



A silent scream in the pediatric emergency department: child abuse and neglect

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Abstract

Child abuse and neglect includes any behavior that harms the child or hinders the child's development. The aim of this study was to determine the demographic and clinical characteristics of patients with suspected child abuse or neglect in the pediatric emergency department. Between July 2017 and July 2022, patients admitted to our pediatric emergency department and consulted to the medical social services unit with a preliminary diagnosis of neglect and/or abuse were retrospectively scanned through the registry system. The patients were divided into five groups according to their victimization: physical, sexual, and emotional abuse; neglect; and medical child abuse (MCA)—Munchausen by proxy. A total of 371 children were included in the study. Two hundred twenty-two (59.8%) of the patients were female and the median age was 161 months [IQR (46–192)]. Then, 56.3% of the patients were in the adolescent age group. The most common admission time period was between 16.00 and 24.00 (*n* 163, 43.9%). Then, 24.2% of the patients were exposed to physical abuse, 8.8% to sexual abuse, 26.1% to emotional abuse, 50.4% to neglect, and 3.2% to MCA. One hundred eight (29.1%) patients were followed up as inpatients in the pediatric intensive care unit. Four of the patients (1%) had out-of-hospital cardiac arrest, and the deaths were in patients under 2 years of age.

Conclusion: Pediatric emergency departments are one of the important units visited by child maltreatment patients. Victimized children may reflect their silent screams with various clinical presentations. Infants are at the greatest risk of suffering serious or fatal injuries. Health professionals working in the emergency department have an important role in detecting, treating, and preventing recurrence of child neglect and abuse.

What is Known:

- The pediatric emergency department is an important entry point in the health care system for children who experience maltreatment.
- It has a wide spectrum of physical, sexual, emotional abuse and neglect.

What is New:

- A high index of suspicion is required to diagnose cases of child maltreatment.
- Infants are at the greatest risk of suffering serious or fatal injuries.

Keywords Child abuse · Neglect · Maltreatment · Pediatric emergency

Introduction

Child abuse is any form of physical, emotional, or sexual maltreatment inflicted by adults or society that harms the child's health, physical, and psychosocial development. Failure to meet the child's basic needs such as education, health, shelter, nutrition, and a safe environment is called

neglect [1]. Due to reasons such as lack of ability to express themselves, feeling of shame, and fear of consequences, children do not talk about their maltreatment and most of the cases remain secret [2]. Although the exact frequency is not known due to diagnostic difficulties, it is estimated that 0.1 to 3% of children who were admitted to the emergency department are victims of child abuse [3]. Abused children are frequently admitted to the pediatric emergency department (PED) with different clinical findings. It is extremely important that emergency department physicians

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have adequate knowledge and skills regarding child abuse in terms of providing treatment for the child's current injury and preventing possible abuse that may occur later [4].

The aim of this study was to determine the demographic and clinical characteristics of patients with suspected child abuse or neglect in the PED and to draw attention to this issue which poses a great threat to the development of children.

Material and method

Study design and clinical protocol

Our hospital is a tertiary pediatric hospital in Ankara (the capital of Turkey), and approximately 180,000 patients visited our PED annually. Between July 2017 and July 2022, patients admitted to our PED and consulted to the medical social services unit with a preliminary diagnosis of neglect and/or abuse were retrospectively scanned through the registry system.

During the study period, 851 children were consulted by the medical social services unit with a preliminary diagnosis of neglect and/or abuse, and 371 patients were diagnosed with child abuse or neglect. The final diagnoses of the patients were made by the consensus of two pediatric emergency physicians and a medical social services specialist with the

consensus of. Situations simulating abuse, accidental traumas, and patients who were not considered to be child maltreatment by "consensus" were excluded from the study (Fig. 1).

Definitions

Physical abuse was defined as any non-accidental injury caused or permitted by a parent, caregiver, or another person [5]. Sexual abuse is considered to be the involvement of a child in sexual activity that a child does not fully understand, is unable to give informed consent or is developmentally unprepared and unable to give consent, or that violates the laws or social taboos of society [6]. Emotional maltreatment by a caregiver, such as intentionally intimidating, humiliating, isolating, or ignoring a child, was considered emotional abuse against a child [7]. Neglect was considered as the failure to adequately meet a child's basic needs, such as adequate food, clothing, shelter, and health supervision, resulting in actual or potential harm to the child by the caregiver [8]. Medical child abuse (MCA) was defined when a child received unnecessary and harmful or potentially harmful medical care due to overt actions of the caregiver, such as exaggerating symptoms, lying about the history or faking physical findings, or intentionally creating illness in the child [9].

