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ICU Nurses' Information, Attitude and Practices Towards Use of Physical Restraint: A Cross-Sectional Study

Yoğun Bakım Hemşirelerinin Fiziksel Tespit Kullanımına Yönelik Bilgi, Tutum ve Uygulamaları: Kesitsel Bir Çalışma

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ABSTRACT

INTRODUCTION: This descriptive cross-sectional study was conducted to determine the knowledge, attitudes and practices of nurses working in intensive care units (ICU) about the use of physical restraint.

METHODS: This descriptive and cross-sectional study was consisted of 100 ICUs nurses in university hospital. In data collection, Socio-demografic Form and the Levels of Knowledge, Attidutes and Practices of Staff Regarding Physical Restraint Questionnaire was used with SPSS 16.0 IBM statistical package program.

RESULTS: Of the total sample was 51% male, 54% was married and 42% had bachelor's degree. The average score in the knowledge status is 7.32 out of 10; 30.13 out of 48 in the attitude status; and 35.43 out of 42 in the practice status. The knowledge level of the nurses in terms of physical restraint was well but they had a tendency to negative attitudes.

DISCUSSION AND CONCLUSION: They are not likely to use physical restraints by ICUs nurses. However, there are ethical dilemmas regarding nurses' perspections pf the use of restrictions.

Keywords: physical restriction, knowledge, attitudes, practices, ICUs nurses.

ÖZ

GİRİŞ ve AMAÇ: Tanımlayıcı kesitsel tipteki bu çalışma, yoğun bakım ünitelerinde (YBÜ) çalışan hemşirelerin fiziksel tespit kullanımına ilişkin bilgi, tutum ve uygulamalarını belirlemek amacıyla yapıldı.

YÖNTEM ve GEREÇLER: Tanımlayıcı ve kesitsel tipteki bu çalışma, üniversite hastanesindeki 100 YBÜ hemşiresinden oluştu. Verilerin toplanmasında Sosyodemografik Form ve 'Hemşirelerin Fiziksel Tespitlere İlişkin Bilgi Düzeyi, Tutum ve Uygulamaları Ölçeği' kullanıldı, veri analizi SPSS 16.0 IBM istatistik paket programı ile yapıldı.

BULGULAR: Toplam örneklemin %51'i erkek,%54'ü evli ve %42'si lisans derecesine sahipti. Bilgi durumundaki ortalama puan 10 üzerinden 7,32'dir; tutum statüsünde 48 üzerinden 30,13; muayenehane statüsünde 42 üzerinden 35,43. Hemşirelerin fiziksel kısıtlama konusundaki bilgi düzeyleri iyiydi ancak olumsuz tutumlara eğilim gösterdiler.

TARTIŞMA ve SONUÇ: Yoğun bakım hemşirelerinin fiziksel kısıtlamalarını kullanmaları olası değildir. Bununla birlikte, kısıtlamaların kullanımı konusunda hemşirelerin bakış açılarıyla ilgili etik ikilemler vardır.

Anahtar Kelimeler: fiziksel kısıtlama, bilgi, tutumlar, uygulamalar, yoğun bakım hemşireleri.

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INTRODUCTION

Physical restraint is the use of a physical, chemical or mechanical means on certain parts of the body to ensure the safe treatment of the patient and prevent self-harm or injury (1). In general, the physical restraint of inpatients in intensive care units is widely used in hospitals for clinicians who are concerned for patient safety in cases such as confused, poorly oriented, agitated, aggressive patients and those who have a high risk of falling (2). Although physical restraint appears to be a useful and easy way to assist treatment, it is a complex method that involves physical, psychological, legal and ethical aspects (3). The use of physical restraint in acute (4) and long-term care (5) settings remains a global problem, despite significant and harmful physical and psychosocial consequences (6). In the literature, it has been shown that physical restraint is directly related to skin lacerations, muscle loss, nerve injury and bone damage and indirectly related to suffocation and even death (7,8). Moreover, physical restraint may also be connected to many psychological issues such as anger, depression, social isolation, insomnia, agitation, fear and sensory loss (8,9). Additionally, the impact of physical restraint on the prevention of hospital interventions is a controversial topic, but it can lead to ethical problems with adverse impacts in long-term care (10, 11). Nurses who spend the most time with patients play a significant role in of physical restraint implementation (12). Intensive care nurses must use physical restraint as the last solution after alternative methods fail to prevent complications (8).

