knowledge of participants about medication error reporting was sufficient and there was an agreement regarding when a medication error should be reported. Majority of the study participants agreed that reporting medication errors were due to either failure to provide right medication or failure to

receive a medication as prescribed. A strong approval was recorded about the equal role of all healthcare practitioners in reducing the occurrence of medication errors. However, a general trend of not reporting the medication error if the patient received an inadequate dose was also observed which seemed to be similar to the founding of the study by Alsulami SL *et al*. [2]

Most of the participants showed favorable attitude towards the reporting of medication error even if it was caused by someone else. Even though, some of the participants stated that they would hesitate to report a medication error. Most of the participants did not agree or disagree to the statement 'medication errors can be considered as an accident'. When it came to the practice of reporting medication errors, the study demonstrated high reporting rates (>90%) which vary based on the frequency of reporting. From this it is evident that every clinical pharmacist participated in this study have reported medication errors in their clinical practice. This can be due to the increase in number of

medication errors in hospitals. Also clinical pharmacists are specially trained for this compared to other healthcare professionals. In similar studies conducted in physicians and nurses, most of them did not report medication errors during their work experience. However, underreporting does occur among the clinical pharmacists. The study is subjected to some limitations such as recall bias of participants and social desirability bias which may have yielded imprecise data.

CONCLUSION

To conclude, patient safety is the utmost priority in a healthcare setting and medication errors can affect the patient's health and risk patient safety. Implementation of proper medication error reporting system along with educational interventions and training programmes can enhance the reporting process and ultimately improve the health care provided for the patients.

ACKNOWLEDGMENT

We express our sincere thanks to all the lecturers of Navodaya Pharmacy College for their valuable suggestions and necessary guidance to carry out this research work and we specially thank all the clinical pharmacists for participating in the study.

CONFLICT OF INTEREST

Authors declare no conflict of interest.

REFERENCES

1. nccmerp.org [Internet]. The National Coordinating Council for Medication Error Reporting and Prevention. About Medication Errors. Available from: <http://www.nccmerp.org/about-medication-errors>.
2. Alsulami SL, Sardidi HO, Almuzaini RS, Alsaif MA, Almuzaini HS, Moukaddem AK, Kharal MS. Knowledge, attitude and practice on medication error reporting among health practitioners in a tertiary care setting in Saudi Arabia. *Saudi Med. J.* 2019;40(3):246-251.
3. Alsulami Z, Conroy S, Choonara I. Medication errors in the Middle East countries: a systematic review of the literature. *Eur. J. Clin. Pharmacol.* 2013;69:995-1008.
4. Wittich CM, Burkle CM, Lanier WL. Medication errors: an overview for clinicians. *Mayo. Clin. Proc.* 2014;89:1116-25.
5. Patel S, Patel A, Patel V, Solanki N. Study of medication error in hospitalised patients in tertiary care hospital. *Ind. J Pharm. Pract.* 2018;11(1):32-36.
6. George D, Hss A, Hassali A. Medication Error Reporting: Underreporting and Acceptability of Smartphone Application for Reporting among Health Care Professionals in Perak, Malaysia. *Cureus.* 2018; 10(6): e2746.
7. Bayazidi S, Zarezadeh Y, Zamanzadeh V, Parvan K. Medication Error Reporting Rate and its Barriers and Facilitators among Nurses. *J. Caring. Sci.* 2012;1:231-236.



Cite this article : Binu Mathew, Anjali Thomas, Doddayya Hiremath
Assessment of knowledge attitude and practice on medication error reporting among clinical pharmacists
Asian J. Pharm. Hea. Sci.. 2021;11(2):2462-2467. DOI : 10.5530/ajphs.2021.11.8