

## Characteristics of Pediatric Psychiatric Emergency Population in a Mental Health Hospital

Caner Mutlu<sup>1</sup>, Ali Güven Kılıçoğlu<sup>1</sup>, Hatice Güneş<sup>1</sup>, Hilal Adaletli<sup>1</sup>, Handan Metin<sup>1</sup>, Mustafa Kayhan Bahalı<sup>1</sup>, Hamiyet İpek<sup>1</sup>, Özden Şükran Üneri<sup>2</sup>

<sup>1</sup>Clinic of Child and Adolescent Psychiatry, Bakırköy Prof. Dr. Mazhar Osman Mental and Neurological Diseases Training and Research Hospital, İstanbul, Turkey

<sup>2</sup>Clinic of Child and Adolescent Psychiatry, Ankara Pediatric and Pediatric Hematology Oncology Training and Research Hospital, Ankara, Turkey

### Abstract

**Aim:** We aimed to investigate the characteristics of children and adolescents presented to the psychiatric emergency service (PES) of a mental health hospital.

**Materials and Methods:** Medical records of patients under 18 years of age were reviewed for the first psychiatric emergency visit during a 1-year period.

**Results:** The mean age was 15.82 years and 65.8% (n=711) were female. The most presenting symptoms were suicidal ideation (21.0%; most for girls) and homicide/violence toward others (20.7%; most for boys). The mean duration of symptoms was 265.36 days. The most common diagnoses were conduct disorder (16.7%; most for boys) and conversion disorder (15.5%; most for girls). Of the patients, 51.7% never used any mental health services before. The rate of prior use of mental health service was significantly higher in patients presenting with homicide/violence toward others and self-harm and lower in patients presenting with anxiety and somatic symptoms ( $p<0.05$ ). Of the patients, 292 (27.0%) took no treatment and 271 (25.1%) were admitted to the psychiatric inpatient unit.

**Conclusion:** PES can be used by half of the families as a first-line therapy unit. PES seems to serve an important role in the continuum of pediatric mental health care, particularly for youths with homicide/violence toward others, and to be a point of access to mental healthcare, particularly for youths with anxiety and somatic symptoms. (*Eurasian J Emerg Med* 2015; 14: 123-30)

**Keywords:** Emergency service, child, adolescent, psychiatry, mental health

### Introduction

Mental illness is one of the most common causes of morbidity, mortality, and disability in childhood. Approximately 7%–22% of youth in nonclinical settings have a mental illness (1). The identification of mental disorders in primary care settings have increased rapidly in the recent 2 decades (2). Although children and adolescents with mental illness have an increased use of medical care services, there is still a large need (3). Children and adolescents with mental health problems often have difficulty accessing mental health services because an inadequate number of providers, poor mental health service coverage, inconvenient hours of service, and long waiting times (2, 4). It is estimated that most of the children and adolescents with mental health problems do not receive timely and necessary mental health services (5-7).

Pediatric emergency departments (EDs) have increasingly become an important part of health services for children and adoles-

cents with mental health problems (1, 2, 8, 9). Pediatric EDs have been shown to serve as an entry point into the healthcare system for children and adolescents seeking psychiatric care and are considered a safe area for the lack of inpatient and outpatient mental health services (7, 9). Several studies reported a marked increase in the number of children and adolescents seeking care for mental health problems in emergency settings (10-15). Also, the prevalence of mental health problems in pediatric EDs has been found to be much higher (1). Therefore, pediatric EDs have become a primary point of screening and/or evaluation of mental health problems, regardless of whether the problems are considered to be true mental health emergencies (12). Identifying children and adolescents at risk for mental health problems in pediatric EDs and linking them into mental health services can be a crucial and potentially life saving intervention (1).