'The American College of Critical Care Medicine Task Force' proposed clinical intervention guidelines to protect the safety of ICU patients (13). Accordingly, the patient's dignity and comfort should be considered; physical restraint should be the last option; alternatives should be given priority in physical restraint; restraint should not be a routine intervention; the form of physical restraint should be changed every 24 hours; the body part on which physical restraint is used should be evaluated every 4 hours; the patient and family should be educated in physical restraint, and the reason for the use of physical restraint should be documented (8,13).

In some countries, the prevalence of the use of physical restraints in long-term care is decreasing (6,14). However, in a cross-sectional study of 25 ICUs in the Netherlands, 23% of ICU patients were restrained (range:0%-56%). Additionally, patients who are frequently

subjected to physical restraint were more likely to experience delirium or coma, could not communicate verbally, and received sedatives or psychoactive drugs (10,15). Rose et al. reported that the prevalence of physical restraint usage was 76% in patients on mechanical ventilators (16). Likewise, in a study involving 34 ICUs in Switzerland, the United Kingdom, Spain, Italy, France, Portugal, Finland, Greece and Israel, the mean rate of using physical restraint was reported to be 39% (17). In similar studies, the rates of using physical restraint were reported as 62% ICUs in Taiwan (18), 53% in Canada (19), 89% in Spain (20), 25% in Japan (21), 39.1% in China (22) and 39% in the United States (23).

Physical restraint is frequently used in ICUs, psychiatric units and emergency units in hospitals (24). In a study, it was determined that physical restraint was applied in ICUs at a rate of 13-50% (23), and nurses' knowledge, attitudes and interventions regarding the use of physical restraint were insufficient (25). These shortcomings have revealed the need to increase the number of studies on the use of physical restraint.

Aim: This study was conducted to examine the knowledge, attitudes and interventions of nurses working in intensive care units about the use of physical restraint.

METHODS

Design

This study was conducted with a descriptive cross-sectional design.

Setting

The population of the study consisted of 110 ICU nurses working at a university hospital in the Central Anatolia Region of Turkey. The data were collected from May 2019 to January 2020. Ten nurses were excluded from the study due to being on sick leave, maternity leave, unpaid or annual leave. No sample size was calculated, and it was aimed to include the entire population. This resulted in 100 participants.

Inclusion criteria:

a) Nurses with previous experience using physical restraint,

b) Working in ICUs for more than 6 months,

c) Working at the hospital where the study was conducted,

d) Agreeing to participate in the study.

Exclusion criteria:

Nurses with no previous experience using physical restraint,

Less than 6 months of ICU experience,

Not working at the hospital where the study was conducted,

Not agreeing to participate in the study.

Data Collection Instruments

The data collection instruments that were used in this study consisted of two parts as a Personal Information Form and the Levels of Knowledge, Attitudes and Practices of Staff Regarding Physical Restraints Questionnaire. The characteristics of the data collection forms are given below.

Personal Information Form

The first part included questions about the sociodemographic information of the participants: type of ICU, age, gender, education level, marital status, ICU work experience.

Levels of Knowledge, Attitudes and Practices of Staff Regarding Physical Restraints Questionnaire

The second part was the Levels of Knowledge, Attitudes and Practices of Staff Regarding Physical Restraints Questionnaire. The scale was developed by Suen in 1999. The test-retest correlation coefficients of the scale were found between 0.85 and 0.99 (26). Kaya et al. tested the validity and reliability of the Turkish version of the scale. The test-retest correlation coefficient of the Turkish version was found to be between 0.88 and 0.90. The Cronbach's Alpha value of the entire scale was reported as 0.69 (27). This scale consists of three subscales: (1) Knowledge on the use of physical restraint, consisting of 11 items; (2) Attitudes towards physical restraint, consisting of 12 items; (3) Nursing interventions pertaining to physical restraint, consistingof 14 items (3, 26).

Data collection

The data collection process took approximately 10-15 minutes for each participant.

