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ORIGINAL ARTICLE

Errors in nursing practices: What are the attitudes of nurses toward medical errors?

Nigar Ünlüsoy Dinçer[1] **Serpil İnce**[2] **Rana Can Özdemir**[3]

[1] Department of Nursing, Faculty of Health Science, Ankara Yıldırım Beyazıt University. Ankara / Türkiye
[2] Faculty of Nursing, Akdeniz University. Antalya / Türkiye
[3] Department of Medical History and Ethics, Faculty of Medicine, Akdeniz University. Antalya / Türkiye

Abstract

This study aims to determine the attitudes of nurses towards medical errors and related factors. The study was designed as a descriptive and cross-sectional study. A total of 119 nurses completed a questionnaire on personal information and Medical Errors Attitude Scale. It was determined that nurses' attitudes towards medical errors were positive. It was found that nurses' awareness of medical errors and reporting errors was high. The medical error perception of nurses with less years of work experience in the unit was found to be more negative. Many medical errors are actually caused by preventable conditions. At this point, the best way to prevent medical errors is to create an institutional culture based on patient safety. Within the scope of quality control studies in health institutions, the development of patient safety culture and development of nurses' attitudes towards medical errors should be supported.

Keywords: Nursing, medical error, attitudes, patient safety, hospital errors, quality assurance

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Corresponding Author:
Nigar Ünlüsoy Dinçer
Email: nigardincer@yahoo.com

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Introduction

Patient safety is a basic principle in the provision of healthcare services. Medical errors are among the most important factors that threaten patient safety in health institutions [1]. The National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) defines a "medication error" as "any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient or consumer [2].-

One in every five adults in the USA who claim that they personally experienced a medical error at some point in their livesare among the millions of patients who suffer from various medical errors and adverse events in the healthcare field each year. In addition, 72.000 of the patients who were exposed to healthcare-related infections during their stay in the hospital died [3] and 12 million outpatients experience diagnostic errors [4]. It has been stated that adverse events handled within the scope of medical errors are observed, especially in one-third of hospital admissions, and one out of five people who receive qualified nursing care experience adverse events [5].

Today, medical errors tend to increase dramatically. At the same time, it continues to exist as the main problem of the health system [6]. Medical errors can include medications, surgery, diagnostics, equipment, or laboratory reports. At the same time, factors such as nurse-to-patient ratio, nurse training and hospital procedures have been identified as important and hidden risk factors for patient safety [7,8]. In a study, it was determined that 91 percent of errors were related to drug administration and 9% were related to medical procedures [9]. The most common type of medication error was determined as giving the wrong dose to the patient at a rate of 32%. Other types of medication errors include wrong medication (12%), wrong patient (20%), missed dose (10%), wrong route (6%), intravenous pump errors (5%), and near misses (6%).

Although, there is still no clear data on medical errors in Turkey, it is estimated to be at a level to be considered [10]. Results of 10.000 files examined in the High Health Council between 1999 and 2004 stated that health personnel were more or less at fault. When looking at 219 cases between 2002 and 2008, 21% of medical malpractice allegedly originated from nurses [11]. The Security Reporting System (SRS) that has been active since 2016 in Turkey is an important platform where health professionals report errors encountered in medical processes, common medical errors, and measures to improve them in health facilities. [12]. It is seen in this system that nurses are in the first place with 31.19% in surgical procedure errors and 33.38% in medication errors [11]. Surgical units are places where undesirable events occur frequently. Apart from the surgical technique applied, most of the errors may be related to the situations a rising from the system, such as preventable delays in the treatment, insufficient patient monitoring and supervision, and the role of incompetent and incompetent nurses in patient care, which are among the components of nursing care. Although drug administration is a process that requires a multidisciplinary approach, medication errors are the most common type of medical error for nurses due to the frequent practices performed by nurses and the fact that many stages of the process are within the duties, authorities and responsibilities of nurses [13].

Today, nurseshave many duties, such as watching complex physiological statuses, researching sophisticated life-saving devices, organizing nursing services to be delivered, and providing health care programs worth millions of dollars. With so many duties, nurses are at risk of making medical errors in patient care. Nurses are an indispensable part of the health system and are called the heartbeat of health services [14]. Nurses, like all employees working in the health system, must have information about patient safety, medical errors, and notification systems to fulfill their responsibilities.

