

# Barriers to Medication Error Reporting from Nurses' Perspective: A Private Hospital Survey

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## Abstract

**Background and Objectives:** Not reporting medication errors by the clinical staff prevents identification of type and frequency of these errors, and thereby developing effective strategies to alleviate the problem. Most investigations of barriers to medication error reporting come from public hospitals. This study aimed to explore the issue from a nurse's perspective in private hospital.

**Methods:** A sample of 97 nurses from a 180-bed private hospital situated in Mashhad City (Western Iran) was surveyed. A literature-based questionnaire consisting of 16 questions asking the reasons for medication error underreporting from the nurse's perspective was used as the survey tool. The content validity of the survey tool was explored by using nursing experts' opinions. The reliability of the tool was examined using test-retest method. Data were summarized using descriptive statistical methods. The factors contributing to the medication error underreporting were ranked based on their importance scores, and clustered into three major ranking categories: very important, moderately important, and slightly important. T-test and ANOVA were used for comparison of the medical error factors between the demographic groups.

**Findings:** Fear of legal involvement, fear of losing job, and fear of the consequences of error were identified as the three major factors contributing to medication error under reporting. Age, work experience, working department, shift work and marital status were found to be significantly influential on reporting medication errors.

**Conclusions:** According to our results, factors related to the potential consequences of reporting are the major concern of nurses in reporting. This observation that is corroborated by numerous previous findings emphasizes the importance of developing rational and blameless climate for honest reporting of un-intended medication errors and taking the advantages of these reports for improving patient safety.

**Keywords:** Medical errors, Medication errors, Under-reporting, Hospital, Nurse, Patient safety.

## Background and Objectives

Patient safety is one of the important indicators of healthcare services' quality [1]. In this regard, the most common threat to patient safety has been reported to be medical errors [2, 3]; among the medical errors, medication errors (MEs) are the most common errors in the hospital wards, which have a significant role in reducing the quality of care [3]. ME is referred to as administrating wrong medication to the patient [4-8]. The common known errors in administrating medication are administrating wrong type of medication or larger dose, error in drug concentration, failure to follow the time frame of pre-

scription, and giving medicine to wrong patient due to lack of knowing the patients [9, 10]. Although medication errors occur by different healthcare professionals including physician, nurse, and pharmacist, the rate of their incidents is higher among the nurses [11].

Medication error incidents (MEIs) account for one fourth of all medical error incidents [12]. In the US, MEIs are responsible for the death of thousands of patients, and for the financial burden of US\$77 million on a yearly basis [13]. In addition, MEIs negatively impact the performance of the healthcare system by increasing the length and cost of patients' hospitalization [14-15], diminishing the trust of patients and their families to the healthcare system [16-17], and inducing stress and ethical conflicts among the nurses [18].

Although based on professional ethics, the health-

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care workers have to report medical errors, in practice, the medication errors remain highly under-reported [19, 20]. According to some surveys, only 25-63% of medication errors are reported [20, 12]. Reporting medication errors is a valuable source of information for developing effective preventive strategies [20].

Surveys of barriers to MEI reporting as perceived by nurses have identified several factors contributing to under-reporting; lack of knowledge of the definition of a medication error, perceived insignificance of some errors, fear of being blamed by the colleagues and supervisors [20, 21, 22], lack of feedback from the supervisors after reporting [11], time-taking nature of the error recording process [23], and fearing the legal consequences of revealing an error [24]. The study of Wakefield *et al.* on 1300 nurses showed that being blamed by supervisors is the most important barrier to reporting the medication errors [25].

Although under-reporting the medication errors is a global health problem, its extent is larger in the developing countries for lack of appropriate reporting and record-keeping systems, and scant relevant research [26]. On the other hand, developing effective strategies for alleviating MEIs requires context = specific information on the cause of both medication errors and barriers to reporting them by the healthcare workers. Thus, this study aimed to explore the factors contributing to under-reporting the medication errors in Iran. Given that most surveys on medication errors have been conducted in public hospitals [18, 27-29], this study aimed at exploring the barriers to medication errors in private health settings.

## Methods

### Study design

This descriptive-analytical cross-sectional survey was carried out in 2012.

### Setting and sample

A private general hospital, situated in Mashhad (Iran), was targeted for the survey. The hospital has 180 active beds in General Surgery, Obstetrics and Gynecology, Newborns, Cardiac, Angiography, CCU, ICU and NICU Departments. The study sample included 97 nurses, randomly selected from the nurses working in different departments of the hospital.