Studies have been generally conducted in general or pediatric hospital EDs. In Turkey, they generally focused on suicide (16, 17). There is little in the scientific literature describing the characteristics

**Correspondence to:** Caner Mutlu e-mail: canerrmutluu@yahoo.com

**Received:** 24.12.2014

**Accepted:** 21.04.2015

©Copyright 2015 by Emergency Physicians Association of Turkey - Available online at [www.eajem.com](http://www.eajem.com)

DOI: 10.5152/eajem.2015.71354



of children and adolescents who present to EDs of mental health hospitals with mental health concerns. There is an outstanding need to develop mechanisms that promote optimal care in psychiatric EDs and outpatient clinics (7, 10). We believe that data obtained from youths presented to EDs of mental health hospitals will give important information to organize the structure of child and adolescent psychiatry units. In this study, we aimed to evaluate the characteristics and relationships among these characteristics of children and adolescents who were presented to the psychiatric emergency service (PES) of a mental health hospital.

## Materials and Methods

### Subjects and setting

We defined our sample as young people aged less than 18 years who presented to the PES of Bakırköy Prof. Dr. Mazhar Osman Research and Training Hospital for Psychiatry, Neurology and Neurosurgery between January 1, 2011 and December 31, 2011 and were assessed within 24 h of referral. This is a tertiary care hospital (also secondary care) and one of the regional psychiatric specialty hospitals. The PES, which is located in a different part of the hospital, responds to mental health emergencies of all people within the Marmara Region (one of the seven big regions, each containing regional, urban, and rural areas) and sometimes for other regions in Turkey. The people presenting to this PES do not need to be referred by their physicians, other EDs, or other hospitals. Thus, they generally self-refer themselves. In Turkey, all people under the age of 18 years have government health insurance. The variables of this study were registered by residents in training, supervised by their specialist supervisor (generally adult psychiatrist). In the hospital, there is also a centre for child and adolescent substance users, which includes an outpatient unit for daytime applications requiring no appointments and an inpatient unit for youth who want and accept to be treated and rehabilitated.

Because of the retrospective design of the study, there was no need for the approval of the Ethics Committee.

### Measures

Firstly, the name, age, and gender of patients were abstracted by querying the hospital database. Files of 1080 patients (for 1380 visits) were reviewed for age at initial evaluation in the PES, gender, school status, family structure, presenting symptoms, duration of presenting symptoms, psychiatric diagnosis according to the Diagnostic and Statistical Manual of Mental Disorders-4<sup>th</sup> edition (DSM-IV) criteria (18), prior emergency service and outpatient clinic use, prior psychiatric hospitalization, family history of mental illness, and treatment in the PES. Data reflected only the first psychiatric emergency visit of patients in the study period. Information was obtained from standardized emergency forms. Data were documented in a standardized chart format. Patients were classified in terms of their presenting complaints reported. The duration of presenting symptoms was calculated and recorded as days. Broad categories for diagnoses were used because of the low validity of diagnoses based on DSM in psychiatric emergency settings (19). In the case of multiple diagnoses, the main diagnosis was used in this study. Mood disorders did not cover depression, which was recorded as a different main diagnosis. Prior outpatient clinic use for patients included the current or past provider. Prior use of an emergency or outpatient clinic with an

inpatient unit represented a sequential or separate use in time. Of the patients or their families, 110 reported family history of mental illness as "unknown." Treatment in the PES was categorized as none, drug, and hospitalization. The "none" category of treatment included patients who were not administered drug(s) and/or not admitted to the inpatient unit. Patients administered with drug(s) and consequently admitted to the inpatient unit (n=66) were recorded separately in both treatment groups: drug and hospitalization.

### Statistical analysis

The data was analysed using the Statistical Package for Social Science 15.0 program for Windows (SPSS, Chicago, IL, USA). In analysis, the school status variable was categorized as "currently enrolled" and "other," and the family structure variable was categorized as "nuclear or extended" and "other." Prior to analyses, the Kolmogorov-Smirnov test was performed to assess the normal distribution of data. Mann-Whitney U test was used to compare non-normal distributed continuous variables. The chi-square test or Fisher's exact test was used to compare categorical variables. Significance was defined as a p value <0.05.