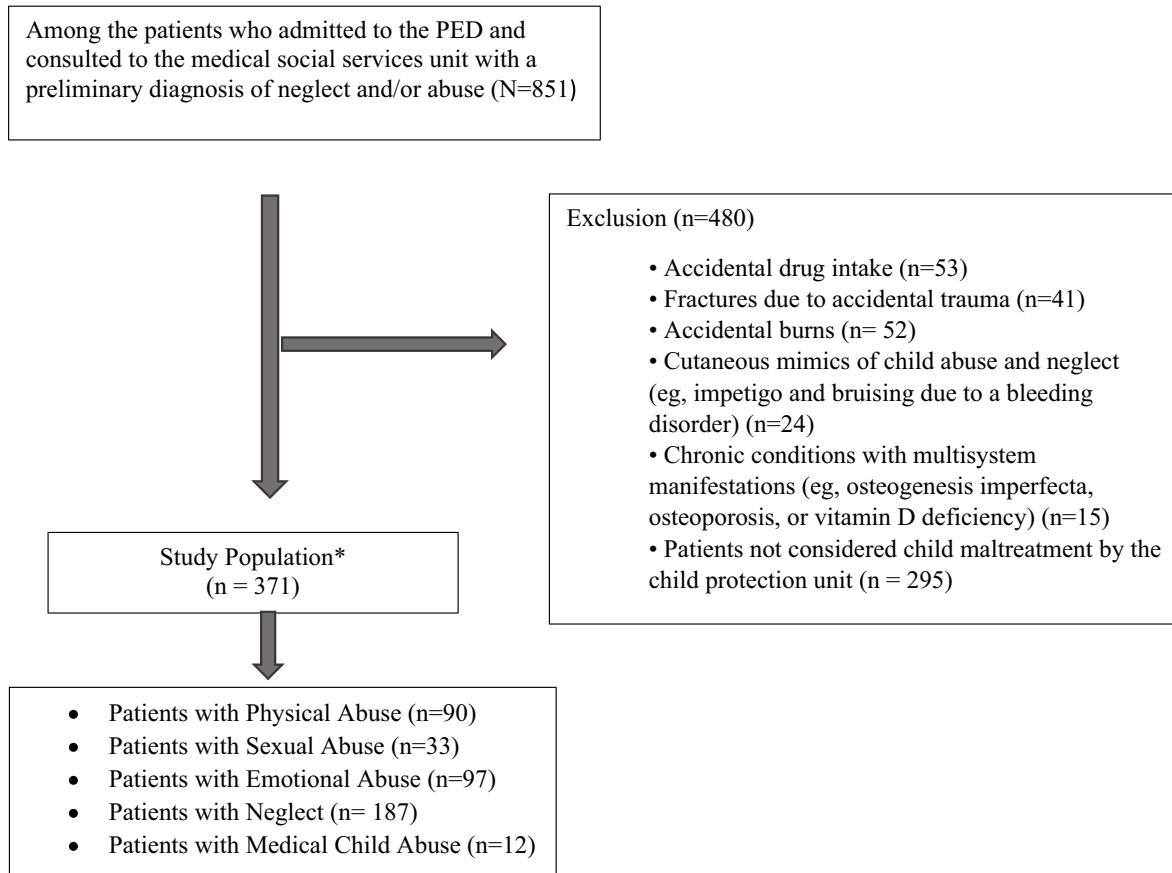


Fig. 1 Flowchart of study and inclusion–exclusion criteria. PED, pediatric emergency department. *48 patients were maltreated more than once

Data collection of the patients

Patients' age, gender, time period when they were admitted to the hospital, reason for admission, presence of recurrent admission for different reasons suggestive of maltreatment, physical examination findings, judicial reports, patient management, and outcome (discharged from the PED, pediatric unit service, pediatric intensive care unit (PICU) follow-up requirements and follow-up periods, referral, health precautions, and death) were recorded. The patients were divided into five groups according to their victimization: physical, sexual, and emotional abuse; neglect; and medical child abuse (MCA)—Munchausen by proxy. Children exposed to multiple types of maltreatment were evaluated separately within each category.

Ethical approval

The protocol for this study was approved by the Ethics Committee (2022-EK-08/394).

