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EXAMINATION OF NURSES' ATTITUDES TOWARDS MEDICAL ERRORS

HEMŞİRELERİN TIBBI HATALARA YÖNELİK TUTUMLARININ İNCELENMESİ

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Abstract

Aim: Medical errors occupy an important place in the healthcare system due to the negativities they cause. Medical errors cause prolonged hospital stay, increased, healthcare expenses increase, and decreased trust in the healthcare system and care, thus resulting in decreased morale and motivation in healthcare professionals. Therefore, this descriptive study was conducted to identify nurses' attitudes towards medical errors.

Method: While the population included all the nurses (n=800) rendering service at a university hospital between May and August 2018, the sample included 232 nurses who were voluntary to participate in the study. Data were collected through an "Information Form" and the "Medical Errors Attitude Scale" and analysed in the computer environment via the NCSS (Number Cruncher Statistical System) 2007 (Kaysville, Utah, USA) software through descriptive statistical methods as well as Student t Test, One-way Anova Test, and Bonferroni test.

Findings: The nurses had a mean age of 31.54±5.69 (min-max: 21-50) years, and most of the participants were female, were married and had a bachelor's degree. Their MEAS total mean score was 3.80±0.33. Their mean scores were 2.68±0.77 in the subscale of perception of medical errors, 3.97±0.50 in the subscale of approach to medical errors, and 3.95±0.45 in the subscale of causes of medical errors. Statistically significant differences were determined between the scale total and subscale mean scores in terms of age, gender, marital status, educational background, clinic they worked, tenure, and status of receiving training on medical errors.

Conclusion: Consequently, it can be recommended to regard attitudes towards medical errors in improving the culture towards medical errors and organise relative training programmes for nurses.

Keywords: Attitude, Medical error, Nursing, Nursing responsibilities, Patient safety

Özet

Amaç: Tıbbi hatalar neden oldukları olumsuzluklar sebebiyle sağlık sisteminin içerisinde önemli yer tutmaktadır. Meydana gelen tıbbi hatalar sonucunda hastanede kalış süresi uzamakta, sağlık harcamaları artmakta, sağlık sistemi ve bakıma olan güven azalmakta dolayısıyla sağlık çalışanlarının moral ve motivasyonu da azalmaktadır. Bu nedenle bu araştırma, hemşirelerin tıbbi hatalara yönelik tutumlarını belirlemek amacı ile tanımlayıcı türde planlanmıştır.

Metod: Araştırma evrenini, İstanbul'da bir üniversite hastanesinde Mayıs-Ağustos 2018 tarihleri arasında çalışan tüm hemşireler (800), örneklemini ise araştırmaya katılmayı kabul eden 232 hemşire oluşturmuştur. Verilerin toplanmasında "Bilgi Formu'' ve "Tıbbi Hata Tutum Ölçeği' kullanılmıştır. Verilerin analizi bilgisayar ortamında Number Cruncher Statistical System 2007 (Kaysville, Utah, USA) programı ile tanımlayıcı istatistiksel metotların yanı sıra Student t Test, Oneway Anova Test ve Bonferroni testi kullanılarak gerçekleştirilmiştir.

Bulgular: Hemşirelerin yaş ortalaması 31,54±5,69 (min-mak: 21-50) yıl, çoğunun kadın, evli ve lisans mezunu olduğu belirlenmiştir. Hemşirelerin Tıbbi Hatalarda Tutum Ölçeği toplam puan ortalamaları 3,80±0,33, tıbbi hata algısı alt boyut puan ortalamaları 2,68±0,77, tıbbi hataya yaklaşım puan ortalamaları 3,97±0,50, tıbbi hata nedenleri puan ortalamaları 3,95±0,45 olarak tespit edilmiştir. Yaş, cinsiyet, medeni durum, eğitim durumu, çalışılan klinik, çalışma süresi ve tıbbi hatalara yönelik eğitim alma durumuna göre ölçek toplam ve alt boyut puan ortalamaları açısından istatistiksel olarak anlamlı farklılıklar olduğu saptanmıştır.

Sonuç: Sonuç olarak, tıbbi hatalara yönelik kültürün geliştirilmesinde tıbbi hatalara yönelik tutumun önemsenmesi ve bu konuda hemşirelere yönelik eğitim programlarının düzenlenmesi önerilebilir.

Anahtar Kelimeler: Hemşirelik, Hasta güvenliği, Hemşirelik sorumlulukları, Tıbbi hata, Tutum

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1. INTRODUCTION

Malpractice is derived from the Latin words “Male” and “Praxis” and means “wrong practice”. “Error”, which means mistake, falsity or mistake in Turkish, is defined as a mistake made accidentally, inadvertently and unintentionally in the Turkish dictionary (1,2). Medical errors refer to all situations that occur during healthcare due to human-related, institutional or technical factors, resulting in harm to patients (3). Medical errors bring with them many negativities. Mistakes influence adversely people and impair the healthcare system due to the increased costs (4).

The National Institute of Medicine (IOM) reports that 98,000 people pass away annually due to medical errors, a great majority of the medical errors observed during the delivery of health services are system-related, and patient safety is an essential element in providing and maintaining quality health care (5,6).

The extent of medical errors in Turkey is not fully known due to the fact that the patient safety culture is not fully established and that healthcare personnel do not report their malpractices since the possibility of penal action raises if they make a malpractice (7). In a study, 42.9% of nurses stated that they committed medical malpractices throughout their professional lives and 62.9% stated that they witnessed malpractices made by their nurse colleagues. 68.6% of nurses stated that they did not attend the training on malpractice and 74.3% declared that they needed training on this subject (8).