Attitude studies are carried out in order to take precautions in order to prevent negative situations that may occur in the future by learning the attitudes of individuals in a certain period. For this reason, determining the attitudes of health professionals that form the basis

of their knowledge, emotions and behaviors towards medical errors [15] is a guiding factor in determining strategies to prevent medical errors.

For this purpose, it is thought that determining the attitudes of nurses toward medical errors since they see patients 24/7 and perform one-to-one patient care will guide the adoption of appropriate policies for safe care and make necessary administrative arrangements. In addition, this study is expected to raise and increase awareness of medical errors.

Materials and Methods

This was a descriptive cross-sectional study. Data were collected between "April 10- July 30 2017, at Yıldırım Beyazıt University Yenimahalle Training and Research Hospital in Ankara, Turkey. The university had 180 nurses working in a hospital in question. The sample consisted of 119 nurses (67%) who agreed to participate in the study that were not on duty or on leave.

Data were collected by the researcher from a face-to-face interview using The Sociodemographic Questionnaire and Medical Errors Attitude Scale. The nurses were informed on the purpose of the research and content of the forms. After written consent to participate was received, forms were distributed to participants to be completed with a face-to-face interview. Data collection was completed in 15 to 20 minutes.

Assessment Tools

The Sociodemographic Questionnaire; consists of 15 questions, prepared by the researchers after researching the literature, questioning the introductory characteristics of nurses (gender, marital status, educational status, *etc.*), their professional characteristics (work experience, unit, *etc.*) and some statements related to medical error (meaning of medical error, witness status, *etc.*).

Medical Errors Attitude Scale**;** was developed by Güleç and İntepeler to determine the attitudes of physicians and nurses in medical errors [16]. It is the only scale that is used to reveal the attitudes of physicians and nurses towards medical errors in our country, and which deals with the cognitive, emotional and behavioral elements of attitude towards medical errors. The scale consists of 16 five-point Likert type questions and three sub-dimension: perception of medical error, approach to medical error and causes of medical error. Two items in the scale (10^{th} and 13^{th} items) are scored in reverse. The sub-dimension score is summed and divided by the number of sub-dimension items. The score obtained is evaluated between 1-5 where the cut-off point of the scale was determined as 3. If an average of less than 3 points is obtained from the scale, medical error attitudes are considered negative, and a score of 3 and above is evaluated as positive medical error attitudes. Having a negative attitude means that employees' awareness of the importance of medical errors and error reporting is low; positive attitude shows that employees are highly aware of the importance of medical errors and error reporting. *Cronbach's* alpha reliability coefficient was found as 0.75 [16]. In this study, *Cronbach'* alpha reliability coefficient of scale 0.715.

Statistical Analysis

Data were evaluated using SPSS for Windows 25.0 software package program. Descriptive statistics (number, percentage, mean, standard deviation, min and max) were used while evaluating the data. Compliance with normal distribution was examined with the Q-Q Plot drawing. For the comparison of normally distributed quantitative data, independent *t* test was used for the difference between two independent groups, and one-way analysis of variance was used for comparing more than two groups. Regression analysis was used to test whether the independent variable had a statistically significant effect on the dependent variable. Four different models were created in which the participants' demographic characteristics were independent variables and scales and sub-dimensions were dependent variables. It was observed that the models created were not statistically significant and regression analysis could not be interpreted. Total score averages and the mean scores of the sub-dimensions were calculated. The results were evaluated in 95% confidence interval and $p < 0.05$ significance value.

Ethical Considerations**:** Ethics committee permission (Reference Number: 2017/07 and date 13.03.2017) for the research, the institution

permit and the permission of the owner of the scaleused were received. Also, researchers explained the purpose, methods used and benefits of the study to the nurses and asked whether they were willing to participate in the study. Participants' written consent was obtained.

Results

The average age of nurses participating in the study was 38.83±5.21years. The findings also included the following: 93.3% of the nurses were women; 79.8% were married; 47.1% completed undergraduate education; 37.8% had 21 years or more work experience; and 47.1% worked in special units (emergency, intensive care, operating room).

