

**ORIGINAL PAPER****Assessment of the Malpractice Tendencies of Nurses Working in an Educational and Research Hospital****Berna Eren Fidancı, PhD RN**

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**Abstract**

**Background:** Healthcare institutions have complex structures as they provide service for a patient group with various profiles, including members of a profession with different education levels. Institutional and individual error risks are present within this complex structure. Therefore, in order to minimize errors while providing care taking precautions and determining the factors that caused malpractice are very important subjects.

**Aim:** The aim of our study is to determine the malpractice fields that nurses are tend to and the factors that caused malpractice.

**Design and Method:** This study was conducted in an education and research hospital in September-November 2010 with 115 nurses. An "Introductory Information Form" and "Malpractice Trend Scale in Nursing" were used in order to determine error areas as data gathering tools.

**Results:** Education levels of nurses and number of years in the occupation didn't create any significant difference on the tendency of nurses to malpractice. However, it was evaluated that the nurses working in internal medical clinics are less tend to error than the nurses working in surgical clinics.

**Conclusion:** In the light of these findings, the most important thing needs to be done to prevent medical errors is to determine the medical error types and factors that lead error.

**Key Words:** Medical errors, malpractice, nurse, quality and safety

**Introduction**

Institute of Medicine (IOM) defines the term "Medical error" as "failure in completion of a planned job as intended" (application error) or "using a wrong plan to achieve a goal" (planning error) (Kohn et al., 2000).

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) defines the

concept of "medical error" as an inappropriate and unethical act or inadequate and negligent behavior of a professional health care provider (Croke, 2003).

Medical errors are being described as damages occurred because of a lack of skill or failure to provide treatment and are seen as top priority problems that have to be solved throughout the world (Temel, 2005). Millions of people are

being negatively affected by medical errors each year. For example; according to IOM report, according to assumptions made based on 33.6 million patients admitted to hospitals in the USA in 1997, at least 44,000 patients, maybe 98,000, have died because of medical errors. Although seen as a low count, deaths caused by medical errors are the 8<sup>th</sup> reason for death, followed by traffic accidents, breast cancer and AIDS disease (IOM, 2002).

The subject of medical errors is an important subject for all health workers, and nurses are generally held responsible for the majority of medical errors (Tang et al. 2007, Mayo & Duncan, 2004). Today, nurses watch complex physiological statuses, research sophisticated, life saving devices, organize nursing that will be delivered and provide health care programs worth millions of dollars. As a result, nurses have more duties regarding patient care and the risk of medical error in patient care increases (Weld & Bibb, 2009, Ozata & Aslan, 2009). Also, working shifts, long work hours, low payment for the service provided, role uncertainty, exhaustion, low occupational autonomy, insufficient after-duty transportation and institutions' day nursery and kindergarten are among the reasons that increase nurses' probability to make medical errors (Demir, 2010).

In order to overcome this multifaceted problem, nurses, education professionals and researchers should cooperate with other members of the multidisciplinary team. It is important in medical error management to examine other sectors like aviation in which risk management and reduction is also important. The subject of the reduction of medical errors, in the first stage, should be accepted as an inseparable part of quality and risk management. Creating a basis regarding the nature and size of the problem requires the development of national and international error reporting mechanisms. In the individual level; nurses have the responsibility to create continuity on and develop all patient care applications and updating clinical information, skills and applications (United Kingdom Central Council 2000). Medical error reporting is vital for medical error management process and is also an ethical and legal responsibility for all nurses. Things that make up medical errors and factors affecting medical error reports of nurses show an incoherency for nurses (Baker 1997; Cirpi, Merih & Kocabey, 2009). Failure in medical error reports shows both leaks and failures in medical

error analysis and failure to inform the whole in this area. Therefore, it is important that reporting systems make nurses' error recording easier. Suggestions for facilitating medical error reporting are error monitoring systems, spontaneous reporting systems and national mandatory reporting systems on all health facilities.

Subjects that nurses make medical errors the most are defined as; failure to provide sufficient information to doctors; insufficient patient evaluation, nursing interventions and nursing care; medication errors; insufficient infection control and failure to use medical tools in a safe and proper manner (Miller-Slade, 1997, Holdsworth et al., 2003).