The Safety Reporting System, which was put into practice after numerous studies conducted on incidents that threaten patient safety in Turkey, aims to prevent incidents that harm the patient or are noticed before harm occurs as well as similar incidents. As of November 30, 2018, the number of notifications entered into this system was 316778. Out of them, 11522 were medication errors, 272305 were laboratory errors, 23978 were surgical errors, and 8973 were other patient safety errors (9).

Various studies conducted in Turkey have reported an increase in medical error claims in recent years (10). Nurses, who constitute the majority of healthcare professionals, encounter medical errors more frequently. For this reason, nurses have important roles in determining the causes of medical errors and taking responsibility for prevention (11).

In line with the literature review, the studies reported statistically significant differences between the perception of medical errors subscale and overtime working, between the subscale of approach to medical errors and gender, educational background, the clinic they worked, the number of daily patients per nurse, and between the subscale of causes of medical errors and age and educational background (12,13). Another study reported a high tendency to make medical errors for nurses (14). In a systematic review of medication errors in nursing practice, it was determined that nurses violated 10 correct principles in medication administration, and evidence was found that the most common medication error was dosage error/incorrect dose (15). A study investigating surgical nurses’ attitudes towards medical errors and their tendencies reported that the participants’ tendency to make medical errors was low and the most common medical errors in surgical units were medication administration errors (16,17).

The priorities of the healthcare system include ensuring patient safety and preventing medical errors at every stage of healthcare delivery. Accordingly, identifying the medical error tendencies of employees and taking the necessary precautions are essential. Although medical errors concern all healthcare personnel, they are more important for nurses. For this reason, the aim of this study is to determine nurses' tendencies towards medical errors and to examine the affecting factors.

MATERIAL AND METHOD

Aim and design of the study

This descriptive study was carried out to examine nurses' attitudes towards medical errors.

Research questions

1- What is the medical error attitude level of nurses?

2- Is there any difference in the level of medical error attitudes of nurses according to their socio-demographic characteristics?

Independent Variables

The independent variables were descriptive characteristics of nurses such as age, gender, marital status, and educational level.

Dependent Variables

The dependent variables were the nurses Medical Errors Attitude Scale (MEAS) scores.

Location and time of the study

The present study was conducted in a university hospital between May 2018 and August 2018.

Population and sample

The population of the study consisted of nurses (n: 800) working in a university hospital between May 2018 and August 2018. In this study, the following formula was utilised to ascertain the sample size:

$N=Nt^2pq/d^2(N-1)+t^2pq$

Here, N denotes the number of individuals in the population (800), t denotes the theoretical value according to the specified confidence level (1.96), p denotes the probability of occurrence of the examined event (0.10), q denotes the probability of non-occurrence of the event (0.90), and d denotes the accepted margin of error (0.05). The calculations were completed, and the recommended sample size for the study was determined to be 118 individuals. The sample included 232 nurses who were voluntary to participate in the study after they were informed about the purpose, content, and method of the study by making calculation using the formula with finite population.

Data collection

Data Collection Tools

An Information Form on the demographic characteristics of nurses and Medical Errors Attitude Scale were used to collect data.

Information Form

This form, prepared by the researcher upon the literature review, has seven questions about the nurses' age, gender, marital status, educational background, status of receiving training on medical errors, tenure, and their unit (2, 3, 4, 6, 8, 11).

Medical Errors Attitude Scale (MEAS)

Güleç and İntepeler developed the scale in 2013. This five-point Likert type scale has 16 items and three subscales; perception of medical errors (items 1 and 2), approach to medical errors (items 3, 8, 10, 11, 12, 13, and 14) and causes of medical errors (items 4, 5, 6, 7, 9, 15, and 16). The items are rated as (1) strongly disagree, (2) disagree, (3) undecided, (4) agree, and (5) strongly agree. Cronbach's alpha reliability coefficient of the scale was calculated as 0.75 (18). The Cronbach alpha coefficient of the scale in this study was found to be 0.64 in the total scale and 0.62, 0.66 and 0.63 in the subscales, respectively.

The subscale score is calculated by summing and divided by the number of subscale items, and the resulting score ranges between 1 and 5 points. The cut-off point of the scale is 3. Getting a score of less than 3 points is considered as negative attitudes towards medical errors; whereas, getting a score of ≥3 points is considered as positive attitudes towards medical errors.

While negative attitude means that employees have low awareness of medical errors and the importance of reporting errors, positive attitude indicates that employees have a high awareness of medical errors and the importance of reporting errors.

Data Collection

Before the study, ethics committee approval and written permission from the related institution were obtained. The researcher informed the nurses about the purpose, content, scope, duration and expected situation of the study. Data were collected from nurses during rest periods within working hours and after shift change.

Ethical Considerations

The study was approved by the Social and Humanities Research Ethics Committee of a state university (date 07.05.2018 - number 2018/83). The study was conducted with the written permission of the relevant institution and with the permission of Dilek Güleç, who developed the MEAS, to use the scale in the study. Furthermore, nurses who agreed to participate in the study were informed about the purpose, content, duration, and benefits of the study, and where the data would be used. Their written consent was obtained based on willingness and voluntariness.

The principle of non-maleficence was paid attention by collecting data in time periods that would not affect the nurses' working style and the care of patients.

Limitations

This study was conducted only with nurses working in a university hospital.

Statistical analysis

Statistical analysis was performed through NCSS (Number Cruncher Statistical System) 2007 (Kaysville, Utah, USA) software. The data were analysed through descriptive statistical methods (Mean, Standard Deviation, Median, Frequency, Ratio, Minimum, Maximum). Student's t Test was used to compare two groups of normally distributed quantitative data. One-way Anova Test was applied to compare three or more normally distributed groups, and Bonferroni test was applied for pairwise comparisons. The data were considered significant at the level of $p<0.05$.

