RESEARCH ARAŞTIRMA

DOI: 10.5336/mdethic.2023-98112

The Effect of Malpractice Education on the Levels of Trend to Medical Errors and Attitudes Towards Medical Errors of Nurses: A Quasi Experimental Study

Malpraktis Eğitiminin Hemşirelerin Tıbbi Hatalara Eğilim Düzeylerine ve Tıbbi Hatalara Yönelik Tutumlarına Etkisi: Yarı Deneysel Bir Çalışma

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ABSTRACT This study was carried out to determine the effect of malpractice education on the levels of Trend to medical errors and attitudes towards medical errors of training nurses. The research was carried out by the university's hospital, department of emergency and was conducted on nurses working in the emergency department. The study population included 80 (control=40/experimental=40) emergency nurses who were accepted the invitation to participate and were included in the study sample. Data were collected through the descriptive features form, Medical Malpractice Trend in Nursing Scale, and the Scale of Attitudes towards Medical Errors, which are scaling instruments with fairly adequate validity and reliability indicators. The data in the demographic characteristics form as the independent variable of the research; the scores obtained from the medical Malpractice Trend Scale in Nursing and the scores from the Scale of Attitutes towards Medical Errors are the dependent variables. Statistical analysis of two independent groups was performed using the t-test, which is one of the parametric tests. Analysis also includes means, minimum, maximum and percentages. After the training, a significant increase was found in the total score of the Malpractice Trend Scale in Nursing and Scale of Attitudes towards Medical Errors and all sub-scales. During a working day, nurses make critical decisions while providing care for individuals, perform tasks that require skills, administer medication, and guide the decisions that need to be made. It is foreseen that malpractice rates will decrease significantly by increasing the knowledge level of nurses and providing awareness with the continuous trainings to be given.

Keywords: Emergency service; malpractice; medical errors; nurses

ÖZET Bu araştırma, malpraktis eğitiminin tıbbi hatalara eğilim düzeylerine ve malpraktis tutumlarına etkisini belirlemek amacıyla yapılmıştır. Araştırma bir üniversite hastanesinin acil servisinde çalışan hemşireler üzerinde gerçekleştirilmiştir. Araştırma evrenini, daveti kabul eden ve araştırma örneklemine dâhil edilen 80 (kontrol=40/deneysel=40) acil hemşiresi oluşturmuştur. Veriler, geçerlik ve güvenirlik göstergeleri oldukça yeterli olan ölçme araçları olan tanımlayıcı özellikler formu, Hemşirelikte Tıbbi Hata Eğilim Ölçeği ve Tıbbi Hatalara Yönelik Tutum Ölçeği aracılığıyla toplanmıştır. Araştırmanın bağımsız değişkeni demografik özellikler formunda yer alan veriler; Hemşirelikte Tıbbi Hata Eğitim Ölçeği'nden ve Tıbbi Hatalara Yönelik Tutum Ölçeği'nden alınan puanlar bağımlı değişkendir. İki bağımsız grubun istatistiksel analizi, parametrik testlerden biri olan t-testi kullanılarak yapıldı. Analiz aynı zamanda ortalamaları, minimum, maksimum ve yüzdeleri de içermektedir. Eğitim sonrası Hemşirelikte Tıbbi Hata Eğilim Ölçeği ve Tıbbi Hatalara Yönelik Tutum Ölçeği toplam puanında ve tüm alt ölçeklerinde anlamlı artış saptanmıştır. Hemşireler bir iş günü içinde bireylere bakım verirken kritik kararlar verir, beceri gerektiren görevleri yerine getirir, ilaçları uygular ve alınması gereken kararlara rehberlik eder. Verilecek sürekli eğitimler ile hemşirelerin bilgi düzeyi artırılarak ve farkındalık sağlanarak malpraktis oranları önemli ölçüde azalacağı ön görülmektedir.

Anahtar Kelimeler: Acil servis; malpraktis; tıbbi hata; hemşireler

TO CITE THIS ARTICLE:
Güven İ, Karaca T. The effect of malpractice education on the levels of trend to medical errors and attitudes towards medical errors of nurses: A quasi experimental study. Turkiye Klinikleri J Med Ethics. 2024;32(1):11-8.

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Peer review under responsibility of Turkiye Klinikleri Journal of Medical Ethics, Law and History.

