

Surgical Nurses' Attitudes Towards Medical Errors and Affecting Factors

Cerrahi Hemşirelerinin Tıbbi Hatalara Yönelik Tutumları ve Etkileyen Faktörler

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ABSTRACT

This descriptive and cross-sectional study was conducted to examine the attitudes of surgical nurses towards medical error. The research population consists of 900 nurses working in the surgical clinics of a public hospital in Istanbul; the sample consists of 308 nurses who voluntarily agreed to participate in the research. "Questionnaire Form" which include nurses' socio-demographic and working characteristics and "Medical Error Attitude Scale" were used as data collection tools. The data were analyzed using the SPSS 23.0 program with frequency, percentage, mean, standard deviation, independent student t-test. The study determined that 12.7% of the nurses committed a medical error during their professional working life, and 24.4% had witnessed a medical error. The total mean score of the "Medical Error Attitude Scale" of the nurses was 2.25±0.2, considered a negative value. The highest score was derived from the scale's "perception of medical errors" sub-dimension and the lowest score was derived from the scale's "approach to medical errors" sub-dimension. It was determined that the mean medical error attitude total score was significantly higher for nurses who were single (p<0,01), worked the day shift (p<0,01) and had management duties (p<0,05). The study shows health institutions must increase patient safety studies make nurses aware of medical errors, identify their causes and prevent them.

Keywords: Nurse, Medical error, Attitude towards medical errors, Surgical nurse

ÖZ

Bu tanımlayıcı ve kesitsel çalışma, cerrahi hemşirelerinin tıbbi hataya yönelik tutumlarını incelemek amacıyla gerçekleştirilmiştir. Araştırmanın evrenini İstanbul ilinde yer alan bir kamu hastanesinin cerrahi kliniklerinde çalışan 900 hemşire, örneklemini ise araştırmaya gönüllü olarak katılmayı kabul eden 308 hemşire oluşturmaktadır. Veri toplama aracı olarak hemşirelerin sosyo-demografik ve çalışma ortamına ilişkin özellikleri içeren "Anket Formu" ve "Tıbbi Hatalarda Tutum Ölçeği" kullanılmıştır. Veriler SPSS 23.0 programı kullanılarak, frekans, yüzde, ortalama, standart sapma, bağımsız student t testiyle analiz edilmiştir. Araştırmada hemşirelerin %12,7 sinin mesleki çalışma süresinde tıbbi hata yaptığı, %24,4'ünün daha önce tıbbi hataya tanık olduğu belirlenmiştir. Hemşirelerin "Tıbbi Hata Tutum Ölçeği" toplam puan ortalaması 2,25±0,2 olarak olumsuz olarak değerlendirilmiştir. En yüksek puan ölçeğin "tıbbi hata algısı" alt boyutundan, en düşük puan ise ölçeğin "tıbbi hatalara yaklaşım" alt boyutundan elde edilmiştir. Bekar olan (p<0,01), sürekli gündüz çalışan (p<0,01) ve yönetim görevi olan hemşirelerin tıbbi hata tutum toplam puanı ortalamasının anlamlı düzeyde yüksek olduğu belirlenmiştir (p<0,05). Çalışma, sağlık kurumlarının hasta güvenliği çalışmalarını artırarak hemşireleri tıbbi hatalar konusunda bilinçlendirmesi, nedenlerini belirlemesi ve önlemesi gerektiğini göstermektedir.

Anahtar Kelimeler: Hemşire, Tıbbi hata, Tıbbi hatalara yönelik tutum, Cerrahi hemşiresi

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INTRODUCTION

Medical errors appear as a serious patient safety problem that can pose advanced threats to the health of the individual in the diagnosis, treatment and care process and even result in death.¹ In addition to high morbidity and mortality rates, medical errors result in negative communication between healthcare professionals and patients, loss of confidence in patients and their relatives, prolonged hospitalization due to repetitive examinations and procedures, and increased health care costs.²⁻³⁻⁴

In addition to the fact that nurses communicate with patients one-on-one compared to other health professionals, they assume more responsibility for patient safety due to the fact that they are present at all stages of the health care process and spend more time together.⁵ Surgical clinics, where nurses take an active role, are the setting of the highest frequency of medical errors in health institutions. This is attributed to the use of technologically complex equipment, high patient circulation, and the transfer of patients from operating room to recovery units, which exposes them to different processes.⁶⁻⁷ Due to reasons such as preoperative patient preparation, care process and close follow-up of patients with increased post-operative dependency, excess of surgical procedures, the low number of nurses, and the assignment of duties outside of their duties to nurses, the workload and thus the risk of making medical errors increase.⁵⁻⁸⁻⁹