## Results

The mean age of the sample was 15.82 (SD=1.32; range: 7-17) years. Most of patients were adolescents (n=1070, 99.1%) and female (n=711, 65.8%). Of the patients, 57.6% (n=622) were still at school and 73.5% (n=794) had a nuclear or extended family (Table 1).

The most presenting symptoms were suicidal ideation (21.0%) and homicide/violence toward others (20.7%). Compared with girls, boys were more likely to present with homicide/violence toward others, psychotic symptoms, and substance use (p<0.05). Compared with boys, girls were more likely to present with suicidal ideation/thoughts, anxiety and somatic complaints, and depressive moods (p<0.05) (Table 2).

The mean duration of presenting symptoms was 265.36 (SD=424.08; range 1-2555) days. The duration of each presenting symptoms did not significantly differ for age (p>0.05). Boys had a significantly longer duration of presenting symptoms than girls (Z=-1.975, p=0.048). Cases with homicide/violence toward others, self-harm, and substance use had a significantly longer symptom duration than those not having these symptoms (p<0.05). Patients with anxiety symptoms and somatic complaints had a significantly shorter symptom duration than those not having these symptoms (p<0.05) (Table 3).

The most common diagnoses were conduct disorder (16.7%) (most frequent among boys), conversion disorder (15.5%) (most frequent among girls), and depressive disorder (10.8%). Psychotic disorders, bipolar disorders, and substance use disorders were significantly more common in boys (p<0.001 for each), whereas conversion disorder and depression were more common in girls (p<0.001 and p<0.05, respectively) (Table 4).

While prior emergency service and prior outpatient clinic use for mental problems was reported by 513 (47.5%) and 97 (9.0%) patients, respectively, only 7.1% (n=77) had prior hospitalization. Of the patients, 51.7% had never used any mental health services before. In this study, 268 (27.6%) patients had a family history of mental illness. Of these, 213 (79.5%) had mental illness in first-degree relatives. Compared with girls, boys were more likely to have prior hospital-

ization and less likely to be currently enrolled in school ( $\chi^2=4.172$ ,  $p=0.041$ ;  $\chi^2=18.373$ ,  $p<0.001$ ; respectively). No significant differences for age, family structure, family history of mental illness, and prior emergency and outpatient clinic use were found between boys and girls ( $p>0.05$ ). Prior emergency service use and prior hospitalization

**Table 1.** Demographic characteristics of the study sample (n=1080)

		n	%
Age	15–17 years	943	87.3
	12–14 years	127	11.8
	Under 12 years	10	0.9
Sex	Female	711	65.8
School status	Currently enrolled	622	57.6
	Drop out	247	22.9
	Primary school graduate	196	18.1
	Never gone to school	15	1.4
Family structure	Nuclear or extended	794	73.5
	Fragmented	229	21.2
	Child protection agency	55	5.1
	Prison	2	0.2
Prior service use	Only emergency service use	7	0.6
	Only outpatient clinic use	384	35.6
	Emergency service and outpatient clinic use	54	5.0
	Emergency service use and hospitalization	2	0.2
	Outpatient clinic use and hospitalization	41	3.8
	Emergency service and outpatient clinic use, and hospitalization	34	3.1
	None	558	51.7

was associated with older age (16.40 years vs. 15.76 years,  $Z=-4.956$ ,  $p<0.001$ ; 16.16 years vs. 15.79 years,  $Z=-2.405$ ,  $p=0.016$ ), while prior outpatient clinic use not.

Patients presenting with homicide/violence toward others or self-harm had a significantly higher prior use of mental health service than patients without these symptoms ( $p<0.05$ ). Patients presenting with anxiety or somatic complaints had a significantly lower prior use of mental health service than patients without these symptoms ( $p<0.05$ ) (Table 5).

