

ORIGINAL ARTICLE

Özgün Araştırma

Correspondence address
Yazışma adresi

Figen DIGIN
Kırklareli University,
Faculty of Health Sciences,
Department of Nursing,
Kırklareli, Türkiye
fgndgn2013@gmail.com

Geliş tarihi / Received : May 25, 2023
Kabul Tarihi / Accepted : February 20, 2024
E-Yayın Tarihi / E-Published : September 01, 2024

Cite this article as
Bu makalede yapılacak atf

**Digin F., Kızılcık Ozkan Z.,
Karabiber M., Sisman C., Kalkan A.**
Patient Safety Culture of Surgical
Nurses and Affecting Factors

Akd Med J 2024;10(3): 408-415

Figen DIGIN
Kırklareli University,
Faculty of Health Sciences,
Department of Nursing,
Kırklareli, Türkiye
ORCID ID: 0000-0003-1861-0221

Zeynep KIZILCIK OZKAN
Trakya University,
Faculty of Health Sciences,
Department of Surgical Nursing,
Edirne, Türkiye
ORCID: 0000-0003-1892-241X

Mirac KARABIBER
Samsun Training and Research Hospital,
Intensive Care Nurse Cardiovascular
Surgery Intensive Care Unit,
Samsun, Türkiye
ORCID ID: 0000-0003-4899-430X

Cağla SISMAN
Uludağ University Health Application and
Research Center, Nurse Operating Room,
Bursa, Türkiye
ORCID ID: 0000-0003-3089-4458

Alev KALKAN
Gebze Fatih State Hospital,
Intensive Care Nurse Cardiovascular
Surgery Intensive Care Unit,
Kocaeli, Türkiye
ORCID ID: 0000-0002-6686-8131

Patient Safety Culture of Surgical Nurses and Affecting Factors

Cerrahi Hemşirelerinin Hasta Güvenliği Kültürü ve Etkileyen Faktörler

ABSTRACT

Objective:

One of the most important components of patient safety is safe surgical practices. The presence of risky surgical patients and units, and the increasing number of surgical interventions performed on patients worldwide increase the responsibility of surgical nurses in terms of patient safety culture. The aim of this study was to determine surgical nurses' perceptions of patient safety culture and the factors affecting it.

Material and Methods:

The data of this descriptive and cross-sectional study were collected with the voluntary participation of 386 nurses working in the surgical units of two state hospitals and one university hospital. The "Nurse Introduction Form" and the "Patient Safety Culture Scale" (PSCS) were used in data collection. The Mann-Whitney U test, Kruskal Wallis test, Pearson Correlation Analysis, and Mann-Whitney U test with Bonferroni Correction were used for statistical evaluation.

Results:

Nurses who received training on patient safety and were satisfied with their working conditions had a more positive perception of patient safety culture. It was determined that the nurses working in the surgical wards gave more importance to cooperation and comply with the policies to ensure patient safety compared to the operating room nurses.

Conclusions:

Nurses' perceptions of patient safety culture were found to be moderate. It is recommended to maintain training opportunities and good working conditions for patient safety and to provide management support.

Key Words:

Nurse, Patient safety, Surgery departments

ÖZ

Amaç:

Hasta güvenliğinin en önemli bileşenlerinden biri güvenli cerrahi uygulamalardır. Riskli cerrahi hastaların ve birimlerin varlığı ve dünya genelinde hastalara uygulanan cerrahi girişimlerin sayısının artması hasta güvenliği kültürü açısından cerrahi hemşirelerinin sorumluluğunu artırmaktadır. Bu çalışmanın amacı, cerrahi hemşirelerinin hasta güvenliği kültürü algılarını ve bunu etkileyen faktörleri belirlemektir.

Gereç ve Yöntemler:

Tanımlayıcı ve kesitsel tipte olan bu çalışmanın verileri, iki devlet hastanesi ve bir üniversite hastanesinin cerrahi birimlerinde görev yapan 386 hemşirenin gönüllü katılımıyla toplandı. Verilerin toplanmasında “Hemşire Tanıtım Formu” ve “Hasta Güvenliği Kültürü Ölçeği” (PKBÖ) kullanıldı. İstatistiksel değerlendirmede Mann Whitney U testi, Kruskal Wallis testi, Pearson Korelasyon Analizi, Bonferroni Düzeltmeli Mann-Whitney U testi kullanıldı.