It is necessary to report, report and analyze the errors in order to identify the

errors that occur during the delivery of health services, to examine the root causes of these medical errors and near misses and to carry out studies to prevent their recurrence.¹⁰⁻¹¹⁻¹²⁻

¹³ However, generally, when healthcare professionals make any medical malpractice or encounter medical error, they do not perceive situations that do not result in an undesired event as "medical error", so error reporting rates are insufficient.¹⁰⁻¹² In addition, health professionals avoid reporting medical errors since the error is recorded to the person's record, punishment, negative attitudes of the management towards error reporting, lack of confidence in protecting privacy, exclusion, and feeling inadequate.¹⁵⁻¹¹

In addition to the knowledge, skills and experiences of healthcare professionals, they display some attitudes towards medical malpractices with their thoughts and behaviours about medical errors. Attitude, defined as one's cognitive, behavioral and emotional stance toward a situation, is a factor affecting the perception of medical error. Therefore, the attitude of health professionals plays a decisive role in the effectiveness of reporting systems.¹³ Studies report that nurses working in surgical clinics have a high tendency to commit medical errors and that the rate of medical errors in these clinics show the nurses' attitudes towards medical errors. This study examines the attitudes of surgical clinic nurses towards medical errors and the factors affecting these attitudes.

METHODS

Study design

The study was carried out in a descriptive and cross-sectional desing.

Setting and Sample

The study data were collected from nurses working in all surgical units of a public hospital in Istanbul. The research population

consists of 900 nurses working in the surgical units (surgical clinics, surgical intensive care units, recovery rooms and operating rooms, etc.) of a public hospital. The ideal sample size was calculated as 269 with 95% confidence interval and 5% margin of error by using the sample calculation method with unknown population. The study included 308

nurses who worked in the surgical units of the hospitals where the research was conducted for six months or more and who agreed to participate in the study.

Data collection tools

The “Questionnaire Form” and “Medical Error Attitude Scale” were used to collect research data. The “Questionnaire Form” consists of 10 questions that include nurses' socio-demographic and working characteristics. The Medical Errors Attitude Scale developed by Gülec and Seren İntepeler¹³ is a 16-item Likert-type scale with three sub-dimensions: the perception of medical errors, the approach to medical errors and causes of medical errors. Responses were graded as follows: 1=completely disagree, 2=disagree, 3=undecided, 4=agree, and 5=completely agree. The overall scale score ranged from 16 to 80. The 10th and 13th items on the scale were scored in reverse. The scale score was determined by dividing the raw score by the total number of items. An employee with a negative attitude demonstrates low awareness and reporting of medical errors, whereas with a positive attitude, awareness of medical errors and reporting of medical errors is high. All scale sub-dimensions were scored and evaluated using the same criteria as the overall scale. Güleç and İntepeler's Cronbach's alpha reliability coefficient has been reported as 0.75; in this study, it was found to be 0.72.

Data Collection

The data of the study were collected between February 2022 and March 2022. Face-to-face interviews delivered the

questionnaire to the nurses. Completing the questions required 7-8 minutes .

Data analysis

The data were analyzed using the SPSS (Statistical Package for the Social Sciences) 23.0 package program. Numbers and percentiles were used to analyze categorical measurements, whereas means and standard deviations were used to assess continuous measurements (median and minimum-maximum values when necessary). The normality of the scale score distribution was evaluated using skewness (between - 0.189 and 0.448) and kurtosis (between - 0.017 and 1.329), and it was found that the scale scores followed a normal distribution¹⁴. The independent student t-test was used in the double-group analyzes for the parameters with normal distribution, and the statistical significance level was taken as $p < 0,05$.

Ethical considerations

Ethics Committee (Decision Number: 2022.02.42) and Istanbul Provincial Health Directorate (2022/19) permissions were obtained for the research. After being informed of the purpose of the research, study participants supplied their written informed consent. Scale authors emailed their permission to use their work.

Limitations of the study

The study has limits. The data were collected from a newly established hospital in Istanbul and the majority of the nurses in the sample had recently graduated and had little professional experience. Study results cannot be generalized to all surgical clinic nurses.