RESULTS

This section represents the findings of the present study in tables.

Findings On Socio-demographic Characteristics of the Nurses

The nurses had a mean age of 31.54±5.69 years (Min-Max 21-50 years), 80.2% (n=186) were female, and 58.6% (n=136) were married. 4.3% (n=10) had a degree from a health vocational high school, 1.3% (n=3) had an associate degree, 76.3% (n=177) had a bachelor's degree, and 18.1% (n=42) had a postgraduate degree. 33.2% (n=77) were working in the internal medicine ward, 28.9% (n=67) in the surgical ward, 15.1% (n=35) in the intensive care unit, 12.5% (n=29) in the emergency room, and 10.3% (n=24) in the outpatient clinic. The tenure of nurses varied between 1 and 32 years, and they had a mean tenure of 8.58±6.31 years. Working duration of 25% (n=58) ranged between 1-3 years, 20.2% (n=47) between 4-6 years, 19% (n=44) between 7-9 years, 35.8% (n=83) 10 years or more. 66.4% of nurses (n=154) stated that they had previously received training on medical errors.

Findings on the Nurses' MEAS Scores

The highest scores were obtained from the following items; “Medical errors and their causes should be discussed openly with employees (4.47±0.81)”, “I am in favour of reporting all errors made (4.47±0.74)” and “Medical errors and their causes should be discussed among managers (4.47±0.59)”. The item “The person who has made the medical error is innocent (2.00±0.86)” got the lowest score.

The nurses’ MEAS total mean score was 3.80±0.33, ranging from 2.3 to 4.4. Their mean scores on the subscales of MEAS were 2.68±0.77 in the subscale of perception of medical errors, ranging from 1 to 4.5, 3.97±0.50 in the subscale of approach to medical errors, ranging from 2.1 to 5, and 3.95±0.45 in the subscale of causes of medical errors, ranging from 2.1 to 5 (Table 1).

Table 1: The Nurses' Scores on the overall MEAS and its Subscales (N=232)

	Min-Max (Median)	Avg. ± Ss	Cronbach's Alpha
Medical mistake perception	1-4.5 (3)	2.68± 0.77	0.62
Approach to medical mistake	2.1-5 (4)	3.97± 0.50	0.66
Causes of medical mistakes	2.1-5 (4)	3.95± 0.45	0.63
Total	2.3-4.4 (3.9)	3.80± 0.33	0.64

Cronbach's Alpha coefficients were 0.62, 0.66, and 0.63, respectively for the subscales of MEAS and 0.64 for the overall MEAS.

Findings on the Comparison of the Nurses' MEAS Scores According to their Socio-demographic Characteristics

This section represents findings regarding the comparison of the nurses' scores on the overall MEAS and its subscales according to their socio-demographic characteristics (Table 2)

Table 2: **Comparison of Nurses' Scores on overall MEAS and its subscales According to Their Socio-demographic Characteristics (N=232)**

		Attitude Scale on Medical Mistakes			
		Medical mistake perception	**Approach to medical malpractice**	**Causes of medical malpractice**	**Total**
		Avg. ± Ss (Median)	**Avg. ± Ss (Median)**	**Avg. ± Ss (Median)**	**Avg. ± Ss (Median)**
Age (year)	**≤26 years**	2.74±0.75 (3)	3.73±0.65 (3.9)	3.73±0.55 (3.6)	3.61±0.44 (3.8)
	27-30 years	2.64±0.74 (3)	3.99±0.40 (3.9)	4.03±0.46 (4.1)	3.84±0.29 (3.9)
	31-34 years	2.41±0.2 (2)	4.00±0.43 (4)	4.12±0.35 (4.1)	3.85±0.25 (3.9)
	35-38 years	2.75±0.89 (3)	3.91±0.53 (3.9)	3.79±0.40 (3.7)	3.71±0.28 (3.8)
	≥39 years	2.92±0.74 (3)	4.27±0.32 (4.3)	4.01±0.29 (4)	3.99±0.24 (4)
	Test value	*F=2.524*	*F=8.111*	*F=6.252*	*F=8.241*
	[a]p	***0.042****	***0.001****	***0.001****	***0.001****
Gender	**Woman**	2.76±0.73 (3)	3.96±0.51 (4)	3.91±0.46 (4)	3.79±0.35 (3.9)
	Men	2.36±0.85 (2)	4.02±0.47 (4)	4.12±0.37 (4.1)	3.85±0.29 (3.9)
	Test value	*t=2.919*	*t=-0.666*	*t=-3.312*	*t=-1.242*
	[b]p	***0.005****	*0.506*	***0.001****	*0.216*
Marital status	**Married**	2.72±0.78 (3)	4.05±0.46 (4)	4.03±0.38 (4.1)	3.87±0.28 (3.9)
	Not married	2.61±0.75 (2.5)	3.87±0.53 (3.9)	3.84±0.53 (3.9)	3.70±0.38 (3.8)
	Test value	*t=1.036*	*t=2.751*	*t=2.972*	*t=3.831*
	[b]p	*0.301*	***0.006****	***0.003****	***0.001****
Education	**High School/ Associate degree**	2.81±0.6 (3)	3.80±0.49 (3.9)	4.05±0.47 (4)	3.79±0.34 (3.8)
	License	2.66±0.77 (3)	3.93±0.51 (4)	3.93±0.48 (4)	3.77±0.35 (3.8)
	Postgraduate	2.70±0.8 (2.5)	4.19±0.39 (4.3)	3.99±0.35 (4)	3.92±0.24 (3.9)
Working clinic	**Internal service**	2.88±0.68 (3)	3.89±0.58 (4)	3.86±0.51 (4)	3.75±0.42 (3.8)
	Surgical service	2.60±0.76(2,5)	3.96±0.48(3.9)	3.96±0.43 (4)	3.79±0.3 (3.8)
	Intensive care	2.47±0.85(2)	4.03±0.37 (4)	4.07±0.46(4.1)	3.85±0.27 (3.9)
	Emergency service	2.74±0.69 (3)	3.93±0.38(3.9)	4±0.39 (4.1)	3.81±0.26 (3.9)
	Polyclinic	2.46±0.91 (2)	4.23±0.48 (4.4)	3.98±0.33 (4)	3.9±0.28 (4)
	Test value	*F=2.691*	*F=2.927*	*F=1.480*	*F=1.115*
	[a]p	***0.032***	***0.023****	*0.209*	*0.331*
Working time (years)	**1-3 years**	2.58±0.82 (3.9)	3.82±0.62 (2.5)	3.84±0.61 (3.9)	3.68±0.43 (3.8)
	4-6 years	2.73±0.7 (3)	3.99±0.45 (4)	3.95±0.42 (4)	3.82±0.33 (3.9)
	7-9 years	2.6±0.74 (3.9)	3.92±0.37 (2.5)	4±0.37 (4.1)	3.79±0.23 (3.8)
	≥10 years	2.75±0.78 (3)	4.09±0.46 (4.1)	4±0.37 (4)	3.88±0.28 (3.9)
	Test value	*F=0.818*	*F=3.217*	*F=1.089*	*F=3.728*
	[a]p	*0.485*	***0.025****	*0.357*	***0.013****
Status of receiving training on medical malpractice	**Yes**	2.69±0,81 (3)	4.03±0.5 (4.1)	3.96±0.48 (4.1)	3.83±0.35 (3.9
	No	2.66±0,67 (2.5)	3.86±0.47 (3.9)	3.93±0.4 (4)	3.74±0.29 (3.8)
	Test value	*t=0.247*	*t=2.562* ***[b]p***	*t=0.441*	*t=1.991*
	[a]p	*0.805*	***0.011****	*0.660*	***0.048****