Ethical considerations

Ethical approval was obtained from Selcuk University Faculty of Medicine Local Ethics Committee with the decision dated 20 March 2019 and numbered 2019-33. Institutional permission was obtained from the university hospital where the study would be carried out. The nurses were informed about the scope of the study and that their data will be confidential. They were told that participation was on a voluntary basis, and the written and verbal consent of those who voluntarily agreed to participate was obtained.

Data analysis

The data were analyzed using IBM SPSS version 16 (IBM Corp., Armonk, NY, USA). The results of the analyses were interpreted within a confidence interval of 95% and on a significance level of $p<0.05$. Mean, Standard Deviation and Frequency distribution values were used in the descriptive analyses. The analyses included Mann-Whitney U-test, Kruskal-Wallis test and

independent-samples t-test.

RESULTS

Demographics

According to the descriptive characteristics of the participants, 69% were between 20 and 30 years of age, 51% were male, 54% were married, and 42% had a bachelor's degree. Regarding their occupational characteristics, 37% had a work experience between 1 year and 5 years, 71% had an ICU work experience between 1 year and 5 years, and 56% were working in a medical ICU (Table 1).

The scores of the participants in terms of their knowledge about using physical restraint were significantly related to their educational level, ICU work experience and number of patients per day ($p<0.05$). The participants' attitude scores were found to be related to their age, work experience, types of ICU and status of having training related to physical restraint ($p<0.05$). Their intervention scores were significantly related to their educational level and work experience ($p<0.05$) (Table 1).

Knowledge about the use of physical restraint

The results of the analyses showed that the knowledge scores of the participants ranged from 1 to 10 (mean=7.32; SD=2.18). Table 2 shows the numbers and percentages of the correct answers to each question, which ranged from 42% to 78%. The participants were found to have inadequate knowledge about some safe physical restraint interventions (questions 3, 4, 10 and 11).

Attitudes toward the use of physical restraint

The attitude scores of the participants ranged from 22 to 48 (mean=30.13; SD=5.15). The results showed that respectively 63% and 54% of the participants agreed with the statements 'If I were the patient, I would feel I should have the right to refuse/resist when restraints are placed on me' and 'It is important to apply restraints to assure legal protection for myself and my organization' (Table 3).

Nursing intervention performance toward the use of restraints

The physical restraint intervention scores of the participants ranged from 28 to 42 (mean=35.43; SD=3.69). Table 4 refers to information on the participants' care processes patients during and after restraint application. The majority of the participants (83%) stated that they answer the call of the patient in physical restraint when possible. Additionally, 54% reported that they always kept the duration of restraint limited and based on the cause of using it. The participants' responses to the items on the intervention subscale are listed in Table 4.

Table 1. Descriptive Characteristics of the Population of the Study (N=100)