Of the patients, 292 (27.0%) took no treatment and 271 (25.1%) were admitted to the psychiatric inpatient unit, while 583 (54.0%) were administered with drug(s). The most common diagnoses among patients admitted were depression (n=58, 21.4%), conduct disorder (n=56, 20.7%), psychotic disorder (n=34, 12.5%), mood disorder (n=23, 8.5%), and adjustment disorder/acute stress reaction (n=23, 8.5%). The highest admission rates among diagnoses were 66.7% for psychotic disorder, 51.1% for mood disorder, 49.6% for depression, 37.1% for substance abuse/related disorder, 31.1% for conduct disorder, and 24.7% for adjustment disorder/acute stress reaction.

## Discussion

In the present study, we described the characteristics of children and adolescents who were referred to the mental health hospital's emergency service. It was found that the most presenting symptoms were suicidal ideation and homicide/violence toward others, and the most common diagnoses were conduct disorder and conversion disorder. Slightly more than half of the patients used a mental health service for the first time by presenting to a PES, and a significant number of patients took no treatment. Also, this study reported that patients presented to the PES an average of 9 months after the onset of symptoms, and most of patients with anxiety and somatic complaints presented to the PES for the first time in a shorter time, being associated with female gender.

In our study, the most common presenting symptoms were suicidal ideation/thought (21.0%) and homicide/violence toward others (20.7%), which emphasized the need for emergency staff to have an informed approach to these problems, as reported by Santiago et al. (20)

**Table 2.** Comparison of presenting symptoms between boys and girls (n=1080)

	Total		Boys		Girls		$\chi^2$	p
	n	%	n	% (within boys)	n	% (within girls)		
Suicidal ideation/thought	227	21.0	55	14.9	172	24.1	12.066	0.001
Homicide/violence toward others	224	20.7	116	31.6	108	15.2	38.022	0.000
Anxiety complaint	168	15.6	47	12.7	121	17.0	3.071	0.080
Somatic complaint	119	11.0	27	7.3	92	12.9	7.270	0.007
Suicidal attempt	93	8.6	25	6.8	68	9.6	2.060	0.151
Self-harm	87	8.1	26	7.0	61	8.6	0.578	0.447
Depressive mood	82	7.6	14	3.8	68	9.6	10.719	0.001
Psychotic symptom	69	6.4	36	9.8	33	4.6	9.788	0.002
Substance use	67	6.2	46	12.5	21	3.0	36.160	0.000
Other complaints	204	18.9	61	16.5	143	20.1	1.807	0.179

$\chi^2$ : chi-square test

**Table 3.** Duration of presenting symptoms (n=1080)

		n	Duration (days)	Z	p
			Mean±SD		
Suicidal ideation/thought	Yes	227	285.02±422.33	-1.099	0.271
	No	853	260.12±424.64		
Homicide/violence toward others	Yes	224	391.00±535.00	-5.270	0.000
	No	856	232.42±383.52		
Anxiety complaint	Yes	168	193.49±348.78	-2.623	0.009
	No	912	278.59±435.41		
Somatic complaint	Yes	119	141.83±291.04	-4.291	0.000
	No	961	280.65±435.43		
Suicidal attempt	Yes	93	229.58±340.98	-1.140	0.254
	No	987	268.73±431.08		
Self-harm	Yes	87	321.63±453.70	-2.731	0.006
	No	993	260.42±421.27		
Depressive mood	Yes	82	233.84±335.12	-0.301	0.763
	No	998	267.94±430.61		
Psychotic symptom	Yes	69	154.99±269.31	-0.305	0.760
	No	1011	272.89±431.69		
Substance use	Yes	67	550.67±584.51	-5.706	0.000
	No	1013	246.67±404.63		
Other complaints	Yes	204	243.47±409.11	-1.427	0.154
	No	876	270.45±427.56		

