

Investigation of Patient Safety Attitudes of Operating Room Staff

Ameliyathane Çalışanlarının Hasta Güvenliğine İlişkin Tutumlarının İncelenmesi

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Geliş/Received: 16.01.2024;

Kabul/Accepted: 04.03.2024

Atf/Citation: Belgin, B. & Arslan, S. (2024). Investigation of Patient Safety Attitudes of Operating Room Staff. *UMBD*, 7(1), 14-25

Abstract

Fulfilling patient safety elements is crucial in order to ensure health care standardization in operating rooms. This study aims to investigate the patient safety attitudes of the operating room staff. The study used a descriptive and cross-sectional design and was conducted with operating room staff between February 2017 and October 2017. The target population of the study consisted of healthcare staff working in the operating room units. The participants included 254 (70%) individuals who agreed to participate in the study and met the inclusion criteria. Data were collected through the Personal Information Form for collecting the participants' demographic data and the Safety Attitudes Questionnaire (SAQ) for assessing their patient safety attitudes. SAQ total and sub-scale mean scores were as follows: the SAQ total mean score was 49.58 ± 12.67 , the "teamwork climate" sub-scale mean score was 58.52 ± 13.63 , the "job satisfaction" sub-scale mean score was 59.82 ± 22.41 , the "perceptions of management" sub-scale mean score was 44.35 ± 22.99 , the "safety climate" sub-scale mean score was 50.97 ± 15.21 , the "working conditions" sub-scale mean score was 51.35 ± 25.01 , and the "stress recognition" sub-scale mean score was 36.83 ± 16.14 . The results showed that operating room staff had a moderate level of patient safety attitudes.

Keywords: Operating room, patient safety, patient safety attitude, health care staff

Öz

Ameliyathanelerde sağlık bakımında standardizasyonu sağlamak için hasta güvenliği unsurlarının yerine getirilmesi son derece önemlidir. Araştırma, ameliyathane çalışanlarının hasta güvenliği tutumlarının incelenmesi amacı ile yürütülmüştür. Araştırma Şubat 2017-Ekim 2017 tarihleri arasında ameliyathane çalışanları ile tanımlayıcı ve kesitsel olarak yapılmıştır. Çalışmanın evrenini ameliyathane birimindeki sağlık çalışanları oluşturmuştur. Araştırmaya katılmayı kabul eden, araştırmaya alınma kriterlerine uyan 254 (%70) kişiye ulaşılmıştır. Araştırmada veri toplama aracı olarak, ameliyathane çalışanlarının tanıtıcı özelliklerini belirleyen Kişisel Bilgi Formu ve hasta güvenliğine ilişkin tutumlarını değerlendirmek için Güvenlik Tutumları Ölçeği (GTÖ) (Ameliyathane Versiyonu) kullanılmıştır. Çalışanların GTÖ puan ortalamaları incelendiğinde; toplam puan ortalamaları $49,58 \pm 12,67$; ekip işbirliği alt boyut puan ortalamaları $58,52 \pm 13,63$; iş memnuniyeti alt boyut puan ortalamaları $59,82 \pm 22,41$; yönetimle ilgili düşünceler alt boyut puan ortalamaları $44,35 \pm 22,99$; güvenli ortam alt boyut puan ortalamaları $50,97 \pm 15,21$; çalışma koşulları alt boyut puan ortalamaları $51,35 \pm 25,01$ ve stres düzeyinin belirlenmesi alt boyut puan ortalamaları $36,83 \pm 16,14$ olarak belirlenmiştir. Sonuç, ameliyathane çalışanlarının hasta güvenliği tutumları orta seviyede bulunmuştur.

Anahtar Kelimeler: Ameliyathane, hasta güvenliği, hasta güvenliği tutumu, sağlık çalışanları.

1. Introduction

The World Health Organization (WHO) defines patient safety as the absence of preventable harm to a patient and the reduction of risk of unnecessary harm associated with health care to an acceptable minimum (Vaismoradi M et al 2020). Patients often experience adverse outcomes due to reasons resulting from preventable errors. Preventing this situation is a global priority for patient safety (WHO). The purpose of patient safety is to protect both patients/relatives and healthcare professionals by providing safety in physical and mental terms. The main goals include preventing errors during the provision of services to patients, protecting them from the damages that may arise due to errors, eliminating the possibility of errors, and establishing a system to eliminate errors (Ongün P. 2015)

According to the report prepared by the American Institute of Medicine (IOM), the number of deaths due to errors during healthcare was higher than the total number of breast cancer, traffic accidents, AIDS and work accidents combined (Mallouli M et al., 2017; Institute For Healthcare Improvement). There is not yet a structured patient safety system or an error reporting (incident reporting) system in our country. With the place of patient safety in the health sector, important steps have been taken concerning this issue. The patient safety association was first established in our country in 2006. This association aimed to spread the culture of patient safety by organizing three international congresses on patient safety, which involved various universities and academicians (Korkmaz A Ç.2018).

According to the Patient Safety 2030 report published by the National Institute for Health Research, failure to ensure patient safety while providing health services is a major problem (Gens-Barberà M et al., 2021). WHO reports that unsafe medical environments provided by hospitals cause approximately 134 million adverse events and 2.6 million related deaths annually in low- and middle-income countries (Murphy J. F. A. 2019). Implementation of the Safety Checklist in operating rooms is important, yet recent studies show that the Safety Checklist is only partially implemented in many hospitals (Jelacic S et al., 2020; Russ S et al., 2015).

