Original Article

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Attitudes of Mashhad Public Hospital's Nurses and Midwives toward the Causes and Rates of Medical Errors Reporting

Obstetrics and Gynaecology Section

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ABSTRACT

Introduction: Patient's safety is one of the main objective in healthcare services; however medical errors are a prevalent potential occurrence for the patients in treatment systems. Medical errors lead to an increase in mortality rate of the patients and challenges such as prolonging of the inpatient period in the hospitals and increased cost. Controlling the medical errors is very important, because these errors besides being costly, threaten the patient's safety.

Aim: To evaluate the attitudes of nurses and midwives toward the causes and rates of medical errors reporting.

Materials and Methods: It was a cross-sectional observational study. The study population was 140 midwives and nurses employed in Mashhad Public Hospitals. The data collection was done through Goldstone 2001 revised questionnaire. SPSS 11.5 software was used for data analysis. To analyze data, descriptive and inferential analytic statistics were used. Standard deviation and relative frequency distribution, descriptive statistics were used for calculation of the mean and the results were adjusted as tables and charts. Chi-square test was used for the inferential analysis of the data.

Results: Most of midwives and nurses (39.4%) were in age range of 25 to 34 years and the lowest percentage (2.2%) were in age range of 55-59 years. The highest average of medical errors was related to employees with three-four years of work experience, while the lowest average was related to those with one-two years of work experience. The highest average of medical errors was during the evening shift, while the lowest were during the night shift. Three main causes of medical errors were considered: illegibile physician prescription orders, similarity of names in different drugs and nurse fatigueness.

Conclusion: The most important causes for medical errors from the viewpoints of nurses and midwives are illegible physician's order, drug name similarity with other drugs, nurse's fatigueness and damaged label or packaging of the drug, respectively. Head nurse feedback, peer feedback, fear of punishment or job loss were considered as reasons for under reporting of medical errors. This research demonstrates the need for greater attention to be paid to the causes of medical errors.

Keywords: Health care personnel, Patient safety, Prescription errors

INTRODUCTION

Patient's safety is an indicative index for the quality of health and medical services and is the security for the survival of such systems [1,2]. Recent studies conducted by Institute of Medicine of the United States, reveal a high rates of medical errors. It has been estimated that 44000 to 98000 patients die annually due to medication errors, 7000 of which are related to medical errors [3]. Medical errors correspond with increased mortality rate of the patients and challenges such as prolonging of the inpatient period in the hospitals and rising costs. Controlling the medical errors is very important, because these errors besides being costly, threaten the patient's safety [1]. Studies show that only severe and damaging cases of medical errors are being reported and errors causing minor effects might not be reported [4]. Fontan JE reported various sources of medical errors as illegibility of the physician's hand writing, error in estimating the amount of the medicine and its application [5]. Nikpayma N and Gholamnejad H investigated the reasons of medical errors from the perspective of nurses found that 53% of the nurses has at least one medical error in their professional life, which in order of priority include: wrong dose (27%), not giving the drug (22%), and wrong timing of prescription (18%). Most medical errors (60%) are seen in paediatric ward which mostly (65%) occur in morning shift. Most prevalent reasons for such mistakes are excessive workload (70%), physical or mental fatigue (59%) and long working hours (58%). It is worth noting that recognizing the causes of emergence of the errors can be effective in removing these causes and decreasing the medical errors and improving the quality of care and patient's safety [6].

Most patients only consider the optional reporting for recording and recognizing of the errors in their care wards; they generally report the errors less than what they really are [7]. Now-a-days, the lack of proper reporting regarding the medical errors are among the key challenges in the healthcare service environment, although the first remedial step would be accurate reporting of the errors [8]. Many studies indicated less reporting of medical errors in comparison to their reality. Nurses believe that only 25% of the medical errors are reported and this is also only reported randomly [1]. Of course, the statistics regarding the reporting of medical errors are different in various systems, 37.63% in a study by Unver V [2], 42.1% in a study by Mrayyan MT (2007) [1], and 60-70% in a study by Chiang HY [9].

In addition to nurses, the midwives are among the service providers who are directly in contact with the patients and care seekers and should cooperate with other team members [10] because midwifery wards have a different potentiality to prevent from harms to the patients and to claim for the shortcomings [7]. There are many reasons that medical errors are not or limited reported. A lack of consensus in the definition of 'medical error' and fear of punishment or job loss are often mentioned [1]. Hashemi F stated that ambiguity in the definition of an error is one of the factors which nurses refuse to report the error, so that people are doubtful in considering or not

considering an event as an error [11]. In order to achieve the total image of medical errors by healthcare personnel, self-reporting is necessary. To achieve the objective of patient's safety and quality care, it is necessary to have sufficient knowledge regarding the causes of error and its occurrence. Self-reporting provides proper care to the patients by removing these obstacles. Furthermore, evaluation of the studies performed in the country showed that no sufficient researches were found regarding medical errors in obstetrics and gynaecology wards and the nurses and midwifes working in these wards. Therefore, this study was performed with aim to evaluate the attitude of nurses and midwives employed in maternities and obstetrics and gynaecology wards of public hospitals of Mashhad toward the causes and rates of medical error reporting in 2012, in order to take positive measures to decrease medical errors and help the patients to achieve their rights for quality healthcare.