### Measurement tool

The measurement tool was a researcher-made ques-

tionnaire consisting of two main parts. The first part comprised of seven demographic questions, and the second part contained 23 questions evaluating the barriers to medication error under-reporting. Five-point Likert = type scale was used for quantifying the answers, ranging from 1 = "Not important" to 5 = "Very important". The content validity of the tool was determined by literature review and nursing expert opinions [16, 29, 31]. Test = retest method was used to evaluate the questionnaire's reliability; the questionnaire was administered twice to 20 subjects, who were excluded from the main study after a two-week interval, and the correlation between the answers was calculated. A correlation of 87% between the answers ensured sufficient reliability of the survey tool.

### Ethical issues

An approval for conduction of the study was obtained from the Ethics Committee of Kerman University of Medical Sciences (KUMS). The target respondents were explained about the study objectives, and their verbal consent for participating in the survey was obtained.

### Data collection and analysis

The questionnaires were distributed among the nurses in three working shifts (morning, afternoon and night). They were asked to return the completed questionnaire within three days after administration. The completed questionnaires were collected, controlled in terms of completeness, coded and entered into the statistical analysis software package for analysis. The data were summarized using descriptive statistical methods. The barriers to medication error reporting were ranked based on their importance scores, and clustered into three major ranking categories: very important, moderately important, and slightly important. The relationship between the demographic variables and under-reporting factors was measured using Pearson's correlation coefficient. T = test and ANOVA were used for comparison of the mean values.  $P < 0.05$  was considered as statistically significant. All statistical analyses were carried out using the SPSS Version 19 Software.

## Results

Table 1 presents the demographic and professional characteristics of the respondents. Of the total participants, 76 (78.3%) were females and 67 (69.1%) were married. The mean age of the nurses was 29.3 years, and their mean work experience was 8.7 years. Fifty two (53.6%) nurses

were working in rotating shifts. Most nurses were from Male Surgery Ward (n = 11, 11.3%) and the least were from Angiography Ward (n = 8, 8.2%).

Table 2 presents the ranked list of barriers to reporting medication errors.

*Fear of legal involvements* was found to be the most important cause of under-reporting, followed by *fear of losing job*, and *fear of the consequences of medication error*. On the other hand, *forgetting*, *time-consumption nature of recording errors*, and *inadequate knowledge about whether an error occurred* were identified as the three factors with the lowest contribution to under-reporting.

The results of t = test indicated that *fear of losing job* (df =95, t = 2.82, P = 0.006), *fear of being blamed by colleagues* (df =95, t = 2.89, P = 0.005), and *fear of revealing error to the patients and their family* (df =95, t = 2.04, P = 0.043) were higher among the nurses working constant shift compared with those working rotating shifts. In addition, the married nurses showed significantly more *fear of losing job* (df =95, t = 2.76, P = 0.007), and *fear of the consequences of medication error* (df =95, t = 3.34, P = 0.001) as compared with their single counterparts.

The ANOVA test revealed that *fear of being blamed by the physician* was higher among the nurses working in Male Surgery department compared with the nurses in Female Surgery department. In addition, *fear of losing job* was higher among the ICU nurses compared with those working in Obstetrics and Gynecology department. Moreover, the perceived score of *authorities attributing medication errors to individual factors rather than organizational factors* was higher among the nurses working in General Surgery Ward compared with the ICU nurses.

Pearson's test identified a direct significant correlations between the nurses' age and the mean scores of *fear of legal involvement* (P = 0.006, r = 0.275), *fear of losing job* (P = 0.000, r = 0.389), *fear of being blamed by colleagues* (P = 0.000, r = 0.349), *fear of revealing error to the patients and their family* (P = 0.010, r = 0.257), *fear of medication error consequences* (P = 0.039, r = 0.206), and *authorities attributing medication errors to individual factors rather than organizational factors* (P = 0.003, r = 0.289).

## Discussion

Developing preventive strategies for medication errors depends on accurate reporting of these errors [24]. In line with the study of Elder et al. [30], we found fear of legal involvement as the most important factor leading to under-reporting.

**Table1 Demographic and professional characteristics of the study sample**

Variables	N	%
Gender (n = 97)		
Male	21	21.7
Female	76	78.3
Age (n = 97)		
< 25	16	16
31 -03 years	53	55
31-35 years	12	13
> 35 years	16	16
Marital status (n = 97)		
Single	30	31
Married	67	69
Experience (n = 97)		
< 5 years	46	48
5-10 years	33	34
11-15 years	13	13
16-20 years	4	4
> 20 years	1	1
Shift work (n = 97)		
Yes	52	53.6
No	45	46.4

The "perceived insignificance of an error occurred" was among the top rank barriers to reporting errors. The same factor was also found to be the most important factor preventing report of errors in the study of Mohammad-nejad et al. [32]. The perception that some errors are not significant enough to be reported can lead to missing valuable information potentially helping preventive measures, if reported. Therefore, nurses should be briefed on the importance of reporting every minor error, as a part of their professional tasks [25].