Operating rooms are places that should pay utmost attention to patient safety. In all operating rooms without discrimination, the healthcare team employs universal measures to minimize risks for all patients. The surgical team's implementations to protect patient safety as well as self-protection using the right protective equipment is of great importance. Ensuring a culture of patient safety in the operating room requires healthcare workers to be in constant communication and cooperation with each other. Therefore, establishing a culture of patient safety in the operating room team requires conducting regular activities, and the culture established should be improved and measured at regular intervals. The literature includes various patient safety culture measurement tools. Research showed that patient safety perception and teamwork scores were less than 60%, and the frequency of incident reporting was over 25% (Carvalho P. A et al., 2015; Ugur E et al., 2016; Pimentel M P T et al., 2021; Mallouli M et al. 2017). On the other hand, physicians had higher patient safety perception scores than nurses, and nurses had higher patient safety perception scores than other operating room staff (Ugur E et al., 2016; Pimentel M P T et al., 2021; Mallouli M et al.,2017; Yılmaz A et al., 2017; Kapıkıran G & Bülbüloğlu S. 2018).

Reporting errors without fear of punishment/labeling and providing management support are important to improve patient safety systems where errors can be reported, which paves the way for the creation of a culture. Basically, patient safety should be given top priority and accepted as a common value in health services for the creation of a patient safety culture (Türk S. 2015; Demirel G et al., 2020).

In conclusion, all the measures that are taken within the scope of patient safety by health institutions and employees to prevent harm from health care services are addressed within the scope of patient safety. This study aims to investigate the patient safety attitudes of the operating room staff.

2. Materials and Methods

2.1. Research Design

This study used a descriptive and cross-sectional design.

2.2. Setting

This study was conducted with the operating room staff of a university hospital and a public hospital.

2.3 Study Population and Sampling

The target population of the study consisted of healthcare staff working in operating rooms. The study aimed to reach the entire target population, so no sampling was used. The inclusion criteria of the study were as follows;

- ✓ Agreeing to participate in the study,
- ✓ Working in the operating room for more than six months,
- ✓ Not being on leave or sick leave when the study was conducted,

A total of 254 individuals who agreed to participate in the study were reached. Those who did not agree to participate in the study and those who were on leave or sick leave during the study period were excluded from the study.

At the end of the study, "post hoc" power analysis was performed in the G-Power 3.1.9.7 program to evaluate whether the sample was sufficient. The power obtained from the comparison of the mean scale score in the groups who received operating room orientation in nursing (n=122) and those who did not (n=132) was determined as 99% (effect size $d=2.57$, $\alpha=0.05$, two-way). It was determined that the sample size in the study was adequate.

2.4. Data Collection

Data were collected by meeting the central operating room staff face-to-face on the specified dates. The staff who agreed to participate in the study were informed about the purpose of the study and provided with explanations about how to fill in the forms. The participants were asked to fill in the forms individually and return them to the researcher. Filling in the data collection forms took around 10-15 minutes.

2.5. Data collection tools

Data were collected through the "Personal Information Form", which included the descriptive characteristics of the operating room staff, and the "Safety Attitudes Questionnaire (SAQ) (Operating Room Version)", which evaluated the attitudes of operating room staff towards patient safety.

2.5.1. Personal Information Form

The Personal Information Form prepared by the researcher in line with literature (Ongün P. 2015; Türk S. 2015; Önler E. 2010; Ögün B. 2008). consisted of 16 questions that aimed to collect data about the participants' age, gender, marital status, education level, duration of working in the profession, institution, and unit weekly working hours, working in the operating room willingly, working status, general working hours, resting status outside working hours, receiving operating room orientation training, receiving in-service training in the operating room, and receiving patient safety training.

2.5.2. The Safety Attitudes Questionnaire (SAQ) (Operating Room Version)

The Safety Attitudes Questionnaire (SAQ) was developed by Sexton et al. (2006) at the University of Texas in 2006 to measure the attitudes of employees toward patient safety (Sexton et al. 2006). They developed versions such as intensive care units, operating rooms, inpatient units, and daycare units, and performed validity and reliability studies for these versions. Adaptation of the operating room version of the scale to Turkish was performed by Önler (Önler E. 2010). The scale includes a total of 58 items and six sub-scales,

which include “teamwork climate”, “job satisfaction”, “perceptions of management”, “safety climate”, “working conditions”, and “stress recognition”. Responses are given on a five-point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Neutral 4=Agree, 5 = Strongly Agree). Scores are converted to 100 by calculating $1=0, 2=25, 3=50, 4=75, 5=100$. Higher scores obtained from the scale and its sub-scales indicate more positive attitudes. Some items of the scale (1,12,16,24,25,27,31,32,33,36,39,44,47,49,52,53,56,58) contain negative statements and are scored reversely. Responses to each item in the scale are summed up, divided by the number of items, and converted into a 100-point system to obtain a score between 0 and 100. The calculation of the score obtained from the “teamwork climate” sub-scale is formulated as follows: $\text{teamwork climate sub-scale score} = (\text{average of team scores}) - 1) * 25$. The scale has no cut-off point; higher scores indicate higher safety attitudes. Cronbach’s alpha value was reported to be 0.92 in the reliability of the scale (Önler E. 2010; Sexton, J B et al., 2006). In this study, Cronbach’s alpha value was found to be 0.89.