[a]Oneway ANOVA Test *[b]Student t Test* **p<0.05*

Some differences have been found as a result of statistical analysis. Bonferroni-corrected pairwise comparisons were performed to determine the group from which all significant differences originated.

There was a statistically significant difference between the nurses' scores on the perception of medical errors ($p=0.042$; $p<0.05$) and approach to medical errors ($p=0.001$; $p<0.01$) in terms of their age. The perception of medical errors scores of the nurses aged 39 and over were higher than those in the age group of 31-34 years ($p=0.028$; $p<0.05$), and their approach to medical error scores were higher than scores of nurses aged 26 years old and under ($p=0.001$), 27-30 years ($p=0.001$), 31-34 years ($p=0.014$) and 35-38 years ($p=0.021$) ($p<0.05$).

When the causes of medical errors scores according to age were analysed statistically, the scores of the nurses aged 27-30 years ($p=0.018$), 31-34 years ($p=0.001$), and 39 years and above ($p=0.023$) were higher than those of the nurses aged 26 years and below ($p<0.05$).

Scores on the perception of medical errors and causes of medical errors showed statistically significant differences according to gender. While scores on the perception of medical errors were higher in women compared to their male counterparts ($p=0.005$; $p<0.01$); scores of the causes of medical errors were higher in men compared to their female counterparts ($p=0.001$; $p<0.01$).

Scores on approach to medical errors, scores on causes of medical errors and total scores showed statistically significant differences according to marital status. The married nurses had higher scores compared to their single counterparts ($p<0.01$). No statistically significant difference was found between perception of medical error scores according to marital status ($p>0.05$).

Statistical evaluation of the scores of approach to medical errors according to educational level revealed that the scores of postgraduate nurses were higher ($p< 0.05$) than those of high school/associate degree graduates ($p=0.039$) and those having a bachelor's degree ($p=0.007$). No significant difference was determined between scores of the perception of medical errors and the causes of medical errors.

According to the clinic they worked in, their scores of the perception of medical errors ($p=0.032$; $p<0.05$) and their scores of approach to medical errors ($p=0.023$; $p<0.05$) showed a statistically significant difference. When the scores of the perception of medical errors were compared, the scores of the nurses working in internal medicine wards were higher compared to those working in surgical wards ($p=0.028$), intensive care unit ($p=0.011$), and outpatient clinic ($p=0.018$) ($p<0.05$). When the scores of approach to medical errors were compared, the scores of the nurses working in outpatient clinic were higher compared to those who were working in internal medicine services ($p=0.003$), surgical services ($p=0.004$) and emergency room ($p=0.004$) ($p<0.01$). Scores on the causes of medical errors and total scale scores did not show a statistically significantly difference based on the clinic worked ($p>0.05$).

While a statistically significant difference was not detected between their scores on the perception of medical errors and their scores on the causes of medical errors according to tenure, there was a statistically significant difference between scores on the approach to medical errors and total scores. Scores on the approach to medical errors subscale and total scores were higher in nurses who were working for 10 years and more compared to those who were working for 1-3 years.

While their scores on the perception of medical errors and their scores on the causes of medical errors did not show a statistically significant difference according to the status of receiving training on medical errors. Scores on the approach to medical errors and total scores showed a statistically significant difference. The nurses who received training had higher

scores compared to those who did not ($p<0.05$).

DISCUSSION

The role of nurses in establishing and maintaining patient safety strategies in hospitals is of paramount importance. Errors in nursing practices have the potential to exert a detrimental effect on patients, their families, and the nurses themselves, giving rise to both legal and professional ramifications. It is, therefore, imperative for nurses to be able to recognise malpractice risks, identify contributing factors, implement preventive measures, and report errors to ensure patient safety and legal protection (19).

