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Research Article

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Views and Experiences of Nurses and Physicians Regarding The Use of Physical Restraints in PICU

Hatice Yumak [1], Özlem Arslan Yetimoğlu [1], Nurseren İşler [1], Hasan Ağın [1] & Hatice Yıldırım Sarı [2]

[1] Behçet Uz Children Hospital, Pediatric Critical Care Unit, İzmir, Türkiye
[2] İzmir Kâtip Çelebi University, Faculty of Health Science, Pediatric Nursing Department, İzmir, Türkiye

Abstract

Objective: The aim of this study was to determine the views and experiences of nurses and physicians regarding the use of physical restraints.

Methods: The study was conducted in the tertiary level paediatric intensive care unit. In the qualitative study, focus group interviews were conducted to reveal the opinions and experiences of physicians and nurses working in the intensive care unit. The physicians working in the clinic were interviewed once, and five focus group interviews were held with the nurses.

Results: The themes identified in the focus group interviews were benefit/harm, reasons for using physical restraints, materials used for restraints, workload, family's reaction, decision-making process for restraint use and consent, and ethical dilemma.

Conclusion: The nurses participating in the present study believed that physical restraint application was beneficial for the following reasons: to prevent the patient from falling off the bed and pulling out the equipment, to continue the treatment, to ensure the safety of the patient, and to protect the child from the complications of chemical restraints. The nurses and physicians stated that they made the decision whether the physical restraints should be applied together as a team, and that different bed designs would make it possible to maintain patient care safely without a need for restraints.

Keywords Physical restraints · paediatric intensive care · restraints

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Corresponding author: Hatice Yumak hatice.yumak@hotmail.com Özlem Arslan Yetimoğlu cilek_om@hotmail.com Nurseren İşler nurisler@windowslive.com Hasan Ağın hasanagin@gmail.com Hatice Yıldırım Sarı haticeyildirimsari@gmail.com

INTRODUCTION

The aim in paediatric intensive care units is to reduce the mortality rate in children with critical and complex diseases and to investigate the effects of intensive care experience on children, survival rates after discharge from the intensive care units, to improve the child's quality of life and to prevent functional disability. In this context, there are discussions on the justification (rationale / reasons) for the physical restraint use, which is frequently used in paediatric intensive care units, and on its short- and long-term effects (1-3).

As defined by Medicaid and Medicare services in the United States, a physical restraint is a physical or mechanical device, material or equipment that cannot be easily removed from the body and is attached to the body manually in a way that restricts the person's freedom of movement (2).

As indicated in the literature, among the most common reasons for the use of physical restraints is the prevention of falls and of the patient's interaction with invasive devices (4). Nurses state that they use physical restraints to ensure patient safety and prevent the patient from harming himself or herself, and that their top priority is patient safety (2,5,6). In a study conducted with nurses and respiratory therapists working in the ICU, they reported that they perceived the absence of physical restraints in the patient as a risk factor for unplanned extubation (7).

The use of physical restraint is common in intensive care units. Between 5% and 27% in the United States (8) and between 53% to 75% in Canada (9,10), physical restraint was applied. In England, physical restraints were applied in 68% of the paediatric intensive care units. In 11 units, the patients' hands were restrained, in 16 units, the extremities were restrained, and in three units, the swaddling method was used (11). In the study, Demir (12) reported that 66.9% of nurses working in paediatrics clinics in Turkey used physical restraints, that the physical restraint use decreased if the child was accompanied by the mother, that inexperienced nurses used physical restraints more, and that the wrist and foot were the most frequently restrained organs. Glater-Welt et al. (13) determined that the use of physical restraints increased by 13% in critically ill children; thus, they implemented the BUNDLE program. According to Glater-Welt et al. (13), thanks to the BUNDLE program they implemented, the time spent for physical restraining in the intensive care unit decreased from 65.39 to 38.83 hours in 1000 patient days. On the other hand, Evans et al. (14) reported that the use of physical restraints in adult intensive care units did not provide safety for the patients, and that more than 60% of the physically restrained patients became more agitated and faced situations likely to cause injury or even death. The Food and Drug Administration (FDA) estimates that in the United States, at least 100 deaths annually are caused by the misuse of physical restraints. The present study planned by taking all the aforementioned information into account is expected to contribute to the determination of the opinions and experiences of health personnel regarding the use of physical restraints in the tertiary level paediatric intensive care units.

