ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 14, Issue, 09, pp.22311-22316, September, 2022
DOI: https://doi.org/10.24941/ijcr.43965 .09.2022

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

REVIEW ARTICLE

STUDY TO ASSESS THE HEALTHCARE PROFESSIONAL'S PERCEPTION OF MEDICATION ADMINISTRATION ERRORS AND BARRIERS IN REPORTING MEDICATION ERRORS IN A TERTIARY CARE TEACHING HOSPITAL IN SOUTH INDIA

Dr. Saba Fatima[1,*], Dr. N.Satyanarayana[2], Dr. Anees Fatima[3], Dr. Y Sushma Laxmi[4] and Dr. Krishna Reddy, K.V.[5]

[1,4]Junior residents, Department of Hospital Administration, Nizam's Institute of Medical Sciences
[2]Professor & HOD Department of Hospital Administration, Nizam's Institute of Medical Sciences
[3]Senior resident, Department of Hospital Administration, Nizam's Institute of Medical Sciences
[5]Associate professor, Department of Hospital Administration, Nizam's Institute of Medical Sciences

ARTICLE INFO

Article History:
Received 20th June, 2022
Received in revised form
27th July, 2022
Accepted 09th August, 2022
Published online 30th September, 2022

Key words:

Medication Error - Awareness, Causes, Barriers.

Corresponding Author:
Dr. Saba Fatima

ABSTRACT

Objective: Medication errors in hospitals are most frequent cause of the errors that interrupt the healthcare system. The aim of this study is to assess Health care professionals' perceptions of Medication errors and the related factors in a tertiary teaching hospital. ***Methods:*** A cross-sectional study using a validated questionnaire from previous similar studies was conducted in a convenient sample of 170 physicians and 202 nurses working in medical and surgical departments. The data was collected and analyzed from May 2021toAugust 2021 at tertiary care teaching Hospital. ***Results:*** The sample consisted of 372 subjects, with a response rate of 78%. Study participants demonstrated a sufficient awareness to report a Medication error if a patient does not receive a medication as prescribed. The most common cause of Medication errors were shortages of nursing staff in the wards (83.9%), look-alike medications (79%), higher number of patients with severe illnesses in wards (72.6%), phone call order by physicians (68.8%).The main barriers for reporting Medication errors were Heavy workload due to the high number of patients (82%), attitude and personality of nurses (78.8%), concerns about the effect of MEs on individual's earnings (24.2%). ***Conclusion:*** Majority of the participants had sufficient knowledge and favorable attitude towards medication error reporting. Among other causes, issues such as shortages of nursing staff in the wards are reported as the most important causes of medication errors. A heavy workload due to a high number of patients was the most important reason for not reporting MEs. Thus, appropriate strategies (e.g., reducing the nursing staff workload) should be developed to address MEs and improve patient safety.

Copyright©2022, Saba Fatima et al. *This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.*

Citation: ***Dr. Saba Fatima, Dr. Satyanarayana, N., Dr. Anees Fatima, Dr. Sushma Laxmi Y. and Dr. Krishna Reddy, K.V.*** **2022.** "Study to assess the Healthcare professional's perception of medication administration errors and barriers in reporting medication errors in a tertiary care teaching hospital in South India*". International Journal of Current Research*, 14, (09), 22311-22316.

INTRODUCTION

Medication errors are one of the most common causes of unintended harm to patients. They contribute to adverse events that compromise patient safety and result in a large financial burden to the health service (Zarea, 2018). NCCMERP (National Coordinating Council for Medication Error Reporting and Prevention) defines medication error as "A medication error is 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 labeling, packaging and nomenclature, compounding, dispensing, distribution, administration, education, monitoring and use (https://www.nabh.co/images/ Standards /1.%2 0 5th% 20Edition%20Hospital%20Std%20April%202020.pdf).