The total score average of the nurses on the Medical Errors Attitude Scale was found to be 3.28±0.31. The average scores they received from the sub-dimension were as follows: Medical error perception, 1.15±0.36; medical error approach,1.94±0.21; and medical error causes, 1.85±0.34 (Table 1).

The participants were asked to answer the question "What do you understand by the term medical error?". A total of 115 participants answered this question and stated more than one answer. The expressions most frequently written by the participants are as follows: "misapplication" (n=49), "errors experienced during drug administration" (n=24), "healthcare worker error" (n=24), "patient harm" (n=15), "lack of knowledge and inexperience" (n=6), "insufficient follow-up" (n=5), "Unnecessary action" (n=5), "unintentional error" (n=3), "side effect" (n=1), "I don't know" (n=1).

In another question, participants were asked to give an example of "medical error". A total of 113 nurses answered this question. The three most frequently given answers to this question were as follows: "misapplication" (medication administration errors/blood transfusion errors/ wrong treatment/order application errors); "wrong side for surgery"; and "wrong surgery to the wrong patient."

Table 2 shows the comparison of demographic characteristics of nurses and mean scores obtained from Medical Errors Attitude Scale and its sub-dimensions. There was no statistically significant difference between the nurses' age, gender, educational status, unit of employment, years of work experience, and mean score and sub-dimension ($p > 0.05$). A statistical significance was found between the medical error perception ($p=0.036$) and medical error causes ($p=0.047$) sub-dimension when the nurses' years of work experience in the unit and scale mean scores were compared.

Table 3 shows the total score averages of items related to Medical Errors Attitude Scale sub-dimensions. While the highest average of the first three points is the average of the items "medical errors and reasons must be discussed openly", "commited medical errors and their causes should be discussed among executives" and "high number of care taking patients increases the medical error number respectively, the lowest point average belongs to the item "individual who makes the medical error is innocent".

Discussion

To reduce medical errors, it is important to know the health professionals' perceptions of medical errors, causes of medical errors they encounter, and their approach when they encounter medical errors. Healthcare workers are concerned about being shamed by their colleagues and records of

Table 1. The nurses' average scores medical errors attitude scale and sub-dimension (n=119).

Sub-dimension	Mean±SD	Min	Max
Medical Error Perception	1.15±0.36	1.00	2.00
Approach to Medical Errors	1.94±0.21	1.00	2.00
Medical Error Reasons	1.85±0.34	1.00	2.00
Total	**3.28±0.31**	**2.38**	**3.89**

errors filed on their records [17]. Such anxieties guide their perception and attitude toward medical errors. There are studies examining the attitudes of physicians and nurses, who constitute an important part of the healthcare team, towards medical errors. In a study carried out in our country in which the same scale was used [18], it was indicated that physicians and nurses' mean medical error attitude averages were identical, and their awareness levels towards medical errors were positive. In the other two studies, physicians' total medical error attitude scores were interpreted as positive, with the mean of 3.69 [19] and 3.46 [20], similar to our study. In this study, only nurses' attitudes towards medical errors were investigated and it was found that nurses were quite aware of the importance of medical errors and error reporting. Similar results were found in studies using the same scale [18,21,22]. In this study, no significant difference was found between the mean scores of Medical Errors Attitude Scale and sociodemographic variables.

Table 2. Comparison of the socio-demographic characteristics of nurses with the medical errors attitude scale and sub-dimension (n=119).