Z: Mann-Whitney U test; SD: standard deviation

**Table 4.** Comparison of main diagnosis between boys and girls (n=1080)

	Total		Boys		Girls		χ <sup>2</sup>	p
	n	%	n	% (within boys)	n	% (within girls)		
Conduct disorder	180	16.7	67	18.2	113	15.9	0.741	0.389
Conversion disorder	167	15.5	27	7.3	140	19.7	27.514	0.000
Depression	117	10.8	28	7.6	89	12.5	5.611	0.018
Adjustment disorder/ acute stress reaction	93	8.6	23	6.2	70	9.8	3.582	0.058
Anxiety disorder	91	8.4	26	7.0	65	9.1	1.125	0.289
Psychotic disorder	51	4.7	32	8.7	19	2.7	18.125	0.000
Mood disorder	45	4.2	27	7.3	18	2.5	12.759	0.000
Mental retardation	40	3.7	24	6.5	16	2.3	11.160	0.001
Substance abuse/ related disorder	35	3.2	26	7.0	9	1.3	24.073	0.000
Dissociative disorder	31	2.9	7	1.9	24	3.4	1.411	0.235
Other diagnosis	48	4.4	23	6.2	25	3.5	3.607	0.058
Deferred diagnosis	161	14.9	48	13.0	113	15.9	1.375	0.241
No diagnosis	21	1.9	11	3.0	10	1.4	2.387	0.122

χ<sup>2</sup>: chi-square test

**Table 5.** Comparison of presenting symptoms with prior service use (n=1080)<sup>1</sup>

	Prior emergency use					$\chi^2$	p
		Yes (n=97)		No (n=983)			
		n	%	n	%		
Homicide/violence toward others	Yes	30	13.4	194	86.6	6.064	0.014
	No	67	7.8	789	92.8		
Suicidal attempt	Yes	2	2.1	91	97.9	4.930	0.026
	No	95	9.6	892	90.4		
	Prior outpatient clinic use					$\chi^2$	p
		Yes (n=513)		No (n=567)			
		n	%	n	%		
Homicide/violence toward others	Yes	150	66.9	74	33.1	41.957	0.000
	No	363	42.4	493	57.6		
Anxiety complaint	Yes	65	38.6	103	61.4	5.780	0.016
	No	448	49.1	464	50.1		
Somatic complaint	Yes	41	34.4	78	65.6	8.549	0.003
	No	472	49.1	489	50.9		
	Prior hospitalization					$\chi^2$	p
		Yes (n=77)		No (n=1003)			
		n	%	n	%		
Homicide/violence toward others	Yes	27	12.5	197	87.5	9.432	0.002
	No	50	5.8	806	94.2		
Substance use	Yes	10	14.9	57	85.1	5.361	0.022*
	No	67	6.6	946	93.3		
	Prior service use					$\chi^2$	p
		Yes (n=522)		No (n=558)			
		n	%	n	%		
Homicide/violence toward others	Yes	150	66.9	74	33.1	38.348	0.000
	No	372	43.4	484	56.6		
Anxiety complaint	Yes	66	39.3	102	60.7	6.100	0.014
	No	456	50.0	456	50.0		
Somatic complaint	Yes	43	36.1	76	63.9	7.430	0.006
	No	479	49.8	482	50.2		
Self-harm	Yes	52	59.8	35	40.2	4.471	0.034
	No	470	47.3	523	52.7		

<sup>1</sup>included only data found significant;  $\chi^2$ : chi-square test; \* Fisher's exact test

and Cuyper et al. (21). Patients with suicidal tendencies (suicidal ideation/thought and suicidal attempt) represent 30% in our study, which is comparable with previous research (26–61%) (9, 12, 20-23). Santiago et al. (20) and Frosch et al. (22) also reported that 42% and 45% of patients presented with behavior problems, respectively, in their studies evaluating psychiatric consultations in pediatric EDs. In a retrospective chart review of 203 mental health presentations of 167 adolescents (aged 12–18 years) to an ED of a tertiary children's

hospital over a 1-year period (2003–2004), most presentations were for non-accidental drug overdose (37.9%), self-harm or suicide risk (18.7%), and substance abuse (9.9%) (24). Of the youth from a mental health hospital pediatric emergency service, 62.5% were presented following an episode of deliberate self-harm and 11.5% with other behavioural difficulties (25). These cross study discrepancies may be due to differences in the distribution, nature, and availability of mental health services and location of the ED (e.g., inner city vs. sub-

urban) (8). However, high percentages of suicidality and behavior problems make the PES a place of treatment for these problems and of suicide prevention, as highlighted by Cuypers et al. (21) and Larkin and Beautrais (26).