The mean age of nurses in this study was 31.54 years (±5.69 years), with the majority being female, married, and aged between 27 and 30 years. Additionally, 76.3% of nurses held a bachelor's degree, and 35% had been working in the internal medicine ward for ten years or more. These demographic characteristics are consistent with those reported in previous studies, including Alptekin's 2018 research, which found that most nurses were female, married, and had a similar mean age (14, 20, 21, 22).

With regard to medical error training, 66% of nurses reported having received education on this topic. However, previous research indicates that such training may be insufficient. In their 2009 study, Yıldırım et al. found that 85% of physicians believed that medical education on errors was inadequate (23). Similarly, Balık and Kaya (2014) reported that although 68.3% of emergency nurses had received patient safety training, 29.1% still felt incompetent in this area (24). These findings underscore a discrepancy between receiving training and perceiving adequate preparation to manage medical errors, accentuating the necessity for ongoing education and institutional support.

This study has revealed that nurses have a positive attitude towards discussing medical errors and their causes, and a high level of awareness regarding this issue. The present study corroborates the findings of Gök (2015), who reported that 64.2% of nurses agreed that medical errors should be met with understanding, while 88.8% supported discussing errors and their causes with managers. Additionally, in a study conducted with both physicians and nurses, the highest agreement scores were given to statements emphasising the impact of long working hours (4.54 ± 0.56) and high patient loads (4.50 ± 0.70) on medical errors, as well as the importance of openly discussing errors with employees (4.44 ± 0.75) (24).

In view of the findings, it is incumbent upon healthcare organisations to implement corrective measures with a view to reducing medical errors. Furthermore, such organisations must monitor the effectiveness of these interventions and promote error reporting as a means of facilitating learning (14). In this study, the majority of participants (4.47 ± 0.74) expressed support for the statement, "I am in favour of reporting all errors made," indicating a strong awareness regarding medical error reporting. This finding is consistent with the results reported by Törener and Uysal (2012), who found that 47.9% of nurses reported errors through official systems (26). Yöntem (2016) determined that the majority of nurses surveyed believed that medication errors should always be reported (27). Saray Kılıç and Özhan Elbaş (2014) found that 69.2% of nurses believed that medical errors must be reported, whereas 30.8% felt reporting should depend on the specific situation. Furthermore, the same study revealed that 56.4% of nurses stated that errors should be reported only if they were identified before causing harm (28). Akgün and Kardaş's (2014) study also found that 28.5% of nurses admitted to making medical errors and reported them to the relevant authorities. This finding is consistent with the results of previous studies, thereby providing further evidence to support the existing body of research in this area (14).

The results of this study demonstrate the significance of cultivating an open and supportive environment that fosters the reporting and discussion of errors. This

approach is found to contribute to enhanced patient safety and a reduction in medical errors.

The findings of this study indicate that nurses have a generally positive attitude towards medical errors and reporting, as reflected in their MEAS total mean score of 3.80±0.33. The subscale scores were 2.68 ± 0.77 for "Perception of medical error," 3.97 ± 0.50 for "Approach to medical error," and 3.95 ± 0.45 for "Causes of medical errors." Given that the scale's cut-off point is 3, these results suggest that nurses recognise the significance of medical errors and the necessity of addressing them.

A comparison of these findings with those of previous studies reveals that Gök (2015) reported a lower MEAS total score (3.48 ± 0.53) among paediatric nurses, with a slightly higher perception of medical errors (2.93 ± 0.77), but lower scores in the approach to medical errors (3.57 ± 0.60) and causes of medical errors (3.57 ± 0.58) (21). A further study, conducted with both physicians and nurses, yielded analogous results. Nurses scored 2.86 ± 0.62 for their perception of medical errors, 3.97 ± 0.40 for their approach to medical errors, and 3.86 ± 0.38 for the causes of medical errors (25).

The findings of this study indicate that, while nurses generally demonstrate a proactive approach to medical errors, their perception of such errors remains comparatively lower than their approach and understanding of the contributing factors. This finding suggests a potential requirement for the implementation of enhanced educational programmes that focus on error perception. The objective of such programmes would be to further enhance nurses' ability to identify and address medical errors in an effective manner.

A comparison of nurses' MEAS scores based on socio-demographic characteristics revealed significant differences. Nurses aged 39 and over exhibited higher scores in the "Perception of medical errors" subscale compared to those in the 31-34 age group, and their scores in the "Approach to medical errors" subscale were also higher than those in other age groups. Furthermore, nurses aged 27-30, 31-34, and 39 and over exhibited the highest scores in the "Causes of medical errors" subscale and total MEAS scores, when compared to nurses aged 26 and under ($p<0.05$). These findings suggest that as nurses gain experience, their awareness and attitudes toward medical errors improve. However, Işık et al. (2012) found no statistically significant difference in the "Causes of medical errors" subscale scores based on socio-demographic characteristics, indicating that factors other than age may influence perceptions of error causation (2).

With regard to gender disparities, female nurses demonstrated significantly higher scores in the "Perception of medical errors" and "Causes of medical errors" subscales compared to their male counterparts ($p=0.005$; $p<0.01$). This finding is consistent with the results reported byKüçüksayar and Özer (2015), who found that female nurses demonstrated a more conscientious approach to medication errors (29). Nevertheless, as Yiğitbaş et al. (2016) have demonstrated, female nurses exhibited a higher propensity to commit errors in comparison to their male counterparts (22). The findings of this study are not entirely conclusive, and it can be posited that female nurses may be more aware of and proactive in addressing medical errors, but that they may also experience higher stress levels or work in conditions that increase their likelihood of making mistakes.