Statistical analyses

Statistical analyses were performed using SPSS 19.0 (IBM Corp., Armonk, NY, USA). The variables were investigated using visual (histogram and probability plots) and analytical

methods (Kolmogorov–Smirnov) to determine whether they were normally distributed. As descriptive statistics, categorical variables are expressed as number (*n*) and percentage (%), and continuous variables are expressed as mean ($\pm$), standard deviation (SD) or median, and interquartile range (IQR).

Results

A total of 371 children were included in the study. Two hundred twenty-two (59.8%) of the patients were female, and the median age was 161 months [IQR (46–192)]. Then, 56.3% of the patients were in the adolescent age group. The most common admission time period was between 16.00 and 24.00 (*n* 163, 43.9%). Then, 24.2% of the patients were exposed to physical abuse, 8.8% to sexual abuse, 26.1% to emotional abuse, 50.4% to neglect, and 3.2% to MCA. While 144 (38.8%) of the patients were followed up in the pediatric service, 108 (29.1%) in the PICU, and 33 (8.8%) in the PED, 38 (10.2%) were discharged from the PED and followed up as an outpatient. Then, 35 (9.4%) patients were referred to the child advocacy center (CAC), and 9 (2.4%) patients were referred to the alcohol and substance addiction treatment center. Four of the patients (1%) died, and the deaths were in patients under 2 years of age (Table 1). A health precaution decision was taken for 323 (87%) patients. It

Table 1 Demographic data of patients and distribution of maltreatment types and outcome by age

Patients, <i>n</i> (%)	28 days–12 months (<i>n</i> = 51)	13 months–2 years (<i>n</i> = 15)	2–5 years (<i>n</i> = 45)	6–11 years (<i>n</i> = 51)	12–18 years (<i>n</i> = 209)	Total (<i>n</i> = 371)
Gender						
Male	31 (60.7)	9 (60.0)	20 (44.4)	24 (47.0)	65 (31.1)	149 (40.2)
Female	20 (39.2)	6 (40.0)	25 (55.5)	27 (52.9)	144 (68.8)	222 (59.8)
Admission time						
00:00–08:00	6 (11.7)	2 (13.3)	4 (8.8)	10 (19.6)	49 (23.4)	71 (19.1)
08:00–16:00	19 (37.2)	7 (46.6)	25 (55.5)	22 (43.1)	64 (30.6)	137 (36.9)
16:00–24:00	26 (50.9)	6 (40.0)	16 (35.5)	19 (37.2)	96 (45.9)	163 (43.9)
Maltreatment type*						
Physical abuse	15 (29.4)	8 (53.3)	19 (42.2)	21 (41.1)	27 (12.9)	90 (24.2)
Sexual abuse	-	1 (6.6)	6 (13.3)	7 (13.7)	19 (9.0)	33 (8.8)
Emotional abuse	-	-	-	8 (15.6)	89 (42.5)	97 (26.1)
Neglect	34 (66.6)	14 (93.3)	30 (66.6)	35 (68.6)	74 (35.4)	187 (50.4)
Medical child abuse	5 (9.8)	1 (6.6)	2 (4.4)	4 (7.8)	-	12 (3.2)
Outcome						
Discharged home	6 (11.7)	7 (46.6)	9 (20)	5 (9.8)	11 (5.2)	38 (10.2)
PED	2 (3.9)	-	5 (11.1)	2 (3.9)	24 (11.4)	33 (8.8)
GPC	26 (50.9)	1 (6.6)	15 (33.3)	28 (54.9)	74 (35.4)	144 (38.8)
PICU	11 (21.5)	4 (26.6)	11 (24.4)	13 (25.4)	69 (33.0)	108 (29.1)
Referral**	3 (5.8)	2 (13.3)	5 (11.1)	3 (5.8)	31 (14.8)	44 (11.8)
Death	3 (5.8)	1 (6.6)	-	-	-	4 (1.0)

*48 patients were maltreated more than once. **Child advocacy center and alcohol and drug abuse treatment center. GPC, general pediatric clinic; PED, pediatric emergency department; PICU, pediatric intensive care unit

