

Physicians' and nurses' medical errors associated with communication failures

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Abstract

Objective: To determine medical errors associated with communication failures among physicians and nurses.

Methods: This cross-sectional, descriptive study was conducted at 20 state hospitals and 14 training and research hospitals affiliated with the Istanbul City Health Directorate in Turkey, and comprised physicians and nurses. Data were collected between August 2012 and February 2013. A 16-item questionnaire was used that included questions regarding socio-demographic features such as age, gender, educational status, institution, occupation and working years. Questions also aimed at determining medical errors related to communication failures. The questionnaire was completed by the participants during face-to-face interviews.

Results: Of the 2,273 participants, 1,654(72.8%) were nurses and 619(27.2%) were physicians. Besides, 340(54.9%) physicians and 811(49.03%) nurses worked in state hospitals. The mean age of the physicians was 37.76±9.20 years (range: 22-62 years), and that of the nurses was 32.61±7.38 years (range: 17-62 years).

Moreover, 137(22.1%) physicians and 258(15.3%) nurses had previously experienced medical errors. Also, 74(54%) physicians and 135(52.3%) nurses had experienced medical errors due to some communication error. The most common medical errors by physicians were incorrect drug administration 45(32.8%), and delivery of drugs to the wrong patient by nurses 103(40.7%). In addition, 58(42.3%) physicians made medical errors in adult surgical clinic services while 102(39.5%) nurses made medical errors in adult internal medicine clinics.

Conclusion: The majority of medical errors originated from communication failures.

Keywords: Medication errors, Medication safety, Physician, Nurse, Communication errors, Prevention of medication errors. (JPMA 67: 600; 2017)

Introduction

Many definitions have been created for medical errors, which are frequently encountered in the health sector and result in significant financial burden. The Joint Commission on Accreditation of Healthcare Organisations (JCAHO) defines medical malpractice as "any harm to the patient as a result of improper or unethical conduct or unreasonable lack of skill or negligence by a health care professional."¹ Another definition indicates that medical error not only implies erroneous or deficient intervention, treatment or practice, but also procedures performed that are not necessary or undone procedures that are necessary. Similarly, medical malpractice that results from ignorance, lack of skill, carelessness, or the technology used, which causes prolonged hospitalisation, injuries and harm to the patient or death, are regarded as medical errors.²

There is a strong relationship between medical errors and patients' safety and the quality and quantity of personnel

and overworking, which increases in working hours.³ Rogers et al. reported a medical error rate of 1.6% in nurses who worked eight hours or less daily and a rate of 6% in nurses who worked 12.5 hours or more daily.⁴ The communication factor or lack thereof was an important source of misconduct.^{5,6} Maxfield et al. indicated that failures in teamwork and a lack of communication and cooperation were important sources of errors. In their study, 84% of doctors and 62% of nurses felt that there was a low level of communication and cooperation between the health care personnel, and thus they regarded this as the cause of errors.⁷ McNutt et al. evaluated a lack of communication as a factor that caused medical errors.⁸

Medical errors can originate as a result of communication failures between doctors or nurses. Medical errors that originate from nurses include dispensing medication beyond legal order, dispensing the incorrect medication due to similarity in name or appearance, paying little attention to the information written on the package, and a delay in drug dispensing.^{9,10} Errors that originate from doctors include illegible physician handwriting, incomplete medication order (i.e. drug dose and route of administration), ordering the incorrect drug dose and incorrect medication, medication order recorded in the incorrect place, and not confirming the patient

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identification or bed number. All physician orders must be reviewed and checked for errors, all concerns regarding the medications must be clarified, and if no problems are foreseen, the drug must be dispensed at the correct time and recorded properly in order for a medical error not to pose medical or legal problems.¹⁰

Errors related to communication failures are important sources of errors because they are preventable. It must be determined at which phase of the process and between which personnel these communication failures occur and solutions must be produced in order to avoid recurrence of these errors. The current study was conducted to determine the medical errors associated with communication failures among physicians and nurses.

Subjects and Methods

This cross-sectional and descriptive study was conducted at 20 state hospitals and 14 training and research hospitals affiliated with the Istanbul City Health Directorate in Turkey, and comprised physicians and nurses. Convenient sampling method was adopted. Health workers who left during data collection or refused to participate in the study were excluded. Data were collected between August 2012 and February 2013.

A 16-item questionnaire that included questions regarding socio-demographic features (age, gender, educational status, institution, occupation and working years) of the healthcare workers, and questions directed at determining medical errors related to communication failures was completed by the participants. For content validity of the questionnaire, five faculty members who were experts in the field reviewed the questionnaire. These faculty members were selected from 5 different universities. Two members were expert in medical deontology and three in nursing. We made adjustments according to their recommendations and then conducted a pilot study with 10 subjects who were subsequently excluded from the study.