Characteristics	Medical Error Perception X±SD	Approach to Medical Errors X±SD	Medical Error Reasons X±SD	Total X±SD
Gender				
Female	1.16±0.37	1.95±0.20	1.87±0.33	3.29±0.30
Male	1.12±0.35	1.87±0.35	1.75±0.46	3.14±0.40
Statistical significance	t=0.275 p=0.784	t=0.994 p=0.322	t=0.988 p=0.325	t=1.318 p=0.190
Marital status				
Married	1.17±0.38	1.96±0.17	1.86±0.34	3.28±0.30
Single	1.08±0.28	1.87±0.33	1.87±0.33	3.28±0.35
Statistical significance	t=1.139 p=0.257	t=1.311 p=0.201	t=-0.151 p=0.880	t=-0.080 p=0.936
Education qualification				
Health vocational high school	1.33±0.50	1.88±0.33	1.66±0.50	3.19±0.42
Associate degree license	1.13±0.34	1.94±0.22	1.86±0.34	3.23±0.30
Bachelor's degree	1.14±0.35	1.94±0.00	1.89±031	3.31±0.32
MSc/Phd	1.17±0.39	2.00±0.00	1.88±0.33	3.31±0.34
Statistical significance	F=0.770 p=0.513	F=0.528 p=0.664	F=1.148 p=0.333	F=0.838 p=0.476
Unit				
Internal units	1.14±035	1.98±0.14	1.92±0.27	3.28±0.27
Surgical units	1.23±0.43	2.00±0.00	1.76±0.43	3.33±0.26
Specialty units (ICU/Emergency / operating room)	1.16±0.37	1.91±0.28	1.83±0.37	3.27±0.35
Statistical significance	F=0.311 p=0.733	F=1.718 p=0.184	F=1.917 p=0.272	F=0.201 p=0.819
Nursing work experience				
1-10 years	1.18±0.39	1.95±0.21	1.95±0.21	3.31±0.31
11-20 years	1.13±0.34	1.94±0.23	1.86±0.34	3.26±0.29
21 years and over	1.17±0.38	1.95±0.20	1.82±0.38	3.28±0.34
Statistical significance	F=0.212 p=0.809	F=0.050 p=0.951	F=1.104 p=0.335	F=0.188 p=0.829
Working time in unit				
1-5 years	1.11±0.32	1.94±0.22	1.90±0.29	3.29±0.30
6 years and over	1.29±0.46	1.96±0.19	1.74±0.44	3.25±0.35
Statistical significance	t=-1.845 **p=0.036**	t=-0.359 p=0.721	t=1.766 **p=0.047**	t=0.581 p=0.562

In this study, nurses were asked to define medical errors and provide examples. Nurses mostly defined medical error as "wrong application" or "making mistakes." In addition, nurses emphasized indirectly harming patients and make a mistake in practice while defining medical errors. Participating nurses in this study prioritized the following examples of medical errors: "medicine application errors", "blood transfusion errors", "wrong treatment", and "errors in order application." In a study by Solak Kabataş et al., nurses listed types of medical errors most frequently encountered in the hospital as "hospital infection", "cutting/ piercing device injuries", and "bed sores" [23]. In another study, the distribution of the types of medical errors of nurses was determined as "wrong drug administration" (56.1%), "drug administration in a wrong way", and "wrong dose of drug administration" [24]. Still in another study, nurses working in the pediatrics clinic stated the conditions with drug errors as "wrong preparation of the drug", "administering the drug in the wrong way", and "administering the drug in the wrong dose" [25]. In fact, medication errors are only one of the areas covered by medical errors. Grober and Bohnen explain the concept of medical error as any negligence or action that contributes or may contribute to undesirable results during planning or implementation [26]. In addition, they emphasizes why the medical error occurs (negligence, planning error, *etc.*) and includes all the processes that cause/may lead to the error whether or not the medical error harms the person [26]. One of the types of medical errors is medication errors. Errors such as drug administration in the wrong dose/form and drug interactions are evaluated within this scope, and the causes of drug errors can be listed as unclear drug administration instructions, drug administration errors, miscalculation of drug doses, wrong drug administration, and drug follow-up errors [27]. The next part of the discussion is within the context of the Medical Errors Attitude Scale sub-dimension.

One of the important factors in preventing medical errors is to be aware of these errors and perceive what constitutes a medical error. In solving a problem, it is important to first identify the problem, accept its existence, and find solutions [28]. In this research, the medical error perception sub-dimension score was found to be low, and

Table 3. Total point averages related items on medical errors attitude scale sub-dimensions (n=119).