Errors appearing in the hospital settings concern a lot of incidents like patients falls, use of wrong equipment, sores, hospital infections, improper management of clinical situations and medication errors. Medication use in hospitals is a complex process and depends on successful interaction among health care professionals functioning at different areas. Errors may occur at any stage of prescribing, documenting, dispensing, preparation, or administration (Rhonda, 2006; Ramya, 2014). Errors can occur at any stage of the process of preparing and distributing medication and may be related to the performance of healthcare workers, medicinal products, the system, and processes such as prescribing, order communication, labeling, packaging, nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use. Some medication errors can cause major problems and lead to increased mortality, increased duration of hospitalization as well as increased medical expenses. In addition, medication errors result inpatients distrust and dissatisfaction with healthcare provider systems, stress and moral

conflicts for nurses, negative impact on organizations, and the decrease in the quality of care services (Zarea, 2018). In general, 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. Effective reporting ensures a better quality of care and a safer health setting which generates better health outcomes for all patients. Reporting medication errors can be used as a tool for learning and educational purposes, which may promote safer practices in the future. Safety reporting systems (SRS) are implemented by several hospitals around the world, to report incidents that are thought to breach patient safety (Alsulami, 2019; Elliott, 2014). The system comprises an incident from describing the incident and includes detailed clinical and patient information. Active learning and safer health practices result in lower incidences of adverse events, thereby preventing the occurrence of similar errors in the future.

The health care provider must appreciate that medication error reporting is not solely the fault of an individual, but rather a fault in the health-care system. When a multidisciplinary paradigm has been implemented in health care delivery, an error is rarely one individual's fault. A study conducted among the nurses and physicians of 4 hospitals in Denmark found that rate of reporting medication errors was higher for self-reporting (60%) than peer-reporting (37%) (Alsulami, 2019; Rishoej, 2018). However, despite increased claims of error reporting, researchers believe that medication errors are under-reported in practice (Alsulami, 2019; Rishoej, 2018). In their report, Alsafi et al, showed that approximately 50% agreed there was under-reporting of medical errors in their hospital, due to the following barriers: staff shortages, lack of experience and training and poor language and communications (Alsulami, 2019; Alsafi, 2015).

These errors can happen at any step of the medication process (prescription, transcription, dispensing, and administration) where physicians, pharmacists, and nurses are involved. Based on the findings of previous studies, 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. Most Medication errors occurring at this step are committed by nurses. According to previous studies, the most prevalent administration errors are the wrong injection time, administering a medication to the wrong patient, using the wrong dose in the injection, administering the wrong drug, and administering the drug through the wrong route (e.g., intravenous injections instead of intramuscular injections). Other common medication administration errors include failing to order a drug, lack of a drug form, and failing to administer the drug (Fathi, 2017). In this study, we assessed the Health care professionals' perceptions of Medication errors and the related factors in a tertiary teaching hospital. We investigate medication error reporting which is timely in rectifying problematic issues that jeopardize patient safety using a cross-sectional, validated questionnaire.

Aims and Objectives

Aim: The aim of this study is to assess health care professionals' perceptions of Medication errors and the related factors in a tertiary teaching hospital.

Objectives

- To assess health care professionals' awareness of medication error reporting.
- To determine the attitude of healthcare professionals towards medication error reporting.
- To Assess the main causes of medication errors among healthcare professionals in tertiary teaching care hospital.
- To identify the main barriers to reporting Medication errors.

MATERIALS AND METHODS

Study Setting: A cross-sectional study using a validated questionnaire from previous similar studies was conducted in a convenient sample of 170PG students and 202 Nursing staff working in medical and surgical departments. The data was collected and analyzed from May 2021 to July 2021 at tertiary care teaching Hospital with 1400 bedded. Sample included nurses and Doctors (PG students) working in all ward, Intensive care units, and Operation theaters of the hospital. The eligibility criteria for the study participants were willingness to participate in the study, ability to read in English and working in the clinical area.

Study Design: This is an exploratory cross-sectional survey to assess the Healthcare professional's perception of medication administration errors and barriers in reporting medication errors in a tertiary care teaching hospital in South India.

Sample size: Sampling population 469 (doctors) PG students, the sample size is calculated to be 170 obtained from Raosoft Inc. (sample size calculator). Sampling population 850 Nursing staff, the sample size is calculated to be 202 obtained from Raosoft Inc. (sample size calculator). The margin of error allowed is 5% with a 95% confidence interval with 78% response rate.