Approval for the study was obtained from the ethics

committee of Istanbul University's Faculty of Medicine. Written approval was also obtained from the Istanbul City Health Directorate. Prior to the administration of the questionnaire, all the participants were provided with information regarding the study, and assurances were given that all data would remain confidential to protect both the staff and the institution. Verbal consent was obtained from all of them.

Continuous variables were described as mean \pm standard deviation (SD), while categorical variables were expressed as frequency and percentage. Chi-square test was used to compare categorical variables and t-test was used to compare means of the groups. $P < 0.05$ was considered significant.

Results

Of the 2,273 participants, 1,654 (72.8%) were nurses and 619 (27.2%) were physicians. Besides, 340 (54.9%) physicians and 811 (49.03%) nurses were working in the state hospital. The mean age of the physicians was 37.76 ± 9.20 years (range: 22-62 years), mean total working time was 12.15 ± 9.32 years (range: 1-42 years), and 498 (80.5%) of them were postgraduates. The mean age of the nurses was 32.61 ± 7.38 years (range: 17-62 years), mean total working time was 11.17 ± 8.98 years (range: 1-45 years), and 730 (44.1%) of them were postgraduates.

When the medical errors of the participants were evaluated according to the occupation, 137 (22.1%) physicians and 258 (15.6%) nurses reported past experience of medical error; of these participants, 74 (54%) physicians and 135 (52.3%) nurses reported medical errors that originated from communication failures. The mean total working time for physicians who experienced medical errors was 12.40 ± 8.95 years (range: 1-38 years); of them, 77 (56.2%) were men and 118 (86.1%) were postgraduates. Of the nurses who experienced medical errors, 140 (54.3%) were undergraduates, 100 (38.8%) were high-school

Table: Distribution of the Health Care Workers According to the Sources of Medical Errors.

Sources of medical errors*	Physicians (n=137)		Nurses (n=258)	
	N	%	S	%
Incorrect medication administered	45	32.8	71	28.1
Incorrect dose route administration	28	20.4	40	15.8
Incorrect dose administered	35	25.5	51	20.2
Medication administered to the wrong patient	6	4.4	103	40.7
Medication administered at the wrong time	29	21.2	51	20.2
Incorrect intervention	26	18.9	12	4.7

* Respondents marked more than one options.

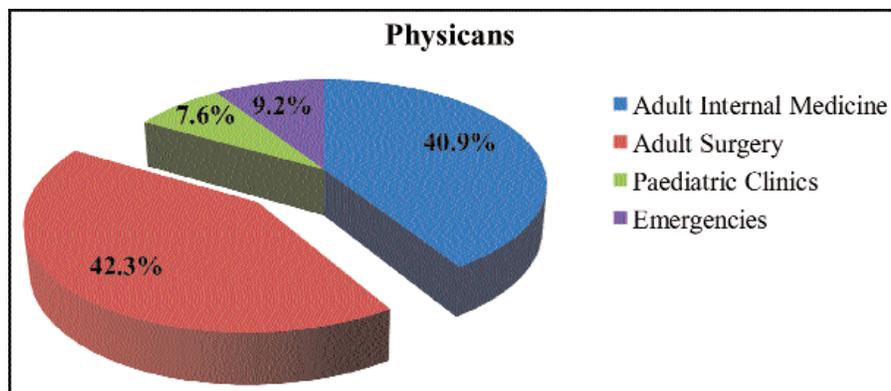


Figure-1: Medical errors according to the clinics reported by the physicians.

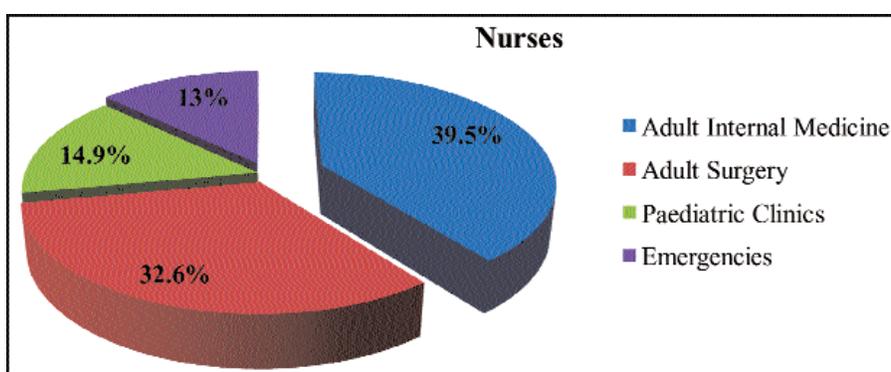


Figure-2: Medical errors according to the clinics reported by the nurses.

graduates, and 18(7%) were post-graduates. The mean total working time was 9.61 ± 7.41 years (range: 1-37 years).