Bulgular:

Hasta güvenliği konusunda eğitim alan ve çalışma koşullarından memnun olan hemşirelerin hasta güvenliği kültürü algısı daha olumluydu. Cerrahi servislerde çalışan hemşirelerin ameliyathane hemşirelerine göre hasta güvenliğini sağlamak için daha fazla işbirliğine önem verdikleri ve politikalara uydukları belirlendi.

Sonuç:

Hemşirelerin hasta güvenliği kültürü algılarının orta düzeyde olduğu belirlendi. Hasta güvenliği konusunda eğitim olanaklarının ve iyi çalışma koşullarının sürdürülmesi ve yönetim desteği sağlanması önerilmektedir.

Anahtar Kelimeler:

Hemşire, Hasta güvenliği, Cerrahi bölümler

INTRODUCTION

The patient safety concept has become an important theme worldwide in recent years (1). The fact that people who apply to healthcare institutions for treatment and care are damaged because of preventable mistakes has led to the patient safety concept (2). It was defined by the American Institute of Medicine as “preventing harm to patients”, and is the cornerstone of healthcare quality (2, 3).

One of the most important components of patient safety is safe surgical practices. Safe surgery is the provision of safe treatment and care service to the patient before, during, and after surgery (4). Surgical patients are in the risk group in terms of patient safety because of the operating room environment, surgical method, type of anesthesia, presence of chronic diseases, and sudden changes in vital signs during the surgical process (5). Risky surgical patients and units (invasive procedures, use of technological equipment, surgical smoke exposure, etc.), and the increased number of surgical interventions applied to patients globally (at least 235 million annually) increase the responsibility of surgical nurses in

terms of Patient Safety Culture (PSC) (6-9). Surgical nurses must think critically for patient safety, make quick and accurate decisions, and implement and evaluate these decisions as soon as possible (5, 10). PSC must be evaluated and developed to improve the quality of care in surgical units and to ensure “safe surgery” (11). For this reason, it is important to determine the patient safety culture of surgical nurses with valid and reliable scales. The purpose of this study was to determine the perception of PSC of surgical nurses and the factors affecting it.

MATERIAL and METHODS

Study Design and Participants

The data of this descriptive and cross-sectional study were collected between May and November 2021 with the voluntary participation of nurses who worked in the surgical wards, surgical intensive care units, and operating rooms of two public hospitals and one university hospital. The total number of beds in the surgical services of these three hospitals, which were located in the region that had the highest population density of the country, was 680, the number of beds in the surgical intensive care units was 189, and the number of beds in the operating room was 62. The population of the study consisted of nurses (N=1237) who worked actively in surgical clinics. The minimum number of people to be included in the sampling was calculated as 386 with the G* Power 3.1.9.4 program, predicting the effect size as 0.4195 with a 95% confidence interval, and 80% power ratio (8). The nurses who were working full-time for at least six months in the surgical unit in one of these three hospitals and who volunteered to participate in the study were included in the study. This study aligns with the STROBE (Strengthening the Reporting of Observational Studies) checklist.

Assessment tools

The “Nurse Introduction Form” and the “Patient Safety Culture Scale” (PSCS) were used in data collection.

Nurse Introduction Form

The form consisted of eight questions on the age, gender, education level, marital status, surgical unit, patient safety training status, satisfaction with working conditions, and working time in surgical units. The questions in the form were prepared by the researchers in line with the literature data (7, 8).

Patient Safety Culture Scale (PSCS)

It was developed by Türkmen et al. in 2011 to determine the patient safety culture in hospitals. The scale consists of fifty-one items in total and has five sub-dimensions; management and leadership, employee behaviors, unexpected events and patient reporting, and employee training and care environment (12). The item scores in the sub-dimensions are summed in the calculation of the scale score, and the total number obtained is divided by the number of the items, and the average score of each sub-dimension is obtained between 1-4. The average score of the five sub-dimensions is added and divided by five to obtain a scale score between 1-4 in the

calculation of the total scale score. In interpreting the PSCS score, "an increase in the average score towards 4 indicates a positive patient safety culture" and a decrease towards 1 indicates the presence of a negative patient safety culture. The total Cronbach Alpha Coefficient of the PSCS is .97, and the Cronbach's Alpha Coefficients of its sub-dimensions range from .83 to .97 (12). The total Cronbach's Alpha Coefficient of the scale was found to be .97, and the Cronbach's Alpha Coefficients of the sub-dimensions were found to be between .84-.90 for this study (0.90; 0.92; 0.84; 0.90; 0.89 respectively).

