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Research Article

PEDIATRIC NURSES' ATTITUDES REGARDING MALPRACTICE TENDENCIES AND PATIENT SAFETY CULTURE: A CASE OF TURKEY

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Abstract: *Patient safety and medical errors are among the most discussed topics in recent years. Identifying and reporting medical errors is one of the most significant steps toward the adoption of measures to increase patient safety. Pediatric nurses provide care to children, which is why they play an essential role in preventing medical errors and ensuring patient safety. This cross-sectional and descriptive study was conducted to determine the relationship between pediatrics nurse's malpractice tendencies and patient safety culture in Turkey. The study was conducted in the pediatric clinics of a university hospital and a public hospital in a metropolis in the northern region of Turkey. The study population included 142 nurses. A 'Nurse Information Form', a 'Patient Safety Culture Scale (PSCS)', and a 'Malpractice Tendency Scale in Nursing (MTSN)' were used to collect information. Data were analyzed by using SPSS 16 program, descriptive statistics, Independent Two-Sample t-test, one-way analysis of variance (ANOVA), Tukey test, Tamhane test, Mann Whitney U, Kruskal Wallis test and Pearson correlation tests. Nurses who had a master's degree, made a medical error, and observed medical errors made by another colleague had a higher mean MTSN score ($p<0.05$). Nurses aged 46 and older, with a master's degree, that worked in the pediatric unit as a manager had a higher total mean PSCS score ($p<0.05$). A positive and significant relationship was found between total mean PSCS and MTSN scores. This study found that pediatric nurses' level of malpractice tended to be low and their level of patient safety culture perceptions high, which is significant in terms of quality of patient care.*

Keywords: *pediatrics, nursing, patient safety, medical error*

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1. Introduction

Medical errors are undesirable events that can happen to patients while in the care of health professionals during diagnosis, treatment, care, or aftercare, and can directly affect their life and medical condition [1]. While medical errors are significant for all health professionals, nurses are in direct charge

of patient care; therefore, there is a high possibility of putting patients' lives in danger with erroneous practices, thereby increasing the significance of medical errors for nurses [2]. Preventing medical errors and ensuring patient safety are considered fundamental practices in every stage of health care delivery [3].

Patient safety, a significant component of delivering quality care in health services, involves individual and organizational behaviors based on beliefs and targets with the aim of reducing medical errors to an acceptable level [4]. Effective communication, teamwork, motivative working conditions, and leadership in health care services support a culture of patient safety and contribute to the adoption of preventive measures, institutional learning, and the elimination of punishment as a means of error prevention [5]. Attention to patient safety by nurses within the health care team is a significant and necessary role in recovery and the development of a quality health care environment [6].

Hospitals are environments that can be dangerous for infants and children while outside of their usual environment [7]. Physiological and cognitive development is rapid during childhood, and children are dependent on adults for the fulfillment of their health care needs. These attributes may lead children to be exposed to medical errors more than adults [8]. Nurses and hospital administrators must be cognizant of events that may increase medical errors and take necessary measures to prevent children and families from damages. Pediatric nurses must also protect themselves from legal consequences as a result of medical errors resulting in patient damage, increasing the significance of patient safety practices in pediatrics clinics [9].

This study was conducted to determine the attitudes pediatric nurses' relationship between regarding malpractice tendencies and patient safety culture in Turkey.

2. Methods

2.1. Sample and Design of the Study

This was a cross-sectional and descriptive study and was conducted in the pediatric clinics of a university hospital and a public hospital in a metropolis in the northern region of Turkey between May 7, 2018, and May 28, 2018. The study population included 190 nurses the study in pediatrics clinics for at least one year. The study sample included 142 nurses who met the inclusion criteria and the participation rate was 75 %.

2.2. Research Instrument

Study data were collected using a Nurse Personal Information Form, Malpractice Tendency Scale in Nursing **(MTSN),** and Patient Safety Culture Scale **(PSCS)**.

Nurse Personal Information Form: This form included 15 questions examining sociodemographic characteristics and medical error experiences of the participant nurses.