Medical Errors Attitude Scale	Mean	SD
Medical Error Perception		
1. The person who has made the medical error is innocent.	2.10	0.81
2. One must be empathetical when a medical error has been reported.	3.18	1.04
Approach to Medical Errors		
3. Medical errors and their causes should be discussed openly with employees.	4.24	0.80
8. I am in favor of reporting any mistakes which have been made.	4.10	0.78
10. I avoid reporting medical errors I have made.	2.12	0.73
11. Managers should take an approach that supports learning from mistakes.	4.10	0.77
12. Medical errors and their causes should be discussed among the managers.	4.18	0.72
13. If a medical error is prevented before it occurres, it does not need to be reported.	2.98	1.20
14. Medical errors should be explained to the patient/patient relative..	3.19	0.81
Medical Error Reasons		
4. Medical errors result from a lack of communication of the person who makes the mistake.	3.07	0.99
5. Medical errors are caused by system deficiencies.	3.42	0.87
6. Medical errors result from the lack of knowledge of the person who makes the mistake.	3.56	0.98
7. The high number of patients receiving care increases the number of medical errors.	4.15	0.94
9. Long working hours increase medical errors	3.96	0.97
15. Many medical errors are actually caused by preventable situations.	3.91	0.82
16. Reporting medical errors improves patient safety	4.06	0.77

ın this sub-dimension, nurses' awareness of the importance of perceiving medical error was found to be low. Studies conducted using the same assessment tool in relation to the subject also concluded that attitude was negative in the perception of medical error [22,25,29]. This finding means that nurses in this study had low awareness of the importance of medical errors and error reporting.

Attitudes toward reporting medical errors are among the primary practices for preventing medical errors. Unlike this study and other research results, Akın Korhan et al., reported positive perceptions of medical errors in their study to determine nurses' attitudes toward medical errors with 151 nurses [21]. It is thought that the variability of these findings may be due to the approach of hospital managers toward their employees and medical policies regarding medical errors.

In this study, a significant difference was found only between the year of work experience in the unit and average medical error perception score. The medical error perception of nurses with less years of work experience in the unit was found to be more negative. This result shows that the less experienced nurses who participated in the study had a lower level of awareness of the importance of medical error compared to the nurses with more work experience.

Results of a study in the literature are similar to those of this study [22,30]. In another study conducted on nurses in our country, as the years of work experience increased, error reporting decreased. Nurses who participated in that study believed that they could handle medical errors among themselves (28.9%), reporting medicine-relatederrors is perceived as a personal failure (8.8%), and they are concerned about putting their jobs at risk (4.4%) [31].

It can be concluded that nurses with less years of experience in the unit have more negative attitude toward medical errors because of different professional training, personal characteristics, difficulties experienced while adapting to the unit, and the possibility of being blamed for errors. Almost half of the nurses (47.6%) who participated in the study of Yiğitbaş **et al.** stated that experience was the reason for medical errors [32].

Knowing the factors that cause errors, discussing them to produce solutions and having managers take the solutions into consideration are important in the resolution of medical errors and reduction of frequency of occurrence. In this study, it has been found that nurses are quite aware of the importance they show in the approach to medical error. Analysis of items in approaches to medical error sub-dimension revealed the following first three expressions with the highest mean scores according to the responses: "Medical errors and reasons must be discussed openly", "Commited medical errors and their causes should be discussed among executives", and "I abstain from reporting all medical errors I made" (Table 3). In light of these statements, it can be said that nurses are in favor of reporting medical errors made. Similarly, in a study conducted by Güven et al, it was determined that the statement with the highest average score in this sub-dimension was "Medical errors and reasons must be discussed openly" [22].

The statement "I abstain from reporting all medical errors I made" received the lowest average score in this sub-dimension. Barriers perceived by nurses to reporting drug management errors were fear of losing the trust of the patient and family, fear of the manager's use of error report as evidence for negative evaluation, and fear of causing patient-nurse disputes [33]. Other reasons for nurses not reporting errors include "the patient was notharmed", "no other person knew about the error", "complexity of the reporting process", and "anxiety about legal punishment" [25,33]. It is important to identify a problem, accept its existence, and develop a method to solve it in preventing medical errors in health services. Therefore, sharing the errors with clinical nurses and administrators and strengthening cooperation while finding solutions regarding medical errors were believed to be effective in minimizing harm to the patients.

