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Research Paper–Araştırma Makalesi

KNOWLEDGE, ATTITUDES AND PRACTICES OF INTENSIVE CARE NURSES  
ON THE USE OF PHYSICAL RESTRAINTS

YOĞUN BAKIM HEMŞİRELERİNİN FİZİKSEL TESPİT EDİCİLERİ  
KULLANIMINA İLİŞKİN BİLGİ, TUTUM VE UYGULAMALARI

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Özet

Bu araştırma, yoğun bakım ünitelerinde çalışan hemşirelerin fiziksel tespit edicileri kullanımına ilişkin bilgi, tutum ve uygulamalarını belirlemek amacıyla yapılmıştır. Tanımlayıcı ve kesitsel tipteki bu çalışma, yoğun bakım ünitelerinde çalışan ve araştırmaya katılmaya gönüllü olan 202 hemşire ile Mayıs-Kasım 2019 tarihleri arasında gerçekleştirilmiştir. Veriler, bir anket formu ve “Personelin Fiziksel Kısıtlamalara İlişkin Bilgi Düzeyleri, Tutumları ve Uygulamaları Anketi” kullanılarak toplanmıştır. Bilgi, tutum ve uygulama puan ortalamaları ve yoğun bakım üniteleri arasında, uygulama puan ortalaması ve fiziksel kısıtlamalar hakkında bilgi alma durumu ve gündüz bakılan hasta sayısı arasında, tutum ve uygulama puan ortalamaları ve gece bakılan hasta sayısı arasında, bilgi, tutum ve uygulama puan ortalamaları ile yoğun bakım düzeyi arasında istatistiksel olarak anlamlı fark bulunmuştur ( $p<0,05$ ). Hemşirelerin fiziksel tespit kullanımına ilişkin yasal hakları konusunda farkındalıklarının artırılması ve hemşirelerin konuyla ilgili bilgi, tutum ve uygulamalarının belirlenmesine yönelik çalışmaların teşvik edilmesi önerilmektedir.

**Anahtar Kelimeler:** Bakım, yoğun bakım üniteleri, hemşire, fiziksel tespit.

Abstract

This study was conducted to determine the knowledge, attitudes and practices of nurses working in intensive care units regarding the use of physical restraints. This descriptive and cross-sectional study was conducted between May and November 2019 with 202 nurses working in intensive care units and volunteering to participate in the research. Data were collected using a questionnaire form and the “Levels of Knowledge, Attitudes, and Practices of Staff Regarding Physical Restraints Questionnaire”. A statistically significant difference was found between mean knowledge, attitude, and practice score and intensive care units, between mean practice score and the status of receiving information about physical restraints and the number of patients cared for during the day, between mean attitude and practice score and the number of patients cared for at night, between mean knowledge, attitude and practice score and intensive care level ( $p<0.05$ ). It is recommended to raise awareness about nurses' knowledge of their legal rights regarding physical restraint use and encourage further studies to determine the knowledge, attitude, and practices of nurses regarding the relevant topic.

**Keywords:** Care, intensive care units, nurse, physical restraint.

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## 1. INTRODUCTION

Intensive care units are the settings where complex and noisy devices such as mechanical ventilators, monitors, and infusion pumps are used. These devices increase patients' anxiety and agitation; therefore, various methods are used to calm the patients and provide maximum comfort and safety (Kılıç et al., 2018, pp. 11-16; Lan et al., 2017, pp. 411-421). Insulation (isolation), fixation (physical restraint), and chemical restraint are among these methods and the most commonly used method is physical restraint (Cunha et. al, 2016, pp. 388-399; Eskandari et al., 2018, pp. 52-57). Physical restraint is defined as the fixation of one's body with physical or mechanical tools, equipment, or materials to limit the freedom of movement and prevent from moving freely (Kaya and Doğu, 2018, pp. 61-70; Masters, 2017, pp. 52-55; Pradhan et al., 2019, pp. 1029-1037). In healthcare services, physical restraint application is used to ensure the safety of patients by preventing them from disconnecting their medical device connections or falling out of bed, to prevent patients from harming themselves by controlling agitation or aggressive behaviors, and protecting the body posture of bed-bound patients (Kaya and Doğu, 2018, pp. 61-70; Estévez-Guerra et al., 2017, pp. 29).