2.6. Ethical Considerations of the Research

Before the study was conducted, written official permissions were obtained from the Non-Interventional Clinical Ethics Committee of the Faculty of Medicine at Çukurova University (decision no 17, 4 November 2016) and from the hospitals where the study was conducted.

2.7. Data Analysis

Data were analyzed using the SPSS (IBM SPSS Statistics 20) package program. Frequency tables and descriptive statistics were used for the interpretation of the findings. Non-parametric methods were used for the measurement values that did not distribute normally. In line with non-parametric methods, “Mann-Whitney U” test (Z table value) was used to compare the measurement values of two independent groups, and the “Kruskal-Wallis H” test (χ^2 -table value) method was used to compare the measurement values of three or more independent groups. Bonferroni correction was performed for pairwise comparisons of the variables with significant differences in three or more groups.

3. Results

The descriptive characteristics of the participants are given in Table 1. The average age of the employees was 34.39 ± 8.43 (years), and 32.7% (n=83) were in the 26-30 age group. Besides, 51.6% (n=131) were women, 72% (n=183) were married, 36.6% (n=93) had a bachelor's degree, and 30.3% (n=77) were operating room nurses. While 65% (n=165) worked at Balcalı Hospital, 35% (n=89) worked at Adana Numune Hospital. The average working period was 11.25 ± 8.63 (years), and 40.2% (n=102) worked for 2-8 years. While 90.9% (n=231) of the participants worked in the operating room willingly, 81.1% (n=206) were permanent staff and 50% (n=127) worked both day and day-night shifts. It was also found that 52% (n=132) did not receive operating room orientation training, 62.2% (n=158) received in-service training, and 62.6% (n=159) received patient safety training.

Table 1. Descriptive characteristics of the operating room staff

Variable (N=254)	Number (n)	Percentage (%)
Age [$\bar{X} \pm S. D. \rightarrow 34,39 \pm 8,43$ (year)]		
25 years and↓	29	11,4
26-30 years	83	32,7
31-35 years	37	14,6
36-40 years	45	17,7
41 years and↑	60	23,6
Gender		
Male	123	48,4
Female	131	51,6
Marital Status		
Married	183	72,0
Single	71	28,0
Education level		
Regular High School	26	10,3
Vocational School of Health	57	22,4

Associate degree	93	36,6
Bachelor's degree	9	3,5
Postgraduate degree	69	27,2
Specialty in medicine		
Profession		
Lecturer	24	9,5
Assistant	46	18,1
Surgical nurse	77	30,3
Anesthetic technician	59	23,2
Surgical technician	25	9,8
Perfusionist	11	4,3
Hospital		
University Hospital	165	65,0
Public Hospital	89	35,0
Duration of Working $\bar{X} \pm S. D. \rightarrow 11,25 \pm 8,63$ (year)]		
1 year and ↓	24	9,4
2-8 years	102	40,2
9-15 years	54	21,3
16-24 years	48	18,9
25 years and ↑	26	10,2
Working in the operating room willingly		
Yes	231	90,9
No	23	9,1
Working status		
Permanent staff	206	81,1
Contracted employee	48	18,9
General working schedule		
Daytime	127	50,0
Day-night shift	127	50,0
Receiving operating room orientation		
Yes	122	48,0
No	132	52,0
Receiving in-service training		
Yes	158	62,2
No	96	37,8
Receiving patient safety training		
Yes	159	62,6
No	95	37,4

The distribution of the SAQ mean scores is given in Table 2. An analysis of the SAQ mean scores showed that the total mean score was 49.58 ± 12.67 ; the “teamwork climate” sub-scale mean score was 58.52 ± 13.63 ; the “job satisfaction” sub-scale mean score was 59.82 ± 22.41 ; the “perceptions of management” sub-scale mean score was 44.35 ± 22.99 ; the “safety climate” sub-scale mean score was 50.97 ± 15.21 ; the “working conditions” sub-scale mean score was 51.35 ± 25.01 , and the “stress recognition” sub-scale mean score was 36.83 ± 16.14 .

Table 2: Distribution of the Participants' SAQ Mean Scores

Sub-scales		Mean±S.D	Min.-Max.
Safety Attitudes Questionnaire	Teamwork climate	$58,52 \pm 13,63$	25,0-100,0
	Job satisfaction	$59,82 \pm 22,41$	0,0-100,0
	Perceptions of management	$44,35 \pm 22,99$	0,0-100,0
	Safety climate	$50,97 \pm 15,21$	2,9-98,5
	Working conditions	$51,35 \pm 25,01$	0,0-100,0
	Stress recognition	$36,83 \pm 16,14$	0,0-97,9
	Total	$49,85 \pm 12,67$	19,0-99,1

The descriptive characteristics of the employees and the SAQ mean scores according to these variables are demonstrated in Table 3.

When the sub-scale mean scores were examined according to the hospitals the participants worked in, “the stress recognition” sub-scale mean score was found to be higher in public hospital employees ($p < 0.05$).

A statistically significant difference was found between the total mean scores and the “job satisfaction”, “working conditions” and “stress recognition” sub-scale mean scores according to the participants’ age groups ($p<0.05$). Participants aged 41 and over were found to have higher mean scores.

A statistically significant difference was found between the safety climate sub-scale mean scores according to gender ($p<0.05$). Compared to male employees, female employees found the environment safer.

A statistically significant difference was found between the total mean score and the “teamwork climate”, “job satisfaction”, “perceptions of management”, “safety climate”, “working conditions” and “stress recognition” sub-scale mean scores according to the participants’ education level ($p<0.05$). It was found that the “teamwork climate”, “job satisfaction”, “perceptions of management”, “safety climate” and “working conditions” sub-scale mean scores and total mean scores were higher in employees who graduated from a vocational school of health than other healthcare professionals.