The adoption of institutional culture by administrative nurses and their approach to

nurses are important in detecting and solving medical errors. Some important factors affecting employees' approach to medical errors are directing them to give accurate reports, encouraging them to take lessons from errors, providing education, and supporting colleagues [25]. In his study with nurses, Delacroix [34] emphasized that the causes of medical errors should be investigated, and the development of professional competence at a personal and institutional scale in preventing medical errors should be discussed.

In this study, no significant difference was found between the approach to medical error average sub-dimension score and sociodemographic characteristics. Similar results were obtained in other studies in the literatüre [11,35]. In another studies [18,36] conducted on nurses a significant difference was found between gender, the clinic they worked in, years of work experience, and approach to medical error sub-dimension. It should be noted that attitudes toward the explanation of medical errors differ significantly between institutions and cultures.

In this study, it was determined that nurses were aware of the importance they showed against the sub-dimension of the cause of medical errors. The statement "High number of care taking patients increases the medical error number" received the highest average score in this sub-dimension. Caring for too many patients can lead to distraction, loss of concentration, and extreme fatigue. These are the factors that will increase the possibility of error by healthcare professionals. Additionally, the number of patients who are cared for, the number of nurses working, working with inadequate personnel, stress of the work environment, feelings of boredom and burnout are among the causes of medical errors [22,25,35,37].

According to the study conducted by Yiğitbaş et al, fatigue (65.3%), heavy workload (63.7%) and stress (58.9%) are the first three factors that cause medical errors [32]. In addition, other studies stressed that the presence of dysfunctional protocols and procedures, absence of any procedures, lack of communication, work outside the job description, and excessive workload may increase the tendency for medical errors [24,37]. In a study conducted by Er and Altuntaş to determine nurses' perception of medical errors, more than half of the participants (67.9%) stated that nurses who undertake non-nursing duties (secretariat) as the cause of medical errors [38].

Causes of medical errors also include inexperience and lack of knowledge. Experiences in the field of work lead to professional maturity and therefore positively affect the way nurses approach the patient. In a study conducted by Er and Altuntas in determining the opinions of nurses about the causes of medical errors, nurses' inexperience and inadequate professional knowledge and skills are among the reasons for medical errors [38]. In this study, it was determined that nurses with lower years of work experience (one to five years) had high attitude toward the causes of medical errors. Nurses with more years of work experience witnessed more medical errors during their professional life and this might make them get used to medical errors. In the literature, it has been stated that nurses' medication dispensing errors occur in the first five years of working, and that possibility of making medical errors is higher in nurses with less work experience [36,38].

Many medical errors are actually caused by preventable conditions. At this point, the best way to prevent medical errors is to create an institutional culture based on patient safety. In the prevention of medical errors, recognition of errors in advance, and reporting the event help develop strategies for not repeating the errors. By doing so, potential problems, threats, and dangers that may occur in the future can be prevented in the early stages.

Conclusion

Within the scope of quality studies in health institutions, the development of "patient safety" culture should be supported by the development of nurses' attitudes toward medical errors. Furthermore, it is suggested that wide-ranged studies be done with larger nurse groups, especially in clinics where observation-based behavior evaluations can take place. Although nurses' attitudes toward medical errors are generally positive, their low response to the item

"The person who made the medical mistake is not guilty" in the medical error subdimension reveals flaws in their understanding and perception of what medical errors.

In this study, the differences in the nurses' definitions of what constitutes a medical error show differences in the identification and naming of medical errors. Therefore, nurses should be encouraged to develop and use critical thinking skills.

This study has provided some insights on medical errors and factors affecting these errors. The information obtained from this study can contribute to educational programs that support the recognition of medical errors for quality patient care.

Key points for policy, practice and/or research

- Nurses' attitudes toward medical errors are formed mainly by systematic problems rather than characteristics of nurses, except for a few sociodemographic features. Although nurses' attitudes toward medical errors are generally positive, their low response to the item "The person who made the medical mistake is not guilty" in the medical error sub-dimension reveals flaws in their understanding and perception of what medical erroris.
- In this study, the differences in the nurses' definitions of what constitutes a medical error show differences in the identification and naming of medical errors. Therefore, nurses should be encouraged to develop and use critical thinking skills.
- This study has provided some insights on medical errors and factors affecting these errors. The information obtained from this study can contribute to educational programs that support the recognition of medical errors. In addition, our findings may help in taking the necessary measures to reduce or eliminate barriers to reporting medical errors. In doing so, desired quality of patient care can be provided.