Table 2 Classification of patients' injury location and type by age

Patients, <i>n</i> (%)	28 days–12 months (<i>n</i> = 39)	13 months–2 years (<i>n</i> = 12)	2–5 years (<i>n</i> = 20)	6–11 years (<i>n</i> = 28)	12–18 years (<i>n</i> = 56)	Total (<i>n</i> = 155)
Physical examine						
Ecchymosis	4 (10.2)	3 (25)	4 (20)	2 (7.1)	7 (12.5)	20 (12.9)
Burn	-	1 (8.3)	2 (10)	1 (3.6)	1 (1.7)	5 (3.2)
Bite	1 (2.5)	-	-	-	2 (3.5)	3 (1.9)
Head injury	10 (25.6)	1 (8.3)	-	1 (3.6)	2 (3.5)	14 (9.0)
Scrape/cut	-	1 (8.3)	-	1 (3.6)	8 (14.3)	10 (6.5)
Extremity fractures	2 (5.1)	1 (8.3)	-	-	-	3 (1.9)
Abdominal injuries	-	-	-	-	1 (1.7)	1 (0.6)
Skull bone fracture	1 (2.5)	1 (8.3)	-	2 (7.1)	-	4 (2.5)
Other*	21 (53.8)	4 (33.3)	14 (70)	21 (75)	35 (62.5)	95 (61.3)
Lesion location						
Face	5 (12.8)	3 (25)	2 (10)	4 (14.2)	6 (10.7)	20 (12.9)
Extremity	7 (17.9)	3 (25)	4 (5)	1 (3.6)	8 (14.3)	23 (10.9)
Back or trunk	3 (7.6)	1 (8.3)	1 (5)	2 (7.1)	3 (5.3)	10 (6.4)
Other**	24 (61.5)	5 (41.6)	13 (65)	21 (75)	39 (69.6)	102 (65.8)

*Oral lesion, labial tear, tooth loss, anal vein, neurological abnormality, dehydration, and malnutrition. **Neck, scalp, genital area, perineum, and gluteal area

was determined that 177 (47.7%) patients had previous recurrent complaints suggestive of maltreatment. Judicial notification was made to 292 (78.7%) patients.

There were 155 (41.7%) patients with pathological findings on physical examination, and ecchymosis was detected in 20 (12.9%). The lesions were mostly seen in difficult-to-detect areas such as the neck, scalp, and perineum in 102 (65.8%) patients, followed by the face in 20 (12.9%) patients, the upper extremities in 17 (10.9%), the

back-trunk in 10 (6.4%) patients, and the lower extremities in 6 (3.8%) patients, respectively. There were 14 patients with head trauma, and 10 of them were 1 year of age or younger (Table 2).

The most common reasons for child abuse and neglect for admission to the PED were suicide attempt 114 (30.7%), neglect 121 (32.6%), and presence of skin signs of physical abuse 68 (18.3%) (Table 3). Some case examples within the study group are given in (Table 4).

Table 3 Clinical presentations of patients

Clinical presentations *, <i>n</i> (%)	Total (<i>n</i> = 371)
Signs of physical injury	
Skin findings (ecchymosis, laceration, abrasion, bite, and burn)	68 (18.3)
Skeletal system fractures	7 (1.8)
Internal organ injuries (abdominal swelling, and bilious vomiting)	1 (0.2)
Central nervous system injuries (change of consciousness and seizure)	6 (1.6)
Genital system lesions	18 (4.8)
Out-of-hospital arrest	4 (1.0)
Admission with different clinical findings	
Decline in acquired abilities (fecal incontinence, difficulty speaking, and difficulty swallowing)	6 (1.6)
Unusual complaints (stones in the stool)	1 (0.2)
Psychiatric symptoms (hallucination, catatonia, and agitation)	8 (2.1)
Discordant chronic conditions (various bleeding history and recurrent fever report)	12 (3.2)
Neglect	
Care neglect (malnutrition and poor hygiene)	121 (32.6)
Treatment neglect (not coming to check-ups of chronic diseases, not providing medication)	66 (17.7)
Suicide attempt	
	114 (30.7)
Substance use	
	19 (5.1)