Physical restraint is widely used in the world and usage rates vary among countries. A study involving 34 intensive care units in nine European countries (Switzerland, England, Spain, Italy, France, Portugal, Finland, Greece, and Israel) reported that the mean rate of physical restraint use was 39% and that among these countries, the rate was 0% in England, Portugal, and Italy (Kılıç et al., 2018, pp. 11-16; Gu et al., 2019, pp. 193-198). Similar studies reported the rate of physical restraint use in intensive care units as 39.1% to 69.9% in Taiwan, 53% in Canada, and 39% in the USA (El-sol and Mohammed, 2018, pp. 15-22). In studies conducted in general clinics and intensive care units in Turkey, the rate of physical restraint use was reported to vary between 90.5% and 96.1% among nurses (Kaya and Doğu, 2018, pp. 61-70; Balci and Arslan, 2018, pp. 75-81).

There are differences between countries in terms of the rules for the physical restraint applications (Mehrok et al., 2002, pp. 77). In Turkey, physical restraint use requires a physician's request and informed consent from patients and their relatives (Gül and Kavak, 2019, pp. 657-662). The results of the studies conducted in Turkey shows that nurses apply physical restraint without a physician's request and that the applications are insufficient (Kaya and Doğu, 2018, pp. 61-70). It is reported that the use of physical restraint without adequate evaluation and thinking has negative physical, psychological, and social effects on patients (Turna and Gürsoy, 2021, pp.127-133).

Previous studies found that nurses' level of knowledge about physical restraint was low, that they did not have sufficient information about complications, that they experienced ethical dilemmas in restrictions, and that they felt sorry and had the feelings of guilt and embarrassment for fixing patients (Kaya and Doğu, 2018, pp. 61-70; Kassew et al., 2020, pp. 1-10). It was reported that nurses in the ICU do not use physical restraints properly, do not use sufficient clinical information and evidence for the application, and instead use their experiences (Gu et al., 2019, pp. 193-198). In the study of Stinson (2016), it was determined that nurses' knowledge, attitudes and practices regarding the use of physical restraint were insufficient (Stinson, 2016, pp. 21-26).



Nurses have important roles in ensuring patient rights and safety. Given that, nurses apply physical restraint to prevent harm to the patient; however, it often causes harm to the patient and leads to irreversible results such as death. Moreover, it is an important physical, psychological, social, and legal human rights issue. All these factors increase the importance of the issue. Although the number of studies conducted in clinics and specialized areas especially on physical restraint is sufficient, the number of studies conducted in intensive care units where nurses are more independently involved in are limited (Balci and Arslan, 2018, pp. 75-81; Gürdoğan et al., 2016, pp. 83-88). Therefore, this study was planned to fill this gap and considering the importance of the subject.

### *Research questions*

During the research, answers to the following questions were sought:

1. Is there a relationship between the personal and professional characteristics of nurses and their knowledge, attitudes and practices towards the use of physical restraints?
2. Is there a relationship between the professional experience of nurses and their knowledge, attitudes and practices towards the use of physical restraints?

## **2. METHODS**

### **2.1. Research Objective and Type**

This descriptive and cross-sectional study was conducted to determine the knowledge, attitudes, and practices of nurses working in intensive care units regarding physical restraint use and to make recommendations on what could be made according to the results.

### **2.2. Research Population and Sample**

The research was conducted with nurses (n=313) working in the first, second and third level intensive care units (surgical intensive care, internal medicine intensive care, anesthesia and reanimation and emergency intensive care) of a university and two state hospitals in Mersin on 21 May and 15 November 2019. The size of the sample was determined using the calculation method with a known population and considering at least 95% power, Type 1 error value of 0.05, and a 20% loss. The sample of the study consisted of 202 nurses. In order not to affect the results of the research due to different applications, neonatal and pediatric intensive care units were excluded from the study. The sample consisted of nurses who were actively working at the time of the research, were on leave or not, working in intensive care units and agreed to participate in the research.

### **2.3. Data Collection**

The data were collected face-to-face using a questionnaire form and the “Staff’s Knowledge, Attitude and Practice Levels Questionnaire on Physical Detections”. In order not to disturb the working arrangement of the intensive care units and to obtain good data, it was ensured that the data collection was carried out during periods with a low workload. Data collection time is 20 minutes in total.