### **Medicine Errors**

Medicine errors are identified as the most common error type that threatens patient safety (Miller-Slade 1997, Smith-Pittman 1998, Holdsworth et al., 2003, National Medicines Information Centre 2001). Barker et al., (2002) says that approximately one in 5 doses in a normal hospital are wrong, Scott (2002) says that medicine errors have increased by 500% in the last 10 years.

Fast advances in medicine science and technology creates a more complicated environment for nursing applications that sees patient safety as first and foremost principle. Correct medication is a critical duty, however wrong dose or wrong medication is a great nursing problem. Brady et al., (2009) has shown that medication errors are system based (heavy work load, insufficient training), patient based (patients in complicated situations), doctor based (complex order) and nurse based (personal negligence, being new at the job, not recognizing medicines).

When looking at the main medication error types resulting from nurses; medication based on illegal orders, medication without doctor order, verbal orders, wrong medication resulting from similar name or appearance of drugs, miscalculation of medication dosage or using wrong doses, failure to read the information on medicine boxes or bottles and forgetting medication (Mete & Ulusoy, 2006).

### **Hospital Infections**

Hospital based infections can cause functional defects, emotional stress and lowering life

standards. Hospital infections increase length of stay in hospital, treatment costs and workforce loss, it threatens health workers as well as patients (Ertek, 2008).

Özata and Altuncan (2010) mention that health service providers are the biggest infection source, and nurses and other health personnel that are constantly in contact with the patient and responsible for their care have an active role in creation, spreading and prevention of infections.

### **Falling**

The most important legal and ethical responsibility of nurses is to provide and preserve a safe environment in hospitals and preventing falling which is the second biggest cause of injuries (Ang et al., 2010). Giardano (2003), in his study, mentions that one of the medical errors that nurses are held responsible is “causing patients to fall”.

Determining the factors that cause falling, identifying the risk level that determines the tendency to fall, mentioning the subject on duty training programs in institutions where falling risk is high are said to be effective in preventing falling in hospitals (Arda et al., 2007).

### **Errors resulting from patient being monitored insufficiently**

Insufficient patient monitoring is one of the main causes of legal cases regarding malpractice in many of developed countries. Orders must be clear and written clearly and monitoring frequency must be clearly defined in order to minimize errors caused by insufficient monitoring.

All monitoring regarding patients must be recorded in writing. Health care team members should determine a schedule if the patient requires frequent monitoring (Mete and Ulusoy 2006).

### **Errors resulting from lack of communication**

Miscommunication between nurse and doctor or communication problems between other health care team member and patient can cause medical malpractice.

In their study, Arda et al. (2007) found that work tempo and insufficient doctor or nurse staff as the main reason for miscommunication. In their studies, Nath and Marcus (2006) defined heavy workload, exhaustion of workers and

communication problems as risk factors for patient safety.

### **Errors resulting from misuse of medical equipments**

Technological advances have increased the variety of medical tools used in nursing care greatly. Lack of knowledge while using those tools may create problems for patient safety. This increases the occupational responsibility and the possibility of an error (Croke, 2003; Gundogmus, Ozkara & Mete, 2004).

### **Aim**

This research has been planned in order to determine areas in which nurses working in an educational or research hospital tend to malpractice and the factors that contribute to errors.

### **Methods**

The population of this descriptive study was comprised of all nurses working in GATF Education and Research Hospital clinic and polyclinics during September-October 2010. We have tried to reach the whole population, however we could contact 115 nurses because of reasons such as shifts and vacations. Ethical Approval has been taken from Gulhane Military Medicine Academy for the study.

An “Information Form” including questions such as age, education, clinic of duty, period of duty, department working in, work hours and “Malpractice Trend Scale in Nursing” in order to determine error areas as data gathering tools. “Malpractice Trend Scale in Nursing” has been developed by Ozata and Altuncan in 2009 in order to measure the tendencies of nurses working directly in patient care to medical error. The scale consists of 49 items and 5 subdimensions (Medication and Transfusion Practices, Hospital Infections, Patient Monitoring and Equipment Safety, Falling and Communication). Cronbach Alpha coefficient of the scale has been found to be 0.954 (Ozata & Altuncan 2010). “Malpractice Trend Scale in Nursing” is a 5 point likert scale, and scores of every item are taken as basis in evaluation. The increase in the scores show that nurses’ tendency to make errors decrease, and decrease in points show that the tendency to make errors increase. The lowest score of the scale is 49, and the highest is 245 (Ozata & Altuncan 2010).