Received: 24 May 2023 ***Received in revised form:*** 10 Oct 2023 ***Accepted:*** 06 Nov 2023 ***Available online:*** 14 Dec 2023

The concept of malpractice, defined as medical error or medical misconduct, derives from the Latin words "mala" and "praxis", which means "bad, faulty practice".[1] In other words, medical error, health personnel's intent, fault or negligence lack of appropriate intervention, wrong treatment harm caused by its application and non-treatment.[2] Medical errors are considered as practices that occur due to ignorance, inexperience, indifference, or the technology used and lead to longer hospitalization, impair patient's health, harm the patient, or lead to mortality.[3,4] Medical errors also cause great financial losses. The cost of medical errors in the USA is in the range of 17-29 billion dollars.[5] In his study, Milligan reported that 10% of patients admitted to the hospital experience preventable events/accidents, and approximately 25 thousand preventable deaths occur every year.[6] Deaths in the United States, according to a report from the American Institute of Medicine Medical errors were found to be the 3rd among the causes.[7] The rate of medical errors in Türkiye was determined as 16.6% and most of them from the obstetrics.[8]

Human-related factors can be listed as fatigue, inadequate training, lack of adequate care, failure to take precautions, carelessness, lack of communication, and wrong decisions. Organizational factors include workplace structure, policies, administrative/financial structure, leadership, inadequate feedback, and inappropriate allocation of personnel. Technical factors are insufficient automation, inadequate or missing devices, and lack of integration.[8,9] In addition, an insufficient number of healthcare professionals, an excessive number of patients, inappropriate working conditions, and problems related to materials and equipment are considered among the primary causes of medical errors.[8,10] According to reports, nurses make medical errors most frequently because there aren't enough nurses, they're tired and thoughtless, their hours aren't consistent, their physical conditions aren't adequate for the job, there are a lot of patients, and they're ignorant, inexperienced, and lacking in fresh knowledge.[11,12] Alcan et al. considered problems related to communication, organizational culture, orientation, and staffing, especially training, as the main causes of unexpected events or medical errors.[13] In this regard, it was emphasized that nurses' attitudes toward possible errors should be identified during their education, and their proneness towards medical errors should be determined to ensure patient safety.[13] In their study, Alemdar and Aktaş stated that nurses should be provided with continuous training to prevent medical errors after graduation.[14] In this regard, it is believed that it would be useful to provide training for nurses, who constitute the majority of health care professionals, on medical errors and patient safety and to prevent medical errors. In addition, as a result of the training, nurses will be careful in their practices and the rates of medical errors will be reduced, indirectly reducing the rates of patient injury, disability, and mortality, and the negative effects of medical errors on nurses such as decreased level of success due to decreased motivation and performance, disengagement from the profession, and lawsuits that may be filed against nurses and managers will be prevented. Therefore, this study was planned to investigate the effect of malpractice training on the level of medical error Trend and attitudes toward medical errors of nurses working in the emergency department.

MATERIAL AND METHODS

AIM OF STUDY

A two-group, quasi-experimental (pre-test/post-test), experimental/control design was used to conduct this study, with the purpose of determining the effect of malpractice education on the levels of trend to medical errors and attitudes towards medical errors of emergency nurses.

SETTING

The research was carried out in the university's hospital, department of emergency and was conducted on nurses working in the emergency department.

SAMPLE

80 emergency nurses who accepted the invitation to participate and made up the study sample comprised the study population. With a 95% confidence level and an alpha value of 0.05, a sample size of 40 participants per group was adequate for carrying out a

valid t-test. The nurses were assigned to the experimental group (n=40) and to the control group (n=40) via a randomizer program (www.randomizer.org). The study's goal and methodology were explained to the nurses who were taking part, and their written informed consent was obtained.

ETHICAL CONSIDERATIONS

Before conducting the study, approval was obtained from the Adıyaman University Social and Human Sciences Ethics Committee (date: August 18, 2022; no: 314). Written approval was obtained from the emergency nursing department of the university hospital. Emergency nurses who consented to take part in the study signed written informed consent forms. Necessary permissions were obtained to use the scales. The nurses were told not to write their names on the forms used to collect the data in order to maintain anonymity. In order to prevent ethical issues, the control group received the identical instruction once the trial was finished. The study was carried out in compliance with the principles of Helsinki Declaration.