Data Collection

The data collection forms of the study were shared with the nurses who were in charge of the surgical units with an electronic questionnaire and were sent to other nurses with WhatsApp groups. An informed consent form was placed at the beginning of the data collection form, and the nurses were given written information about the purpose and scope of the study in this form. Participants who declared their willingness to participate in writing with the electronic questionnaire were included in the study and were allowed to answer the questions. It took an average of 20-25 minutes to answer the questions.

Data Analyses

The data were expressed by using descriptive statistics (mean, standard deviation, median, minimum, maximum, percentage, and frequency). The conformity of the data to the normal distribution was determined with the Kolmogorov-Smirnov Test. Statistical evaluations were made in the IBM SPSS Program (V.22) (IBM, Armonk, NY, USA). The Mann-Whitney U test and Kruskal Wallis test were used to determine the difference between the variables, and the Pearson Correlation Analysis was made to find the existence of relations between the variables. Mann-Whitney U test with Bonferroni Correction was used as a post-hoc test for the comparison of the groups to find the reason for the difference. The statistical significance value was taken as $p < 0.05$.

Ethical Permission

Before the study was commenced, permission was obtained from the Trakya University Medical Faculty Scientific Research Ethics Committee (protocol number: 2021/187, decision number: 09/19 date: 12.04.2021) from public hospitals and university hospitals. The Declaration of Helsinki, good clinical practices guide, and Ethics Committee Protocols and Standards were complied with in the scope of the study. The nurses were informed that the information they provided would only be used for scientific purposes in the scope of this study, and would not be shared with third parties. Written consent was obtained from the nurses, who were informed that they could leave the study at any moment in the online environment. Before the study commenced, written permission was obtained from the researcher who developed the scale. Patients were told that their participation in the study was voluntary and that they could withdraw from the study

at any time. Throughout the process, the ethical principles of protecting patient rights, patient confidentiality, privacy, and informed consent were respected.

RESULTS

The mean age of the surgical nurses was 30.8 ± 0.6 years, and 81.6% were women. It was also found that 90.4% of the nurses received training on patient safety, and 33.9% were satisfied with their working conditions (Table I).

Table I. Nurses' Descriptive Features (N=386)

Descriptive features		n (%)
Age _{year} (Mean \pm SD)		30.8 \pm 0.6
Gender	Female	315(81.6)
	Male	71(18.4)
Education	High school diploma	22(5.7)
	Bachelor's degree	313(81.1)
	Master's degree or Doctorate	51(13.2)
Marital status	Married	198(51.3)
	Single	188(48.7)
Surgical unit	Wards	136(35.2)
	Surgical intensive care units	180(46.6)
	Operating room	70(18.1)
Patient safety training status	Yes	349(90.4)
	No	37(9.6)
Satisfaction with working conditions	Satisfied	131(33.9)
	Dissatisfied	255(66.1)
Working time in surgical units _{month} Mean \pm SD		47.5 \pm 60.8

SD: Standard deviation, n: Number of nurses

The mean PSCS total score of the nurses was found to be 2.7 ± 0.4 . When the sub-dimensions of the scale were examined, it was seen that nurses had a higher positive perception of "employee training (2.8 ± 0.5)" and a slightly lower positive perception of "management and leadership (2.7 ± 0.4)" (Table II).