A statistically significant difference was found between the total mean scores and “job satisfaction,” “perceptions of management”, “safety climate”, “working conditions” and “stress recognition” sub-scale mean scores according to the participants’ professions ($p<0.05$). Surgical technicians’ total mean scores and “teamwork climate”, “job satisfaction”, “perceptions of management”, “safety climate” and “working conditions” sub-scale mean scores were statistically significantly higher than those of other healthcare professionals.

A statistically significant difference was found between the total mean scores and the “teamwork climate”, “job satisfaction”, “perceptions of management” and “safety climate” sub-scales according to the participants’ working duration ($p<0.05$). The mean scores of those with a working duration of 2-8 years were statistically significantly lower than those with a working duration of 16-24 years and 25 years and above.

It was found that the total mean score and “job satisfaction” and “safety climate” sub-scale mean scores of those who worked in the operating room willingly were higher than those who did not work willingly ($p<0.05$).

“Teamwork climate”, “job satisfaction”, “perceptions of management”, “safety climate” and “working conditions” sub-scale mean scores of contracted employees were higher than those of permanent staff ($p<0.05$).

“Job satisfaction”, “perceptions of management”, “safety climate” and “working conditions” sub-scale mean scores were higher in those whose general working schedule was daytime than in those who worked day and night shifts ($p<0.05$).

“Perceptions of management”, “safety climate”, “working conditions” and “stress recognition” sub-scale mean scores were higher in those who received orientation training before starting to work in the operating room than those who did not ($p<0.05$).

“Teamwork climate”, “job satisfaction”, “perceptions of management”, “safety climate” and “working conditions” mean scores were higher in those who received in-service training than those who did not receive in-service training ($p<0.05$).

The sub-scale mean scores of the employees who received patient safety training were found to be higher than those of employees who did not receive patient safety training ($p<0.05$).

Table 3. Comparison of the Descriptive Characteristics of the Employees and the SAQ Total and Sub-Scale Mean Scores