QUESTIONNAIRES

Data were collected through the descriptive features form, Malpractice Trend Scale in Nursing, and the Scale of Attitudes towards Medical Errors, which are scaling instruments with fairly adequate validity and reliability indicators.

Descriptive features form: The form includes general questions such as nurses' age, marital status, whether following a journal about malpractice.

Malpractice Trend Scale in Nursing: "Malpractice Trend Scale in Nursing" was used to identify areas of mistake as a data collection instrument. Özata and Altunkan created the "Malpractice Trend Scale in Nursing" in 2009 to assess the propensity for medical error among nurses who provide direct patient care. The scale has 49 items and 5 subdimensions, including falls and communication, hospital infections, patient monitoring and equipment safety, and medication and transfusion practices. The scale's Cronbach alpha coefficient was discovered to be 0.95.[15] A 5-point Likert scale called the "Malpractice Trend Scale in Nursing" is used to evaluate each item. A decline in points indicates an increase in the likelihood to make mistakes among nurses, whereas a rise in points indicates a decrease in that Trend. The scale's lowest score is 49, while its maximum is 245. The scale's Cronbach alpha coefficient, according to this study, was 0.85.

Scale of Attitudes towards Medical Errors: The Güleç and Seren Scale of Attitudes towards Medical Errors has three subscales: cognitive, emotional, and behavioral.[16] Scale designed to gauge the attitudes of doctors and nurses has three subscales: 1) Subscale "medical error perception" has 2 items; 2) Subscale "medical error approach" has 7 items; and 3) Subscale "medical error reasons" has 7 items. This rating system uses a five-point Likert scale. The reliability coefficient of scale for Cronbach alpha is 0.75. The scale's items 10 and 13 both received a reverse rating. When evaluating the scale, nurses' point averages for the items are calculated, and their attitudes toward medical errors are also assessed. Attitudes about medical errors are rated positively for those who score 3 or higher and negatively for those who score less than 3. A negative attitude indicates that employees are less aware of medical errors and error reporting, whereas a positive attitude demonstrates that employees are more aware of medical errors and error reporting.[16] In this study, the Cronbach alpha reliability coefficient of scale for was found to be 0.88.

DATA COLLECTION PROCEDURE

The 24-hour malpractice course covered topics such as patient safety concepts, elements of negligence and malpractice, types of medical errors, causes of medical errors, the duties of nurses regarding malpractice, and prevention of malpractice. Face-to-face instruction included theoretical lectures, group projects, brainstorming sessions, and question-and-answer sessions (Table 1).

The descriptive features form, Malpractice Trend Scale in Nursing, and Scale of Attitudes Towards Medical Errors were all given to the nurses who had signed written consent forms prior to the start of the course. The control group nurses continued to work in the emergency department while the

TABLE 1: Content of the education course.

Week	Hours	Content
1.	4 hours	Patient safety concepts (theoretical framework)
2.	4 hours	Elements of negligence and malpractice (legal duty, causation, damages)
3.	4 hours	Types of medical errors
4.	4 hours	Causes of medical error
5.	4 hours	On responsibilities of nurse's about malpractice
6.	4 hours	Prevention of malpractice
Total	24 hours	

experimental group students participated in the course program. Following the training, the nurses in the two groups received the same data gathering instruments in various locations. The nurses were permitted to complete the Malpractice Trend Scale in Nursing and the Scale of Attitudes Towards Medical Errors once more after receiving their written assent. They were asked to read carefully and mark only one of the expressions in each item. The completion of these data-collection surveys took about 20-30 min.

DATA ANALYSIS

Data were analyzed using the SPSS software (Version 23) (IBM Corp., Armonk, NY, USA). The demographic feature data in the study are the independent factors; the Scale of Attitudes Towards Medical Errors and the scores from the Malpractice Trend in Nursing Scale were the dependent variables. A t-test, one of the parametric tests, was used to statistically analyze the two independent groups. Also included in the analysis were means, minimums, maximums, and percentages.

RESULTS

Of the nurses included in the study, 59 (73.75%) were female, 21 were male (26.25%). Of the experimental nurses included in the study, 35 (87.5%) were above ≥23. Following a journal about malpractice, almost all had no (82.5%) and almost married (90.0%) (Table 2).