Study Questionnaire: The study was a questionnaire-based analytical study distributed to (Doctors) PG students and nursing staff. The questionnaire consisted of 5 sections: the first part (6 items) includes demographic characteristics such as age, gender, category of health profession, department, years of specialty experience, work hours per week. The second part contains (4 items) health care professionals awareness of medication error reporting. Part 3 (6 items) is regarding attitudes of health care professionals towards medication error reporting. Part 4 (5 items) including the factors contributing the main causes of medication errors among nurses are managerial; social, psychological conditions; nursing job related; patient and ward conditions; medicine and physicians. Part 5 (9 items) contains main barriers to reporting medication errors. Awareness and attitudes of health care professionals towards medication error (Part 2 and 3) were assessed using a 5-point Likert scale, ranging from 'strongly disagree' to 'strongly agree'. Responses to Part 4 and 5 were 'yes', 'no'. A hard copy of validated questionnaire from previous similar studies was distributed to PG students (Doctors) and nursing staff. Participant responses were summed and the frequency percentage calculated for each participant. Questionnaires were distributed to PG students and nursing staff during morning rounds and departmental activities. Study participants were requested to return completed questionnaires to head nurses or individually, after a maximum of 7 days. All sections of the questionnaire were developed by the researchers after literature review.

Data collection procedure and data analysis: Data was collected from eligible subjects using validated questionnaire from previous similar studies. The responses were statistically analyzed by Statistical Package for the Social Sciences which was used for data analysis. Descriptive statistical measures were used for quantitative variables.

OBSERVATION AND DISCUSSION

A total of 372 participants participated in this study; 170 PG students (Doctors) and 202 Staff nurses, with a 78% response rate. The demographics and professional characteristics of study subjects is shown in Table 1. It shows that 311 of 372 responders were female (83.6%) with a median age of 28.8±4.8 years. More than half of the participants were posted in ICU (60.7%) and 39.2% were of wards. Around 54.3% (n =202) of the participants are nursing staff and 45.6%(n = 170) are Doctors (PG students). The majority of participants had been in practice for less than 5 years (43.5%), followed by 36.8% of participants for more than or equals to 15 years of experience (Figure 1). The healthcare professionals awareness of Medication error reporting are shown in Table 2.

Table 1. Demographic and Professional characteristics of study participants

S.No	Variables	Category	Number	Percent
1	Age	18-29 30-40 41-50 >50	189 34 28 121	50.8 9.1 7.5 32.5
2	Sex	Male Female	61 311	16.3 83.6
3	Profession	Doctors Nurses	170 202	45.6 54.3
4	Work Station	Wards ICU	146 226	39.2 60.7
5	Work experience	<5 years 5-9 years 10-14 years >= 15 years	162 41 32 137	43.5 11 8.6 36.8
6	Work Hours per week	36 hrs >36 hrs	135 237	36.2 63.7

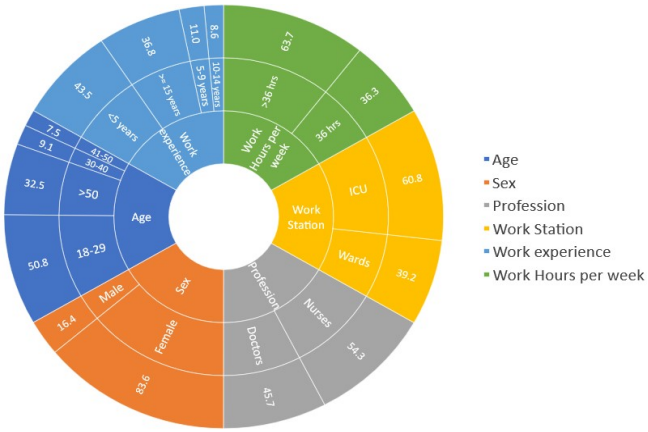

Figure 1. Demographic and Professional characteristics of study participants in sunburst diagram

Fifty five percent (n = 204) agree to report a Medication error if a patient does not receive a medication as prescribed. A strong approval of 61.9% (n = 230) was recorded to report as Medication error if medication was prevented from reaching the patient and 63.9%(n = 238) participants agree to report, if patient is prescribed an inadequate dose.