### **2.4. Questionnaire Form**

The questionnaire form was developed by the researcher by reviewing the literature (Eskandari et al., 2018, pp. 52-57; El-sol and Mohammed, 2018, pp. 15-22; Balci and Arslan,



2018, pp. 75-81). This form consists of a total of 20 questions regarding socio-demographic characteristics (4 questions), professional characteristics (9 questions), and descriptive variables (7 questions).

## **2.5. Levels of Knowledge, Attitudes, and Practices of Staff Regarding Physical Restraints Questionnaire**

The scale was developed by Suen in 1999 and its Turkish validity and reliability study was conducted by Kaya et al. in 2008. The scale includes three sections. *The first section* consists of 11 items containing 10 true questions and one false question that measure nurses' knowledge of physical restraint use. Correct answers are evaluated as 1 and wrong answers are evaluated as 0. The score range of this section is between 0-11 and high scores indicate a high level of knowledge. *The second section* measures nurses' attitudes towards physical restraint use and is a 4-point Likert-type scale consisting of 12 items: "Strongly agree" is evaluated as 4 points; "agree" as 3 points; "disagree" as 2 points; "strongly disagree" as 1 point. The score range of this section is between 12-48 and high scores indicate a positive attitude and low scores indicate a negative attitude. *The third section* consists of 14 items that evaluate nurses' practices regarding physical restraint use. The 10th item has a negative statement and is reversely evaluated. In this section, which is a 3-point Likert-type scale, "never" is scored as 1 point; "sometimes" as 2 points; "always" as 3 points. The score ranges between 14 and 42 points. High scores indicate excellent practice regarding physical restraint use whereas low scores indicate inappropriate practice. The total test-retest correlation coefficient of the original scale was determined between 0.85-0.99 and the test-retest coefficient of the version which was adapted to the Turkish society was between 0.88-0.90. Cronbach's alpha value of the entire scale is 0.69 (Kaya and Doğu, 2018, pp. 61-70). In the present study, Cronbach's alpha value was calculated as 0.64.

## **2.6. Statistical Analysis**

The data obtained from the research were presented as number, percentage, and mean. The t-test was used for paired groups in independent groups and one-way analysis of variance was used for triple groups. The Tukey HsD test was used to determine the source of the difference between the groups for the significant results obtained from the one-way analysis of variance. Correlation analysis was used to evaluate the effects of independent variables. The significance was taken as  $p < 0.05$ .

## **2.7. Ethical Consideration**

Approval was obtained from the Clinical Research Ethics Committee (22.02.2018/82) and Mersin Provincial Health Directorate (22.08.2019/54) for the conduct of the study. Nurses were informed about the purpose of the study and their verbal and written consents were obtained.

## **3. RESULTS**

The mean age of the nurses participating in the study was  $32.51 \pm 6.27$ . The nurses, 81.2% were female; 64.9% were married; 80.7% had a bachelor's degree. The mean working year in the profession was  $9.71 \pm 6.21$  years; the mean working time in the intensive care unit was  $62.87 \pm 54.22$  months. The mean working hour per week was  $45.65 \pm 5.66$  hours. The nurses, 54.5% worked in the internal medicine intensive care unit; 55.9% worked in the level 3



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intensive care unit; 83.2% worked day and night shifts; 53.5% gave care to 3 patients during the day and 59.9% gave care to 3 patients at night (Table 1).

**Table 1.** Comparison of Nurses' Personal and Occupational Characteristics and Knowledge, Attitudes and Practices Regarding the Use of Physical Restraints