The research only including nurses working in Gulhane Military Medical Faculty Education Hospital is the limitation of the research.

Data gathered have been analyzed by SPSS for Windows (Statistical Package for Social Sciences), descriptive statistics, Chi-Square, Mann-Whitney U, Kruskal Wallis and Cronbach Alpha confidence test have been used in the assessment of the data.  $p < 0.05$  level has been accepted to be significant.

### Results

The average age for 115 nurses in the research was  $30.94 \pm 5.31$  years and education levels of

nurses were 45.2% (n=52) associate degree, 42.6% Bachelor degree and 12.2% Master degrees. 79.1% of those nurses were working as clinic nurses and their average working duration in the occupation was  $10.19 \pm 6.35$  years. There were  $9.80 \pm 5.23$  patient for each nurse during daytime and there were  $17.49 \pm 7.86$  patients per nurse during night shifts. In assessing the working hours of nurses, it was  $8.40 \pm 1.54$  hours per day,  $41.81 \pm 6.29$  hours per week,  $22.15 \pm 18.78$  during shifts on average.

The total score of nurses for the "Malpractice Trend Scale in Nursing" was  $225.46 \pm 16.40$  (Table I).

**Table I. The average scores of nurses in Malpractice Trend Scale in Nursing (n=115)**

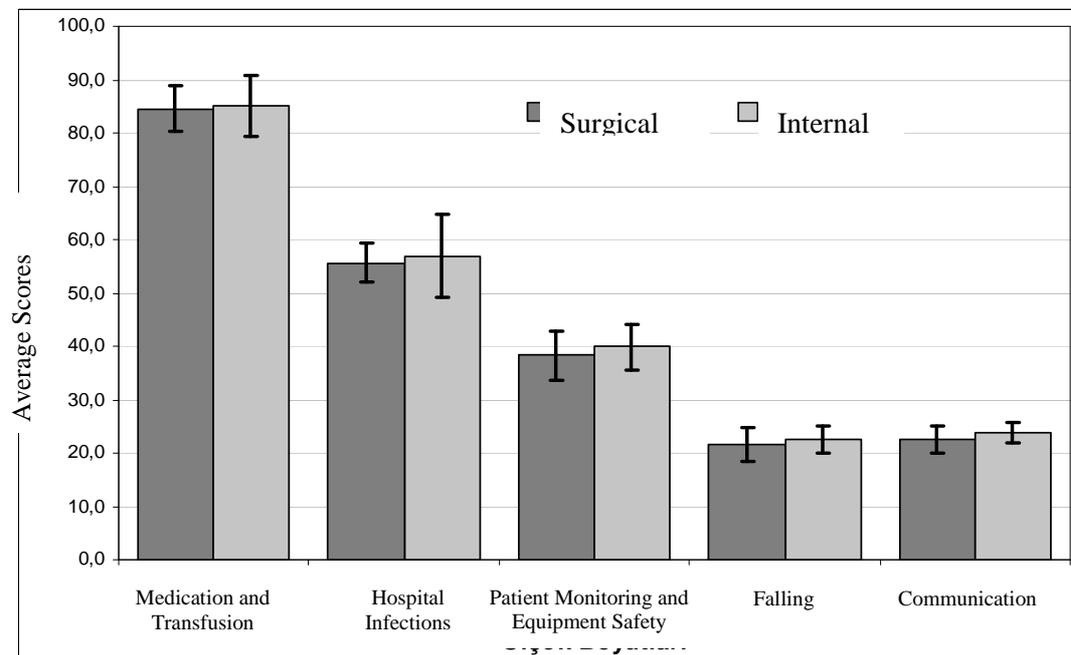
Subdimensions	Min.- Max.	Median(IQR)*	Cronbach Alpha
Medication and Transfusion Practices (18-90)**	67.00-90.00	86.0 (7.0)	0.864
Hospital Infections (12-60)**	42.00-60.00	56.0 (6.0)	0.334
Patient Monitoring and Equipment Safety (9-45)**	28.00-45.00	39.0 (7.0)	0.823
Falling (5-25)**	13.00-25.00	23.0 (5.0)	0.868
Communication (5-25)**	15.00-25.00	24.0 (3.0)	0.745
Total (49-245)**	167.00-245.00	227.0 (21.0)	0.866