*68 patients had more than one symptom and sign on admission

Table 4 Some examples of cases suggestive of maltreatment

Case no.	Age(y)/gender	Case presentation
1	15/F	Admissions with complaints of recurrent abdominal pain due to family pressure to get married
2	10/F	Recurrent pseudoseizure admissions due to abuse by stepfather
3	4 m/M	Admission due to being found with a bottle tied to his mouth on the patient bed in the emergency service observation room
4	17/M	Admission due to recurrent cologne drinking as a result of trauma after sexual abuse
5	2/F	Recurrent admissions of a home care patient with a tracheostomy who is weaned off the ventilator
6	9 m–2/M	The same patient admitted with a pacifier string wrapped around his neck, and the patient had a clothesline wrapped around his neck
7	5/M	Admission with a diaper on because the baby is not yet toilet trained
8	12/F	Although had no complaint before sexual abuse, admitted for the last year due to incontinence
9	9/M	Admission as a result of the teacher noticing that the father was punishing his child by pressing his child's legs with a spoon
10	14/F	Admission with hallucinations that started with staying with uncle because school was closer to uncle's house
11	12/M	Admission with adrenal crisis due to a diagnosis of adrenal insufficiency and lack of medication
12	16/F	Diabetes mellitus diagnosis and admission with ketoacidosis due to lack of insulin administration
13	13/M	Admission with epilepsy diagnosis and lack of medication
14	1/M	Admission as a result of recurrent hematemesis complaint and contamination of the caregiver's blood into the child's mouth

Discussion

During our five-year study period, 371 maltreated children were evaluated. Two hundred nine (56.3%) of the patients were in the adolescent age group. Then, 24.2% of the patients were exposed to physical abuse, 8.8% to sexual abuse, 26.1% to emotional abuse, 50.4% to neglect, and 3.2% to MCA. One hundred eight (29.1%) patients were followed up as inpatients in the PICU. Four (1%) patients under the age of two were admitted to the PED with out-of-hospital arrest.

Children are more prone to abuse and neglect because they cannot express themselves well. Pediatric emergency physicians should be alert and careful for signs of neglect and abuse in children. This requires a high index of suspicion. Cases of abuse are very diverse and have a wide spectrum of presentation even within their own groups. It is also common for several different types of maltreatment to occur simultaneously [10]. In our study, more than one exposure to maltreatment was detected in 48 patients.

Physical abuse is the most common and easiest type of abuse to identify [11]. Although emotional abuse and neglect are quite common, there may be difficulties in detecting, defining, and legally proving it. In studies conducted on child abuse in Turkey, it was determined that emotional abuse was in the first place with a rate as high as 78%, physical abuse was seen in 24%, and sexual abuse was seen in 9% [11]. In our study, 24.2% of the patients were exposed to physical abuse, 8.8% to sexual abuse, 26.1% to emotional abuse, 50.4% to neglect, and 3.2% to MCA.

Physical abuse is most common in children under the age of five, and victims may visit PEDs with various symptoms [9, 12, 13]. In our study, physically abused patients had various skin lesions, fractures, internal organ injuries, central nervous system injuries, genital lesions, and out-of-hospital arrest, and 42 of them (46.6%) were under the age of five. Victims of physical abuse can present with injuries in any body system, but skin injuries and fractures are the most common reason [14]. Similarly, in our study, 68 (18.3%) patients were admitted due to skin injuries.

Abusive head trauma is more common in infancy and is an important cause of mortality and morbidity in children. Patients may present to the PED with nonspecific symptoms such as seizures, vomiting, feeding disorders, changes in consciousness, apnea, and restlessness [14–16]. In our study, there were 14 (3.7%) patients admitted due to head trauma. Ten (71.4%) of these children were under one year old.

Sexual abuse is one of the most challenging forms of maltreatment that pediatricians encounter. According to our data, one-third of the patients were sexually abused, mostly in the adolescent age group. However, it should be kept in mind that it can be seen in all age groups.

Medical child abuse—Munchausen by proxy—can only be detected by excluding organic causes and with a high index of suspicion. Its estimated annual incidence is approximately 0.4 to 1.2 per 100,000 in children younger than 16 years [17]. The presence of recurrent and clinically incompatible anamnesis in the emergency department may be a clue. In our study, 12 (3.2%) patients were admitted to PED with various complaints of recurrent bleeding and fever and

were diagnosed with MCA during the follow-up period. In cases where recurrent nose, mouth, and urinary bleeding are reported that are incompatible with the clinical findings, it would be beneficial for these patients to be hospitalized, to be diagnosed during the follow-up period, and to be monitored by the Child Protection Unit.

In some cases, there may be no visible or observable signs or symptoms suggestive of abuse. Suicide attempt is one of them. In our study, the most common application to PED as a presentation of abuse was found to be attempted suicide in 114 cases (30.7%). The primary focus for these patients is medical treatment. However, the emergency physician should be able to detect maltreatment, if any, with a multi-disciplinary approach.