While substance users were latest emergency service applicants, patients with somatic complaints, followed by those with psychotic symptoms and anxiety complaints, tended to come to the PES in a shorter time for help. Also, youths presenting with internalizing symptoms such as anxiety and somatic complaints had a significantly lower prior use of outpatient clinics than youths without these symptoms. These findings point out the assumption that the PES can be an entry point to mental healthcare, particularly for youths with anxiety and somatic complaints who represent a significant portion of those in first contact with a mental health professional at the ED. This suggests that youth who present with anxiety or somatic complaints are unlikely to have had an outpatient mental health provider. Because of the significant high rate of school attendance in these youths and an association between the school year and emergency mental health visits (27, 28), the mental health units require improvement in schools as well as in hospitals. Routine screening for anxiety or somatic complaints in schools can facilitate earlier detection of at-risk individuals, thereby leading to a more appropriate use of the PES.

The diagnoses of patients presenting to EDs differ between studies. While the percentages of the most common diagnoses in many studies were 28.1% (24) and 44% (29) for depression 24.6% (30) and, in first visit, 69% (31) for mood disorders, those in our study were 16.7% for conduct disorder (most frequent among boys) and 15.5% for conversion disorder (most frequent among girls). Also, Cuypers et al. (21) found mood disorders (27.6%) and adjustment disorders (19.5%) as the most frequent axis I disorders in pediatric psychiatric patients consulting the PES of a large university hospital in Belgium between 2003 and 2008. Also, they reported that the most frequent disorders in adolescence were psychoactive substance use disorders (25.2%) for boys and mood disorders (33.6%) for girls. In a large, nationally representative ED database including data from 2001 to 2011, the most common primary ICD-9 diagnoses were anxiety states/panic disorder (14%) and depression (13%) (15). The rate of conduct disorder in our sample was higher than the rates of conduct or disruptive disorders (range 6.3–14%) found in other studies conducted at universities or general hospitals (9, 10, 13, 20, 32, 33). It may be considered that children and adolescents with mood disorders have generally preferred university-affiliated or general hospital emergency services, while psychiatric hospital emergency services have been preferred by those with behavioral disorders. Interestingly, substance-related disorders were generally found to be the most frequent disorders, ranging from 24.2% to 41.3%, in studies with large samples (7, 10, 11, 13, 33). The lower rate of presentations for substance use and therefore substance use disorders in the present study may indicate a low help-seeking behavior in our population, despite the presence of a specialized inpatient and outpatient treatment centre for substance users in our hospital. It is also suggested that the presence of this centre causes a low emergency need for substance users, thus providing an opportunity to be treated early and appropriately.

Children and adolescents in the study sample were not likely to be known to use mental health care systems: 47.5% made prior use of an outpatient clinic, 9.0% made prior use of an emergency service, and only 7.1% had a prior psychiatric hospitalization for a psychiatric