The findings emphasise the necessity of incorporating both experience and gender into the design of interventions to enhance medical error awareness and management among nurses. The findings indicate that the development of bespoke training programmes that address varying levels of experience and gender-specific challenges may further enhance patient safety and error prevention.

The findings of this study indicate that married nurses had significantly higher scores in the subscales entitled "Approach to medical errors" and "Causes of medical errors"

compared to their single counterparts ($p=0.006$; $p<0.01$). These results are consistent with Güleç's (2014) study, which found that single nurses were more likely to make medical errors than married nurses. This discrepancy may be attributed to the heightened sense of responsibility that married nurses carry in their personal lives, which could extend to their professional responsibilities, leading to a more cautious approach in preventing and managing medical errors (30).

Furthermore, the study established that nurses with postgraduate education exhibited elevated scores in the "Approach to medical errors" subscale and overall MEAS scores in comparison to those possessing a high school, associate degree, or bachelor's degree ($p<0.05$). This finding suggests that higher education may positively influence attitudes and raise awareness regarding medical errors. Aiken et al. (2003) emphasised that the educational level of nurses plays a crucial role in ensuring quality care and patient safety, as higher education levels are associated with fewer unsafe practices (31). Küçükyayla and Özer's (2016) findings revealed a correlation between the level of education and the attitudes of nurses towards medical errors. Specifically, they observed that nurses with undergraduate and graduate degrees exhibited more responsible attitudes towards medical errors (29). Yıldırım et al. (2009) also identified inadequate education as a primary factor contributing to medical errors (23). Moreover, Chang and Mark's (2009) findings indicated that as the educational attainment of nurses increased, there was a concomitant decline in medication errors (32). The findings of this study lend support to the argument that advanced education has the capacity to enhance nurses' knowledge and attitudes towards medical errors, thereby reducing error rates and improving patient safety. It is recommended that continuous professional development and postgraduate education programmes be encouraged as key strategies for minimising medical errors and fostering a culture of safety in healthcare settings.

The study revealed that nurses working in internal medicine wards had higher scores in the "Perception of medical error" subscale compared to those in surgical wards, intensive care units, and outpatient clinics. Conversely, nurses working in outpatient clinics exhibited higher scores in the "Approach to medical error" subscale compared to those in internal medicine, surgical wards, and emergency rooms. These findings contrast with the expectations that nurses working in high-risk areas such as intensive care units and emergency rooms—where patient circulation is high and multiple medications are administered—would have the highest awareness and approach scores toward medical errors. Küçükkaya ve Özer (2016) also reported that nurses working in the ICUs had more positive attitudes towards medical errors than those in surgical clinics (29). This finding suggests that work environment and unit-specific stressors may influence nurses' perceptions and approaches differently than expected. Furthermore, the study found that nurses with ten or more years of professional experience had higher scores in both the "Approach to Medical Errors" subscale and overall MEAS scores compared to those with only 1-3 years of experience. These findings are consistent with previous research indicating that as nurses gain more experience, their ability to recognise and prevent medical errors improves. Er and Altuntaş (2015) found that professional experience, knowledge, and skills significantly reduced the likelihood of making medical errors (20). In a similar vein, Ersun et al. (2013) reported that 47.4% of nurses identified a lack of experience as the primary cause of medication errors (32).

The findings of this study underscore the pivotal role that experience plays in shaping nurses' attitudes towards medical errors. The implementation of targeted training programs for less experienced nurses, particularly those employed in high-risk areas, has the potential to address the discrepancy in perception and

approach, thereby enhancing patient safety and reducing error rates.

In a similar vein, Sheu et al. (2008) found that nurses with five years or less of experience were more likely to encounter medical errors and often exhibited a combination of discouragement and overconfidence due to their lack of experience (34). In the study conducted by Sheu et al. (2008), it was asserted that nurses with a minimum of five years' experience were more prone to encountering medical errors. This tendency was attributed to a combination of inexperience and a self-assured demeanour, which manifested as a sense of confidence derived from a perceived lack of expertise in their counterparts with less experience (35). In their 2007 study, Tang et al. also identified newly recruited nurses as the most frequent contributors to medication errors (36). The findings indicate that as nurses accrue more experience, there is an enhancement in their knowledge and skills, which in turn engenders a more positive and proactive approach to the management of medical errors.

Furthermore, the findings of this study indicated that nurses who had undergone training in the area of medical errors demonstrated significantly higher scores in the "Approach to medical error" subscale and overall MEAS scores when compared with those who had not received any training. This finding aligns with the conclusions of previous research, which highlighted the pivotal role of education in the reduction of medical errors. As Özyer (2016) reported, insufficient in-service training was a key factor contributing to medical errors among nurses working in surgical wards (37). Moreover, the findings of a study undertaken in a university hospital demonstrated that patient safety training exerted a favourable influence on attitudes and behaviours with regard to incident reporting (38). A further study, which examined the effects of multidisciplinary patient safety training, found that it improved participants' knowledge, skills and attitudes with regard to both short- and long-term reporting behaviours (39). The findings of this study serve to reinforce the importance of education and professional experience in enhancing nurses' ability to prevent and manage medical errors. The observation that nurses with postgraduate education exhibited more positive attitudes towards medical errors underscores the pivotal function of continuous professional development. Investment in structured training programmes and ongoing education has been demonstrated to have a significant impact on patient safety, by fostering an environment in which errors are recognised, reported and addressed in an effective manner.