Variable (n=254)	Teamwork climate	Job Satisfaction	Perceptions of Management	Safety climate	Working Conditions	Stress Recognition	Total
Hospital							
University Hospital	59,27±13,40	61,24±24,03	44,32±24,40	51,15±16,37	49,24±25,48	34,62±15,70	49,64±13,79
Public Hospital	57,12±14,01	57,19±18,87	44,38±20,22	50,62±12,85	55,24±23,75	40,92±16,23	50,24±10,34
Statistical analysis	Z=-0,768 p=0,443	Z=-1,764 p=0,078	Z=-0,410 p=0,682	Z=-0,810 p=0,418	Z=-1,688 p=0,091	Z=-2,836 p=0,005	Z=-0,262 p=0,793
Age							
25 years and↓ ⁽¹⁾	56,90±13,27	53,79±20,43	41,50±21,63	49,29±13,80	39,94±26,58	41,09±15,72	48,40±10,70
26-30 years ⁽²⁾	57,90±14,89	57,23±23,69	39,89±24,94	48,92±16,37	47,19±24,22	32,63±18,01	47,25±14,68
31-35 years ⁽³⁾	57,82±13,60	59,05±23,54	40,73±23,79	50,99±12,55	55,18±26,74	34,35±13,38	48,87±11,03
36-40 years ⁽⁴⁾	58,25±14,09	58,78±20,89	46,98±21,55	53,17±15,05	54,26±24,59	39,21±15,79	51,30±11,64
41 age years↑ ⁽⁵⁾	60,80±11,70	67,58±20,53	52,14±19,50	52,97±15,77	58,06±22,23	40,31±14,11	53,66±11,48
Statistical analysis	$\chi^2=1,696$ p=0,791 -	$\chi^2=12,043$ p=0,017 [5-1,2]	$\chi^2=13,481$ p=0,009 [2-5]	$\chi^2=4,665$ p=0,323 -	$\chi^2=12,005$ p=0,017 [5-1,2]	$\chi^2=14,976$ p=0,005 [2-5]	$\chi^2=12,370$ p=0,015 [1-5]
Gender							
Male	58,16±13,62	61,02±23,44	43,53±24,28	48,80±16,15	51,36±24,41	36,67±17,70	49,10±13,52
Female	58,86±13,68	58,70±21,42	45,12±21,76	53,01±14,03	51,34±25,65	36,98±14,59	50,56±11,82
Statistical analysis	Z=-0,418 p=0,676	Z=-1,101 p=0,271	Z=-0,651 p=0,515	Z=-2,604 p=0,009	Z=-0,281 p=0,779	Z=-0,875 p=0,382	Z=-0,944 p=0,345
Marital Status							
Married	59,11±13,91	60,27±22,22	45,65±22,75	51,65±14,88	52,09±25,35	36,76±15,10	50,41±12,54
Single	56,99±12,84	58,66±22,99	41,00±23,42	49,23±15,99	49,41±24,17	37,00±18,67	48,40±12,98
Statistical analysis	Z=-0,959 p=0,337	Z=-0,351 p=0,725	Z=-1,022 p=0,307	Z=-1,006 p=0,314	Z=-0,777 p=0,437	Z=-0,469 p=0,639	Z=-1,019 p=0,308
Educational status							
Regular High School ⁽¹⁾	65,97±13,27	75,59±19,91	59,66±23,78	58,74±16,77	68,14±25,21	41,18±19,00	58,90±13,38
Health High School ⁽²⁾	72,62±12,44	78,33±19,69	66,67±17,03	70,92±13,83	76,85±20,74	38,66±20,26	65,09±13,38
Associate degree ⁽³⁾	55,14±14,02	53,77±22,86	38,53±22,51	49,41±14,43	50,58±25,53	35,89±12,54	47,12±11,71
Bachelor's degree ⁽⁴⁾	58,91±13,63	59,14±19,22	47,54±20,86	53,13±11,90	53,49±25,46	41,29±15,82	51,94±10,23
Postgraduate degree ⁽⁵⁾	51,79±10,06	41,88±21,54	27,68±17,88	34,56±15,60	40,63±11,30	38,80±24,04	39,71±12,59
Specialty in medicine ⁽⁶⁾	58,51±13,66	61,23±23,80	39,75±23,02	46,61±15,97	42,63±21,03	29,86±14,93	46,08±13,09
Statistical analysis	$\chi^2=20,582$ p=0,001 [1,2-3] [2-4,5,6]	$\chi^2=27,200$ p=0,000 [1-3,4,5] [2-3,4,5]	$\chi^2=26,122$ p=0,000 [1-3,5,6] [2-3,4,5,6]	$\chi^2=29,729$ p=0,000 [5-1,4] [2-3,4,5,6]	$\chi^2=26,562$ p=0,000 [5-1,4] [2-3,4,5,6]	$\chi^2=21,325$ p=0,001 [6-4,5]	$\chi^2=30,889$ p=0,000 [1-3,5,6] [2-3,4,5,6]
Profession							
Lecturer ⁽¹⁾	58,56±11,42	68,54±21,89	45,83±20,17	46,94±17,49	46,18±19,35	40,45±17,80	50,10±11,76
Assistant ⁽²⁾	58,04±13,01	57,61±24,15	38,82±24,47	47,19±15,56	40,76±24,04	27,81±14,02	45,35±13,72
Surgical nurse ⁽³⁾	57,70±14,12	59,61±18,38	48,38±20,76	53,92±12,11	54,98±24,46	41,04±15,92	52,04±11,08
Anesthetic technician ⁽⁴⁾	56,81±14,52	51,78±23,15	37,65±20,73	50,55±14,34	51,27±27,19	37,18±14,80	47,88±11,23
Surgical technician ⁽⁵⁾	68,50±13,25	79,00±15,88	60,71±24,29	62,29±16,77	69,67±23,18	41,17±18,31	61,05±13,48
Perfusionist ⁽⁶⁾	57,79±7,46	62,27±9,32	37,99±23,33	41,18±3,08	46,97±9,33	36,93±6,39	46,04±5,02
Statistical analysis	$\chi^2=12,008$ p=0,035 [5-1,2,3,4]	$\chi^2=33,218$ p=0,000 [4-1,3,5] [5-2,3,6]	$\chi^2=19,048$ p=0,002 [5-2,4]	$\chi^2=25,493$ p=0,000 [5-1,2,3,4,6] [4-6]	$\chi^2=22,740$ p=0,000 [5-1,2,3,4,6] [2-3]	$\chi^2=21,072$ p=0,001 [2-1,3,4,5]	$\chi^2=24,137$ p=0,000 [5-1,2,4,6]