Individual Features of Nurses			Knowledge, Attitudes and Practices Regarding The Use of Physical Restraints		
	n	%	Knowledge	Attitudes	Practices
			X±SS	X±SS	X±SS
<b>Gender</b>					
Female	164	81.2	8.39±1.33	29.87±4.44	39.68±1.92
Male	38	18.8	8.39±1.24	29.92±4.30	38.76±3.14
t & p			-0.019 & 0.985	-0.054 & 0.957	2.338 & <b>0.020</b>
<b>Marital status</b>					
Married	131	64.9	8.32±1.33	29.32±3.66	39.56±2.08
Single	71	35.1	8.50±1.27	30.92±5.39	39.42±2.47
t & p			0.978 & 0.356	-2.511 & 0.13	0.433 & 0.665
<b>Education level</b>					
Vocational health high school	14	6.9	8.07±1.43	31.57±6.91	37.57±3.97
Associate degree	15	7.4	8.33±1.32	29.73±4.97	40.33±1.44
Bachelor's degree	163	80.7	9.20±1.14	29.71±4.16	39.59±1.98
Postgraduate	10	5.0	8.50±0.84	30.60±2.75	39.70±2.49
KW & p			8.896 & <b>0.031</b>	2.134 & 0.545	7.029 & 0.071
<b>Working unit</b>					
Internal intensive care	110	54.5	8.25±1.16	29.38±3.82	39.83±1.71
Surgical intensive care	48	23.8	8.37±1.65	31.02±5.32	38.79±3.08
Anesthesia and reanimation intensive care	26	12.9	9.03±1.24	31.61±3.98	38.73±2.08
Emergency intensive care	18	8.9	8.33±1.02	27.44±4.18	40.61±1.64
KW & p			10.279 & <b>0.016</b>	18.627 & <b>0.000</b>	15.590 & <b>0.001</b>
<b>Intensive care level</b>					
Level 1	14	6.9	8.78±0.89	29.85±2.31	40.07±1.54
Level 2	75	37.1	8.08±0.94	28.86±3.72	40.09±1.66
Level 3	113	55.9	8.54±1.51	30.56±4.88	39.06±2.50
KW & p			14.872 & <b>0.001</b>	6.176 & <b>0.046</b>	11.053 & <b>0.004</b>



Working order					
Night	11	5.4	8.90±1.04	29.72±3.46	38.72±3.97
Day	23	11.4	8.30±1.22	30.13±4.18	39.52±1.53
Night and day	168	83.2	8.36±1.33	29.86±4.50	39.56±2.15
KW & p			1.994 & 0.369	0.552 & 0.759	0.642 & 0.726
Number of patients seen at day					
2 patients	63	31.2	8.53±1.67	30.65±5.21	38.82±2.64
3 patients	108	53.5	8.35±1.06	29.37±3.46	39.76±1.92
4 patients and above	31	15.3	8.22±1.28	30.09±5.37	40.03±1.99
F & p			0.696 & 0.500	1.711 & 0.183	4.737 & 0.10
Number of patients seen at night					
2 patients	49	24.3	8.46±1.81	31.77±5.23	38.34±2.95
3 patients	121	59.9	8.40±1.06	29.11±3.48	39.86±1.76
4 patients and above	32	15.8	8.21±1.26	29.90±5.33	39.96±1.92
F & p			0.368 & 0.693	6.720 & <b>0.001</b>	9.720 & <b>0.00</b>

X±SS: Mean ± Standard Deviation, t: One-Sample T Test, F: One-away ANOVA, KW: Kruskall Wall

It was determined that 80.7% of the nurses received training on physical restraints and that all of them encountered and applied physical restraints (Table 2). The nurses, 24.8% applied physical restraint to prevent the patient from falling from the bed; 29.2% to prevent patients from disconnecting the equipment (intubation tube, catheter, etc.); 34.2% to prevent patients from harming themselves and the environment; 10.9% due to the doctor's request. The nurses, 92.1% stated that they sometimes applied physical restraints; 77.2% stated that the physician decided to apply restraint and all of them got the approval of the patient's family (Table 2).

Nurses' mean scores from the knowledge, attitudes, and practices regarding physical restraints questionnaire were determined to be 8.39±1.31, 29.88±4.40, and 39.51±2.22, respectively.

The difference between gender of nurses and their practice scores regarding the use of physical restraints was found to be statistically significant ( $p=0.020$ , Table 1). The difference between the education level of the nurses and their knowledge scores regarding the use of physical restraints was found to be statistically significant ( $p=0.031$ , Table 1). The difference between the working units of nurses and knowledge, attitude and practice scores regarding the use of physical restraints was found to be statistically significant ( $p<0.05$ , Table 1). The difference between level of intensive care and knowledge, attitude and practice scores regarding the use of physical restraints was found to be statistically significant ( $p<0.05$ , Table 1). The difference between the number of patients the nurses looked at at night and the attitude and practice score regarding the use of physical restraints was found to be statistically significant ( $p<0.05$ , Table 1). The difference between the nurses' education on physical restraints and their practice score regarding the use of physical restraints was found to be statistically significant ( $p=0.000$ , Table 2).