This study was aimed at determining the views and experiences of nurses and physicians regarding the use of physical restraints.

METHODS

Design: The study is a qualitative method study. The study was conducted in a 24-bed paediatric intensive care unit.

Subjects

Forty one nurses working in intensive care filled out the sociodemographic questionnaire, and 28 of them participated in the focus group discussions. The study included 5 physicians and 28 nurses for the focus groups.

Inclusion Criteria: Intensive care physicians and nurses who volunteered to participate in the study were included. Nurses who provided direct care to the patient were included.

Exclusion Criteria: Charge nurses and training nurses were not included.

Data Collection

Forms

Nurse Information Form: The form includes questions on the nurses' sociodemographic characteristics such as age, sex, and educational status, as well as questions on whether they were trained on the use of physical restraints and their opinions on the use of physical restraints.

Semi-structured Interview Guide: The form included the following questions (10-12):

1. What do you think about the physical restraining of patients in the intensive care unit?
2. How do you decide to apply physical restraints in the intensive care unit?
3. In which patients do you apply physical restraints?
4. What do you think about the materials you used for restraining?
5. What do you think the benefits of physical restraining are?
6. What are the negative aspects of physical restraining?
7. How do families react to the use of physical restraints?

Procedure: Focus group interviews were conducted between 1 October 2019 and 30 October 2019. Focus group interviews were conducted with intensive care physicians and nurses who agreed to participate in the study in the training room of the Paediatric Intensive Care Unit in a quiet environment with the participation of a researcher and observer experienced in qualitative research. While a researcher conducted the focus group interviews by directing the questions, the researcher participating as an observer took notes from the statements of the participants. All interviews were recorded with a voice recorder with the permission of the participants. Since a qualitative study is carried out to understand an issue in depth, the sample size was not calculated because in such a study, the sample is not expected to represent the study population, and the study should be continued until the issue is completely clarified (15). Each focus group comprises approximately 5 to 7 people. Five focus group interviews were conducted. One of the focus group interviews was conducted with the physicians, whereas the others were conducted with the nurses. This study was approved by the Dr.Behçet Uz Children Hospital Ethics Review Board (Date: 18.07.219; Number: 2019/12-10). And written consent was obtained from the participants.

Data analysis: The qualitative interviews held with physicians and nurses in the paediatric intensive care unit were analysed by a person expert on qualitative research using the content analysis method (15). The qualitative data were analysed using the inductive analysis method.

Inductive analysis: This is performed to reveal the underlying concepts of the data and the relationships between these concepts through coding. Clarifying previously unknown cases through content analysis and making some propositions is defined as the theory building process (15).

Coding: This is the process in which the data is subjected to content analysis; in other words, the meaningful parts (such as a word, sentence, paragraph) among the data are given a name. [16]

Category (theme): It is the classification of the concepts obtained in the content analysis under a certain theme. After the analysis of the concepts, the relationship between them is revealed, and these relationships are explained with a higher-level theme. Concepts obtained in the category or theme content analysis are abstract and general (15).

The interviews were combined according to their semantic similarity, and code names were formed to represent these views. The codes were then grouped according to their semantic integrity, and the theme names representing these codes were formed. The researchers made the content analysis (15). Cohen et al., (16) defined content analysis as the process of summarising and specifying the basic contents of the written information and the messages they contain. Content analysis, which is frequently used in the field of social sciences, can be defined as a systematic, repeatable technique in which some words of a text such as books, book chapters, letters, historical documents, newspaper headlines and articles are summarised with smaller content categories through coding based on certain rules. The study was carried out to determine the existence of certain words or concepts in a text or a set of texts (17). According to Yıldırım and Şimşek (15), who stated that the main purpose of content analysis is to reach the concepts and relationships that can explain the collected data, the collected data should first be conceptualised, then organised logically according to the emerging concepts and accordingly the themes that explain the data should be determined. In content analysis, there are five stages: processing the qualitative research data obtained from the documents, coding the data, determining the themes, organising the codes and themes, and defining and interpreting the findings (15).