More than half of participants reported good knowledge of when a Medication error to be reported as 66.9% (n = 249). The attitude of healthcare professionals towards Medication error reporting are shown in Table 3. 74.8% (n = 278) of participants agree on the importance of reporting Medication error even if it did not reach the patient. More than half of participants acknowledged that it was their responsibility to report Medication errors is 67.7% (n = 252). Approximately 64%(n = 238) participants disagree for reporting a Medication error to be confidential and strongly disagree to educate healthcare professionals who make Medication errors rather than to report is 58.3%(n = 217). 68.8% (n = 256) of participants reported that there is no hesitation before reporting a Medication error and a fear of being blamed has been disagreed by 72% (n = 268) participant for reported Medication error.

Table 4. Among other causes of medication errors, issues such as shortages of nursing staff in the wards (83.9%), look-alike medications (79%), higher number of patients with severe illnesses in wards (72.6%), phone call order by physicians (68.8%), environmental conditions of wards (e.g., light, ventilation and temperature) (66.7%), excessive high noise levels in wards(65.6%), Presence of patients' companions in wards (63.7%), Change-of-shift miscommunication (43.3%), Medication orders are not transcribed to the medication chart correctly (41.1%), Dose missed/ omitted (38.4%), Give wrong dose of a medication (29.8%)are reported as the most important causes of the incidence of medication errors as shown in Table 5. The main barriers for reporting Medication errors are Heavy workload due to the high number of patients (82%), Attitude and personality of nurses (78.8%), Concerns about the effect of MEs on individual's earnings (24.2%), Afraid of the reaction from coworkers (21.5%), Forget to report MEs to the nurse manager (18%), Worry about the consequence of MEs (e.g., drug side effects) (12.1%) as shown in 3-D Clustered Bar figure 3.

This study assessed the awareness, attitude, main causes and main barriers to reporting Medication errors among healthcare professionals (physicians and nurses). Predictors including age, gender, profession, work station, work experience, work hours per week in medical and surgical departments, and at Nizam's Institute of Medical Sciences. The demographics of our participants reflected a female as majority. In relation to other studies, this observation is common, in a study conducted by Alsulami er al, females 89.3% (n=326) tended to participate more. The awareness among participants of medication error reporting was sufficient and there was an agreement.

Table 2. Health care professionals' Awareness of medication error reporting

S.No	Types of questions	Strongly disagree N (%)	Disagree n(%)	Neutral n(%)	Agree n(%)	Strongly agree n(%)
1	Would you report a medication error if a patient does not receive a medication as prescribed	6(1.6%)	9(2.4%)	21(5.6%)	204(55%)	132(35.3%)
2	If medication was prevented from reaching the patient, would you report an error	7(1.8%)	8(2.1%)	10(2.7%)	230(61.9%)	117(31.4%)
3	If patient is prescribed an inadequate dose, would you report a medication error	15(4.1%)	21(5.6%)	11(2.9%)	238(63.9%)	87(23.4%)
4	Do you have good knowledge of when a medication error should be reported	9(2.4%)	10(2.7%)	7(1.8%)	249(66.9%)	97(26.1%)

Table 3. Attitudes of healthcare professionals towards medication error reporting

S.No	Types of questions	Strongly disagree n(%)	Disagree n(%)	Neutral n(%)	Agree n(%)	Strongly agree n(%)
1	Medication errors if detected before reaching the patient, do not need to be disclosed	67(18%)	278(74.8%)	14(3.7%)	8(2.1%)	5(1.3%)
2	It is not my liability to report medication errors caused by someone else	79(21.2%)	252(67.7%)	12(3.2%)	16(4.3%)	13(3.5%)
3	Information I disclose when reporting a medication error will be confidential	102(27.4%)	238(64%)	14(3.8%)	11(2.9%)	7(1.8%)
4	I prefer to educate healthcare professionals who make medication errors rather than report the errors	217(58.3%)	96(25.8%)	23(6.2%)	26(6.9%)	10(2.7%)
5	Any hesitation before deciding to report a medication error	68(18.3%)	256(68.8%)	15(4%)	22(5.9%)	11(2.9%)
6	Fear of being blamed for reported Medication error	56(15%)	268(72%)	11(2.9%)	30(8.1%)	7(1.9%)