CONCLUSION AND RECOMMENDATIONS

Consequently, it was concluded that the nurses' mean score of perception of medical errors, one of the subscales of MEAS, was below the total mean score, while the approach to medical errors and causes of medical errors were above the mean score. The medical errors and their causes of nurses, who were subjected to MEAS can be discussed and reported, and there was a tendency about necessity of discussing the errors and their causes among managers. Total scale scores and approach to medical error scores of the nurses with postgraduate education were higher than nurses with undergraduate and high school/associate degree. Female nurses' scores on the perception of medical errors and causes of medical errors were higher compared to male nurses. Married nurses' scores on the approach to medical errors and causes of medical errors were higher than single nurses. The nurses who received training on medical errors had high approach to medical errors and total scores than those who did not.

In accordance with these results;

It may be recommended to create a corporate culture to prevent medical errors, organise continuous training programmes, and discuss the causes and solutions of errors. Furthermore, the awareness of nurses can be increased by encouraging postgraduate education. In developing a culture regarding

medical errors, providing training on the perception of medical errors and attaching importance to the perception of medical errors have an important place in terms of patient safety.

Conflicts of interest: The authors have no conflict of interest to declare.

Ethical issue

Within the scope of the research, written permission was obtained from the Ethical Board of İstanbul University of Social Sciences and Humanities Research (Resolution No: **2018/83 -47074** and Date: **11.05.2018**) and from the relevant institutions for the preliminary and actual implementation of the research.

Author Contributions

Idea/Concept: OA, HK; Design: OA; Supervision: OA, HK; Data Collection: OA; Processing: OA; Analysis/Interpretation: OA, HK; Literature Review: OA, HK; Manuscript Writing: OA; Critical Review: OA.

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REFERENCES

1. Çetin G. Yeni Yasalar Çerçevesinde Hekimlerin Hukuki ve Cezai Sorumluluğu. İçinde: Çetin G, Yorulmaz Ç, editörler. Tıbbi Malpraktis ve Adli Raporların Düzenlenmesi. İstanbul: İÜ Cerrahpaşa Tıp Fakültesi Sürekli Tıp Eğitimi Etkinlikleri Sempozyum Dizisi; 2006;31-42
2. Isik O, Akbolat M, Cetin M, Cimen M. Hemsirelerin bakis acisiyla tibbi hatalarin degerlendirilmesi. TAF Prev Med Bull. 2012;11(4):421-30.
3. Demir-Zencirci A. Hemşirelik ve hatalı tıbbi uygulamalar. Hemşirelikte Araştırma Geliştirme Dergisi. 2010;12(1):67-74.
4. Metin B. Hemşirelik hizmetlerinde hasta güvenliği ve tıbbi hata (Malpraktis). Sağlık Akademisyenleri Dergisi. 2018;5(1):76-78.
5. Page A. Keeping patients safe: Transforming the work environment of nurses. Washington, DC: National Academies Press; 2004.
6. Yılmaz A. Hasta güvenliği kültürü kavramının boyutları ile incelenmesi boyutların hasta güvenliği uygulamalarına etkisinin araştırılması. Sağlık Akademisyenleri Dergisi. 2020;7(3):223-30.
7. Canatan H, Erdoğan A, Yılmaz S. Hastanelerde yapılan tıbbi hataların türleri ve nedenleri üzerine bir araştırma: İstanbul ilinde özel bir hastane ile ilgili anket çalışması ve konuya ilişkin çözüm önerileri. Sağlık Akademisyenleri Dergisi. 2015;2(2):82-89.
8. Külcü DP, Yiğit R. Çocuk kliniklerinde çalışan hemşirelerin tıbbi hata yapma eğilimlerinin incelenmesi. Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi. 2017;20(1):34-40.
9. Sağlık Bakanlığı. Sağlık Bakanlığı Güvenlik Raporlama Sistemi. 2018 [Erişim 21 Aralık 2018]. Erişim adresi: https://grs.saglik.gov.tr/Stats.aspx
10. Özer Ö, Taştan K, Set T, Çayir Y, Şener M. Tıbbi hatalı uygulamalar. Dicle Tıp Dergisi. 2015;42(3):394-7.
11. Yücesan A, Alkaya SA. Bireylerin tıbbi hatalarla ilgili görüş ve deneyimleri. Dicle Tıp Dergisi. 2017;44(1):25-31.
12. Aktan U, Atay S. Hemşirelerin tıbbi hatalarda tutumları ve etkileyen faktörlerin incelenmesi. Acıbadem Üniversitesi Sağlık Bilimleri Dergisi. 2021;12(2):376-84.
13. Yılmaz A, Keskin AY, Yeşildal M. Hemşirelerin tıbbi hata tutumu ve etkileyen faktörler. Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi. 2022;11(3):1151-9.
14. Akgün ŞZ, Kardaş ÖF. Hemşirelerin tıbbi hata yapma eğilimlerinin incelenmesi. Hemşirelikte Eğitim ve Araştırma Dergisi. 2015;12(3):210-4.