Duration of working								
1 year and ↓ ⁽¹⁾	61,98±12,57	64,17±21,80	50,45±23,25	55,39±14,02	52,43±26,63	35,24±14,98	52,82±12,18	
2-8 years ⁽²⁾	57,34±14,47	55,59±23,65	38,10±23,72	48,23±16,06	46,16±23,74	34,82±18,23	46,96±13,93	
9-15 years ⁽³⁾	56,22±13,02	56,02±22,20	43,78±24,34	50,22±13,45	50,62±24,33	39,31±14,45	49,15±11,08	
16-24 years ⁽⁴⁾	62,17±12,94	65,63±18,27	50,89±19,28	52,63±14,90	58,51±26,49	37,76±14,12	53,07±11,16	
25 years and ↑ ⁽⁵⁾	58,04±12,65	69,62±20,59	52,34±16,66	56,17±15,23	58,97±23,56	39,26±15,15	53,96±11,39	
Statistical analysis	$\chi^2=11,789$ p=0,019 [4-2,3]	$\chi^2=14,378$ p=0,006 [2-4,5] [3-5]	$\chi^2=16,334$ p=0,003 [2-4,5]	$\chi^2=11,774$ p=0,019 [2-5]	$\chi^2=8,952$ p=0,062 -	$\chi^2=5,635$ p=0,228 -	$\chi^2=15,546$ p=0,004 [2-4,5]	
Working in the operating room willingly								
Yes	58,56±13,89	61,08±21,33	44,94±22,85	51,54±15,23	52,92±24,24	37,42±16,12	50,41±12,60	
No	58,15±10,90	47,17±28,83	38,35±24,04	45,27±14,05	35,51±27,55	30,89±15,47	44,23±12,28	
Statistical analysis	Z=-0,131 p=0,896	Z=-2,112 p=0,035	Z=-1,349 p=0,117	Z=-1,692 p=0,091	Z=-3,075 p=0,002	Z=-1,569 p=0,117	Z=-2,189 p=0,029	
Status								
Permanent staff	57,31±13,13	57,40±21,91	42,35±22,12	49,73±14,39	48,67±24,32	36,61±15,93	48,56±11,83	
Contracted personnel	63,73±14,64	70,21±21,76	52,90±24,87	56,31±17,48	62,85±24,91	37,76±17,13	55,39±14,68	
Statistical analysis	Z=-2,846 p=0,004	Z=-3,902 p=0,000	Z=-2,910 p=0,004	Z=-2,374 p=0,018	Z=-3,620 p=0,000	Z=-0,050 p=0,960	Z=-3,132 p=0,002	
Working schedule								
Daytime	60,22±13,80	65,32±21,08	51,46±21,52	54,05±15,71	57,94±24,84	37,14±14,62	52,90±12,94	
Day-night shifts	56,82±56,82	54,33±22,43	37,23±22,27	47,89±14,08	44,75±23,47	36,52±17,58	46,80±11,67	
Statistical analysis	Z=-1,513 p=0,130	Z=-3,827 p=0,000	Z=-4,687 p=0,000	Z=-3,360 p=0,001	Z=-4,081 p=0,000	Z=-0,045 p=0,964	Z=-3,849 p=0,000	
Receiving operating room orientation								
Yes	61,68±13,65	62,95±19,44	49,68±22,99	54,45±14,75	59,77±22,95	40,13±16,72	53,66±11,82	
No	55,60±13,00	56,93±24,55	39,42±21,94	47,76±14,97	43,56±24,38	33,78±15,01	46,33±12,45	
Statistical analysis	Z=-3,668 p=0,000	Z=-1,640 p=0,101	Z=-3,444 p=0,001	Z=-2,891 p=0,004	Z=-4,857 p=0,000	Z=-2,611 p=0,009	Z=-4,357 p=0,000	
Receiving in-service training								
Yes	61,42±13,91	63,39±18,72	49,62±21,55	54,85±13,13	57,65±24,11	37,97±16,04	53,19±11,28	
No	53,76±11,76	53,96±26,50	35,68±22,74	44,59±16,27	40,97±23,03	34,94±16,20	44,35±12,98	
Statistical analysis	Z=-4,565 p=0,000	Z=-2,366 p=0,018	Z=-4,372 p=0,000	Z=-4,440 p=0,000	Z=-4,939 p=0,000	Z=-1,124 p=0,261	Z=-4,679 p=0,000	
Receiving patient safety training								
Yes	61,17±13,63	62,98±19,06	48,43±21,72	55,26±13,28	57,92±23,60	38,83±15,93	53,27±11,11	
No	53,94±12,43	54,35±26,49	37,29±23,52	43,55±15,54	39,96±23,33	33,36±15,99	43,94±13,08	
Statistical analysis	Z=-4,324 p=0,000	Z=-2,217 p=0,027	Z=-3,501 p=0,000	Z=-5,217 p=0,000	Z=-5,203 p=0,000	Z=-2,491 p=0,013	Z=-5,184 p=0,000	

*"Mann-Whitney U" test (Z-table value) for the comparison of two independent groups not having normal distribution; "Kruskal-Wallis H" test statistics (χ^2 -table value) were used to compare three or more independent groups.

4. Discussion

Health services require teamwork; therefore, units such as operating rooms, intensive care services, and emergency units require cooperation. When teamwork is not implemented effectively, the rate of error increases in operating rooms, which could cause risk factors for patient safety (Aydemir İ & Yıldırım T. 2016). In order to make improvements in patient safety, it is important to create systems in which errors can be reported without fear of punishment/labeling in the institution and to provide management support. These lay the groundwork for creating a patient safety culture. It is emphasized that in health services, it is necessary to create a culture of patient safety and to accept patient safety as the highest priority and common value of the institution. The study was conducted to examine the patient safety attitudes of operating room staff (Arslanoğlu, A. & Kabadayi, M. A. 2022).

Within the scope of the research, according to the GTÖ score distribution, the highest mean scores were the team cooperation and job satisfaction sub-dimension scores; It was determined that the lowest average score was the subscale score average of determining the stress level. A high teamwork score is an important factor in ensuring patient safety and creating a positive cultural environment (Tunçer G 2016). When the literature is examined, it is seen that there are studies that are similar to our study results (Ongün P. 2015; Önler E. 2010; sexton et al., 2006.).

The total mean scores showed that the employees' safety climate attitudes were at a medium level. A high level of teamwork climate score is an important factor in ensuring patient safety and creating a positive cultural environment (Tunçer G. 2016). An analysis of the literature indicates studies reporting similar results (Ongün P. 2015; Liao X et al., 2023; Korkmaz O., 2013).

This study found that the SAQ mean score increased with the increase in age. The literature reports parallel results (Liao X et al., 2023; Korkmaz O. 2013; Özsayın F. S. 2015) as well as different ones (Karayurt Ö et al., 2017; Özer Ö et al., 2019; Şahin E et al., 2020). Increasing age and experience are considered to be related to increased awareness of patient safety.

Safety attitudes were found to be higher in employees who graduated from vocational school of health than other healthcare employees in this study. Şahin et al. (2020) found that patient safety attitudes were higher in 4th-year midwifery students who received training on medical errors and patient safety than those who did not (Şahin E et al., 2020). The "working conditions" sub-scale mean score was lower in employees who had postgraduate degree and specialty in medicine. In addition, the "stress recognition" mean score was lower in those who had specialty in medicine than those who had associate and undergraduate degrees. The highest score was received by those who graduated from the vocational school of health. Contrary to expectations, this finding is considered to be associated with vocational school of health graduates' higher duration of work experience. The reason for the lowest score of specialist and assistant physician groups could be the fact that they do not attend in-service trainings regularly compared to other members of the group. Higher education level among individual characteristics is associated with lower job satisfaction and teamwork climate (Balanuye B. 2014, Gökdoğan F & Yorgun S. 2010.)