\* Descriptive statistics are shown as Median(IQR), IQR: Inter Quartile Range  
 \*\* Min.-Max. scores of subdimensions

**Table 2. Scale scores of nurses according to the clinics they are working in**

Subdimensions	Min.-Maks.		Median (IQR)*	
	Internal clinic	Surgical clinic	Internal clinic	Surgical clinic
Medication and Transfusion Practices (18-90)**	67.00-90.00	75.00-90.00	86.0 (6.0)	85.5 (6.0)
Hospital Infections (12-60)**	42.00-60.00	45.00-60.00	56.0 (6.0)	56.0 (6.0)
Patient Monitoring and Equipment Safety (9-45)**	28.00-45.00	29.00-45.00	41.0 (7.0)	38.5 (7.3)
Falling (5-25)**	13.00-25.00	13.00-25.00	23.0 (4.0)	22.0 (5.0)
Communication (5-25)**	16.00-25.00	15.00-25.00	25.0 (2.0)	23.0 (4.0)
Total (49-245)**	167.00-245.00	190.00-245.00	231.0 (21.5)	223.5 (22.5)

\* Descriptive statistics are shown as Median(IQR)  
 IQR: Inter Quartile Range  
 \*\* Min.-Max. scores of subdimensions



**Figure I.** Comparison of subscale scores of nurses work in internal and surgical clinics

Education levels of nurses didn't create any significant difference on medication and transfusion ( $\chi^2=4.144$ ;  $p=0.042^*$ ), hospital infections ( $\chi^2=1.299$ ;  $p=0.254$ ), patient monitoring and equipment safety ( $\chi^2=0.456$ ;  $p=0.499$ ), falling ( $\chi^2=0.000$ ;  $p=0.986$ ) and communication subdimensions ( $\chi^2=0.011$ ;  $p=0.915$ ). Similarly, total scale scores were similar according to education level of nurses ( $\chi^2=0.795$ ;  $p=0.373$ ). (\*: although it seems that there is a difference in medication and transfusion, all groups were similar in the results of Mann-Whitney U test with Bonferroni correction so it was decided that education levels don't make a difference).

Years in the occupation didn't create any significant difference on medication and transfusion ( $\chi^2=5.790$ ;  $p=0.055$ ), hospital infections ( $\chi^2=1.877$ ;  $p=0.391$ ), patient monitoring and equipment safety ( $\chi^2=4.124$ ;  $p=0.127$ ), falling ( $\chi^2=2.263$ ;  $p=0.323$ ) and communication sub dimensions ( $\chi^2=4.903$ ;  $p=0.086$ ). Similarly, there was no statistical difference between total scale scores and the years in the occupation ( $\chi^2=3.246$ ;  $p=0.197$ ).

In the assessment of scale scores of nurses according to the clinics they are working in; there were no statistically significant differences on medication and transfusion ( $\chi^2=1.504$ ;  $p=0.133$ ), hospital infections ( $\chi^2=1.100$ ;  $p=0.271$ ) and falling ( $\chi^2=1.826$ ;  $p=0.068$ ) sub dimensions; but there were statistically significant differences on patient monitoring and equipment safety ( $\chi^2=1.977$ ;  $p=0.048$ ) and communication ( $\chi^2=2.719$ ;  $p=0.007$ ) sub dimensions (Table 2). In the assessment of total scale scores; it was found that nurses working in internal clinics scored more than nurses working in surgery clinics and the difference is statistically significant ( $\chi^2=2.174$ ;  $p=0.030$ ) (Figure I).