reason. Interestingly, slightly more than half (51.7%) had never used any mental health services before. Prior emergency service use was associated with older age, while prior psychiatric hospitalization was associated with male gender and older age. Frosch et al. (22) reported that older age was found to be associated with a greater likelihood of a prior ED visit and a prior psychiatric hospitalization. In a study conducted in an university hospital, it was reported that 69% of patients used outpatient services in the past and approximately 1/4 of the patients presented to the PES for first mental health treatment contact (21). The prior psychiatric hospitalization rate was lower than the rate reported by Frosch et al. (22) of 40%. However, prior ED visits were identified in 41% of youth in the same study. In a study of patients between the ages of 8 and 17 years, who presented for mental health concerns to the Crisis Intervention Program located in the ED of a pediatric tertiary care university-affiliated teaching hospital in Ontario, 15% and 15.6% of patients had a past ED visit and prior psychiatric hospitalization for mental health concerns, respectively (8). Another study in the same hospital revealed that most patients did not receive any type of counseling services (psychiatrist, psychologist, or counselor) in the past, and half of the patients had no previous psychiatric diagnosis or history (12). Healy et al. (25) reported that of the cases in the mental health emergency service of a psychiatric and a general hospital, 48% were in previous contact with child psychiatry and 21% had previous emergency contact with psychiatric/social services, the latter being associated with older age but not with gender. Also, in the present study, approximately 3/4 of patients had no family history of mental illness. Absence of psychiatric hospitalizations and family history of mental illness in the majority of patients and absence of a prior emergency service or outpatient clinic use in approximately half of the patients in the study suggested that the PES could be used by half of the families as a first-line therapy unit, as suggested in some studies (8, 12, 21). Also, the prior use of one of the mental health services was lower in our sample than in youths admitted to the emergency departments of general or pediatric hospitals, indicating that ED of a mental hospital may be left as the only option for parents, while EDs of other hospitals were seen as a continuum of care. Difficulties in accessing the existing outpatient mental health/community services are generally attributed to the lack of psychiatric facilities (such as long waits for evaluation and placement, inadequate psychiatric evaluation), both inpatient and outpatient as well as guardianship and insurance issues (34). Findings with the facts of possibly more sufficient psychiatric facilities in our study setting and the presence of government insurance for all people under age of 18 years suggested that other factors such as rapid intervention request, instant access to a psychiatrist, income level (particularly low), social class, or educational level may be more important in presence to an emergency service. This condition may also be attributable to the difficulty of gaining appointments for our outpatient clinic because of the small number of child and adolescent psychiatrists and likely represents a decreased access to regular mental health care.

Prior PES and outpatient clinic use and prior psychiatric hospitalization were all significantly higher among youth presenting with homicide/violence toward others than youth without this symptom. Similarly, Frosch et al. (22) reported that youth presenting with behavior problems were 2.4 times more likely than youth presenting with other problems to have accessed inpatient or ED services in the past and twice as likely to have identified a current mental health

provider. These findings suggest that youth presenting with homicide/violence toward others are likely to access all of the mental health services, and the PES constitutes a continuum of main treatment steps for these youth. As in the treatment of many symptoms, it is important to treat the symptom of homicide/violence toward others in the first contact with the mental health provider.

The rate of admission to the inpatient psychiatric unit for this sample was 25.1%, which is lower than the rates reported by Grupp-Phelan et al. (29) of 48%, Santiago et al. (20) of 49.5%, and Frosch et al. (30) of 55%. The common features of these studies are high incidences of prior contact with the mental health system and suicidal tendencies, suggesting that many of the patients need further urgent treatment and therefore were appropriately referred to EDs. On the other hand, our admission rate is similar to those reported by Kennedy et al. (8) of 17.9%, Sills and Bland (10) of 19.4%, and Mahajan et al. (32) of 30.5%, indicating that approximately half of the patients presenting with anxiety, somatic and "other" complaints represent the content of nonurgent concerns. It is considered that psychiatric ED presentations are increasing primarily because of nonurgent concerns (8). In studies including a significant proportion of patients with anxiety or stress-related disorders, admission rate is low with the range of 5–13.7% (7, 9, 11, 13). Similarly, a low admission rate (12%) can be seen in a group of major psychiatric diagnoses and symptoms, including bipolar disorder, psychoses, major depression, suicidal attempt or ideation, homicidal ideation, and hallucination, highlighting the importance of other factors such as enough inpatient psychiatric facilities and insurance status (35). The most common diagnosis for visits resulting in admission was mood disorders, including mainly depressive disorder, which is consistent with other studies (32, 33, 36). Moreover, in our study, approximately two-third of patients diagnosed with psychotic disorders and half of those with mood disorders were admitted, while Newton et al. (7) reported admission rates of slightly less than half for psychotic-related illnesses and one-fourth for mood disorders at first visit in a large database. On the other hand, slightly more than half of the patients (54.0%) received medication, while the rates of medication administration were 29.1% and 47.1% in other studies (10, 24). A relative lower rate of admission to the inpatient unit and a higher rate of medication administration may be attributable to mild symptoms of patients which have been thought to be treated satisfactorily with a drug and to the study setting that indications of hospitalization can be more rigorous. In addition, the shortage of pediatric mental health services, insufficient inpatient psychiatric beds, no available medical services for psychiatric boarders, and absence of a chance for discharging to other various placements, including rehabilitation facility, nursing facility, and home health services, may be the other possible factors affecting treatment options.