In Table 3, the difference between the pretest and posttest scores of the nurses' Malpractice Trend Scale in Nursing and its sub-dimensions was examined. The total mean score of Malpractice Trend Scale in Nursing increased from 4.54 to 4.63. A statistically significant difference can be seen in this result ($p<0.001$). The medication and transfusion practices sub-dimension of the measure saw an increase in its mean score from 4.71 to 4.96. The test results differ statistically significantly ($p<0.001$). The hospital infections sub-dimension of the scale saw an increase in its mean score from 4.64 to 4.82. A statistically significant difference is produced by this finding ($p<0.001$). Patient monitoring and equipment safety's mean score climbed from 4.09 to 4.22 on the scale. A statistically significant difference is produced by this finding ($p<0.001$). The average score for the scale's falls sub-dimension rose from 4.12 to 4.32. A statistically significant difference can be seen in this result ($p<0.001$). The communication sub-dimension of the scale saw an increase in its mean score from 4.42 to 4.56. This result makes a statistically significant difference ($p<0.001$) (Table 3).

In Table 4, the difference between the pretest and posttest scores of the nurses' Scale of Attitudes Towards Medical Errors and its sub-dimensions was

TABLE 2: Characteristics of the nurses.

Characteristic		Experimental group (n=40) n (%)	Control group (n=40) n (%)	Total (n=80) n (%)
Gender	Female	30 (75.0)	29 (72.5)	**59 (73.75)**
	Male	10 (25.0)	11 (27.5)	**21 (26.25)**
Age (years)	18-22	5 (12.5)	8 (20.0)	**13 (16.25)**
	≥23	35 (87.5)	32 (80.0)	**67 (83.75)**
Marital status	Single	3 (7.5)	5 (12.5)	**8 (10.0)**
	Married	37 (92.5)	35 (87.5)	**72 (90.0)**
Following a journal about malpractice	Yes	6 (15.0)	8 (20.0)	**14 (17.5)**
	No	34 (85.0)	32 (80.0)	**66 (82.5)**

TABLE 3: Comparison of the nurses' pre-test and post-test scores of the Malpractice Trend Scale in Nursing and sub-dimensions.

Malpractice Trend Scale in Nursing and sub-dimensions	Control group* X̄±SD	Experimental group** X̄±SD	Statistics
Medication and transfusion practices	4.71±1.75	4.96±0.69	**p<0.001**
Hospital infections	4.64±0.45	4.82±0.59	**p<0.001**
Patient monitoring and equipment safety	4.09±0.45	4.22±0.40	**p<0.001**
Falls	4.12±0.53	4.32±0.38	**p<0.001**
Communication	4.42±0.25	4.56±0.29	**p<0.001**
Total Survey Score	**4.54±1.48**	**4.63±1.33**	**p<0.001**

*The group who was take malpractice course; **The group who took malpractice course; SD: Standard deviation.

TABLE 4: Comparison of the nurses' pretest and posttest scores of the Scale of Attitudes towards Medical Errors and sub-dimensions.

Scale of Attitudes towards Medical Errors and sub-dimensions	Control group* X̄±SD	Experimental group** X̄±SD	Statistics
Medical error perception	3.21±1.25	3.46±1.59	**p<0.001**
Medical error approach	3.44±1.45	4.22±1.25	**p<0.001**
Medical error reasons	4.19±1.38	4.96±1.30	**p<0.001**
Total survey score	**3.24±2.08**	**4.33±1.10**	**p<0.001**

*The group who was take malpractice course; **The group who took malpractice course; SD: Standard deviation.

examined. The nurses' Scale of Attitudes Towards Medical Errors overall rating went up from 3.21 to 3.46. The test results differ in a statistically significant way (p<0.001). The average rating on the scale's perception of medical error sub-dimension rose from 3.21 to 3.46. The difference is statistically significant (p<0.001) as a result. The scale's mean score for the sub-dimension relating to approach to medical error increased from 3.44 to 4.22. This difference is statistically significant (p<0.001). The average rating on the scale's causes of medical error sub-dimension rose from 4.19 to 4.96. This makes a statistically significant difference (p<0.001) (Table 4).