In the assessment of scale scores according to the duties of nurses in clinics (service nurse, intensive care nurse, preceptor nurse etc); there were significant differences on medication and transfusion ( $\chi^2=4.802$ ;  $p=0.091$ ), hospital infections ( $\chi^2=3.014$ ;  $p=0.222$ ), patient monitoring and equipment safety ( $\chi^2=6.038$ ;  $p=0.049^*$ ), falling ( $\chi^2=0.515$ ;  $p=0.773$ ) and communication subdimensions ( $\chi^2=6.412$ ;  $p=0.41^*$ ). (\*: although it seems that there is a

difference in medication and transfusion, all groups were similar in the results of Mann-Whitney U test with Bonferroni correction so it was decided that education levels don't make a difference). Similarly, total scale scores were similar according to their clinic duties ( $\chi^2=2.695$ ;  $p=0.260$ ).

### Discussion

Healthcare institutions have complex structures as they provide service for a patient group with various profiles, including members of a profession with different education levels (Ozata & Altunkan 2010). Institutional and individual error risks are present within this complex structure. Therefore, in order to minimize errors while providing care taking precautions is a very important subject. Medical errors of different ratios can be seen if studies on patient safety in health institutions are investigated (IOM 2002; Barker et al., 2002; Gundogmus, Ozkara & Mete, 2004).

In a study of Tang et al., (2007), it was determined that medical errors are mostly seen in education hospitals (51.4%), followed by regional hospitals (36.1%) and local hospitals (12.5%). Our hospital is an education and research hospital and the score of nurses on tendency to medical error scale was  $225.46 \pm 16.40$ . Considering that the lowest score of the scale being 49 and the highest being 245, it is seen that nurses had quite a high score on the scale and they have a low tendency for medical errors.

The most common medical error types on patient safety were determined to be medication errors, hospital infections, falling, insufficient monitoring, communication problems and equipment use (Ozata & Altunkan 2010).

Many studies on medication errors can be found on medical error in the literature. Medication errors are quite important in terms of side effects on patients, causing death, increasing costs and prolonging the length of stay in hospital (IOM 2002). In a study that investigates medical errors, it has been found that 62% of 731 errors seen in operating room were based on medication error (Beyea, Hicks & Becker 2003). In our study, medication errors sub dimension wasn't statistically significant than other levels.

In the assessment of scale scores according to clinics in which nurses are working in; "patient monitoring and equipment safety" and

"communication" sub dimensions, and total scale scores, nurses working in internal clinic had higher scores than nurses working in surgery clinic. Özata and Altunkan (2010) found also that wrong medication use and medication use at the wrong location score averages, were higher in surgery clinics than in internal clinics. In a study of Goktas (2007), risk levels of medical errors were classified according to departments and it was found that incidents between acceptable risk limits (47.4%) were generally seen in internal department, and risk managed enough (46.4%) and risk not managed enough (42.9%) ratios were higher in surgery department. Dağlı (2006) has found that infection rate was 46.2% in internal intensive care, and infection rate was 53.3% in surgery intensive care. As in other studies, internal departments had lower tendency for medical errors than surgery departments in our study.

In their study, Chang and Mark (2009) has found that there is a statistically significant negative relationship between nurses' education levels and medication errors, and medication errors decrease as nurses' education levels increase. In our study, there was no significant relationship between nurses' education levels and tendencies for medical errors.

In the study of Parshuram et al. (2008), healthcare workers with 10 years or more in the service had less mistakes. Hicks et al. (2008) says that medical errors were mostly resulting from inattention (37.8%) and heavy work load (19.7%), and the other factors causing errors being, in order; employing temporary personnel, mainly inexperienced personal and lack of personnel. Most of the nurses in our study have been working for a long time and there were no statistical difference between term of employment and error ratios.

### Conclusion

As a result, tendency to medical error of our nurses in our hospital have been found to be low. However, in order to minimize risks that may cause errors; modification on work load and working conditions that increase exhaustion and stress of nurses, creating a culture of written and verbal communication and information flow, installing an effective error reporting system and having personnel follow this procedure, decreasing technical errors and having personnel improvements and similar modifications are necessary.

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