MATERIALS AND METHODS

This descriptive cross-sectional study was performed from May 2012 to June 2013. The sampling was done by simple sampling method consisting of 140 samples of the same population size, midwives and nurses in public hospitals of Mashhad University of Medical Sciences. The Goldstone's 2001 modified questionnaire was used for data collection. The frequency and rate of error was reported by midwives and nurses. Osborne J et al., and Goldstone announced the acceptability of tool's content analysis. Additionally, Osburne determined the reliability of this tool as 0.78 based on test-retest method [12]. This questionnaire was translated and re-translated by the researchers. The questionnaire was given to 10 members of Scientific Board of Pregnancy Health, Nursing and Healthcare services management and 10 midwives and qualified nurses. Then, the validity of the mentioned tool was defined once again. The reliability of the questionnaire was also investigated by retesting. The Pearson correlation coefficient between two stages of responses was confirmed with reliability of 0.85. After determining the reliability and validity of tools and receiving an introducing letter from the Deputy of Research of Mashhad University of Medical Sciences and submitting it to the dean of the hospital, administrative nursing officers in each ward and qualified midwives possessing the inclusion criteria were invited to the study. Inclusion criteria were having the degree of associate, bachelor or master, being a midwife or nurse, working in a public hospital of Mashhad and willingness to participate in this study. Exclusion criteria included an unwillingness to participate in the study and work experience of less than six months. After explaining about the subject of the study and assuring the participants about the confidentiality of their information and obtaining their consent, the questionnaires were completed by the participants. The data obtained from the questionnaire was extracted and the analysis of data was performed by software SPSS11.5.

STATISTICAL ANALYSIS

To analyze data, descriptive, and inferential analytic statistics were used. Standard deviation and relative frequency distribution, descriptive statistics were used for calculation of the mean and the results were adjusted as tables and charts.

RESULTS

Most of midwives and nurses (39.4%) were in the age range of 25 to 34 years, and the lowest percentage (2.2%) was in the age range of 55-59 years. Most of the subjects (85.7%) had bachelor degree, the lowest percentage (2.1%) also had master degree and 12. 2% had associate degree. 37.1% of the research units had work experience of ≥10 years with permanent employment status and 80% had revolving work shifts.

[Table/Fig-1] indicates the ranking of research units regarding the causes of medical errors. [Table/Fig-2] shows the frequency distribution of barriers to medication error reporting from the perspective of midwives and nurses working in the maternity and gynaecology wards of public hospitals in Mashhad University of Medical Sciences. A total of 78.86% of the subjects stated that "fear from the reaction of the head" is the cause of not reporting the medical errors. A total of 29.2% of the units, had 0 to 1 error in terms of giving wrong medication during their work experience. The greatest average of errors (2.21) was related to the gynaecology surgery ward and the lowest average (1.46) was related to the

Causes of Error	1	2	3	4	5	6	7	8	9	10
Illegible doctor's prescription	2.9	6.4	11.4	3.6	5	6.4	8.6	13.6	12.9	29.2
Drug name similarity with other drugs	6.3	4.6	1.7	3.4	7.15	1.7	9.12	15	6.13	3.14
Nurse fatigue	4.11	7.5	7.10	3.6	12.1	9.3	7.9	8.6	9.3	21.4
Nurse concentration disturbed by other colleagues, patients or events	9.3	14.3	7.1	13.6	11.4	5	6.4	6.4	12.1	14. 4
Installation or incorrect injection device	10.7	8.6	11.4	10.7	9.3	12.9	10.7	11.4	5.7	8.6
Miscalculation of dosage by nurse	5.7	10.7	13.6	13.6	14.3	12.9	10.7	8.6	5.7	4.2
Non-compliance with illegible name, drug card	19.3	11.4	10	8.6	5	2.9	15	5	11.4	11.4
Mistake in calculating the dose by a doctor	5.7	16.4	7.9	15	15	12.1	8.6	7.1	5.7	6.5
Nurse confused by the different types of devices and functions of administration	11.4	13.6	12.9	15	9.3	7.9	6.4	9.3	5.7	8.5
Distortion of the label or packaging of medicines	23.6	11.4	10	8.6	7.9	10.7	6.4	6.4	7.1	7.9

[Table/Fig-1]: Ranking of attitude on the causes of medication errors.

Report Error	Yes		No	
Viewpoints of nurses and midwifes	Percentage	Number	Percentage	Number
Nurses ignored reporting medical errors because they think medical errors are not serious.	20.0	28	80.0	122
Nurse's fear of disciplinary action or job loss caused medical errors to not get reported.	21.1	30	78.9	110
Medical errors did not report due to fear of the reaction of head nurse of the subject.	87.1	122	12.9	18
Fear of the reaction of colleagues was the cause of not reporting medical errors.	84.3	118	15.7	22
When an error occurs, it should be reported using the error report form.	91.1	128	8.6	12
The nurses were sure what is defined as a mistake in giving the medical errors.	87.1	122	12.9	18

[Table/Fig-2]: Absolute and relative frequency distribution of subject's attitudes about medication errors reported.

delivery ward. Furthermore, the highest average of medical errors was related to employees with three to four years of job experience, while the lowest average related to those with one to two years of working experience. The highest average of medical errors was related to the evening shift, while the lowest was related to the night shift. The highest average of medical errors was related to the age range of 35-44 years, while the lowest was related to the age range of ≥55 years. The findings of our study show that in terms of performing medical errors during work experience, the highest percentage of research units have reported 0 to 1 medical error; the average of errors was 1.72 for each nurse or midwife.