Group	n (%)	Knowledge	Attitude	Practice
		X±SD	X±SD	X±SD
Age				
20–30	69 (69%)	7.46 ± 2.12	31.05 ± 5.30	35.68 ± 3.87
31–40	25 (25%)	6.76 ± 2.38	28.44 ± 4.15	34.52 ± 3.17
>41	6 (6%)	8.00 ± 1.89	26.50 ± 4.41	36.33 ± 3.38
		X^2=2.60	X^2=6.87	X^2=2.37
		p=0.271	*p=.032	p=.305
Gender				
Female	49 (49%)	7.16 ± 2.52	30.93 ± 4.78	35.48 ± 3.74
Male	51 (51%)	7.47 ± 1.81	29.35 ± 5.42	35.37 ± 3.67
		Z= -0.124	Z= -1.730	Z= -0.135
		p=.902	p=.084	p=.893
Marital status				
Married	54 (54%)	7.44 ± 2.03	29.48 ± 5.41	35.14 ± 3.55
Single	46 (46%)	7.17 ± 2.36	30.89 ± 4.78	35.76 ± 3.85
		Z= -0.400	Z= -1.603	Z= -0.983
		p=.689	p=.109	p=.325
Educational level				
Health vocational high-school degree	41 (41%)	7.60 ± 1.64	29.43 ± 4.88	34.80 ± 3.48
Undergraduate degree	10 (10%)	8.80 ± 1.54	30.60 ± 6.85	38.40 ± 1.77
Bachelor’s degree	42 (42%)	6.76 ± 2.48	30.76 ± 5.42	35.30 ± 3.91
Master’s degree and above	7 (7%)	6.85 ± 2.91	29.71 ± 1.25	35.57 ± 4.15
		X^2=9.73	X^2=2.18	X^2=8.42
		*p=.021	p=.535	*p=.038
Work experience (years)				
1-5	37 (37%)	6.97 ± 2.49	31.67 ± 5.97	35.21 ± 3.77
6-10	36 (36%)	7.83 ± 1.50	30.41 ± 4.60	35.97 ± 4.06
11-15	18 (18%)	6.94 ± 2.38	27.27 ± 2.80	33.61 ± 2.50
16-20	9 (9%)	7.44 ± 2.65	28.33 ± 5.07	37.77 ± 1.85
		X^2=2.19	X^2=10.79	X^2=9.58
		p=.533	*p=.013	*p=.022
ICU Work experience (years)				
1-5	71 (71%)	7.12 ± 2.31	30.32 ± 5.75	35.36 ± 3.71
6-10	24 (24%)	8.20 ± 1.25	29.33 ± 3.21	35.62 ± 3.68
11-15	5 (5%)	5.80 ± 2.68	31.20 ± 3.76	35.40 ± 4.21
		X^2=7.09	X^2=0.585	X^2=0.314
		*p=.029	p=.747	p=.855
The type of ICUs				
Medical ICU	56 (56%)	7.08 ± 2.49	31.03 ± 5.57	35.80 ± 3.60
Surgical ICU	44 (44%)	7.61 ± 1.70	28.97 ± 4.36	34.95 ± 3.76
		Z= -0.487	Z= -1.966	Z= -0.834
		p=.626	*p=.049	p=.404
Number of patients per day shift nurse				
2 patients	4 (4%)	6.75 ± 1.70	30.00 ± 4.96	33.00 ± 3.91
3 patients	55 (55%)	7.85 ± 1.64	30.10 ± 5.64	35.41 ± 3.43
4 patients and more	41 (41%)	6.65 ± 2.66	30.17 ± 4.57	35.68 ± 4.00
		X^2=5.76	X^2=1.61	X^2=1.61

		p=.056	p=.445	p=.447
Number of patients per nigth shift nurse				
2 patients	3 (3%)	7.00 ± 1.73	29.66 ± 4.16	35.00 ± 5.29
3 patients	30 (30%)	8.26 ± 1.01	31.10 ± 5.96	35.70 ± 3.83
4 patients and more	67 (67%)	6.91 ± 2.46	29.71 ± 4.81	35.32 ± 3.61
		X^2=7.87	X^2=0.98	X^2=0.045
		*p=.019	p=.610	p=.797
Training related to physical restraint				
Yes	53(53%)	7.13 ± 2.41	31.90 ± 5.52	36.07 ± 4.17
No	47(47%)	7.53 ± 1.89	28.12 ± 3.87	34.70 ± 2.93
		Z= -0.431	Z= -3.842	Z= -1.732
		p=.666	*p=.000	p=.083

X2, Kruskal Wallis Test – Z, MannWhitney U, *p<0.05 ICU, intensive care unit.

Table 2. Knowledge Towards the Use of Physical Restraint (N=100)

Variable	**Mean±SD**	**Min. – Max.**	**scale**		
Knowledge	7.32±2.18	1 – 10	0 – 11		
Scale items				**Agree (%)**	**Disagree (%)**
1-Physical restraints are safety vests or garments designed to prevent injury				78*	22
2-Restraints should be used when one cannot watch the patient closely				64*	36
3-Patients are allowed to refuse to be placed in a restraint				56*	44
4- If physical restraints (safety vest, garment) are to be used, a member of the patient's family is required to sign a consent form				42*	58
5- Restraints should be released every 2 hours, if the patient is awake				83*	17
6-Restraints should be put on snugly so that there is no space between the patient and the patient's skin				77*	23
7- When a patient is restrained, there may be any increase in skin breakdown				76*	24
8- When a patient is restrained in bed, the restraint should not be attached to the side rail				85*	15
9- A patient should never be restrained while lying flat in bed because of the danger of choking				70*	30
10- Good alternatives to restraints do not exist				43	57*
11-Deaths have been linked to use of vest restraints				58*	42