Table 4. Assessments of the main causes of medication errors among healthcare professionals in tertiary teaching care hospital

S.No	Categories	Items	Yes n (%)	No n (%)
1	Managerial process	Shortages of nursing staff in the wards	312(83.9%)	60(16.1%)
		Unmotivated nurses because of discrimination in the workplace	61(16.4%)	311(83.6%)
		Lack of monitoring and supervisory mechanism for the healthcare process	30(8.1%)	342(91.9%)
		Lack of drug information in wards	22(5.9%)	350(94.1%)
2	Social, physiological, and psychological conditions of nurses	Job dissatisfaction	26(7%)	346(93%)
		Family problems	12(3.2%)	360(96.8%)
		Economic problems	19(5.1%)	353(94.9%)
		Psychological and emotional problems	15(4%)	357(96%)
3	Nursing job	Use the wrong route of mediation	12(3.2%)	360(96.8%)
		Give wrong dose of a medication	111(29.8%)	261(70.2%)
		Wrong patient receiving the drug	15(4%)	357(96%)
		Dose missed/ omitted	143(38.4%)	229(61.6%)
		Change-of-shift miscommunication	161(43.3%)	211(56.7%)
4	Patient and ward conditions	Environmental conditions of wards (e.g., light, ventilation and temperature)	248(66.7%)	124(33.3%)
		Presence of patients' companions in wards	237(63.7%)	135(36.3%)
		Higher number of patients with severe illnesses in wards	270(72.6%)	102(27.4%)
		Excessive high noise levels in wards	244(65.6%)	128(34.4%)
5	Medicine and physicians	Physician's written orders (prescriptions) is difficult to read	74(19.9%)	298(80.1%)
		Inappropriate labeling of medications	30(8.1%)	342(91.9%)
		Phone call order by physicians	256(68.8%)	116(31.2%)
		Look-alike medications	294(79%)	78(21%)
		Medication orders are not transcribed to the medication chart correctly.	153(41.1%)	219(58.9%)

Table 5. Assessments of the main barriers to reporting medication errors

S.No	Type of barrier	Yes n (%)	No n (%)
1	Attitude and personality of nurses	293(78.8%)	79(21.2%)
2	Heavy workload due to the high number of patients	305(82%)	67(18%)
3	Lack of information about how to report MEs	27(7.3%)	345(92.7%)
4	Worry about the consequence of MEs (e.g., drug side effects)	45(12.1%)	327(87.9%)
5	Concerns about the effect of MEs on individual's earnings	90(24.2%)	282(75.8%)
6	Forget to report MEs to the nurse manager	67(18%)	305(82%)
7	Fear of disciplinary punishment	23(6.2%)	349(93.8%)
8	Not giving priority to report after occurring MEs	12(3.2%)	360(96.8%)
9	Afraid of the reaction from coworkers	80(21.5%)	292(78.5%)

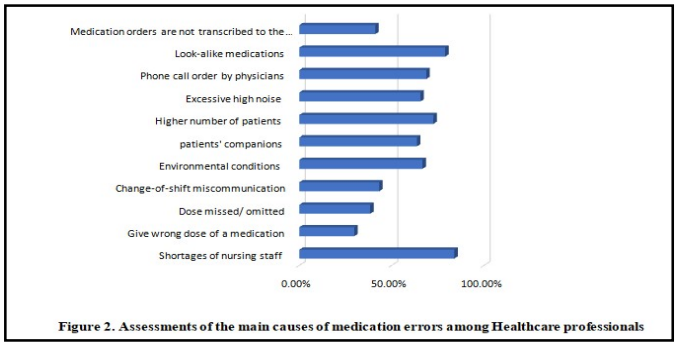

Figure 2. Assessments of the main causes of medication errors among Healthcare professionals