RESULTS AND DISCUSSION

Of the nurse participants, 66.2% are female, 56.8% are single, 88.3% had a bachelor's degree, and 78.9% have 1-5 years of professional experience. 89% work day and night shifts, 93.5% do not have management responsibilities, and 89.6% work overtime. 100% stated that they received education on patient safety and

medical errors, 12.7% admitted they had made a medical error in their working life, and 24.4% said they had witnessed any medical errors (Table 1). Kıymaz and Koç (2018) found 19.8% and Kandemir (2019) found 13.8% of the nurses to have made medical errors.¹⁶⁻¹⁷ Özyer (2016) reported 37%, Öğüt's (2021) reported 54%, Kıymaz and Koç (2018) reported 40.1%, Kandemir

(2019) reported 46.4% and Ersun et al (2013) reported 61% of nurses encountered medical errors.¹⁶⁻¹⁷⁻¹⁸⁻¹⁹⁻²⁰ The rate of witnessing a medical error by nurses differs in the studies in the literature, and it can be thought that this difference is related to the characteristics of the nurses, who constitute the sample of the studies, such as professional experience, institution, unit, etc. Although the low rate of medical error is pleasing in terms of patient safety, that 24.4% of nurses stated they witnessed medical errors suggests that medical error underreported. Similarly, many studies have determined that the number of nurses who stated that they made a medical error was quite low compared to the nurses who reported that they witnessed a medical error.¹⁶⁻¹⁹ It is important for nurses to report medical errors they have committed and witnessed and make root cause analyses of medical errors to establish regulatory, remedial and preventive policies, instructions and procedures. However, studies have determined that nurses' concerns about medical error reporting, such as starting the legal process, being excluded by other employees, and blaming themselves by managers, or thoughts such as the mistake they make will not harm the patient.²¹⁻²² A non-accusatory and non-punitive error-reporting system will make health professionals aware of the importance of reporting medical malpractices and establishing a culture that prioritizes patient safety.

Table 1. Participant socio-demographics and working characteristics (n=308)

Variables	n	%
Gender		
Female	204	66.2
Male	104	33.8
Marital status		
Single	175	56.8
Married	133	43.2
Educational Status		
Bachelor's degree	272	88.3
Master's degree	36	11.7
Duration of professional experience		
1-5 years	243	78.9
≥ 6 years	65	21.1
Work schedule		
Day shift	34	11.0
Mixed (day & night shifts)	274	89.0

Table 1. (Continued)

Management Duty		
Yes	20	6.5
No	288	93.5
Weekly working hours		
40-54 hours	32	10.4
55-69 hours	276	89.6
Getting Education on Medical Error		
Yes	308	100
No	-	-
Making a Medical Error		
Yes	39	12.7
No	269	87.3
Witnessing a Medical Error		
Yes	75	24.4
No	233	75.6

n, Number; %, Percent

The most common medical errors that nurses witnessed were administration of the wrong drug (19.8%); physical falls (12.0%); administration of the wrong drug dose (10.7%); bedsores (8.8%); healthcare-associated infections (8.4%); misapplication of medication (6.8%); late treatment (6.8%); transfusion errors (2.3%); and equipment-related errors (0.3%) (Table 2). Rates of witnessing medical errors differ in the literature, but it has been observed that the most common medical errors regarding patient safety are similar to the findings of this study.⁸⁻²³⁻²⁴⁻²⁵ Similarly, Björkstén et al. (2016) observed that the most common nurse errors were medication errors, with high rates of administering the wrong drug or the wrong dose.²⁶ Like the literature, this finding shows that errors related to medication administration are the most common and suggests the current situation should be reviewed and arrangements should be made to identify and prevent the root causes of errors. Physical falls present an all too common safety problem to patients; Avcı and Aktan (2015) report that at least 3-6 patients of every 1000 hospitalized patients experience physical falls.³ Patient falls result in injuries and functional losses, prolonging the hospital stays, increasing costs, and diminishing quality of life.³⁻²⁷ Studies also cite healthcare-associated infections, another frequently encountered error. Kıymaz and Koç (2018) determined that the third most common type of error was hospital infections.¹⁶ Other studies in the literature, it have stated that as the number of patients per nurse and the number of weekly shifts

increased, healthcare-associated infections also increased.³⁻²⁸ All healthcare professionals, particularly nurses, are responsible for carrying out the necessary preventive actions to minimize healthcare-associated infections, which define a large proportion of medical errors, threaten the lives of patients and cause serious financial burdens for healthcare institutions.