*correct answer

Table 3. Attitudes Towards the Use of Physical Restraint (N=100)

Variable	**Mean±SD**	**Min. – Max.**	**scale**			
Attitude	30.13±5.15	22 – 48	12 - 48			
Scale items			**Strongly Agree (%)**	**Agree (%)**	**Disagree (%)**	**Strongly Disagree (%)**
1-I feel that family members have the right to refuse the use of restraints			21	34	31	14
2- If I were the patient, I feel I should have the right to refuse/resist when restraints are placed on me.			23	63	14	0
3- I feel guilty placing a patient in restraints			7	18	41	34
4- I feel that the main reason that restraints are used is that our centre is short staffed.			6	31	39	24

5- I feel embarrassed when the family enters the room of a patient who is restrained	6	31	42	21
6- It makes me feel bad if a patient becomes more upset after restraints are applied	17	40	33	10
7-It makes me feel bad when patients become more disoriented after the restraints have been applied.	13	31	45	11
8-A patient suffers a loss of dignity when placed in restraints	10	27	45	18
9-It is important to apply restraints to assure legal protection for myself and my organization	31	54	13	2
10- I feel that placing a patient in restraints can decrease nursing care time	13	35	34	18
11-I believe that restraints increase the risk of strangulation.	9	18	27	46
12- I believe that restraints lead to a reduction in the number of patient who fall	36	49	11	4

Table 4. Nursing Practice Performance toward the Use of Physical Restraint (n=100)

Variable	**Mean±SD**	**Min. – Max.**	**Scale**		
Practice	35.43±3.69	28 – 42	14 - 42		
Scale items			**Always (%)**	**Sometimes (%)**	**Never (%)**
1- I try alternative nursing measures before restraining the patient			34	66	0
2- When I restrain a patient, I make this decision only with a physician's order			38	46	16
3- When I feel that the patient does not need to be restrained, I make this suggestion to the doctor			76	23	1
4- I answer the call for the patient who is restrained as soon as possible			83	17	0
5- I check the restraints at least every two hours to make sure they are in the proper position			75	25	0
6-I inspect the skin of the patient for abrasions or skin tears if I bath a patient who is restrained			75	25	0
7- I tell family members why the patient is being restrained			77	15	8
8- I explain to the patient why the restraint is being applied			68	29	3
9-I tell the patient when the restraint(s) will be removed.			64	30	6
10- More patients are restrained when we are short of staff than when we are fully staffed			27	47	26
11- In our centre, staff members work together to discover ways to control the behaviour of patients other than by using physical restraints			32	66	2
12- I frequently assess if the restraint should be removed.			69	30	1
13- When physical restraint are applied, I record on the kardex the type of restraint used, the reason for adopting it, the time the application commenced, and the related nursing care required			57	28	15
14- I frequently evaluate and record the effect of physical restraint when applied to a patient			54	38	8

DISCUSSION

A relatively high mean score (X=7.38) was obtained by the participants of our study, although some misconceptions concerning physical restraint still existed among them. Additionally, the participants' attitudes regarding physical restraint use were positively associated with their statuses of having received training on the issue. This study involved the primary research of the knowledge, attitudes and interventions of nurses regarding physical restraint use in a tertiary hospital. Tertiary hospitals are general hospitals that treat patients with complex diseases.

In our study, the mean physical restraint knowledge score of the participants was 7.38. This score suggested that the participants behaved appropriately, a finding similar to other studies (2, 8, 28). However, our results showed many examples of inaccurate knowledge about nurses' physical restraint interventions. The knowledge levels of nurses reflect their attitudes and interventions (8). The high scores of our participants in the items dealing with physical restraints indicated that they had in-depth knowledge based on their educational levels, ICU work experience, and their knowledge on how to care for a limited number of patients. Similar to our study, Suen et al. reported a statistically significant relationship between nurses' working years and educational status and their mean knowledge scores (26, 29). This study revealed that some nurses have shortcomings in terms of their knowledge about standard interventions of physical restraint. For example, only 42% correctly answered 'If physical restraints (safety vest, garment) are to be used, a member of the patient's family is required to sign a consent form'. Similarly, Balcı and Arslan found that nurses did not obtain written or verbal informed consent from the relatives of their patients, indicating that the principle of informed consent was neglected among nurses (3).