**Table 2.** Comparison of Nurses' Experience with Physical Restraints and Knowledge, Attitudes and Practices Regarding the Use of Physical Restraints

Physical Restraints Experiences of Nurses	n	%	Knowledge, Attitudes and Practices Regarding The Use of Physical Restraints		
			Knowledge X±SS	Attitudes X±SS	Practices X±SS
Training status related to physical restraints					
I have education	163	80.7	8.37±1.27	29.73±4.01	39.80±1.89
I did not have education	39	19.3	8.46±1.46	30.53±5.77	38.30±3.01
t & p			-0.372&0.710	-1.030&0.304	3.904& <b>0.000</b>
Place of education					
In-service training	106	65.6	8.32±1.35	29.72±3.80	39.99±1.87
Undergraduate education	35	21.4	8.48±1.01	30.62±3.87	39.40±1.91
Congress, Seminar	17	10.4	8.47±1.41	28.41±4.51	40.05±1.47
Other*	5	3.06	8.40±0.89	28.00±6.74	37.80±2.28
KW & p			0.539&0.910	2.965&0.397	10.177& <b>0.017</b>
Physical restraints application reason					
Prevent the patient from falling from bed	50	24.8	8.36±1.41	30.10±3.96	38.74±2.81
Prevent patients from disconnecting the equipment (intubation tube, catheter, etc.);	59	29.2	8.42±1.41	29.61±3.93	40.06±1.49
Prevent the patients from harming themselves and the environment	69	34.2	8.39±1.20	29.53±4.52	39.71±1.90
Doctor's request	22	10.9	8.45±1.22	30.68±5.38	39.27±2.84
Insufficient number of health personnel	2	0.9	7.50±0.70	36.00±11.13	38.50±2.12
KW & p			2.563&0.633	0.797&0.939	8.179&0.85
Physical detection application frequency					
Always	16	7.9	8.81±1.42	29.81±4.11	38.87±1.82
Sometimes	186	92.1	8.35±1.29	29.89±4.43	39.56±2.25
MWU & p			1200.500&0.186	1431.000&0.798	1073.500&0.060
The person who decides on physical restraint application in intensive care					
Doctor	156	77.2	8.44±1.28	30.19±4.18	39.55±2.32
Nurse	16	7.9	8.06±1.43	28.00±4.39	38.87±2.41
Doctor+Nurse	30	14.9	8.26±1.38	29.30±5.27	39.63±2.07
KW & p			1.842&0.398	2.969&0.227	1.825&0.401

\*Other (Intensive Care Course), X±SS: Mean ± Standard Deviation, t: One-Sample T Test, KW: Kruskal Walls, MWU: Mann Whitney U

There was a weak negative correlation between the ages of the nurses and the years of employment in the profession and the attitude scores regarding the use of physical restraints ( $p=0.002$ ), and a weak positive correlation between the practice scores ( $p=0.050$ ) (Table 3). There was a positive weak correlation between mean knowledge and attitude scores ( $p=0.039$ ) and a negative weak correlation between mean attitude and practice scores ( $p=0.001$ , Table 3).

**Table 3.** The Relationship of Knowledge, Attitudes and Practices Regarding the Use of Physical Restraints with Age and Professional Experience

Features	Knowledge, Attitudes and Practices Regarding The Use of Physical Restraints		
	Knowledge	Attitudes	Practices
Age	-0.093	-0.227	0.158
Working year in the profession	0.188	<b>0.001</b>	<b>0.025</b>
Working year in intensive care unit	-0.062	-0.212	0.138
Weekly working hours	0.378	<b>0.002</b>	<b>0.050</b>
Knowledge	-0.088	-0.100	0.039
Attitudes	0.215	0.158	0.579
Practices	-0.011	0.009	-0.039
	0.880	0.899	0.579
	-	0.145	0.134
	0.145	<b>0.039</b>	0.058
	<b>0.039</b>	-	-0.224
	0.134	-0.224	-
	0.058	<b>0.001</b>	

## 4. DISCUSSION

In line with the information obtained from the literature, it was determined that the nurses did not know enough about the purpose of use of physical restraints and the procedures to be followed before physical restraint, and they remained in ethical dilemma regarding the issue. The study was planned to inform nurses about the usage process, methods and models to be used in coping with patients at risk, the use of relevant policies and the development of alternative methods for the patient about physical restraints, which have an important place in ensuring and maintaining patient safety.