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Conflict of Interest

The authors declares that there is no conflict of interest.

References

1. Bayer E, Çevik G. Investigation of the effects of nurses' patient safety attitudes on patient safety culture: A case of a research and application hospital. Hacettepe Journal of Health Administration. 2019;22:653-76.
2. National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP). https://www.nccmerp.org/about-medication-errors. Accessed: 10 June 2022.
3. Healthcare-associated infections (HAI). https://www.cdc.gov/hai/data/portal/index.html. Accessed: 01 September 2022. doi: 10.26449/sssj.913.
4. Singh H, Meyer AND, Thomas E J. The frequency of diagnosticerrors in outpatientcare: Estimations from three large observational studies involving US adult populations. BMJ Qual Saf. 2014;23(9):727-31. doi: 10.1136/bmjqs-2013-002627.
5. NORC at the University of Chicago & IHI/NPSF Lucian Leape Institute. (2017). Americans' Experiences with Medical Errors & Views on Patient Safety. Cambridge, MA: Institute for Health care Improvement & NORC at the University of Chicago.
6. Aydemir, İ. Analysis of system-based medical errors in health care institutions. DEU J GSSS. 2018;19:665-81. doi:10.16953/deusosbil.281328.
7. Aiken LH, Clarke SP, Cheung RB, Sloane DM, Silber J H. Educational levels of hospital nurses and surgical patient mortality. JAMA. 2003;290(12):1617-23. doi: 10.1001/jama.290.12.1617.
8. Needleman J, Buerhaus P, Mattke S, Stewart M, Zelevinsky K. Nurse staffing levels and the quality of care in hospitals. N Engl J Med. 2002; 346(22):1715–22. doi: 10.1056/NEJMsa012247.
9. Grayson D, Boxerman S, Potter P, Wolf L, Dunagan C, Sorock G, Evanoff B. Do transient working conditions trigger medical errors? Advances in patient safety: From Research to Implementation Volume 1: Research Findings. Accessed: January 30, 2022.

10. Çelik Durmuş, S. Medical errors: Causes & solution suggestions. SSS Journal. 2018;4(23):4388-96. doi: 10.26449/sssj.913.

11. Karaca Sivrikaya S, Şimsek Kara A. Hemşirelerin tıbbi hata yapma eğilimlerinin incelenmesi (in Turkish). Balıkesir Sağlık Bilimleri Dergisi. 2019;8(1):7-14.

12. Turkey's Health Ministry Quality & Accreditation in Health. https://kalite.saglik.gov.tr/TR,7107/yayinlar.html. Accessed: 20 April 2022.

13. Koralay G. Sağlıkta akreditasyon standartlarındaki güvenli cerrahi bölümünün diğer bölümler ile ilişkisi üzerine bir analiz (in Turkish). JHIT. 2021;1-16.

14. Singh A, Mathuray M. The nursing profession in South Africa – Are nurses adequately informed about the law & their legal responsibilities when administering health care?'. De Jure. 2018;122-39. doi: 10.17159/2225-7160/2018/v51n1a8.

15. Gülnar E, Özveren H, Özden D. The relationship between moral sensitivity and medical errors attitude innursing students. J Forensic Leg Med. 2020;73:1-4. doi: 10.1016/j.jflm.2020.101981.

16. Güleç D, Seren İntepeler Ş. Tıbbi hatalarda tutum ölçeğinin geliştiirlmesi (in Turkish). Hemşirelikte Araştırma Geliştirme Dergisi. 2013;15(3):26-41.

17. Dyab EA, Elkalmi RM, Bux SH, Jamshed SQ. Exploration of nurses' knowledge, attitudes, and perceived barriers towards medication error reporting in a tertiary health care facility: A qualitative approach. Pharmacy. 2018;6(120):1-14. doi: 10.3390/pharmacy6040120.

18. Ulusoy H, Tosun N. A study on determiınatiıon of medical error attitudes of physicians & nurses. BMIJ. 2020;8(1):969-80. doi: 10.15295/bmij.v8i1.1338.