Patient Safety Attitude Questionnaire sub-scale mean scores and total scores increased with the increase in the working years in this study. Different from the present study, Karayurt et al. (2017) investigated the patient safety culture of operating room staff and found that safety culture perception levels were higher in employees working for 15 years and more than in those who have been working for 5 years or less. Patient safety culture decreases with the increase in the working duration (Karayurt Ö et al. 2017).

An analysis of the employees' general working schedule showed that the "job satisfaction", "perceptions of management", "safety climate", and "working conditions" sub-scale mean scores were higher in those whose general working schedule was daytime than in those who worked day and night shifts. Working at regular intervals and during the day increases the participants' job satisfaction. It is also thought that coming to work rested and getting enough sleep reduces the risk of errors. Working for long and uninterrupted hours when the workload is high could cause fatigue, and therefore an increase in the tendency of errors. The literature

documented similar results to the ones in the present study (Balanuye B. 2014; Venesoja A et al., 2021). A study that examined the effect of the workload of nurses working in surgical clinics on patient safety determined that errors occurred in 48.3% of nurses working on the day shift and in 50% of nurses working in the evening/night shift and that those who worked in shifts made more errors than those who did not (Gökdoğan F & Yorgun S. 2010). Another study conducted in South Korea found that fatigue and stress negatively affected patient safety (Kim S. E. et al., 2015).

Conclusion

In line with these results; it is recommended to plan initiations to establish a culture of patient safety in institutions by evaluating the conditions, provide all employees with trainings on knowledge and skills required to work in operating rooms before they start to work in these units, enhance the continuation of in-service training programs considering that operating rooms are one of the most important units in terms of patient safety, and organize implementations to improve communication and cooperation between profession groups in the operating rooms.

References

- Arslanoğlu, A., & Kabadayi, M. A. (2022). An Evaluation of Postgraduate Theses Published in Turkey Regarding the Patient Safety Attitude of Operating Room Staff. *USCEH Journal*, 2(1), 1-16.
- Aydemir, İ, & Yıldırım, T. (2016). Determining the attitudes of the operating room surgical team towards non-technical skills. *Mehmet Akif Ersoy University Social Sciences Institute Journal*, 8(15), 66-84. <https://doi.org/10.20875/sb.96417>
- Balanuye, B. (2014). The effect of workload of nurses working in surgical clinics on patient safety. Master's thesis, Başkent University Institute of Health Sciences, Ankara.
- Carvalho, PA, Göttems, LB, Pires, MR, & de Oliveira, ML. (2015). Safety culture in the operating room of a public hospital in the perception of healthcare professionals. *Rev Lat Am Enfermagem*, 23(6),1041-8. doi: 10.1590/0104-1169.0669.2647
- Demirel, G., & Akgün Ö. Doğaner A. (2020). The effect of intern students' patient safety attitudes and cultures on medical error situations. *Acibadem University Journal of Health Sciences*, 11(2), 276-283. <https://doi.org/10.31067/0.2020.266>
- Gens-Barberà, M, Rey-Reñones, C, Hernández-Vidal, N, Vidal-Esteve, E, Mengibar-García, Y, Hospital-Guardiola, I, Palacios-Llamazares, L, Satué-Gracia, EM, Oya-Girona, EM, Bejarano-Romero, F, Astier-Peña, MP, & Martín-Luján, F. (2021). Effectiveness of new tools to define an up-to-date patient safety risk map: a primary care study protocol. *Int J Environ Res Public Health*, 18(16),8612. doi.org/10.3390/ijerph18168612
- Gökdoğan, F., & Yorgun, S. (2010 June). Patient safety and nurses in health services. *Anatolian Journal of Nursing and Health Sciences*,13(2),53-59
- Institute For Healthcare Improvement. Free from Harm: Accelerating Patient Safety Improvement Fifteen Years after to Err is Human. Access Link: http://www.npsf.org/default.asp?page=freefromharm#.Wt5EFK6nYuM.gmail_Access date: 10,10,2023
- Jelacic, S, Bowdle, A, Nair, BG, Togashi, K, Boorman, DJ, Cain, KC, Lang, JD, & Dellinger, EP. (2020). Aviation-style computerized surgical safety checklist displayed on a large screen and operated by the anesthesia provider improves checklist performance. *Anesth Analg*, 130(2),382-390. doi.org/10.1213/ane.0000000000004328
- Kapıkıran, G., & Bülbüloğlu, S. (2018). Patient safety in the operating room, patient safety culture, medical errors and undesirable events. *Journal of Health and Nursing Management*. 5(2), 32-140. doi:10.5222/SHYD.2018.132
- Karayurt, Ö., Damar, H T., Bilik, Ö., Özdöker, S., & Duran, M. (2017 August). Examining patient safety culture and use of the safe surgery checklist in the operating room. *ACU Health Bil Magazine*, 2017(1),16-23.
- Kim, S, E., Kim, W, C., Lee, S J., Oh, J, H., Lee, D, H., Lim, T, H., Choi, H, J., Chung, H, S., Ryu, J, Y., Jang, H, Y., Kim, S, J., & Jung, J, H.A. (2015). Questionnaire survey exploring healthcare professionals' attitudes toward steam

work and safety in acute care areas in South Korea. *BMJ Open*, 5(7),1-9. <https://doi.org/10.1136/bmjopen-2015-007881>