Table II. Nurses' Patient Safety Culture Scale Total and Sub-Dimensions the Average Score (N=386)

Scale and sub-dimensions	Mean \pm SD	Min-Max
Management and leadership	2.7 \pm 0.4	1-4
Employee behaviors	2.7 \pm 0.5	1-4
Unexpected event and patient reporting	2.7 \pm 0.5	1-4
Employee training	2.8 \pm 0.5	1-4
Care environment	2.7 \pm 0.5	1-4
Patient Safety Culture Scale	2.7 \pm 0.4	1-4

SD: Standard deviation, Min: Minimum, Max: Maximum

Table III. Comparison of The Nurses' PSCS Total and Sub-Dimensions of the Average Score according to Features (N=386)

Features	Management and leadership (Min-Max)	Employee behaviors (Min-Max)	Unexpected event and patient reporting (Min-Max)	Employee training (Min-Max)	Care environment (Min-Max)	Patient Safety Culture Scale (Min-Max)
Age	p = 0.544, r = 0.031	p = 0.047 , r = 0.101	p = 0.994, r = 0.000	p = 0.149, r = 0.074	p = 0.810, r = 0.012	p = 0.288, r = 0.054
Gender	Female 2.76(1-4)	2.78(1-4)	2.80(1-4)	3.00(1-4)	2.87(1-4)	2.82(1-4)
	Male 2.70(1-4)	2.85(1-4)	2.80(1-4)	3.00(1-4)	2.87(1-4)	2.82(1-3)
Statistical values	p = 0.815, U=10984.500	p = 0.550, U=10676.500	p = 0.251, U=10.220500	p = 0.516, U=10642.000	p = 0.807, U=10977.000	p = 0.963, U=11143.000
Education	High school diploma ^a 2.88(2-4)	2.96(2-4)	2.80(2-4)	3.00(2-4)	3.00(1-4)	2.91(2-4)
	Bachelor's degree ^b 2.76(1-4)	2.78(1-4)	2.80(1-4)	3.00(1-4)	2.8(1-4)	2.80(1-4)
	Master's degree or Doctorate ^c 2.82(1-4)	2.92(1-4)	2.80(2-4)	3.00(1-4)	2.75(1-4)	2.80(1-4)
Statistical values	p = 0.117, X ² = 4.293	p = 0.020 , X ² = 7.802	p = 0.268, X ² = 2.635	p = 0.032 , X ² = 6.865	p = 0.097, X ² = 4.666	p = 0.062, X ² = 5.553
Bonferroni corrected Mann Whitney U test		P ^{a,b} = 0.010		P ^{a,b} = 0.009		
Marital status	Married 2.76(1-4)	2.85(1-4)	2.80(1-4)	3.00(1-4)	2.72(1-4)	2.82(1-4)
	Single 2.82(1-4)	2.78(1-4)	2.80(1-4)	3.00(1-4)	2.87(1-4)	2.80(1-4)
Statistical values	p = 0.367, U=17625.500	p = 0.509, U=17889.500	p = 0.475, U=17840.000	p = 0.213, U=17274.000	p = 0.697, U=18189.000	p = 0.883, U=11143.000
Surgical unit	Wards ^a 2.82(1-3)	2.89(1-4)	2.80(1-4)	3.00(1-4)	2.87(1-4)	2.84(1-3)
	SICU ^b 2.76(1-4)	2.82(1-4)	2.80(1-4)	3.00(1-4)	2.87(1-4)	2.80(1-4)
	Operating room ^c 2.76(1-4)	2.67(1-4)	2.60(1-4)	2.85(2-4)	2.87(1-4)	2.70(1-4)
Statistical values	p = 0.557, X ² = 1.171	p = 0.014 , X ² = 8.599	p = 0.029 , X ² = 7.111	p = 0.489, X ² = 1.431	p = 0.699, X ² = 0.716	p = 0.146, X ² = 3.844
Bonferroni corrected Mann Whitney U test		p ^{a,c} = 0.002	p ^{a,c} = 0.007			
Patient safety training status	Yes 2.82(1-4)	2.85(1-4)	2.80(1-4)	3.00(1-4)	2.87(1-4)	2.82(1-4)
	No 2.64(1-3)	2.78(1-3)	2.80(1-3)	2.71(1-3)	2.75(1-3)	2.66(1-3)
Statistical values	p = 0.010 , U = 4798.000	p = 0.081 U = 5334.500	p = 0.228 U = 5688.500	p = 0.005 U = 4697.000	p = 0.273 U = 5755.000	p = 0.037 U = 5108.000
Satisfaction with working conditions	Satisfied 2.94(1-4)	3.00(1-4)	2.80(1-4)	3.00(1-4)	3.00(1-4)	2.96(1-4)
	Dissatisfied 2.70(1-4)	2.71(1-4)	2.60(1-4)	2.85(1-4)	2.75(1-4)	2.74(1-4)
Statistical values	p = 0.000 , U=10081.500	p = 0.000 , U=10273.500	p = 0.000 , U=12278.5.00	p = 0.000 , U=11982.500	p = 0.000 , U=12152.000	p = 0.000 , U=10127.500
Working time in surgical units	p = 0.145, r = 0.074	p = 0.070, r = 0.092	p = 0.716, r = -0.019	p = 0.309, r = -0.052	p = 0.762, r = -0.015	p = 0.208, r = 0.064