DISCUSSION

The purpose of this study is to determine how malpractice training for emergency room nurses affects those nurses' propensity for medical errors and attitudes toward such errors. The Malpractice Trend Scale in Nursing overall score and all subscales showed a significant improvement after the training. According to the scale's scoring, a higher overall score suggests that nurses are less likely to commit medical errors, while a lower total score shows that they are more likely to do so. The average overall score on the scale for our study was 4 points or higher. These results align with those of studies on nurses who work in emergency rooms.[17-20] Training is a factor that reduces the Trend toward medical errors. In their study, Işık Andsoy et al. showed a statistically significant difference in the mean scores of the "prevention of infections" and "patient monitoring and material safety" sub-scales of nurses who had previously received training on patient safety.[21] Examining the nurses who took part in our study's pre- and post-test mean scores for the Malpractice Trend Scale in Nursing and its sub-scale scores, it was discovered that the mean scores after the training were higher than those before the training. These results demonstrate that malpractice training reduces nurses' propensity for medical errors.

The Malpractice Trend Scale in Nursing was used in this study, and nurses performed well on all subscales. When these sub-scales were analyzed, it was shown that the "patient monitoring and material safety" sub-scale had the lowest mean score both be-

fore and after the training, indicating a higher propensity for medical errors. The "communication" subscale was shown to have the highest mean score both before and after the training, and as a result, the nurses' propensity for medical errors was lower in this sub-scale. Consistent with our study, nurses received the highest score from the "communication" sub-scale and the lowest score from the "patient monitoring and material safety" sub-scale in the studies conducted by Karacabay et al., Sivrikaya and Kaya, and Işık Andsoy et al.[17,20,21] In the study conducted by Avşar et al., nurses received high scores from all subscale of the scale, the highest mean scores were in the "medication and transfusion practices" sub-scale, and the lowest mean scores were in the "falls" and "patient monitoring and material safety" sub-scales.[22] However, in the study of Akgün and Kardaş, it was found that nurses scored low on the scale and its subscales, and therefore had a high trend toward medical errors.[23] It is believed that the differences in the studies may be because the studies were conducted in different institutions and different sample groups.

Before training, nurses' average scores on the Scale of Attitudes Towards Medical Errors were 3.24 2.08 and 4.33 respectively. According to the Scale of Attitudes towards Medical Errors, nurses who receive a mean score of 3 or higher are more likely to have positive attitudes toward medical errors than nurses who receive a mean score of 3 or less. Positive views suggest that employees are highly aware of the significance of reporting medical errors, whereas negative attitudes suggest that employees are not.[16] In our study, the mean scores of the Scale of Attitudes towards Medical Errors and its sub-scales were 3 and high both before and after the training. It was observed that the mean Scores the Scale of Attitudes towards Medical Errors total and sub-scale scores of the nurses after the training were higher than before the training, and the difference between the pre-test and post-test scores was statistically significant. These findings show that medical error training positively affects the attitudes of nurses toward medical errors. Inadequate training decreases the quality of health services and increases the rate of medical errors. Studies have stressed that inadequate training is an important cause of medical errors, and emphasized the importance of training to reduce medical errors.[21,24-26] In the study conducted by Kahriman and Öztürk, 53.7% of the nurses who participated in the study believed that the knowledge level of nurses should be improved to reduce medical error rates. Receiving training on medical errors and patient safety increases the level of knowledge of students and nurses on this subject.[27] It was found that the training provided to nurses increased the knowledge and awareness levels of nurses regarding medical errors. The knowledge of the nurses was found to increase significantly after the training, and the post-test knowledge scores increased significantly compared to the pre-test knowledge scores. Moreover, in the same study, it was also stated that nurses who had previously attended training meetings on medical errors and patient safety had higher knowledge levels. Altuntaş et al. stated in their study that the patient safety culture in hospital employees who received training on patient safety was better than those who did not receive such training.[25] The findings of the present study are in line with the above-mentioned studies. This suggests that it is quite possible to reduce medical error tendencies and medical error rates by providing positive attitudes to healthcare professionals through training programs.

LIMITATIONS

The data in this study were obtained from emergency nurses who were accepted the invitation to participate from one of the university hospital, which limits the generalizability of the findings. Future research requires larger samples to ensure representativeness.