Emergency medicine providers may face health consequences of supervisory, medical, dental, emotional, and physical neglect [18]. The findings in this study revealed that approximately half (50.4) of child maltreatment cases were caused by neglect. Just like abuse, neglect can lead to urgent health problems that require immediate care. A study of children presenting to child protective services for medical neglect reported that the majority had chronic diseases such as type 1 diabetes, prematurity-related conditions, and seizure disorders [19].

Emergency departments are among the first areas where suspicion of abuse is evaluated. Hospitalization may be required if the medical treatment of patients cannot be completed, and a safe discharge cannot be ensured [14]. According to our data, 285 (76.8%) patients required admission. Approximately one-third of the patients were followed in the PICU. It was thought that adolescents who tried to make their screams of abuse heard through suicide attempts constituted a significant part of this group. It was noted that admissions were concentrated especially in the evening hours. In our study, the infant and child age group applied to the emergency department at all hours of the day, especially during working hours. This was thought to be due to the cases presenting with different clinical presentations.

It is very important to recognize and initiate the necessary treatment for victims of neglect and abuse in the PEDs. Because, when child maltreatment is not diagnosed, 35 percent of these children are abused again [6, 20–22]. Clinicians may miss many physical abuse injuries at first presentation [23]. The risk of experiencing a second incident for children who return to their families/primary caregivers without any intervention after a maltreatment incident has been reported to be approximately 50 percent [24]. In a study, one in four children presenting with abuse-related head trauma had one or more opportunities to recognize child maltreatment in previous medical evaluations [25]. In our study, it was determined that 177 (47%) patients had previously applied to PED for the same/different reasons that suggested maltreatment.

Children of all ages may present to the emergency department with injuries resulting from maltreatment, but infants are at the greatest risk of sustaining serious or fatal injuries [10]. An estimated 40 thousand children are killed every year in the world, and most of them are thought to have been subjected to maltreatment beforehand [26]. Among children who were fatally abused, 47% were reported to be under one year old and 81% were under 4 years old [27]. In our study, 4 patients (1%) were admitted due to out-of-hospital arrest, all were under 2 years of age, and the cause of death was traumatic brain injury.

The medical management of child abuse is challenging for PED providers for many reasons, including the ability to take an accurate history, manage the process with caregivers, and safely prepare the patient for the outcome. This requires a multidisciplinary approach. Cases of abuse are very diverse and have a wide spectrum of presentation even within their own groups. For this reason, a visit to the PED should be considered holistically, not just as a medical emergency. And it is the duty of the PED physician to initiate the abuse activation algorithm by evaluating the history, physical examination, risk factors, and investigations together and, in case of suspicion, to keep a forensic report and contact social services.

Limitations

Our study had some limitations: it reflects single center data and is a retrospective study, and since our hospital is not a trauma center, physical abuse patients may have been detected relatively rarely. Since the number of patients was low according to age groups, a detailed evaluation could not be made for specific age groups. However, since there are a limited number of studies evaluating cases of neglect and abuse in PEDs, we think that our study will make a positive contribution to the literature.

Conclusion

Pediatric emergency departments are one of the important units visited by child maltreatment patients. Victimized children may reflect their silent screams with various clinical presentations. Infants are at the greatest risk of suffering serious or fatal injuries. For this reason, health professionals working in PEDs have an important role in detecting, treating, and preventing recurrence of child neglect and abuse.

Abbreviations PED: Pediatric emergency department; MCA: Medical child abuse; IQR: Interquartile range; SPSS: Statistical Package for Social Sciences; CAC: Child advocacy center; PICU: Pediatric intensive care unit

Authors' contributions All authors contributed to the study conception and design. Study concept and design: Bilge Akkaya, Ali Güngör, İlknur Bodur, Orkun Aydın, and Nilden Tuygun. Analysis and interpretation of data: Bilge Akkaya, Orkun Aydın, Betül Öztürk, Raziye Merve Yaradılmış, İpen İlknur Ünlü, and Cihan İnan. Drafting of the manuscript: Bilge Akkaya, Ali Güngör, Aytaç Göktuğ, Muhammed Mustafa Güneylioğlu, and Ahmet Serkan Özcan. Critical revision of the manuscript for important intellectual content: Bilge Akkaya, Ali Güngör, and Nilden Tuygun.

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Data Availability No datasets were generated or analysed during the current study.

Declarations

Ethics approval This study was performed in line with the principles of the Declaration of Helsinki. The study was approved by the Dr. Sami Ulus Maternity and Children's Health and Diseases Training and Research Hospital Ethical Committee (Approval number: 2022-EK-08/394).

Competing interests The authors declare no competing interests.

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