In this study, it was determined that the attitudes of the participants about physical restraint application were positive with a mean score of 30.13. It was observed that these results were in parallel with the findings of Balcı and Arslan and Kaya et al. (1, 3). Additionally, it was determined that nurses' attitudes were negative in terms of preferring to use restraints, requesting patients or their relatives to accept or reject it, their belief that the self-esteem of the patients who are restrained would be reduced, the use of physical restraint in the case of lack of personnel, and a decrease in the remaining time available for nursing care. On the basis of these results, it is possible to state that the nurses experienced dilemmas in the application of physical restraint and did not display appropriate attitudes regarding indications for use. Similar results were obtained in the study by Balcı and Arslan (3). Nurses were found to have a higher rate of feeling bad when they applied physical restraints and did

not like the fact that patients may feel unwell or irritated after being restrained. These findings were consistent with the findings of many studies and showed that nurses exhibited professional attitudes towards the psychological consequences of the use of physical restraint (30, 31). Similar results were obtained in the study by Suliman et al. (8). When the demographic characteristics of the nurses and their attitude scores related to the use of physical restraints were compared, a statistically significant relationship was found between their attitude scores and their age, work experience, type of ICU and training. Balcı and Arslan determined a relationship between nurses' attitudes about physical restraint and their training and rates of using physical restraint (3). Previous studies in the literature have reported that the implementation of in-service training programs would improve the knowledge of nurses and reduce their rates of applying restraints as a form of malpractice (8, 32, 33).

The mean physical restraint intervention score of the participants of our study was 35.43. According to this result, the nurses' physical restraint interventions were not perfect, and there were some deficiencies. In our study, it was found that the nurses performed best interventions such as responding to the calls of the patients, skin checks in terms of friction or irritation, explaining the process to the patient and their family, and checking the physical restraint status frequently. However, the nurses performed badly on the matter concerned with the documentation of the steps of restraints. Only 57% of the nurses 'always' recorded the time the restraint started, the type of restraint and the reason for using it. Similarly, it was observed by Azad and Negm that more than half of nurses never recorded the use of restraints in patient charts (28). A similar finding was reported by Wang et al., who found that 60.5% of nurses recorded the time the restraint started and the reason for using it (2). Furthermore, in our study, 66% of the nurses 'sometimes' received a doctor's orders before using physical restraint. In a qualitative study investigating the use of physical restraint in ICUs, nurses reported their feelings for safety when physical restraint was ordered by physicians (34). In another study conducted by Balcı and Arslan, it was reported that 59.5% of nurses could decide on using physical restraint with a physician's approval (3). According to the Turkish Ministry of Health, physical restraint can be applied a physician's order or approval (3). In our study, it was found that some nurses did not try alternative nursing care practices before physical restraint interventions. For example, only 66% responded as 'sometimes' to the statement 'I try alternative nursing measures before restraining the patient'. Suliman et al. reported that 59.6% of nurses responded as 'sometimes' to the item about using alternative nursing care practices before physical restraint application (8). In this

study, it was found that the educational level and work experience of the nurses were significantly related to their physical restraint interventions. Suen et al. also stated that the physical restraint interventions of nurses were significantly and positively related to their years of experience (29).

It is important to prepare and implement national and institutional policies and protocols effectively. This is because the use of physical restraint is a human right problem, while it also presents an ethical dilemma (35).

Limitations

A limitation of this study was its small sample size. For this reason, the results of the study can only be generalized to this group.

Conclusion

The ICUs nurses had a sufficient level of knowledge, considered themselves to be inadequate, had negative attitudes and insufficient interventions about physical restraints. According to these findings, regular in-service training programs should be planned based on alternative approaches to the use of physical restraints for nurses, and nurses should be informed and supported about physical restraints. Physical restrain may be a necessary measure to prevent the agitation of the patient and protect them from self-harm or harming others. It is recommended to develop new approaches to reduce the use of physical restraints in such situations.

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