CONCLUSION

According to the study results, after the training, a significant increase was found in the total score of the Malpractice Trend Scale in Nursing and Scale of Attitudes towards Medical Errors and all sub-scales. During a working day, nurses make critical decisions while providing care for individuals, perform tasks that require skills, administer medication, and guide the decisions that need to be made. It is foreseen that malpractice rates will decrease significantly by increasing the knowledge level of nurses and providing awareness with the continuous trainings to be given.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Türkan Karaca, İbrahim Güven;* ***Design:*** *Türkan Karaca, İbrahim Güven;* ***Control/Supervision:*** *İbrahim Güven;* ***Data Collection and/or Processing:*** *İbrahim Güven;* ***Analysis and/or Interpretation:*** *Türkan Karaca;* ***Literature Review:*** *Türkan Karaca, İbrahim Güven;* ***Writing the Article:*** *Türkan Karaca;* ***Critical Review:*** *Türkan Karaca, İbrahim Güven;* ***References and Fundings:*** *Türkan Karaca, İbrahim Güven;* ***Materials:*** *İbrahim Güven.*

REFERENCES

1. King JH. The Law of Medical Malpractice in a Nutshell. 2nd ed. St. Paul, MN: West Publishing; 1986.
2. Özgönül ML, Arda B, Dedeoğlu N. Tıp etiği ve hukuk açısından tıbbi hata, malpraktis ve komplikasyon kavramlarının değerlendirilmesi [Evaluation of medical error, malpractice and complication concepts in terms of medical ethics and law]. Turkiye Klinikleri Journal of Medical Ethics-Law & History. 2019;27(1):48-56. [Crossref]
3. McMichael BJ, Safriet BJ, Buerhaus PI. The extraregulatory effect of nurse practitioner scope-of-practice laws on physician malpractice rates. Med Care Res Rev. 2018;75(3):312-26. [Crossref] [PubMed]
4. Güner YO. Sağlık hizmetlerinde iyileştirme ve hasta güvenliği için tıbbi hatalar ve malpraktis nedenleri [Healthy care and medical fails for health care and patient safety]. Journal of Awareness (JoA). 2018;3(5):471-80. [Crossref]
5. Slonim AD, LaFleur BJ, Ahmed W, Joseph JG. Hospital-reported medical errors in children. Pediatrics. 2003;111(3):617-21. [Crossref] [PubMed]
6. Milligan FJ. Establishing a culture for patient safety - the role of education. Nurse Educ Today. 2007;27(2):95-102. Erratum in: Nurse Educ Today. 2015;35(5):727. [Crossref] [PubMed]
7. Makary MA, Daniel M. Medical error-the third leading cause of death in the US. BMJ. 2016;353:i2139. [Crossref] [PubMed]
8. Sağlık Bakanlığı. GRS güvenlik raporlama sistemi 2016 yılı istatistik ve analiz raporu. Erişim adresi: 16.01.2024 [Link]
9. Şahbaz G, Yücesoy H, Özlem A, Erbil N. Malpraktis ve sağlık profesyonellerinin sorumlulukları [Malpractice and responsibilities of health professionals]. Sağlık Bilimleri Üniversitesi Hemşirelik Dergisi. 2022;4(2):85-90. [Crossref]
10. Sweeney CF, LeMahieu A, Fryer GE. Nurse practitioner malpractice data: Informing nursing education. J Prof Nurs. 2017;33(4):271-5. [Crossref] [PubMed]
11. Metin B. Hemşirelik hizmetlerinde hasta güvenliği ve tıbbi hata (malpraktis) [Patient safety in nursing services and medical error (malpractics)]. Sağlık Akademisyenleri Dergisi. 2018;5(1):76-8. [Link]
12. Mello MM, Frakes MD, Blumenkranz E, Studdert DM. Malpractice Liability and Health Care Quality: A Review. JAMA. 2020;323(4):352-66. [Crossref] [PubMed] [PMC]