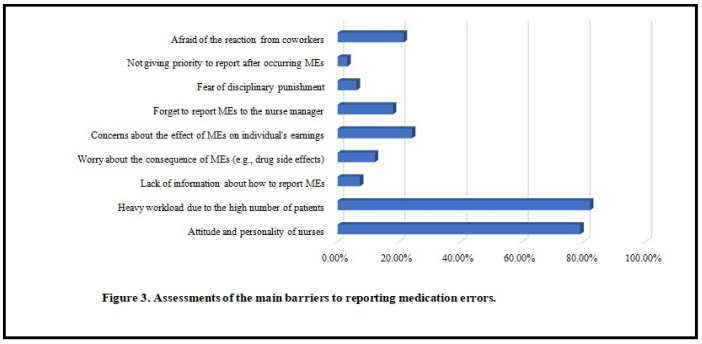

Figure 3. Assessments of the main barriers to reporting medication errors.

This study participants agreed that reporting medication errors were due to either shortages of nursing staff in the wards, look-alike medications, higher number of patients with severe illnesses in wards, or phone call order by physicians. However, a inflation trend to not report if the patient received an inadequate dose of the prescribed medication was also reported. Work experiences, location of specialty training and department had no influences on knowledge in this study (Carandang, 2015).

The attitude of participants towards reporting was greatly influenced by their professions. Nurses displayed more favorable reporting attitudes than physicians. A possible explanation for this could be that physicians favor the non-reporting of less serious medication errors, while nurses favor reporting regardless of the seriousness of the condition, which is also evident in our study (Sarvadikar, 2010).

CONCLUSION

Study participants demonstrated a sufficient knowledge to report a Medication error if a patient does not receive a medication as prescribed. Among other causes, issues such as shortages of nursing staff in the wards, look-alike medications, are reported as the most important causes of the incidence of medication errors. The most important barrier for reporting Medication error is heavy workload due to the high number of patients. Thus, appropriate strategies, for example: reducing the nursing staff workload, increasing the staff on duty, engaging non patient care administration activities from nurses to other healthcare group of staff like monitoring case sheet for billing, taking care of housekeeping etc. should be developed to improve quality of care and patient safety. Medication administration is an important part of delivering safe patient care. This study recommends that medication errors should be periodically assessed by enhancing clinical guidelines of medication administration. Educational program on medication safety improves the awareness of healthcare professionals regarding medication errors, which highlights the crucial need for ongoing training of physicians and nurses concerning safe medication administration in addition to the well-developed educational programs using interactive teaching methods and technology.

REFERENCES

Zarea, K., Mohammadi, A., Beiranvand, S., Hassani, F., & Baraz, S. 2018. Iranian nurses' medication errors: A survey of the types, the causes, and the related factors. *International Journal of Africa Nursing Sciences*, *8*, 112–116.

(N.d.). Retrieved July 27, 2021, from Nabh.co website: https://www.nabh.co/images/Standards/1.%205th%20Edition%20Hospital%20Std%20April%202020.pdf

Rhonda L, Neville A.S, David H. Applying hierarchical task analysis to medication administration errors. Applied Ergonomics 2006; 37:669–79.

Ramya K.R, Vineetha R.. Nurses' Perceptions of Medication Errors in South India. Asian J. Nur. Edu. & Research 4(1): Jan.-March 2014; Page 20-25.

Alsulami SL, Sardidi HO, Almuzaini RS, et al. 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. doi:10.15537/smj.2019.3.23960

Elliott P, Martin D, Neville D. Electronic clinical safety reporting system:a benefits evaluation. *JMIR Med Inform.* 2014;2:e12

Rishoej RM, Hallas J, Juel Kjeldsen L, Thybo Christesen H, Almarsdóttir AB. Likelihood of reporting medication errors in hospitalized children:a survey of nurses and physicians. *Ther Adv Drug Saf.* 2018;9:179–192.

Morrison M, Cope V, Murray M. The underreporting of medication errors:A retrospective and comparative root cause analysis in an acute mental health unit over a 3-year period. *Int J Ment Health Nurs.* 2018;27:1719–1728.

Alsafi E, Baharoon S, Ahmed A, Al-Jahdali HH, Al Zahrani S, Al Sayyari A. Physicians'knowledge and practice towards medical error reporting: a cross-sectional hospital-based study in Saudi Arabia. *East Mediterr Health J.* 2015;21:655–664.