Ethical issues: Permissions to perform the study were obtained from the non-interventional research ethics committee (Dr Behçet Uz Çoc. Hast. ve Cer. EAH. Ethics Committee, 18.07.2019, 2019/324) and hospital management. Informed consent was obtained from all participants. The study was conducted in accordance with the Helsinki Declaration.

RESULTS

The participating nurses' mean age was 32.31±8.34 (Min: 19, Max: 53) years. Their mean length of service in the profession was 118.53 ±102.23 (min: 0, max: 432) months. The mean length of service in the intensive care unit was 71.42±76.53 (min: 1, max: 324) months. Of the nurses, 56.1% stated that they received training on physical restraint. Of them, 14 received the training during their in-service training, five during their undergraduate education, and the remaining ones during congresses or symposiums.

Themes emerged from the focus group interviews

Benefit/Harm

According to most of the nurses and physicians participating in this study, applying physical restraint when necessary was useful. They considered physical restraint as an application that prevents the patient from getting harm.

"Sometimes the application of physical restraint can be a matter affecting even the course of the treatment. For example, sometimes patients pull out their NGT, or agitated

patients remove their catheter dressings. Then their treatment is interrupted or something vital may happen. If dopamine, adrenaline, or inotropes are administered at that moment, their removal may cause a vital problem (Nurse, 2nd focus group, 1st participant)

Table 1. Sociodemographic characteristics of the nurses participating in the study

Sociodemographic Characteristics	n	%
Sex	33	80.5
Women	8	19.5
Men		
Educational status	4	9.8
Medical Vocational High School	11	26.8
Associate Degree	26	63.4
Bachelor's Degree		
Types of Work Schedules	1	2.4
Only Night Shift	3	7.3
Only Day Shift	37	90.2
Day and night shift alternately		
The average number of patients a nurse cares for	38	92.7
2	3	7.3
3		
Receiving Training on Physical Restraints	23	56.1
Yes	18	43.9
No		
Physical Restraints application status	39	95.1
Yes	2	4.9
No		
Reason for Applying Physical restraints	35	854
To prevent the patient from falling off the bed	37	90.2
To prevent the patient from pulling out the equipment (intubation tube, catheter, etc.) connected to him or her.	35	85.4
	17	41.5
To prevent the patient from causing physical harm to himself or herself, or his or her environment	10	24.4
Upon a physician's order		
Due to the insufficient amount of health personnel		
Frequency of applying physical restraint	3	7.3
Always	38	92.7
Sometimes		
Health personnel who decide to apply physical restraint	21	51.2
	5	12.2
Physician	15	36.6
Nurse		
Both the Physician and the Nurse		
Considering that applying physical restraint is beneficial for the patient	38	92.7
	3	7.3
Yes		
No		

"I mean, the patient not only can pull out the tubes, but also can hurt himself. He may get hurt due to the risk of falling out of bed after removing the vascular access device or the intubation tube, I think physical restraint should be applied" (Nurse, 1st Focus group , 1st Participant)

"Of course, the use of physical restraint leads to some problems, but through chemical restraint, that is administration of a sedative, we can cause worse results in the patient in terms of side effects. We have to apply physical restraint, especially in older anxious patients. sedative drugs should be given in large doses, which puts these patients in a much higher risk group in terms of side effects. The sedatives we will give can suppress some parameters that we are to follow from our point of view, so sometimes we have to apply physical restraints, but we can administer sedatives if we do not have such problems." (Physician, 4th focus group, 5th participant)

Reasons for applying physical restraints

Nurses and physicians consider that in some cases, the application of physical restraints is necessary. The nurses stated that they restrained patients for the following reasons: to prevent unconscious patients from pulling out their tube and catheter, to prevent falls, to position the patient, to prevent contracture, and to ensure the patient's safety. The physicians also added that the undesirable results of drugs administered during chemical restraining caused them to prefer physical restraining.

"Of course, in some cases, it is necessary to apply physical restraints. In order to protect the patient, we do this to protect the patient in case the patient pulls out the tube or the catheter of the vascular access because he is unconscious or confused. To protect the patient, to prevent the patient from falling off the bed..." (Nurse, 3rd Focus group , 4th Participant)

"There may be patients who develop delirium in general, but... Those who are very agitated... We usually determine those who are administered sedatives but do not get sedated, who try to pull out their tubes."