Malpractice Tendency Scale in Nursing (MTSN): Altunkan (2009) developed this scale and tested its validity and reliability to measure the malpractice tendency levels of nurses directly in charge of patient care. The scale included 49 items and 5 subscales: medicine and transfusion practices (18 items), hospital infections (12 items), patient monitoring and equipment safety (9 items), falls (5 items), and communication (5 items). A higher total score indicated a lower level of malpractice tendency while a lower total score indicated a higher level of malpractice tendency. Altunkan found the scale's Cronbach's Alpha reliability coefficient to be 0.95 [10]. This study found the Cronbach's Alpha

reliability coefficient of the **MTSN** to be 0.82 and Cronbach's Alpha reliability coefficients of the subscales to be between 0.80 and 0.89.

Patient Safety Culture Scale (PSCS): Türkmen et al. (2011) developed this scale which included 51 items in five subscales as follows: management and leadership (17 items), employee behavior (14 items), unexpected event and error reporting (5 items), employee training (7 items), and care environment (8 items). In calculating the total scale score, the mean scores of the five subscales were added and the total was divided by five, which gave a scale score between one and four. A mean score close to four indicated a positive patient safety culture while a mean score close to one indicated a negative patient safety culture. Türkmen et al. (2011) found the Cronbach's Alpha reliability coefficient of the PSCS to be 0.97 and Cronbach's Alpha reliability coefficients of subscales between 0.83 and 0.92 [11]. This study found the Cronbach's Alpha reliability coefficient of the PSCS to be 0.89 and Cronbach's Alpha reliability coefficients of subscales to be between 0.79 and 0.92.

2.3. Data Collection

Data were collected on 7-28 May 2018. Firstly, the study's aim was expressed by the researcher to the nurses working in the hospitals where the studies were conducted. Nurses completed the questionnaires while on duty, in their room in services. Nurses completed the surveys within 15-20 minutes and all completed surveys were then placed in an envelope and returned to the researcher. No payment was made to the nurses for involvement in the survey.

2.4. Statistical Analysis

The data obtained from the study were evaluated using the SPSS 16.0 software program (SPSS Inc., Chicago II, USA). Parametric tests (the independent two-sample t-test, one-way analysis of variance (ANOVA), and Tukey's test) were used to analyze data with normal distribution and nonparametric tests (Mann-Whitney U and Kruskal-Wallis tests and Tamhane's T2) were used to analyze data without normal distribution. Pearson's correlation analysis was performed to investigate possible correlations between attitudes toward patient safety and tendencies towards medical errors. For all the analyses, $p<0.05$ was considered statistically significant.

2.5. Ethical Consideration

The study was conducted after formal permission for the study was obtained from the Directorates of the Hospitals and the Ethics Commission of the Ondokuz Mayıs University hospital (IRB file no: OMU-KAEK 2018-170, date: 30.04.2018). Before the launch of the research, nurses were informed about the subject and the objectives of the research. Personal information remained confidential and was only used for the research data. Verbal and written permission was obtained from the nurses who volunteered to participate in the research. All participants voluntarily agreed to participate in the study, which was carried out in accordance with the Helsinki Declaration Principles.

3. Results

Of the nurse participants, 51.4% were between the ages of 26 and 35, 96.5% were female, 73.9% were married, 61.3% had a bachelor's degree, and 52.1% had 1-10 years of professional experience. Nurses worked mostly in neonatal services (39.4%) and in pediatric services (23.2%). Of the nurses, 91.5% worked as clinic nurses, 79.6% worked 40 to 48 hours a week, 68.3% worked both night and day

shifts, and 66.2% cared for 1-10 patients a day. While 11.3% of the nurses admitted making a medical error during their professional life, 60.6% indicated observation of a medical error made by their colleagues (Table 1).