Of those who experienced medical errors that originated from communication failure, 56(75.7%) physicians reported errors during verbal orders and 29(39.2%) reported errors in reading written orders, whereas 80(59.3%) nurses reported errors during verbal orders and 57(42.2%) of them reported errors in reading written orders.

When the medical errors of the health care professionals were evaluated, there were similarities between physicians and nurses; the most frequent medical error experienced by the physicians was the administration of incorrect medication 45(32.8%), and the most frequent medical error experienced by the nurses was dispensing the incorrect medication 103(40.7%) (Table).

Of the participants who reported medical errors, 58(42.3%) physicians reported errors in adult surgery clinics (Figures-1) and 102(39.5%) nurses reported errors in the internal medicine ward (Figure-2).

Discussion

Words and their pronunciation have an important place in the comprehensibility of verbal orders. Messages delivered via verbal orders are prone to misunderstanding by the receiver, and this is a possible cause of medical errors. It is imperative in emergency situations to provide and follow verbal orders. However, verbal orders are also given in non-emergency situations. In a study by Eser et al., approximately half of the nurses reported that physicians provided verbal orders in non-emergency situations.¹¹ Earlier studies have demonstrated that not transforming verbal orders into a written format (78.82%) and taking incorrect written orders (45.04%) accounted for the majority of the medical errors.^{11,12} Lassetter and Warnick reported that 39% of the drug errors were caused by physicians' orders.¹³ In a study by Aslan and Unal, 78% of verbal orders were not transformed into a written format, and 45% of orders were incorrectly written.¹²

All these factors increase the likelihood of encountering medical errors.

The frequency of medical errors is different between the physicians and nurses, but both occupations experience medical errors. In the present study, 22.1% of the physicians and 15.3% of the nurses reported medical errors, and the majority of the participants reported medical errors associated with verbal orders, i.e. 75.1% physicians and 59.4% nurses. This finding is parallel to that reported in the literature.¹¹⁻¹³

Studies in the literature reported that medication errors were the most commonly encountered errors to threaten the patient safety, and there are various reports highlighting frequency of medication errors.^{14,15} In a study by Milch et al., medication errors consisted of 33% of inadvertent events reported by nurses.¹⁶ Medication errors that caused permanent disability and death in hospitalised patients had a prevalence of 4-16.6%^{15,17,18} and these errors were associated with prolonged length of hospital stay.¹⁹ In a study by Reidi et al., medication errors had a prevalence of 26%, whereas test treatment

and procedural errors had a prevalence of 6%.²⁰ In another study, the prevalence of medical errors was 47%, 33% of which were associated with medication and transfusion errors.¹⁶ A study by Cirpi et al. found that the most common sources of medical errors were medication administration and hospital infection procedure errors.²¹ In the present study, administration of the incorrect medication and to the wrong patient were the most commonly encountered medical errors, a finding that was parallel to literature. Considering the majority of medical errors that originate from physicians and nurses, medication errors can be considered the most common type of errors that threaten patient safety.^{15,22}

The results of a systematic review of 33 studies suggest exercising particular precaution during drug preparation and administration.¹⁸ Interruptions during drug preparation, deficiencies in knowledge and skills, workload, lack of continuity, and communication failure between team members are important factors in medical errors.^{22,23} Administration of the incorrect drug dose (36.1%) and administration of the incorrect drug (26.4%) were reported as the most common causes of medication errors.²⁴

In a study by Ozata and Altunkan, administration of the incorrect medication and the incorrect administration route were more common in the surgical units compared with the units of internal medicine.² In a study by Tang et al. (2007), 36.1% of medical errors occurred in internal medicine, 33% in intensive care units, and 8.3% occurred in surgical departments.²⁴ In a study by Sheu et al., 107 of 328 medication errors occurred in internal medicine and 102 occurred in surgical departments.²⁵ The present study also reported higher rates of medical errors experienced by physicians and nurses who worked in surgical departments and internal medicine.

The medication errors appeared as the most common medical error experienced by the physicians and nurses. Based on these findings, a training programme for health care professionals about drug administration would reduce the likelihood of medical errors. In-service training on this extremely timely topic must be repeated at regular intervals.

Medical errors associated with drug administration can be prevented by allocating a sufficient amount of human power, clearly defining roles and responsibilities, setting legal regulations, providing continuous training, generalising the use of intelligence technologies, developing recording systems, improving

failures of physical infrastructure, adopting team work, promoting effective communication, developing quality management-maintenance standards, developing treatment protocols, increasing the awareness of the individuals and of the community, and promoting individuals to take responsibility.

Conclusion

There was a considerably high rate of medical errors among physicians and nurses. The majority of medical errors originated from communication failures, and occurred in the clinics of surgery and internal medicine. To avoid these mistakes, there is need to detect a wide range of errors, create awareness of errors, improve education, and implement initiatives to prevent recurrence of errors.

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