Fear of being blamed by supervisors was found among the high-rank barriers to reporting errors. Supervisors' negative reaction has been identified as a common reason for not reporting medication errors in other studies [30, 33]. This observation highlights the need for training the supervisors on encouraging the nurses for reporting errors, and appreciating the value of reported data in developing effective preventive strategies [36]. More importantly, the use of information of the reported errors in developing preventive strategies by the supervisors and managers can lead to both alleviation of medication errors and elimination of fear of reporting [18].

Although the time required for reporting error was

**Table 2** Score mean, rank and importance of factors contributing to MEI underreporting as perceived by the nurses

Barriers to reporting medication errors	Score mean	Rank	Importance
Fear of legal involvement	4.6	1	Very important
Fear of losing job	4.6	2	Very important
Fear of error consequences	4.5	3	Very important
Nurses disagreement about occurrence of a medication error	4.1	4	Very important
Perceived insignificance of an error	3.5	5	Very important
Fear of being blamed by supervisor	3.3	6	Moderately Important
Fear of being blamed by physician	3.2	7	Moderately Important
Fear of revealing error to patient and their family	3.1	8	Moderately Important
Lack of a proper definition for some medication error	3	9	Moderately Important
Lack of proper feedback from managers regarding the reports		10	Moderately Important
Supervisors attributing medication errors to individual factors rather than organizational factors	2.8	11	Moderately Important
Lack of error registry system in the hospital	2.6	12	Moderately Important
Fear of being blamed by colleagues	1.5	13	Slightly important
Lack of knowledge for detection of an error	1.4	14	Slightly important
Time-taking nature of error recording procedure	0.7	15	Slightly important
Forgetting to report the error	0.5	16	Slightly important

identified as a low significant factor of under-reporting in our study, some previous studies have underscored its role. Chiang and Pepper concluded that difficulty of reporting process is one of the reporting

barriers [20]. Uribe *et al.* also reported that the time-taking process of error recording reduces the rate of reporting errors [33]. In addition, our finding that fearing different possible consequences of reporting

errors is higher among the nurses working constant shifts contrasts with the study of Tol *et al.* in which fear of consequences of error was found to be higher among the nurses working rotating shifts [30].

In agreement with the study of Tol *et al.* [30], we found higher fear of consequences of reporting errors in the nurses with higher ages and work experiences. This finding suggest that the consequences of reporting errors are real, rather than only a perception, so that as the work experience of the nurses increases they get more aware of the seriousness of these consequences. These observations show the urgent need for developing a comprehensive strategy for both alleviating the rate of medication errors, and encouraging reporting them to remove their negative outcomes on the performance of the healthcare system.

### Study limitations

This study surveyed a limited number of nurses due to the limitation of resources. Therefore, although most of the study findings are consistent with the previous studies, caution should be exercised in generalizing the results. In addition, our conclusions were based on the self-reported data. Although the reliability of self-reporting data is constrained, evaluation of under-reporting factors using this sort of data is a common practice, when resource for using more sophisticated techniques is limited [25, 34].

### Conclusions

The results of the present study indicate that the most common barriers to reporting medication errors are factors related to consequences of reporting like *fear of legal involvement*, *fear of losing job*, and *fear of error consequences*. Therefore, strategies such as training the nursing supervisors to welcome honestly reporting of errors and implementing anonymous error recording system would lead to an improved rate of medical error reporting. Practical use of reported error data in developing and implementing preventive strategies can both alleviate the rate of medication errors and encourage error reporting at the level of organizational culture.

### Abbreviations

(ME): medication error; (MEIs): medication errors incidents

### Competing interests

The authors declare no competing interest.

### Authors' contributions

SST conceived the original concept of the study, designed

the research, and participated in analysis and interpretation of the data, and drafting and revising the manuscript. TS developed and adapted the research tools and made the major contribution to preparing the draft manuscript. VKJ collected the patients' data and contributed to drafting the manuscript. MA organized and surmised the data and contributed to drafting the manuscript. RK was involved in collecting, analyzing, and interpreting the data. All authors read and approved the final manuscript.

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