r: Spearman Correlation analysis, SICU: Surgical intensive care units, U: Mann-Whitney U test, X²: Kruskal-Wallis test

It was found that the mean PSCS total score differed statistically according to patient safety training and satisfaction with working conditions (p=0.037 and p<0.001) (Table III).

A weak and positive relationship was determined between the age and the mean scores of the "employee behavior" sub-dimension (p = 0.047). It was also found that "employee behavior" and "employee training" sub-dimension mean scores differed according to education status, and the Mann-Whitney U test with Bonferroni Correction was used as a post-hoc test for the comparison of the groups to find the reason for the difference. It was determined that high school graduate nurses had higher mean scores for "employee behavior" and "employee training" sub-dimensions when compared to nurses with undergraduate degrees (p = 0.010 and p = 0.009). Although it was found that the "employee behavior" and "unexpected event and error reporting" sub-dimension mean scores varied according to the surgical department, the "employee behavior" and "unexpected event and error reporting" sub-dimension mean scores of the nurses who worked in wards were higher than the operating room nurses (p = 0.002 and p = 0.007). It was also found that nurses who received training on patient safety had higher mean scores in the "management and leadership" and "employee training" sub-dimensions when compared to the nurses who did not (p = 0.010 and p = 0.005). It was seen that the mean scores of all scale sub-dimensions of the nurses who were satisfied with their working conditions were higher than those of the dissatisfied nurses (p<0.001, p<0.001, p<0.001, p<0.001 and p<0.001) (Table III).

DISCUSSION

In the present study, the perception of the nurses regarding PSC was found to be moderate. Among the sub-dimensions, it was seen that nurses had a higher positive perception of "employee training" and a slightly lower positive perception of "management and leadership". It was seen in previous studies that involved nurses working in surgery and internal medicine units that nurses had a moderate level of PSC perception (8, 13-17). In similar studies it was reported that the sub-dimension that had the highest score of nurses was "training of employees" and the sub-dimension with the lowest score was "management and leadership" (13, 15-17). The results of the study show that the nurses do not compromise on patient safety, care about training provided to them, and participate in training; however, their managerial support is not at adequate levels (The lowest item score averages in the sub-dimension "management and leadership" are "not using the risk assessment process" and "working hours more than 12 hours"). It can be argued that nurses need support in leadership and management issues for patient safety by their administrators. It was also found that nurses who received training on patient safety and nurses who were satisfied with their working conditions had a more positive PSC perception. In Salih, Reshia and Bashir's study it was reported that receiving training on the subject positively affects nurses' PSC perceptions, and it was reported in Dincer et al.'s study that satisfaction with working conditions is a factor that positively affects nurses' PSC perceptions (15, 18). Another study reported that participating in an in-service training program affected the perception of PSC positively in perioperative team members (19). In a study that was conducted with the participation of nurses, it was determined that the PSC perceptions of the nurses who received patient safety training were more positive (14). It is an expected and desired result

that the nurses' perception of patient safety culture is positive since it was reported that training is one of the most important measures to improve the patient safety culture (20).

Similar to the literature (11, 19), this study found that there was no relationship between nurses' patient safety culture and age. It was seen that the mean score of the "employee behavior" sub-dimension increases as the ages of the nurses increase, and nurses care about team communication and cooperation to ensure patient safety, they know the institutional targets for patient safety, and they comply with the rules and policies (12). Dincer et al. showed that there is a positive relationship between age and the sub-dimension of "employee behavior" (15). Nurses gain experience with age and take part as administrative staff (21). Experience and time factors affect communication skills and awareness development positively; and for this reason, it can be argued that as age progresses, nurses give importance to communication in the team and compliance with the rules.