"If muscle involvement occurs throughout the body, we do not apply physical restraint in patients who cannot use any of their extremities" (Nurse, 2st Focus group , 3rd Participant)

"Beds are high. In fact, we apply restraints for the benefit of the patient; for babies or patients who cannot stay in bed. We don't apply it most of the time, but some patients are at risk of falling. It is not possible to have a person sit at the bedside of each patient; a nurse takes care of two-three patients. So we have to observe them very carefully. In very agitated patients, restraint may be beneficial. Provided that

it is not applied to every patient, normal sedation or drug-induced sleep methods are the methods we use frequently, of course, but physical restraints can be applied for a short time. At a normal dose and carefully in my opinion (Nurse, 4th focus group, 3rd Participant)

"Children of play age do not stay in the bed either, because they are active, just because they have started to move, they are crawling, for example, because of the risk of falling off the bed" (2nd focus group 1st participant)

"Sometimes, when our patients with ketoacidosis are hospitalised, they are confused, they are not fully conscious, they are not oriented, then when they are treated during the day and there is improvement, this time the clouding of consciousness is over, so we can terminate the physical restraint, for example". (2nd Focus Group, 2nd Participant)

"We apply physical restraints more in children with respiratory problems to reduce their agitation or we call this as a restraining secondary to a neurological condition in older children" (Physician, 4th focus group, 5th participant)

Restraining materials

The nurses who participated in the study stated that the materials used for restraining were appropriate, but they also stated that the need for restraining could be eliminated by preventing falls by making changes in the designs of the beds.

"I think the restraining materials are the most suitable materials, but if the patient is too strong, if we fasten the patient too much, they can hurt the patients" (3rd focus group, 1st nurse)

"If it were possible to make a suitable bed, but I don't know how it would be possible, it needs to be worked on a little bit. If such a thing were possible, there would be no need for restraining." (Nurse, 4th focus group, 3rd participant)

Workload

The nurses stated that when the patient is restrained, he or she should be constantly observed in order to prevent complications such as pressure sores. Restraining the patient creates an additional reason to follow him or her closely. They also stated that technological equipment that will allow the patient to stay in bed safely without restraint would be beneficial.

"We cannot leave the patient alone." ... We should constantly check the restraint. When the workload is heavy, there is a risk of overlooking whether the restraint has led to pressure. It makes us think of the pressure, it makes us nervous in a way." (Nurse, 3rd Focus group , 3rd Participant)

Family's reaction

The nurses stated that families objected when they saw their child restrained during the visit, but they accepted when the reason was explained to them, or when they saw their child's agitation during their visit, they requested that their child be restrained in order to prevent the child from being harmed.

"When the family sees their child restrained, they may become agitated. Some of them ask why their child is restrained. We have found a way to explain it, but some of them can react without listening to your explanations. Then they too accept that restraining is necessary, and sometimes they even ask us to restrain the child when the visit is over." (Nurse, 3rd Focus group , 1st Participant)

Decision-making process for the use of restraint and approval

The nurses stated that the decision to apply restraint was made by taking the child's general condition and state of consciousness into account, that the decision whether physical restraint was necessary or not was made by the physicians and nurses together by discussing the patient's condition, and that the order to apply physical restraint was given by the physician. They also stated that they were undecided whether they should obtain consent from the patient's family regarding the use of physical restraint.

"First, we observe whether there is a risk of falling off the bed for the patient and a risk of harming himself? We decide by observing whether the patient pulls out the tubes or catheters. The decision to apply restraints is made upon the physician's order after the nurse's observation. (Nurse, 2st Focus group , 1st Participant)

"The patient can be stable during the physician's visit. The physician may not witness when the patient is agitated. We are with the patient all the time, observing the patient. If we don't inform the physician, he or she does not know if the patient needs to restrain." (Nurse, 2nd Focus group , 1st Participant)

Ethical dilemma

One of the nurses, who said that they restrained the patient for his benefit and considered that the restraining of the patient was useful, stated that she had an ethical dilemma because of the trauma the child undergoes due to restraining.