13. Alcan Z, Tekin DE, Civil SÖ. Hasta Güvenliği. 1. baskı. İstanbul: Nobel Tıp Kitapevleri; 2012.
14. Alemdar DK, Aktaş YY. Medical error types and causes made by nurses in Turkey. TAF Prev. Med. Bull. 2013;12(3):307-14. [Link]
15. Özata M, Altunkan H. Hemşirelerin tıbbi hataya eğilim ölçeğinin geliştirilmesi ve geçerlilik güvenirlilik analizinin yapılması. Kırılmaz E, editör. II. Uluslararası Sağlıkta Performans ve Kalite Kongresi Bildiri Kitabı; 28 Nisan-1 Mayıs 2010; Ankara: Sağlık Bakanlığı Yayınları; 2010. p.3-20.
16. Güleç D, Seren İŞ. Tıbbi hatalarda tutum ölçeğinin geliştirilmesi [Developing a scale of attitudes towards medical errors]. Hemşirelikte Araştırma Geliştirme Dergisi. 2013;15(3):26-41. [Link]
17. Karacabay K, Savcı A, Çömez S, Çelik N. Cerrahi hemşirelerinin iş yükü algilari ile tıbbi hata eğilimleri arasindaki ilişkinin belirlenmesi [Determination of the relationship between workload perceptions and medical error tendencies of surgical nurses]. Mersin Üniversitesi Sağlık Bilimleri Dergisi. 2020;13(3):404-17. [Crossref]
18. Yiğitbaş Ç, Oğuzhan H, Tercan B, Bulut A. Hemşirelerin malpraktis ile ilgili algı, tutum ve davranışları [Perceptions, attitudes and approaches of nurses about malpractice]. Anadolu Kliniği. 2016;21(3):207-14. [Crossref]
19. Turan GB, Mankan T, Polat H. Hemşirelik ve ebelik öğrencilerinde malpraktis [Malpractice in nursing and midwifery students]. Sağlık Bilimleri ve Meslekleri Dergisi. 2017;4(2):98-104. [Crossref]
20. Sivrikaya SK, Kara AŞ. Hemşirelerin tibbi hata yapma eğilimlerinin incelenmesi [Determination the Trend of the nurses to make medical mistake]. Balıkesir Sağlık Bilimleri Dergisi. 2019;8(1):7-14. [Link]
21. Işık Andsoy I, Kar G, Öztürk Ö. Hemşirelerin tıbbi hata eğilimlerine yönelik bir çalışma [A study on trends to medical error for nurses]. HSP. 2014;1(1):17-27. [Link]
22. Avşar G, Atabek AE, Karaman ÖZ. Hemşirelerin tibbi hata eğilim düzeyleri ve tibbi hata türleri: Bir hastane örneği [Medical error Trend levels of nurses and types of medical errors: a hospital example]. HSP. 2016;3(2):115-22. [Link]
23. Akgün Ş, Kardaş ÖF. Hemşirelerin tıbbi hata yapma eğilimlerinin incelenmesi [Examination of the trend for nursing malpractice and affecting factors]. Hemşirelikte Eğitim ve Araştırma Dergisi. 2015;12(3):210-4. [Link]
24. Babacan E, Öztürk H, Kahriman İ. Tıbbi hatalar ve hasta güvenliği: hemşirelere yönelik eğitimlerin etkinliğinin değerlendirilmesi [Medical errors and patient safety: evaluation of the effeciveness of the trainings for nurses]. Sağlıkta Performans ve Kalite Dergisi. 2018;14(2):57-72. [Link]

25. Altuntaş S, Güven G, Öztürk K, Esra I. Hemşirelik öğrencilerinin tıbbi hatalara karşı tutumları [Nursing students 'attitudes against to medical errors]. Bandırma Onyedi Eylül Üniversitesi Sağlık Bilimleri ve Araştırmaları Dergisi. 2019;1(1):1-9. [Link]

26. Aysun Ü, İntepeler ŞS. Pediatrik birimlerde elektronik tıbbi hata raporlama sistemi ve hasta güvenliği uzaktan eğitim programını kullanan hekim ve hemşirelerin deneyimleri [Experiences of physicians and nurses using electronic medical error reporting system and patient safety distance]. Dokuz Eylül Üniversitesi Hemşirelik Fakültesi Elektronik Dergisi. 2018;11(2):129-36. [Link]

27. Kahriman İ, Öztürk H. Tıbbi hatalar ve nedenleri. Tıbbi Hatalar ve Hasta Güvenliği Eğitim Rehberi. 1. Baskı. İstanbul: İstanbul Tıp Kitabevi; 2016.