Table 1. Descriptive Characteristics of Pediatric Nurses (N: 142)

	Sub-variables	Number (n)	Percentage (%)
Age (years)	20-25 years	12	8.5
	26-35 years	73	51.4
	36-45 years	50	35.2
	46 -54 years	7	4.9
Gender	Female	137	96.5
	Male	5	3.5
Marital Status	Married	105	73.9
	Single	37	26.1
Educational Level	High School	11	7.7
	Associate's Degree	32	22.5
	Bachelor's Degree	87	61.3
	Master's Degree	12	8.5
Professional experience duration (years)	1-10	74	52.1
	11-20	45	31.7
	21-30	23	16.2
Unit worked in	Neonatal intensive care	56	39.4
	Pediatric intensive care	24	16.9
	Pediatric service	33	23.2
	Pediatric emergency	16	11.3
	Pediatric surgery	13	9.2
Task	Nurse supervisor	12	8.5
	Clinic nurse	130	91.5
Weekly working hours	40-48 hours	113	79.6
	49-58 hours	20	14.1
	59 -72 hours	9	6.3
Shift type	Day	25	17.6
	Night	20	14.1
	Day and night (mixed)	97	68.3
The mean number of patients provided care daily	1-10	94	66.2
	11-30	27	19.0
	31-50	21	14.8
Made a medical error	Yes	16	11.3
	No	126	88.7
Observed a medical error made by other nurses	Yes	86	60.6
	No	56	39.4

The mean MTSN score was 236.76±10.57, with a median value of 241. The lowest score was 198 and the highest score was 245. The mean PSCS score was 166.84±27.59, with a median value of 155. The lowest score was 113 and the highest score was 204. The mean subscale scores of these two scales are presented in Table 2. Of the MTSN subscale mean scores, medicine, and transfusion practices was 88.23±3.17, falls was 23.97±1.77, hospital infections were 57.96±3.08, patient monitoring and equipment safety was 41.95±3.66, and communication was 24.27±1.43. Of the mean subscale scores of PSCS, management and leadership were 55.51±9.11, employee behavior was 45.07±7.56, unexpected event and error reporting was 16.03±3.19, employee training was 22.90±4.21, and care environment was 25.87±4.83 (Table 2).

Table 2. Descriptive Statistics of Pediatrics Nurses' Malpractice Tendency Scale in Nursing (MTSN) and Patient Safety Culture Scale (PSCS) and Subscales

Scale and Subscales	Mean±SD	Min-Max	Median
Medicine and Transfusion Practices	88.23±3.17	72-90	90
Falls	23.97±1.77	18-25	25
Hospital Infections	57.96±3.08	46-60	60
Patient Monitoring and Equipment Safety	41.95±3.66	29-45	43
Communication	24.27±1.43	20-25	25
Total MTSN Score	**236.76±10.57**	198-245	241
Management and Leadership	55.51±9.11	37-68	53
Employee Behavior	45.07±7.56	30-56	42
Unexpected Event and Error Reporting	16.03±3.19	11-29	15
Employee Training	22.90±4.21	9-28	21
Care Environment	25.87±4.83	15-32	24
Total PSCS Score	**166.84±27.59**	113-204	155

S.D.: Standard deviation, Min.: Minimum, Max.: Maximum

When the total scores of nurses from the Medical Malpractice Tendency Scale and their personal and professional features were compared, it was found that nurses with a postgraduate degree had higher scores than nurses with an associate degree ($p<0.01$), and nurses who experienced medical malpractice had higher scores than nurses who did not experience medical malpractice ($p<0.05$). When the total scores of nurses from the Patient Safety Culture Scale and their personal and professional features were compared, it was found that taken by nurses aged 46 and older when compared with other age groups ($p<0.05$), nurses with a postgraduate degree when compared with other education groups ($p<0.01$), nurses working in pediatric intensive care unit when compared with nurses working in neonatal and pediatric services ($p<0.01$), chief nurses when compared with service nurses ($p<0.05$) and nurses who experienced medical malpractice when compared with nurses who did not ($p<0.01$) (Table 3).

Table 3. Comparison of Nurses' Descriptive Characteristics with Malpractice Tendency Scale (MTSN) and Patient Safety Culture Scale (PSCS) Mean Scores