DISCUSSION

The most important cause for medical errors from the viewpoints of nurses and midwives are illegible physician's order, drug name similarity with other drugs, nurse's fatigueness and damaged label or packaging of the drug, respectively. In a study by Mayo AM in 2004, the most causes of medical errors included illegible physician's order, nurse's disrupted concentration and nurse's fatigueness, respectively [8]. In a study by Petrova E in 2010, the most frequent reasons consisted of nurse's fatigueness, illegibile physician's orders and nurse distraction [13]. The differences in these studies may be due to the differences in various health systems. Besides these differences, there are characteristics in our study that make it unique.

In a study by Unver V in 2012, the most medical errors in order of priority were nurse's fatigueness, nurse's disrupted concentration, mismatch between the name of the patient and the printed name on the medication card and patient's profile [2]. In a study by Mrayyan MT in 2007, three main medication errors from the viewpoint of the nurses in order of frequency were, damage to the medication label or package, nurse's disrupted concentration by other colleagues and patients and accidents in the ward [1].

In our system, the perspective of nurses and midwives was also considered, while in the above-mentioned studies, only the nurse's viewpoints were considered. On the other hand, the investigated units in this study were employed in the gynaecology and maternity ward and due to different nature of care, type and number of drugs used in this ward compared to other ward the results might have differed from other studies. In this study, most subjects were in the age range of 25-34 years and the lowest percentage was ≥55 years. In the study performed by Mrayyan MT, the average age of the participants was 29.5 years with most of them with a work experience of one to four years [1]. Since, the census method was used for sampling in current study, all the nurses and midwives who were employed in delivery, post-delivery and surgery wards participated in this study.

Also, 37.1% of the subjects in this study had permanent employment status. Employment history and status were possibly considered as the factors that may influence the attitudes of people regarding the causes and rates of medical errors; furthermore the 80% of participants had revolving work shift with few specific evening shifts. In the study by Nikpeyma N and Gholamnejad H, 61% of participants worked in shifts [6]. The highest average of medical errors was during the evening shift, while the lowest was during the night shift. It is worth noting that all research units who were working in delivery ward were midwife and all those working in post-delivery ward and surgery ward were nurses or midwives. The difference in the distribution of subjects were due to the difference in the size and sensitivity of the work in the mentioned wards.

In terms of medical errors in relation to work experience, our findings indicated that the highest percentage of subjects reported 0 to 1 medical error during their work experience. The average reported errors was 1.72 per nurse or midwife. In the study of Unver V, 37.9% of the newly employed nurses and 42.7% of the experienced nurses reported no errors [2]. In the study performed by Nikpeyma N et al., 53% of participants reported at least one medical error during their work experience [6].

In our study and that by Unver V, similar tools were used for data collection; however, the findings were not similar; may be due to the different training procedures and research environment [2]. Furthermore, our research may also be different from the study of Nikpeyma N due to the difference in data collection tool [6]. In addition, our study was done in delivery, postdelivery and surgery wards, where less medication is given but the studies of Nikpeyma N and Gholamnejad H were conducted in internal medicine, surgery, emergency, infants, ICU and CCU wards. Average error in our study was 1.72 per person, this rate was 2.2 per nurse in the study of Marian et al., [1]. The difference in our findings is probably due to the difference in the wards, because in the study of Darabi (2009), most errors were related to the emergency ward [14]; this shows that the rate of the medical errors differs according to the wards. Our findings showed that the highest average of medical error (2.1) was related to gynaecology surgery ward and the least average (1.46) to delivery ward. In the study of Nikpayma, most of medical errors (1.46) occurred in paediatrics ward [6]. In our study, the higher rate of medical errors in gynaecology surgery ward is most probably due to the higher variety and more use of drugs in this ward compared to delivery and post-delivery ward. The pregnant status of the mother and concern for the health of the infant may lead to conservative use of medicines in delivery ward.

Furthermore, in the evaluation of medical errors relating to the years of work experience, it was indicated that highest average of medical errors was related to 3-4 years of experience and the lowest average to 1-2 years of experience; it can be due to the different reporting of errors in less years of work experience. We have also investigated the medical errrors based on the working shift and found that the highest average of medical errors was related to evening shift and the less average to night shift. In the study by Nikpayma, the highest rate of error was related to the morning shift [6].

CONCLUSION

The rate of medical errors by nurses and midwives can we reducued by adopting various measures like, proper training of nurses and midwives, separately placing the drugs with similar names and balancing work hours. Furthermore, error reporting could be improved through proper training, cultural improvement in reporting of errors, reporting systems.

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