15. Kırşan M, Korhan EA, Şimşek S, Özçiftçi S, Ceylan B. Hemşirelik uygulamalarında ilaç hataları: Bir sistematik derleme. Turkiye Klinikleri Journal of Nursing Sciences. 2019;11.
16. Dığın F, Özkan ZK. Cerrahi kliniklerde çalışan hemşirelerinin tıbbi hataya yönelik tutumlarının belirlenmesi. Mersin Üniversitesi Tıp Fakültesi Lokman Hekim Tıp Tarihi ve Folklorik Tıp Dergisi. 2020;10(1):64-9.
17. Kandemir A, Yüksel S. Cerrahi hemşirelerinin tıbbi hata tutum ve eğilimlerinin belirlenmesi. Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi. 2020;23(2):287-97.
18. Güleç D, İntepeler ŞS. Tıbbi Hatalarda Tutum Ölçeğinin Geliştirilmesi. Hemşirelikte Araştırma Geliştirme Dergisi. 2013;15(3):26-41.
19. Odabaşoğlu E, Çocuk kliniklerinde çalışan hemşirelerin hatalı uygulama eğilimleri ve etkileyen faktörler. Atatürk Üniversitesi Sağlık Bilimleri Enstitüsü Çocuk Sağlığı ve Hastalıkları Hemşireliği Anabilim Dalı Yüksek Lisans Tezi. 2013.
20. Er F, Altuntaş S. Hemşirelerin tıbbi hata yapma durumları ve nedenlerine yönelik görüşlerinin belirlenmesi. Sağlık ve Hemşirelik Yönetimi Dergisi. 2016;3(3):132-9.
21. Gök D, Pediatri hemşirelerinin ilaç hatalarını bildirme durumları ile tıbbi hatalardaki tutumları arasındaki ilişki. İzmir Katip Çelebi Üniversitesi Sağlık Bilimleri Enstitüsü Çocuk Sağlığı ve Hastalıkları Hemşireliği Anabilim Dalı Yüksek Lisans Tezi. 2015.
22. Yiğitbaş Ç, Oğuzhan H, Tercan B, Bulut A, Bulut A. Hemşirelerin malpraktis ile ilgili algı, tutum ve davranışları. Anadolu Kliniği Tıp Bilimleri Dergisi. 2016;21(3):207-14.
23. Yıldırım A, Aksu M, Çetin İ, Şahan A. Tokat ili merkezinde çalışan hekimlerin tıbbi uygulama hataları ile ilgili bilgi, tutum ve davranışları. Cumhuriyet Medical Journal. 2009;31(4):356-66.
24. Balık H, Kaya H, Acil servislerde çalışan hemşirelerin hasta güvenliğine ilişkin tutumları. İstanbul Üniversitesi Sağlık Bilimleri Enstitüsü Hemşirelik Anabilim Dalı Yüksek Lisans Tezi. 2014.
25. Ünal A, Pediatrik birimlerde hata raporlamayı artırma stratejilerinin oluşturulması ve etkinliğinin değerlendirilmesi. Dokuz Eylül Üniversitesi Sağlık Bilimleri Enstitüsü Çocuk Sağlığı ve Hastalıkları Hemşireliği Anabilim Dalı Doktora Tezi. 2016.
26. Toruner EK, Uysal G. Causes, reporting, and prevention of medication errors from a pediatric nurse perspective. Aust J Adv Nurs. 2012;29(4):28-35.
27. Yöntem S, Hemşirelerin ilaç hatalarına yönelik bilgi ve tutumları. Çelebi Üniversitesi Sağlık Bilimleri Enstitüsü Hemşirelik Anabilim Dalı Yüksek Lisans Tezi. 2016.
28. Saray Kılıç H, Elbaş Özhan N. Bir eğitim ve araştırma hastanesinde çalışan hemşire ve doktorların hasta güvenliği hakkındaki bilgileri ve tıbbi hataların bildirilmesi hakkındaki görüşleri. Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi. 2014;17(2):97-104.
29. Küçükakça Çelik G, Özer N. Cerrahi kliniklerde çalışan hemşirelerin yüksek riskli ilaç uygulamaları konusundaki bilgi durumlarının ve ilaç hatalarıyla ilgili tutum ve davranışlarının incelenmesi. Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi. 2016;19(1):34-41
30. Güleç D. Hemşirelerin tıbbi hataya eğilimleri ve etkileyen faktörler. Ege Üniversitesi Hemşirelik Fakültesi Dergisi. 2014;30(1):1-18.
31. Aiken LH, Clarke SP, Cheung RB, Sloane DM, Silber JH. Educational levels of hospital nurses and surgical patient mortality. JAMA. 2003;290(12):1617-23.
32. Chang YK, Mark BA. Antecedents of severe and nonsevere medication errors. J Nurs Scholarsh. 2009;41(1):70-8.
33. Ersun A, Başbakkal Z, Yardımcı F, Muslu G, Dilek B. Çocuk hemşirelerinin tıbbi hata yapma eğilimlerinin incelenmesi. Ege Üniversitesi Hemşirelik Fakültesi Dergisi. 2013;29(2):33-46.
34. Parshuram CS, To T, Seto W, Trope A, Koren G, Laupacis A. Systematic evaluation of errors occurring during the preparation of intravenous medication. CMAJ. 2008;178(1):42-8.
35. Sheu SJ, Wei IL, Chen CH, Yu S, Tang FI. Using snowball sampling method with nurses to understand medication administration errors. J Clin Nurs. 2009;18(4):559-69.

36. Tang FI, Sheu SJ, Yu S, Wei IL, Chen CH. Nurses relate the contributing factors involved in medication errors. J Clin Nurs. 2007;16(3):447-57.

37. Özyer Y, Cerrahi kliniklerinde çalışan hemşirelerde iş yükü algısı, işe bağlı gerginlik ve tıbbi hata tutumları. Ordu Üniversitesi Sağlık Bilimleri Enstitüsü Hemşirelik Anabilim Dalı Yüksek Lisans Tezi. 2016.

38. Coyle Y, Mercer S, Murphy-Cullen C, Schneider G, Hynan L. Effectiveness of a graduate medical education program for improving medical event reporting attitude and behavior. BMJ Qual Saf. 2005;14(5):383-8.

39. Jansma JD, Wagner C, ten Kate RW, Bijnen AB. Effects on incident reporting after educating residents in patient safety: a controlled study. *BMC Health Serv Res*. 2011;11(1):1-9.