Table 2. Medical errors nurses frequently witness (n=308)

Variables	n	%
Wrong drug administration	61	19,8
Drug misapplication	21	6,8
Wrong drug dose administration	33	10,7
Late treatment	21	6,8
Diagnostic errors	-	-
Transfusion errors	7	2,3
Falls	37	12,0
Healthcare-associated infections	26	8,4
Wrong side surgery	-	-
Bed sores	27	8,8
Equipment-related errors	1	0,3
Forgetting a foreign body	-	-

n, Number; %, Percent

Nurses cite many reasons for medical errors. These include: units where the nurses work are not fixed (100%); there are insufficient studies on patient safety within institutions; there is no system for error prevention (93.2%); there are no understood safety protocols and procedures (68.2%); there is insufficient professional knowledge (61.0%); there are administrative problems (54.5%), including insufficient in-service training (54.5%), negative physical environments (51.9%), undefined duties, undetermined authorities and responsibilities (45.5%), lack of regular record-keeping (29.9%); and burdensome workload, including fatigue and stress due to long working hours (25%), excessive overtime due to insufficient number of nurses (22.7%), and prevailing miscommunication (19.5%) (Table 3). Many studies have been conducted to identify the causes of medical errors. Kandemir (2019) identified the biggest contributors to nurse medical errors are high patient-nurse ratios (67%), long working hours (66%), fatigue (65%), night shift work

(41%), lack of professional knowledge (34%), work assigned outside of and in addition to usual duties and responsibilities (30%) and insufficient in-service training (16%).¹⁷ Cebeci et al. (2012) reported 88.2% of nurses said long working hours increased their medical errors.²⁹ Similar to this study, the literature reports that frequent changes in nurses' workplaces disrupt adaptation to the unit, increasing the probability of medical errors.³⁰⁻³¹ Many studies cite excessive workload, shift work, missing nurses, long working hours and lack of professional knowledge as factors contributing to medical errors;⁴⁻⁸ this study adds insufficient institutional studies of patient safety, lack of institutional error prevention systems, absent or misunderstood protocols and procedures, and lack of regular record-keeping. Contributing factors may include lack of instructions and procedures to prevent medical errors; recent establishment of the hospital where the research was conducted; or inadequate dissemination of patient safety culture within the scope of quality studies. In addition, although the rate of receiving in-service training on medical errors is 100%, insufficient in-service training was cited as the reason for medical errors, suggesting that there are problems with the effectiveness and sustainability of the training.

Table 3. Views of nurses on the causes of medical errors (n=308)

Variables	n	%
Insufficient studies on patient safety in the institution / Lack of a system to prevent errors	287	93.2
Overtime and caused by a shortage of nurses	70	22.7
The nurses' units are not fixed	308	100
Fatigue and stress due to long working hours	77	25
Negative physical environment (noise, heat, light)	160	51.9
Duties, authorities and responsibilities are not fully defined	140	45.5
Insufficient professional knowledge	188	61.0
Insufficient in-service training	168	54.5
Irregular record-keeping	92	29.9
Absent or misunderstood protocols and procedures	210	68.2
Administrative problems	168	54.5
Communication disorders	60	19.5

n, Number; %, Percent

**More than option is marked.*

Mean scores of the nurses' medical error attitude showed the "the perception of

medical errors” sub-dimension to be 3.08 ± 0.9 , the "the approach to medical errors" sub-dimension to be 2.08 ± 0.4 , and the “causes of medical errors” sub-dimension to be 2.19 ± 0.2 ; the medical error attitude total mean score was calculated as 2.25 ± 0.2 (Table 4). According to this result, the nurses' mean scores of the medical error attitude scale total and “the approach to medical errors” and “causes of medical errors” sub-dimensions were low, and the mean score of the “the perception of medical errors” sub-dimension was moderate. Some studies in the literature, similarly found nurses' attitudes towards medical errors to be low³²⁻³³, but there were also many studies reporting positive attitudes towards medical errors.¹⁶⁻³⁴⁻³⁵⁻³⁶ According to this study's data, nurses' attitudes towards medical errors were negative and awareness of medical errors and reporting of errors was weak, necessitating improvements in their attitudes towards medical errors. This result may be related to the fact that the institution where the study was conducted was newly established and that the majority of the nurses in the sample (79%) graduated without sufficient awareness of medical errors due to their recent graduation. In addition, it can be said that it may have developed as a result of not giving enough time and training for orientation to newly recruited nurses. Aktan and Atay reported the mean score of the "perception of medical error" sub-dimension to be 3.19 ± 0.71 , the mean score of the sub-dimension "approach to medical error" to be 2.24 ± 0.44 , and the mean score of the "reasons of medical error" sub-dimension mean score to be 2.25 ± 0.44 , similar to this study; Aktan and Atay determined that nurses' perception of medical error attitudes was higher than the other sub-dimension scores.³³ Contrary to this study, in some studies, it was observed that the highest score was obtained from the sub-dimensions of “the approach to medical errors” and the lowest score from the sub-dimensions of “the perception of medical errors”³²⁻³⁴ The approach to medical errors refers to the approach of the hospital management and colleagues in reporting errors. The nurses'