"When the child is conscious, we are not sure whether restraining causes trauma on the child in his/her future experiences. Because sometimes when we restrain the child, an awakened child inevitably becomes restless, agitated, when he wants to move his arms or hands, or he cannot touch them

although he wants to touch them. We ensure his safety at that moment, but sometimes restraining puts us in a dilemma because we are not sure whether this can cause an emotional trauma." (Nurse, 5th Focus group , 2nd Participant)

DISCUSSION

Physical restraint is one of the frequently used methods in paediatric intensive care units. Bosch Alcaraz et al. (18) determined that the rate of physical restriction was 16% in 336 paediatric patients and that the most frequently restricted patient group was patients with respiratory problems. The nurses participating in the study mostly preferred physical restraint to prevent the patient from falling, to prevent the child from pulling out the equipment, to prevent them from suffering pain due to the re-insertion of the devices and to prevent the treatment from being interrupted. Among the other reasons to apply restraints is to reduce complications likely to occur due to the drugs given for sedation. Given all these reasons, the health personnel preferred physical restraining to protect the patient, and they took the benefit of the patient into account. However, a nurse stated that they questioned the decision to apply physical restraint from an ethical point of view or in terms of patient rights. The nurses participating in Kaya and Doğu's (19) study thought that physical restraining was the best way to prevent falls. In addition Kaya and Doğu's (19) study emphasised that the lack of personnel was among the reasons for applying restraints. Bosch Alcaraz et al., (20) in their study with 230 nurses working in paediatric intensive care in Spain, stated that, similar to our study, they applied more physical restraints to patients who had low sedation, were affected by pharmacological withdrawal symptoms, and had a high risk of accidental removal of vital support devices or falling out of bed. In a study conducted in China, it was determined that nurses with low education and experience had less knowledge about the use of physical restraint (21).

In the present study, the physicians attached importance to the nurses' observations, and they decided to give the order to apply physical restraint after the nurses informed them that the patient needed a physical restraint based on their observations of the patients. In their interesting study, Olds and Cramer's (22) determined that in environments where the communication between the physician and nurse was strong, the rate of applying physical restraints was high in intensive care units where the physician trusts the observation of the nurses, and that good working conditions in the intensive care unit and the nursing care hours spent at the patient bedside decreased the restraint rates. In the present study, nurses' perception of clinical working conditions was not determined, but the ratio of nurse to patient was 2/1 or 3/1, and most of the nurses worked in day and night shifts alternately.

CONCLUSION

In conclusion, the nurses participating in the present study believed that physical restraint application was beneficial for the following reasons: to prevent the patient from falling off the bed and pulling out the equipment, to continue the treatment, to ensure the safety of the patient, and to protect the child from the complications of chemical restraints. The nurses and physicians stated that they made the decision whether the physical restraints should be applied together as a team, and that different bed designs would make it possible to maintain patient care safely without a need for restraints. With the development of the BUNDLE program regarding restraining, it would be possible to reduce restraining rates, shorten the duration of restraining, and reduce the ethical dilemmas experienced by the team due to restraining. On the other hand, different bed models and equipment designs can reduce the trauma the child suffers due to restraining.

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Author Details

Hatice Yumak (RN, MSc. Dr.)
[1] Behçet Uz Children Hospital, Pediatric Critical Care Unit, İzmir, Türkiye
0000-0001-8671-0297 hatice.yumak@hotmail.com

Özlem Arslan Yetimoğlu (RN, MSc. Dr.)
[1] Behçet Uz Children Hospital, Pediatric Critical Care Unit, İzmir, Türkiye
0000-0001-8260-0146 cilek_om@hotmail.com

Nurseren İşler (RN, MSc. Dr.)
[1] Behçet Uz Children Hospital, Pediatric Critical Care Unit, İzmir, Türkiye
0000-0002-4506-9373 nurisler@windowslive.com

Hasan Ağın (MD, Professor. Dr.)
[1] Behçet Uz Children Hospital, Pediatric Critical Care Unit, İzmir, Türkiye
0000-0003-3306-8899 hasanagin@gmail.com

Hatice Yıldırım Sarı (RN, PhD, Professor)
[2] İzmir Kâtip Çelebi University, Faculty of Health Science, Pediatric Nursing Department, İzmir, Türkiye
0000-0002-4795-7382 haticeyildirimsari@gmail.com

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