It was found that high school graduate nurses had higher mean scores in "employee behavior" and "employee training" sub-dimensions when compared to undergraduate nurses. High scores in the sub-dimension of employee training indicate that nurses participate in training about patient safety and share information on this subject (12). It was reported in the literature that the average score of the sub-dimension of "employee training" is high in nurses with a high school diploma and low in nurses with graduate training (10). It was determined in another study that nurses with a diploma-based degree had more positive PSC perceptions than nurses with a BSN degree (22). Nationally, since 2007, nursing law requires a person to have at least a bachelor's degree to work as a nurse (23). It is considered that this result was obtained in the study because nurses who work as high school graduates have longer professional working hours and the professional working period has a positive effect on PSC.

Nurses working in surgical services had higher mean scores in the sub-dimensions of "employee behavior" and "reporting unexpected events and errors" when compared to operating room nurses. Similarly, Rızalar et al. reported that the mean sub-dimension score of the operating room nurses' employee behavior was lower than those working in the other units (8). In the same study, it was also reported that nurses working in surgical services were more comfortable in reporting unexpected events and errors than nurses working in other units (8). Unlike the results of the study, Bahar and Önlü reported that operating room nurses had a better PSC perception than the nurses working in the surgical services and the surgical intensive care units (24). It is already known that employees do not report situations that will endanger patient safety because they are afraid of punishment, and therefore, errors are not reported (25). The fact that the operating room environment is stressful and hierarchical when compared to surgical services in the study may cause disruptions in team communication in the operating room environment and reluctance in reporting errors by nurses (26). "There is no punitive attitude in reporting errors." Operating room nurses approved the item at a

lower rate than the surgical service and intensive care nurses support this prediction (%37.1 versus %52.2 and %51.1 respectively). An environment must be provided for nurses to report errors without fear of punishment in institutions.

Nurses who received training on patient safety had higher mean scores in PSCS, the "management and leadership" and "employee training" sub-dimensions when compared to nurses who did not. It was also found that the nurses who participated in the training on patient safety considered patient safety in care, used the risk assessment process to identify patient safety problems, and took precautions against problems. It was seen that the nurses who participated in the training shared information about patient safety (12). Similarly, in a study that was conducted with the participation of operating room nurses, it was seen that participating in patient safety training had positive effects on "management and leadership" and "employee training" sub-dimension scores (27). In a study that was conducted on palliative care nurses, it was reported that nurses who received training had higher mean scores in the sub-dimensions of "management and leadership" and "training of employees" (15). In another study, it was reported that nurses who received training had higher PSC perceptions in the sub-dimension of "management and leadership" and "training of employees". Institutions need to conduct regular patient safety training for the development of a patient safety culture (28).

The mean scores of all scale sub-dimensions of the nurses who were satisfied with their working conditions were higher than those of the dissatisfied nurses, and their PSC perceptions were also more positive. It was reported in a similar study that surgical nurses who were satisfied with their profession had a higher mean score in the sub-dimension of employee behavior (13). Working conditions are one of the factors predicting the perception of PSC (29). Asafzadeh, Kalhor and Tir reported that the PSC perceptions of nurses who experienced stress in the working environment were affected negatively (30). In the study of Kunaviktikul et al. it was found that nurses who were not satisfied with their profession were more prone to making medical errors (31). It can be argued that the satisfaction of the nurses with the working environment affects the patient safety culture positively and keeping the nurse satisfaction at a high level will have positive impacts on patient safety.

Limitations

The present study evaluated the PSC of surgical nurses, who have a specific place in the care and safety of surgical patients in the perioperative process, which is a current topic of interest. However, the study results could not be generalized to all surgical nurses since this study was conducted cross-sectionally.

CONCLUSIONS

The perceptions of surgical nurses on patient safety culture were evaluated in the present study. The findings of the study showed that nurses' perception of PSC was at a moderate level. It was shown that training activities and working conditions regarding patient safety had positive effects on the perception of PSC. Although "employee training" was determined as a strength in nurses, "management and leadership" was determined as a weakness. Different studies must be planned to provide feedback on the PSC of surgical nurses. We recommend that institutions adopt the patient safety culture and support surgical nurses from PSC to improve the perception of PSC of surgical nurses in line with the results of these studies.