19. Banaz M, Yalçın Balçık P. Hekimlerin defansif tıp tutumlarının incelenmesi (in Turkish). Hacettepe Sağlık İdaresi Dergisi. 2022;25(3):501-16.

20. Karagöz N, Yayla EN. A field research for the determination the influence of physicians' professionalism understanding on medical errors attitude. CMJ. 2019;41(3):484-9. doi: 10.7197/cmj.vi.590598.

21. Akın Korhan E, Dilemek H, Mercan S, Yılmaz DU. Determination of attitudes of nurses in medical errors & related factors. IJCS. 2017;10(2):794-801.

22. Güven SD, Sahan S, Ünsal A. Nurses' attitudes for medical errors. İzlek Academic Journal, 2019;2:75-85.

23. Solak Kabataş M, Sevinç F, Sav D. Determining the level of tendency in malpractice among nurses. International Refereed Journal of Nursing Research. 2014;1:59-74.

24. Akgün Şahin Z, Kardaş Özdemir F. Examination of the tendency for nursing malpractice & affecting factors. JERN. 2015;12(3):210-4.

25. Gök D, Yıldırım Sarı H. Pediatric nurses' attitudes to medical malpractice (in Turkish). İzmir Katip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi. 2017;2(1):7-13.

26. Grober ED, Bohnen JMA. Defining medical error. Can J Surg. 2005;48(1):39-44.

27. Çakmak C, Konca M, Teleş M. Türkiye Ulusal Güvenlik Raporlama Sistemi (GRS) üzerinden tıbbi hataların değerlendirilmesi. Hacettepe Sağlık İdaresi Dergisi. 2018;21(3):423-48.

28. Koehn AR, Ebright PR, Draucker CB. Nurses' experiences with errors in nursing. Nurs Outlook. 2016;64(6):566-74. doi: 10.1016/j.outlook.2016.05.012.

29. Özlük B. Medical error attitudes of nurses from different generation (in Turkish). Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi. 2020;7(1):8-14. doi: 10.31125/hunhemsire.715027.

30. Seren İntepeler Ş, Soydemir D, Güleç D. Medical error tendencies and the factors affecting these tendencies in nurses. Journal of Ege University Nursing Faculty. 2014;30:1-18.

31. Aydın SS, Akın S, Işıl O. Assessment of the opinions of nurses working in a hospital about the level of drug error knowledge & reporting of drug errors. JERN. 2016;14:14-24.

32. Yiğitbas Ç, Oğuzhan H, Tercan B, Bulut A Bulut A. Nurses' perception, attitudes & behaviors concerning malpractice. Anatolian Clinic. (in Turkish). 2016;21(3):207-14. doi: 10.21673/anadoluklin.254224.

33. Yung HP, Yu S, Chu C, Hou IC, Tang FI. Nurses' attitudes and perceived barriers to the reporting of medication administration errors. J Nurs Manag. 2016;24(5):580-8. doi: 10.1111/jonm.12360.

34. Delacroix R. Exploring the experience of nurse practitioners who have committed medical errors: A phenomenological approach. J Am Assoc Nurse Pract. 2017;29(7):403-9. doi: 10.1002/2327-6924.12468.

35. Bölükbas N, Özyer Y, Çilingir D. The effect of workload perception and occupational stress on medical error attitudes of nurses working in surgical clinics. Mid Blac Sea Journal of Health Sci. 2020;6(1):6-17. doi: 10.19127/mbsjohs.624390.

36. Demir Dikmen Y, Yorgun S, Yeşilçam N. Identifcation the level of tendency in malpractice among nurses (in Turkish). Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi. 2014;1(1):44-56.

37. Okpe DC, Dare AA, Oluwatoyin O, Daniel A K, Emmanuel A, Emmanuel O, Ganiu AB. Knowledge, attitude and perception of nurses on the legal implications of negligence in nursing practice: A case study of nurses injos university teaching hospital. Int J Healthc Sci. 2017;5(1):83-94.

38. Er F, Altuntaş S. Determination of nurses' view points about medical errors and their causes. (in Turkish). Journal of Health and Nursing Management. 2016;3(3):132-9.