Variables	MTSN		PSCS	
	Mean±SD Median (min-max)	Test p	Mean±SD Median (min-max)	Test p
Age (years)				
20-25 [a]	231.92±13.55 235 (207-245)		160.50±33.05 147 (129-204)	
26-35 [b]	235.89±11.20 240 (196-245)	F=1.555 0.203	162.45±25.42 152 (121-204)	KW=9.715 0.021* a,b,c <d
36-45 [c]	237.12±9.88 240 (198-245)		163.52±27.41 153 (113-204)	
46 -54 [d]	242.43±4.42 245 (233-245)		198.43±13.87 204 (167-204)	
Education level				
High school[s]	239.82±8.48 243(216-245)	KW=11.590 0.009** b<e	174.91±28.73 167 (130-204)	F=5,945 0.001** b,c<d
Associate's degree[b]	233.38±11.97 236(196-245)		154.56±26.31 148 (113-204)	
Bachelor's degree[c]	236.21±10.70 240(198-245)		163.28±25.39 153 (121-204)	
Master's degree[d]	241.67±8.07 245(220-245)		189.58±26.80 204 (132-204)	
The current unit worked in				
Neonatal intensive care [a]	235.29±10.79 240 (198-245)		159.57±25.46 151 (121-204)	
Pediatric intensive care [b]	239.00±10.97 245 (198-245)	F=0.691 0.600	183.04±28.63 204 (129-204)	F=3.920 0.005** a,c<b
Pediatric service [c]	237.18±11.22 242 (196-245)		158.67±26.73 151 (113-204)	
Pediatric emergency[d]	234.25±10.53 237 (213-245)		163.75±23.21 154 (130-204)	
Pediatric surgeon service [e]	236.08±10.50 241 (209-245)		166.54±27.16 153 (132-204)	
Task				
Nurse supervisor	239.36±9.67 244(213-245)	U=567.000 0.246	173.27±20.05 166(153-204)	U=459.500 0.047*
Clinic nurse	235.98±10.91 240(196-245)		164.08±27.50 152(121-204)	
Made a medical error				
Yes	241.50±6.48 245(221-245)	U=639.000 0.015*	189.75±26.46 204(132-204)	U=480.500 0.001**
No	235.65±11.09 240(196-245)		161.22±25.77 152(113-204)	

F: One-way analysis of variance and Tukey test, KW: Kruskal-Wallis and Tamhane's T2 tests, U: Mann Whitney U test

*:p<0.05; **p<0.01

A positive, and significant relationship was found between PSCS total score and all subscales and MTSN score and its medicine and transfusion practices, falls, patient monitoring, and equipment safety, and communication subscales (Table 4).

Table 4. Correlation between Malpractice Tendency Scale in Nursing (MTSN) and Patient Safety Culture Scale (PSCS) Total Score and Subscales (N=142)

	Total MTSN Score	**Medicine and Transfusion Practices**	**Falls**	**Hospital Infections**	**Patient Monitoring and Equipment Safety**	**Communication**
Total PSCS Score	0.26*	0.21**	0.26*	0.08	0.20**	0.19**
Management and Leadership	0.27*	0.24*	0.23*	0.12	0.19**	0.25*
Employee Behavior	0.16	0.13	0.21**	0.01	0.10	0.14
Unexpected Event and Error Reporting	0.21**	0.20**	0.25*	0.04	0.14	0.12
Employee Training	0.26*	0.18**	0.21**	0.09	0.29*	0.15
Care Environment	0.16	0.15	0.20**	0.02	0.12	0.08

*p<0.01 **p<0.05

4. Discussion

In this study, the medical error rate among pediatric nurses was found to be low (11.3%) (Table 1). Two different studies conducted with pediatric nurses in Turkey found the rate of making medical errors to be high (43% and 61%) [3,8]. Studies conducted with nurses working in other fields also found a high rate of medical errors [12,13]. It can be said that the percentage of nurses who made medical mistakes is low due to the fact that the majority of the nurses participating in the study have a bachelor's degree, their professional knowledge is up-to-date and their awareness is high, and the nurses have received various training (orientation training, in-service training, etc.).

While this study found the rate of making a medical error to be low, it found the rate of observing a medical error to be high (60.6%) (Table 1). This situation indicates that nurses did not always report medical errors. Likewise, another study conducted with pediatric nurses found the rate of making medical errors to be high, although they did not record the medical errors [3]. Other studies conducted in Turkey found that health care teams did not report cases of medical errors [13,14]. Previous studies found higher rates of medical error reporting [15, 16]. These findings indicate that medical errors may not have been reported due to the lack of a culture of patient safety in Turkey.