Anxiety and delirium may develop due to metabolic and psychological factors in intensive care patients. In these situations, physical restraints are commonly used to reduce the risk of falling and prevent patients from harming themselves (Hall et al., 2018, pp. 143-148; Kalula and Petros, 2016, p. .1-8). Due to the fact that nurses working in the intensive care unit do not have sufficient knowledge about the use of physical restraint and have negative attitudes, it may cause long-term hospitalization of the patients, complications and ethical problems (Kassew et al., 2020, pp. 1-10; Wnag et al., 2019, pp. 122-129).

Considering that the highest scores that can be obtained from the scale are 11, 48 and 42, respectively, it can be said that the nurses' knowledge, attitude and application point averages regarding the physical restraint scale in this study are at a good level. In the studies of Balcı and Arslan (2018) and Gürdoğan et al. (2016), it was reported that the knowledge, attitude and practice scores of the use of physical restraint were at a good level in parallel with our study. In the study of Woldekirkos et al. (2021), it was found that the physical restraint practice average score was moderate, and in the study of El-sol and Mohammed (2018), Kassew et al. (2020) and Bulut and Kızılırmak (2022), the practice point average was found to be high (El-sol and Mohammed, 2018, pp.15-22; Kassew et al. 2020, pp.1-10; Woldekirkos et al. 2021, pp.1-11; Bulut and Kızılırmak, 2022, pp.129-140). These results are thought to be the reason for the high practice sub-dimension value of physical restraint due to the risky conditions of the patients and the high number of complex procedures performed in intensive care units.

Our study revealed that nurses' attitudes and practices are influenced by their level of knowledge of physical restraint use. Nurses with higher levels of knowledge have a better attitude and practice towards physical restraint use. This result is consistent with the studies in the literature (Eskandari et al., 2018, pp. 52-57; Kassew et al., 2020, pp. 1-10). One possible reason can be based on the theory of planned behavior. Knowledge, which forms the basis of nurses' behavior, is important since it affects their subjective feelings about restraint use and allows them to perform an appropriate nursing activity during restrictions (Armitage and Christian, 2017, pp. 187-195).

This study showed that most of the nurses had good knowledge of physical restraint use for critically ill patients. It was determined that the level of knowledge about the use of physical restraint of the nurses who graduated from health vocational high school was low. The knowledge levels regarding the use of physical restraints of the nurses working in the anesthesia and reanimation intensive care unit and the first level intensive care unit were found to be high.

Gürdoğan et al. (2016) reported that the level of knowledge of nurses who had a bachelor's degree and worked in the reanimation unit was high (Gürdoğan et al., 2016, pp. 83-88). Kaya and Doğu (2018) conducted a study with intensive care, emergency service, and



psychiatry nurses and reported that nurses' level of knowledge on physical restraint was high (Kaya and Doğu, 2018, pp. 61-70). Furthermore, Balci and Arslan (2018) found that the level of knowledge of nurses working in intensive care and level 3 intensive care units was higher (Balci and Arslan, 2018, pp. 75-81). This finding is consistent with those obtained in other studies showing that sufficient knowledge is associated with the training received on the relevant subject (Eskandari et al., 2018, pp. 52-57; Farina-Lopez et al., 2014, pp.322-330; Köse et al., 2020, pp. 39-48; Möhler et al., 2016; Sharifi et al., 2020, 1-7; Suliman et al., 2017, pp. 264-269; Via-Clavero et al., 2019, pp. 47-58; Younis and Ahmed, 2017, pp.6-21). Our study suggests that an increase in education level will decrease the use of the application by increasing awareness and knowledge about the use of physical restraints. As a result, it can be suggested that nurses in intensive care units settings have a higher level of knowledge on restraints since they frequently use them, follow up-to-date clinical practice guidelines, and receive in-service training after graduation.