- Korkmaz, A, Ç. (2018 May) Patient safety from past to present. *Journal of İnönü University Vocational School of Health Services*, 6(1), 10-19.
- Korkmaz, O. (2013). Nurses' perception of managers' attitudes towards patient safety. *Dokuz Eylül University Social Sciences Institute Journal*, 4(4): 91-112.
- Liao, X., Zhang, P, Xu, X., Zheng, D., Wang, J, Li, Y., & Xie, L. (2022). Analysis of factors influencing safety attitudes of operating room nurses and their cognition and attitudes toward adverse event reporting. *Journal of Healthcare Engineering*, 2023(1), 1-11 doi.org/10.1155/2022/8315511
- Mallouli, M., Tlili, M, A., Aouicha, W., Rejeb, M, R., Zedini, C., Salwa, A., Mtiraoui, A., Dhiab, M,B., & Ajmi, T. (2017) Assessing patient safety culture in Tunisian operating rooms: a multicenter study. *International journal for quality in health care*. 29(2),176-182 doi.org/10.1093/intqhc/mzw157
- Murphy, J. F. A. (2019). World patient safety day. *Irish Medical Journal*, 112(9), 997
- Mallouli, M, Tlili, M, A, Aouicha, W, Ben, Rejeb, M, Zedini, C, Salwa, A, Ajmi, T. (2017). Assessing patient safety culture in Tunisian operating rooms: A multicenter study. *International Journal for Quality in Health Care*. 29(2), 176- 182. doi.org/10.1093/intqhc/mzw157.
- Ongün, P. (2015). Attitudes of operating room staff towards patient safety and affecting factors. Master's thesis, Dokuz Eylül University Health Sciences Institute, İzmir
- Öğün, B. (2008). Examining patient safety in the operating room. Master's thesis, Marmara University Institute of Health Sciences, İstanbul.
- Önler E. (2010). Evaluation of operating room staff's attitudes towards patient safety. Doctoral thesis. Istanbul University Institute of Health Sciences. İstanbul.
- Özsayın, F, S. (2015). Patient safety attitudes of operating room staff. Master's thesis, Ege University Institute of Health Sciences, İzmir.
- Özer, Ö., Şantaş, F., Gün. Ç., & Şentürk, S. (2019 August). Evaluation of nurses' perceptions of patient safety attitudes. *Acıbadem University Journal of Health Sciences*, 10(2), 161-168. <https://doi.org/10.31067/0.2019.139>
- Pimentel, M. P, T., Choi, S., Fiumara, K., Kachalia, A., & Urman, R. D. (2021). Safety culture in the operating room: variability among perioperative healthcare workers. *Journal of Patient Safety*, 17(6),412-416. [doi: 10.1097/pts.000000000000038](https://doi.org/10.1097/pts.000000000000038)
- Russ, S., Rout, S., Caris, J., Mansell, J., Davies, R., Mayer, E., Moorthy, K., Darzi, A., Vincent, C., & Sevdalis, N. (2015). Measuring variation in use of the WHO surgical safety checklist in the operating room: a multicenter prospective cross-sectional study. *J Am Coll Surg*, 220(1),1-11. doi.org/10.1016/j.jamcollsurg.2014.09.021
- Sexton, J B., Helmreich, R L, Neilands, T, B., Rowan, K., Vella, K., Boyden, J., Roberts, P, R., & Thomas, J E. (2006). The Safety Attitudes Questionnaire: psychometric properties, bench marking data, and emerging research. *BMC Health Services Research*, 6(44), 1-10.
- Şahin, E., Yeşilçınar, İ., Geriş, R., & Çukurlu, G. (2020 July). Determination of midwifery students' attitudes towards medical errors and patient safety. *Life Sciences*, 15(3), 9-18.
- Tunçer, G. (2016). Determining the patient safety attitudes of physicians, nurses and midwives working in baby-friendly gynecology and children's hospitals. Master's thesis, Istanbul University Institute of Health Sciences, Istanbul.
- Türk, S. (2015). Operating room nurses' attitudes towards patient safety. Master's thesis, Istanbul Medipol University Institute of Health Sciences, İstanbul,
- Uğur, E., Kara, S., Yıldırım, S., & Akbal, E. (2016 May). Medical errors and patient safety in the operating room. *JPak Med Assoc*, 33(6), 19-50.
- Vaismoradi, M., Tella, S., A. Logan, P., Khakurel, J., & Vizcaya-Moreno, F. (2020). Nurses' adherence to patient safety principles: A systematic review. *International journal of environmental research and public health*, 17(6), 2028. <https://doi.org/10.3390/ijerph17062028>

- Venesoja A, Lindström V, Aronen P, Castrén M, & Tella S. (2021). Exploring safety culture in the Finnish ambulance service with Emergency Medical Services Safety Attitudes Questionnaire. *Scand J Trauma Resusc Emerg Med*, 29(1),1-11. <https://doi.org/10.1186/s13049-021-00960-9>
- World Health Organization. Access Link: https://www.euro.who.int/en/health-topics/Health-systems/patient-safety/patient-safety_ Access date:10,10,2023
- Yılmaz, A. Işık, O, & Akça, N. (2017 August). Determining the patient safety attitude perception levels of hospital employees. *Hacettepe Health Administration Journal*, 20(1), 69-80.