low “approach to medical errors” sub-dimension score in this study may suggest a punishing and accusatory culture against medical errors in the institution. Similar studies in the literature been revealed that nurses report medical errors very little, hide them and display a negative attitude towards them due to the fear of being blamed or punished.²¹⁻²²

Table 4. Descriptive statistics for the total and sub-dimensions of the medical error attitude scale

	Number of items	X±SS	Min-Max
Medical error attitude (total)	16	2,25±0,2	2,25 (1,75-3,13)
The perception of medical errors	2	3,08±0,9	3 (1-5)
The approach to medical errors	7	2,08±0,4	2 (1,29-3,43)
Causes of medical errors	7	2,19±0,2	2,14 (1,71-2,86)

X: Mean score SS: Standard Deviation
 Min-Max: Minimum- Maximum

Comparing the total and sub-dimensions of medical error according to the sociodemographic and working characteristics of the nurses revealed no statistically significant difference between the variables of gender and educational status and the total and sub-dimension scores of medical errors ($p > 0.05$) (Table 5). Similarly, many studies in the literature show that the gender of nurses does not affect their attitude to medical errors.¹⁶⁻¹⁷⁻³⁷ On the other hand, some studies report that female nurses have more positive attitudes than male nurses.¹⁸⁻³⁵ These findings show that in different studies, the effect of gender on attitudes towards medical error changes. Some studies in the literature¹⁶⁻³⁵ show that the educational status of nurses does not affect their attitude to medical errors; however, in some studies, it is reported that the higher the educational level of nurses, the better their attitude to medical errors.³²⁻³³ Although it is thought that there is no difference in the attitudes of the nurses who make up the sample in this study due to their close educational level, it is noteworthy that the total attitude scores are still low despite their high education levels. This result shows that medical error attitudes are negative even if the education level is

bachelor’s or master’s degree. The total medical error attitude score and “the perception of medical errors” sub-dimension scores of the single nurses were statistically significantly higher compared to the married nurses ($p<0.01$) (Table 5). The limited number of studies in the literature examining the relationship between marital status and medical error attitudes of health professionals identified no relationship between the two.¹⁶⁻³⁸ This study interprets the increasing burdens and added responsibilities of marriage as negatively affecting work life and by extension attitudes towards medical errors. No statistically significant difference was identified in medical error totals and sub-dimensions by professional experience, weekly working hours and medical errors witnessed during working life ($p>0.05$) (Table 5). The findings of the studies in the literature are mostly inconsistent with the findings of this study, and it shows that the attitudes towards medical errors have improved in parallel with the increase in working experience.¹⁸⁻³⁶ It can be said that the self-confidence that develops over time with professional experience, the increasing knowledge and skill gains, as well as the training received throughout working life, and the periodic internal and external quality control processes encountered have an effect on developing a positive attitude towards medical errors. It can be thought that there is no significant difference in their attitudes since the experience period of the majority of the nurses constituting the sample in this study was between 1-5 years. Liu et al. (2012), determined that medical errors increase when nurses work overtime.³⁹ Kandemir (2019) reported nurses as stating

that reduced numbers of patients and weekly working hours would effectively reduce medical errors.¹⁷ Similar studies in the literature have stated that overtime hours cause fatigue, sleep disruptions, distraction, performance losses, stress and anxiety disorders and increase the rate of medical errors.²⁹⁻³⁵ In this study, it was thought that the lack of a significant relationship according to weekly working hours may be since the majority of the sample consisted of employees between 55-69 hours and the number of nurses working less than 55 hours. The total medical error attitude score and “the approach to medical errors” sub-dimension scores were significantly higher in day-shift nurses compared to day-night shift nurses ($p<0.01$). Alan and Khorshid (2016), determined that as the number of nursing shifts worked during the month increased, medical errors rates increased.⁴⁰ Similarly, in Kıymaz and Koç (2018) determined the medical error attitude score of nurses working day-night shifts to be lower than those of nurses working day shifts.¹⁶ It can be said that the fatigue, stress and sleep disorders caused by working continuously at night or on night shifts disrupt perception and cause distraction, increasing medical error rates and negatively affecting attitudes toward medical errors. Total medical error attitude score and “the approach to medical errors” sub-dimension scores of nurses with managerial duties are significantly more positive than those of nurses without managerial responsibilities ($p<0.05$; $p<0.01$), perhaps because nurse managers have more experience, take part in quality studies and have a direct role in the follow-up of the process.