Acknowledgments:

Thanks to our colleagues who supported the study. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Ethics Committee Approval:

The necessary written permissions were obtained from the Trakya University Medical Faculty Scientific Research Ethics Committee (decision number: 09/19, protocol number: 2021/187, date: 12.04.2021), as well as from the public hospitals where the study was performed. The research conforms to the provisions of the Declaration of Helsinki (as revised in Brazil 2013). All participants gave informed oral and written (electronic) consent for the research, and that their anonymity was preserved.

Informed Consent:

All the participants' rights were protected and written informed consents were obtained before the procedures according to the Helsinki Declaration.

Author Contributions:

Concept - F.D., Z.K.Ö., M.K., Ç.S., A.K.; Design - F.D., Z.K.Ö., M.K., Ç.S., A.K.; Supervision - F.D., Z.K.Ö., M.K., Ç.S., A.K.; Resources - F.D., Z.K.Ö., M.K., Ç.S., A.K.; Materials - F.D., Z.K.Ö., M.K., Ç.S., A.K.; Data Collection and/or Processing - F.D., Z.K.Ö., M.K., Ç.S., A.K.; Analysis and/ or Interpretation - F.D., Z.K.Ö.; Literature Search - F.D., Z.K.Ö., M.K., Ç.S., A.K.; Writing Manuscript - F.D., Z.K.Ö., M.K., Ç.S., A.K.; Critical Review - F.D., Z.K.Ö.

Conflict of Interest:

The authors do not declare a relationship based on interests.

Financial Disclosure:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Status of presentation:

This study was presented as an oral presentation at the 4rd International 12th National Congress of Turkish Surgical and Operating Room Nurses, Antalya, Turkey, between January 13 and 16, 2022.