This study found the nurses' malpractice tendencies to be low with the highest score from the medicine and transfusion practices subscale (Table 2). Some studies found the malpractice tendency score to be low [12, 13, 18] while other studies found malpractice tendencies to be high, which mostly resulted from drug and transfusion practices subscales [2, 19]. This study found the pediatric nurses' mean PSCS score to be high, which was similar to the findings of other studies [20, 21] (Table 2)**.** This situation may result from the in-service training provided to the nurses regarding patient safety.

This study indicated that nurses with master's degrees had a lower level of malpractice tendency and a higher level of patient safety culture (Table 3). While some studies have indicated that nurses' level of education did not affect their malpractice tendencies [2, 18, 19]. Külcü and Yiğit (2017) found that the level of education affected malpractice tendencies in a study conducted with pediatric nurses [8]. Education levels of more than half of the pediatric nurses in this study were graduate and

postgraduate, indicating a high level of vocational professionalism which might affect their perceptions regarding malpractice tendencies and patient safety culture.

Nurses who made or observed a medical error had a lower level of malpractice tendency and a higher level of patient safety culture (Table 3). Previous studies found that medical errors caused positive changes in the clinic when corrective preventive actions were performed to prevent the reoccurrence of these errors [8,15]. A study conducted in seven different hospitals found that the patient safety culture of the nurses who made a medical error increased and nurses needed a medical error reporting system that did not include any punishment [16]. Another study conducted regarding the patient safety culture in nine hospitals found that nurses refrained from reporting adverse events due to fear of being punished and hospital managers' attitudes affected whether or not medical errors were reported [22]. This situation may be due to the fact that nurses who made medical errors started to work more carefully and their awareness increased.

This study found that nurses' patient safety culture increased with increasing age. Previous studies indicated that nurses' patient safety culture increased with increasing age and clinical experience [17,23,24]. Thus, our study findings are in agreement with previous study results.

This study found the patient safety culture of the nurses working in the pediatric intensive care unit to be higher compared to nurses working in other pediatric units (Table 3). Previous studies also found the patient safety culture of the nurses working in the intensive care unit to be higher compared to other nurses [14,17]. Patient safety culture perspectives of nurses working in the intensive care unit were positively affected due to the following factors: (1) they provide care to patients who cannot express themselves, (2) they take precautions regarding patient safety with patient advocacy, (3) they recognize an obligation to apply quality standards in intensive care units, and (4) there is the inclusion of patient safety and subjects regarding medical errors during in-service training.

Other studies also found that nurse managers exhibited a more extensive patient safety culture compared to clinic nurses [1,23,24]. This may stem from the fact that nurse managers' duties, authority, and responsibilities include follow-up and control of patient safety, and nurse managers participate in quality studies more actively and lead their employees about constituting a patient safety culture in the institutions.

Nurses' patient safety culture perspectives increased as their malpractice tendencies decreased (Table 4). No relationship was found between patient safety culture and malpractice tendencies of nurses working in internal and surgical clinics [3, 8]. Previous studies found that a higher level of patient safety culture led to fewer medical error reports regarding patients and a lower level of malpractice tendency among the nurses [15, 17]. This study found a significant relationship between the total scores of both scales and subscales, which indicates that the concept of malpractice has a significant place within patient safety culture.

4.1. Study's limitations

There are two limitations to the current study. First, variables such as nurses' making medical errors or observing their colleagues make errors depended on their statements. Second, the study sample included only the Northern Anatolia region of Turkey; therefore, study findings can not be generalized in terms of pediatric nursing in other regions.

5. Conclusion

This study is the first study examining the relationship between pediatrics nurses' malpractice tendencies and patient safety culture. As such, it may lead to other studies being conducted regarding this subject. This study found that nurses had a lower level of making medical errors while they had a higher level of witnessing a medical error done by their colleagues. This study also found lower-level malpractice tendencies and higher-level patient safety culture perceptions among pediatrics nurses, which is significant in terms of quality of patient care.

Ethical Consideration: The study was conducted after formal permission for the study was obtained from the Directorates of the Hospitals and the Ethics Commission of the Ondokuz Mayıs University Hospital (IRB file no: OMU-KAEK 2018-170, date: 30.04.2018).

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