Table 5. Score distribution of the medical error attitude scale according to the participant sociodemographic and working characteristics (n=308)

Variables	Total Score X±SS	Perception of medical errors X±SS	Approach to medical errors X±SS	Causes of medical errors X±SS
Gender				
Female	2.25±0.2	3.01±0.9	2.09±0.4	2.19±0.2
Male	2.27±0.2	3.21±0.9	2.07±0.4	2.20±0.2
t	-0.870	-1.711	0.439	-0.497
p	0.385	0.088	0.661	0.620
Marital status				
Single	2.28±0.2	3.34±0.9	2.08±0.4	2.18±0.2
Married	2.22±0.2	2.73±0.9	2.09±0.4	2.20±0.2
t	2.754	5.728	-0.157	-0.910
p	0,006**	<0,001**	0,875	0,364

Table 5. (Continued)

Educational Status				
Bachelor's degree	2,26±0,2	3.07±0.9	2.09±0.4	2.20±0.2
Master's degree	2,20±0,2	3.12±0.9	1.98±0.4	2.15±0.3
t	1,776	-0.274	1.638	1.406
p	0.077	0.784	0.102	0.161
Duration of professional experience				
1-5 years	2.25±0.2	3.07±1.0	2.08±0.4	2.18±0.2
≥ 6 years	2.27±0.2	3.13±0.9	2.08±0.4	2.22±0.2
t	-0.895	-0.443	-0.039	-1.398
p	0.372	0.658	0.969	0.163
Work schedule				
Day shift	2.34±0.2	3.08±1.1	2.27±0.4	2.21±0.2
Mixed (day & night shifts)	2.24±0.2	3.08±0.9	2.06±0.4	2.19±0.2
t				
p	2.750	0.034	3.122	0.452
	0.006**	0.973	0.002**	0.651
Management Duty				
Yes	2.35±0.2	3.02±0.3	2.31±0.4	2.20±0.2
No	2.25±0.2	3.08±0.9	2.07±0.4	2.19±0.2
t	2.134	-0.272	2.779	0.108
p	0.034*	0.786	0.006**	0.914
Weekly working hours				
40-54 hours				
55-69 hours	2.21±0.2	3.04±1.0	1.98±0.4	2.21±0.2
t	2.26±0.2	3.08±0.9	2.09±0.4	2.19±0.2
p	-1.153	-0.218	-1.626	0.693
	0.250	0.827	0.105	0.489
Making a Medical Error				
Yes				
No	2.27±0.2	2.75±1.0	2.16±0.4	2.25±0.2
t	2.25±0.2	3.13±0.9	2.07±0.4	2.18±0.2
p	0.606	-2.237	1.306	2.030
	0.545	0.026*	0.192	0.043*
Witnessing a Medical Error				
Yes				
No	2.23±0.2	3.00±0.9	2.08±0.4	2.16±0.2
t	2.26±0.2	3.10±1.0	2.08±0.4	2.20±0.2
p	-1.137	-0.772	-0.163	-1.269
	0.257	0.441	0.871	0.206

X, Mean score; SS, Standard Deviation; *p<.0.05, **p<.0.01

CONCLUSION AND RECOMMENDATIONS

Attitudes towards medical errors should be emphasized in the development of a culture towards medical errors. The findings of the study showed that nurses' medical attitudes were negative. The study shows that health institutions should increase patient safety studies, raise awareness of nurses about medical errors, determine their causes and prevent them.

These results suggest;

- ongoing patient safety studies to create awareness against medical errors and ensure they do not continue;
- developing error tracking systems designed with artificial intelligence to

reduce medical errors and prevent them before they reach the patient, and ensuring the applicability of the developed systems in the field

- periodic measurement and evaluation of attitudes of healthcare professionals in an organization towards medical errors, and implementation of remedial and corrective actions developed according to the results;
- periodic in-service training programs on the causes, prevention and reporting of medical errors with compulsory participation;
- keeping assignments of nurses to clinics in the institution fixed to

support their adaptation to the unit and improve their working conditions.

- establishing in the institution a patient safety culture removed from punitive measures.

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