1. Peña MPA, Casalengua MLT, Cañadas GO, Busto CS, Varela AY, Fernández JAM. Are Spanish primary care professionals aware of patient safety? *Eur J Public Health* 2015; 25:781–87.
2. Mitchell PM. Defining patient safety and quality care. 2008. <http://www.ncbi.nlm.nih.gov/books/NBK2681/>.
3. Nieva VF, Sorra J. Safety culture assessment: a tool for improving patient safety in healthcare organizations. *Quality Safety in Health Care* 2003;12(suppl 2):ii17–ii23.
4. Candaş B, Gürsoy A. Patient safety in the surgery: safe surgery checklist. *Erciyes Üniversitesi Sağlık Bilimleri Fakültesi Dergisi* 2015; 3:40-50.
5. Pnoyer DA. Nurse staffing and patient outcomes in critical care: A concise review. *Crit Care Med* 2010; 38:1521-8.
6. Søreide K, Alderson D, Bergenfelz A, Beynon J, Connor S, Deckelbaum DL, Dejong CH, Earnshaw JJ, Kyamanywa P, Perez RO, Sakai Y, Winter DC, the International Research Collaboration in Surgery (IRIS) ad-hoc working group. Strategies to improve clinical research in surgery through international collaboration. *Lancet* 2013; 382:1140–51.
7. Nazik E, Var E, Yıkar SK, Nazik S, Karadag AG, Gokce R, Dede DU. Determination of patient safety culture perceptions of health professionals: The example of the maternity and children's hospital. *J Contemp Med* 2018; 8:251-8.
8. Rızalar S, Büyük E, Sahin R. Patient safety culture and influencing factors of nurses. *E-Journal of Dokuz Eylul University Nursing Faculty* 2016; 9:9-15.
9. Sillero-Sillero A, Zabalegui A. Safety and satisfaction of patients with nurse's care in the perioperative. *Rev Latino-Am Enfermagem* 2019; 27:e3142.
10. Erdagı S, Ozer N. Examining practice environments, patient safety culture perceptions and burn-out status of nurses working in surgical clinics. *Journal of Anatolia Nursing and Health Sciences* 2015; 18:94-106.
11. Teles M, Kaya S. Staff perceptions of patient safety culture in general surgery departments in Turkey. *Afr Health Sci* 2019; 19:2208-2218.
12. Turkmen E, Baykal U, Seren S, Altuntas S. Development of Patient Safety Culture Scale. *J Anatolia Nurs Health Sci* 2011; 14(4):38-46.
13. Arslan S, Aydıngulu N, Gulsen M, Dogan SD, Erden S. Patient safety cultures and affecting factors of nurses working in surgical clinics. *J Anatolia Nurs Health Sci* 2020; 23:527-33.
14. Bayram A, Yurttas A, Kasıkçı M. The perceptions of nurses about patient safety culture: an example province in north east of Turkey. *Journal of International Health Sciences and Management* 2021; 7:38-46.
15. Dincer M, Torun N, Aksakal H. Determining nurses' perceptions of patient safety culture in palliative care centres. *Contemp Nurse* 2018; 54:246-57.
16. Ertürk C, Dönmez P, Özmen D. Manisa il merkezindeki hastanelerde görev yapan hemşirelerin hasta güvenliği kültürünün değerlendirilmesi. *Ege Üniversitesi Hemşirelik Fakültesi Dergisi* 2016; 32:19-33.
17. Danielsson M, Rutberg H, Årestedt K. A national study of patient safety culture in hospitals in Sweden. *J Patient Saf* 2019; 15:328-33.
18. Salih SA, Reshia FAA, Bashir WAH, Omar AM, Elwasefy SA. Patient safety attitude and associated factors among nurses at Mansoura University Hospital: A cross sectional study. *Int J Afr Nurs Sci* 2021; 14:100287.
19. Arlı SK. Evaluation of the attitudes about patient safety in perioperative care. *Perioper Care Oper Room Manag* 2021; 22:100145.
20. Agency for Healthcare Research and Quality (AHRQ). Patient safety culture. 2014. <https://ps-net.ahrq.gov/primers/primer/5>
21. Noviyanti LW, Ahsan A, Sudartya TS. Exploring the relationship between nurses' communication satisfaction and patient safety culture. *J Public Health Res* 2021; 10:2225.
22. Alrabae YMA, Aboshaiqah AE, Tumala RB. The association between self-reported workload and perceptions of patient safety culture: A study of intensive care unit nurses. *J Clin Nurs* 2021; 30:1003-17.
23. Nursing Law-6283. 2007. https://www.ttb.org.tr/mevzuat/index.php?option=com_content&view=article&id=502:6283&catid=1:yasa-&Itemid=28

24. Bahar S, Onler E. Turkish surgical nurses' attitudes related to patient safety: A questionnaire study. *Niger J Clin Practice* 2020; 23:470-5.
25. Dursun S, Bayram N, Aytac S. A survey on patient safety culture. *J Soc Sci Res* 2020; 8:1-14.
26. Etherington C, Wu M, Cheng-Boivin O, Larrigan S, Boet, S. Interprofessional communication in the operating room: a narrative review to advance research and practice. *Can J Anesth* 2019; 66:1251-60.
27. Temiz Z, Ayfer O, Cavdar I, Tutuncu SG, Ayoglu T, Akyuz N. Determining the patient safety culture of operating room nurses in Turkey. *Int J Caring Sci* 2020; 13:708-15.
28. Ozdemir FK, Sahin ZA. Perceptions of nurses regarding the patient safety culture: The Kars case. *ODU Journal of Medicine* 2015; 2:139-44.
29. Huang CH, Wu HH, Lee YC, Van Nieuwenhuyse I, Lin MC, Wu CF. Patient safety in work environments: Perceptions of pediatric healthcare providers in Taiwan. *J Pediatr Nurs* 2020; 53:6-13.
30. Asefzadeh S, Kalhor R, Tir, M. Patient safety culture and job stress among nurses in Mazandaran, Iran. *Electron Physician* 2017; 9:6010-6.
31. Kunaviktikul W, Wichaikhum O, Nantsupawat A, Nantsupawat R, Chontawan R, Klunklin A, Roongruangsri S, Nantachaipan P, Supamane T, Chitpakdee B, Akkadechanunt T, Sirakamon S. Nurses' extended work hours: Patient, nurse and organizational outcomes. *Int Nurs Rev* 2015; 62:386-93.