One of the most basic elements in applying physical restraint is one's attitude towards the subject. Nurses working in the level 3 intensive care unit and nurses who took care of 2 patients in the night shift in the intensive care unit had more positive attitudes towards the use of physical restraint. This result suggests that as a result of the high level of knowledge of nurses, they consciously apply physical restraint and therefore have a positive attitude. Balci and Arslan (2018) reported that the attitude scores of those working in the level 3 intensive care units were higher than those working at other levels (Balci and Arslan, 2018, pp. 75-81). Gürdoğan et al. (2016) conducted a study with nurses working in intensive care unit and determined that nurses' attitudes towards physical restraint were positive (Gürdoğan et al., 2016, pp. 83-88). In the study of Çelik et al. (2012), it was determined that the nurses who care for 3 patients during the day and night the attitudes towards the use of physical restraints are more positive, and their knowledge and practices are worse (Çelik et al., 2012, pp. 176-183). The results of the research are consistent with those in the literature. The reason for this result can be that nurses apply physical restraint to benefit the patient, pay attention to ethical principles while applying physical restraint and empathize with patients.

According to the results of the study, a negative correlation was found between nurses' mean attitude score and age and working years in the profession. This may be because the first working unit of newly assigned nurses was the intensive care unit. Nurses participating in the study had more up-to-date scientific knowledge; they worked in the level 3 intensive care unit; they had high workloads due to reasons such as the insufficient number of staff; the number of patients they provided care was 2 at most; they preferred restrictions more; they did not try different methods and had little experience.

When practice scores regarding the use of physical restraints of the nurses were examined according to their descriptive characteristics a statistically significant difference was found between the ages of the nurses, gender, working unit, intensive care unit level, the number of night-time patients, the status of receiving education about physical restraints and years of employment in the profession ( $p<0.05$ ). It was determined that male nurses' practice scores regarding the use of physical restraint were lower than female nurses. The practice scores regarding the use of physical restraints of the nurses working in the emergency intensive care unit, nurses working in the second level intensive care unit, nurses who care for 4 or more patients at night in the intensive care unit and nurses who received education on physical restraints were found to be high. In our study, it was found that there was a significant relationship between the physical restraint practices of the nurses and the age of the nurses and the total working time as a nurse. In this study, it was thought that the difference in practice scores between the units was associated with the frequency of physical restraint use in intensive care units, experiences of nurses, the high number of patients and the low number of personnel,



and the level of intensive care units. It is proposed that the presence of sedated patients in level 3 intensive care units reduces the rate of physical restraint use; therefore, the rate of physical restraint use in level 2 intensive care units is higher. Balci and Arslan (2018) reported that those who gave care to four or more patients and those who received training on physical restraints had higher practice scores compared to those who gave care to two or three patients during the daytime (Balci and Arslan, 2018, pp. 75-81). Eskandari et al. (2018) reported that nurses with a higher level of knowledge and more positive attitudes performed better practices regarding physical restraint (Eskandari et al., 2018, pp. 52-57). Nurses' knowledge underlies their behavior in carrying appropriate nursing activities out during a crisis. Sharifi et al. (2020) stated that as the professional experience of nurses increases, there is a significant relationship between physical restraint practices, and the experience of nurses and the tendency to use physical restraints are higher with advancing age (Sharifi et al., 2020, pp.1-7). Younis and Ahmed (2017) stated that the level of practice for physical restraint increased in nurses working in the intensive care unit for more than 10 years (Younis and Ahmed, 2017, pp.6-21).

#### **4.1. Research Limitations**

These results cannot be generalized to other hospitals and units as they are limited to the nurses working in the surgical intensive care, internal medicine intensive care, anesthesia and reanimation, and emergency intensive care units of the hospitals where the research was conducted. There is a need for more comprehensive and all-unit studies on physical restraint practices in hospitals. Although the results were tried to be transformed into objective data using the scales, the obtained data were subjective.

## **5. CONCLUSION**

Since this subject is included in the routine in-house training programs in the institutions where the research was conducted, it was determined that the intensive care nurses participating in the research behaved like taking informed consent from the patient's family, applying the physical restraints with the physician's directive, and displaying a professional approach rather than an emotional approach. In line with these results institutions should offer alternative methods to physical restraint, and nurses' working dynamics in the care of patients with physical restraints, reducing the number of patients they care for, auxiliary personnel or technological tools and equipment to assist patient care should be provided. In addition, it may be suggested to improve working conditions by developing new institutional procedures for the use of physical restraints.

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