Fathi A, Hajizadeh M, Moradi K, et al. Medication errors among nurses in teaching hospitals in the west of Iran: what we need to know about prevalence, types, and barriers to reporting. *Epidemiol Health*. 2017;39:e2017022. Published 2017 May 17. doi:10.4178/epih.e2017022

Carandang RR, Resuello D, Hocson GB, Respicio KM, Reynoso C. Knowledge, Attitude and Practices on Medication Error Reporting among Health Practitioners from Hospitals in Manila. *Sch Acad J Pharm.* 2015;4:293–300

Sarvadikar A, Prescott G, Williams D. Attitudes to reporting medication error among differing healthcare professionals. *Eur J Clin Pharmacol.* 2010;66:843–853.

Annexure

QUESTIONNAIRE

PART 1

Table 1. DEMOGRAPHIC AND PROFESSIONAL CHARACTERISTICS OF STUDY PARTICIPANTS

S.No	Variables	Category	Number	Percent
1	Age	18-29 30-40 41-50 >50		
2	Sex	Male Female		
3	Profession	Doctors Nurses		
4	Work Station	Wards ICU		
5	Work experience	<5 years 5-9 years 10-14 years >= 15 years		
6	Work Hours per week	36 hrs >36 hrs		

PART 2

Table 2. HEALTH CARE PROFESSIONALS' AWARENESS OF MEDICATION ERROR REPORTING

S.No	Types of questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Would you report a medication error if a patient does not receive a medication as prescribed					
2	If medication was prevented from reaching the patient, would you report an error					
3	If patient is prescribed an inadequate dose, would you report a medication error					
4	Do you have good knowledge of when a medication error should be reported					

PART 3

Table 3. ATTITUDES OF HEALTHCARE PROFESSIONALS TOWARDS MEDICATION ERROR REPORTING

S.No	Types of questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Medication errors if detected before reaching the patient, do not need to be disclosed					
2	It is not my liability to report medication errors caused by someone else					
3	Information I disclose when reporting a medication error will be confidential					
4	I prefer to educate healthcare professionals who make medication errors rather than report the errors					
5	Any hesitation before deciding to report a medication error					
6	Fear of being blamed for reported Medication error					

PART 4

Table 4. Assessments Of The Main Causes Of Medication Errors Among Healthcare Professionals In Tertiary Teaching Care Hospital

S.No	Categories	Items	Yes n (%)	No n (%)
1	Managerial process	Shortages of nursing staff on the wards		
		Unmotivated nurses because of discrimination in the workplace		
		Lack of monitoring and supervisory mechanism for the healthcare process		
		Lack of drug information in wards		
2	Social, physiological, and psychological conditions of nurses	Job dissatisfaction		
		Family problems		
		Economic problems		
		Psychological and emotional problems		
3	Nursing job	Use the wrong route of mediation		
		Give wrong dose of a medication		
		Wrong patient receiving the drug		
		Dose missed/ omitted		
		Change-of-shift miscommunication		
4	Patient and ward conditions	Environmental conditions of wards (e.g., light, ventilation and temperature)		
		Presence of patients' companions in wards		
		Higher number of patients with severe illnesses in wards		
		Excessive high noise levels in wards		
5	Medicine and physicians	Physician's written orders (prescriptions) is difficult to read		
		Inappropriate labeling of medications		
		Phone call order by physicians		
		Look-alike medications		
		Medication orders are not transcribed to the medication chart correctly.		

PART 5

Table 5. Assessments of The Main Barriers To Reporting Medication Errors

S.No	Type of barrier	Yes n (%)	No n (%)
1	Attitude and personality of nurses		
2	Heavy workload due to the high number of patients		
3	Lack of information about how to report MEs		
4	Worry about the consequence of MEs (e.g., drug side effects)		
5	Concerns about the effect of MEs on individual's earnings		
6	Forget to report MEs to the nurse manager		
7	Fear of disciplinary punishment		
8	Not giving priority to report after occurring MEs		
9	Afraid of the reaction from coworkers		

****