### Study limitations

Despite the findings, the results of this study should be interpreted carefully in light of the following limitations. First, the study was retrospective and conducted at one hospital. Therefore, the findings may not generalize to all pediatric psychiatric emergency care settings or patient populations. Second, the accuracy of the information about the prior use of mental health services could not be verified. The prior use of mental health services was documented as "yes/no" information. Third, the fact that all residents were trained by different people may have increased variation because of subjective

assessments. Lastly, assessing the subjects without any structured clinical interviews or scales were other limitations.

### Conclusion

The PES can be used by half of the families as a first-line therapy unit and particularly by families with adolescents having mental health problems. The PES seems to serve an important role in the continuum of pediatric mental health care, particularly for youths with homicide/violence toward others, and to be a point of access to mental health care, particularly for youths with anxiety symptoms and somatic complaints. Also, presenting with high percentages of suicidal tendencies and behavior problems make the PES a major place of treatment for these problems and to prevent suicide. With respect to the PES, factors outside the psychiatric setting and insurance may be more important. Further studies are needed to better understand the role of the PES in the course of the mental healthcare.

**Ethics Committee Approval:** Ethics committee approval was not received for this study from the ethics committee because of retrospective design.

**Informed Consent:** Due to the retrospective nature of this study, informed consent was not obtained.

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

### References

- Williams JR, Ho ML, Grupp-Phelan J. The acceptability of mental health screening in a pediatric emergency department. *Pediatr Emerg Care* 2011; 27: 611-5. [\[CrossRef\]](#)
- Grupp-Phelan J, Harman JS, Kelleher KJ. Trends in mental health and chronic condition visits by children presenting for care at U.S. emergency departments. *Public Health Rep* 2007; 122: 55-61.
- World Health Organization. Atlas: child and adolescent mental health resources: global concerns: implications for the future. Geneva: World Health Organization; 2005.
- Cawthorpe D, Wilkes TC, Rahman A, Smith DH, Conner-Spady B, McGurran JJ, et al. Priority-setting for children's mental health: clinical usefulness and validity of priority criteria score. *J Can Acad Child Adolesc Psychiatry* 2007; 16: 18-26.
- Stephenson J. Children with mental problems not getting the care they need. *JAMA* 2000; 284: 2043-4. [\[CrossRef\]](#)
- Sayal K. Annotation: Pathways to care for children with mental health problems. *J Child Psychol Psychiatry* 2006; 47: 649-59. [\[CrossRef\]](#)
- Newton AS, Ali S, Johnson DW, Haines C, Rosychuk RJ, Keaschuk RA, et al. Who comes back? Characteristics and predictors of return to emergency department services for pediatric mental health care. *Acad Emerg Med* 2010; 17: 177-86. [\[CrossRef\]](#)
- Kennedy A, Cloutier P, Glennie JE, Gray C. Establishing best practice in pediatric emergency mental health: a prospective study examining clinical characteristics. *Pediatr Emerg Care* 2009; 25: 380-6. [\[CrossRef\]](#)
- Lee J, Korczak D. Emergency physician referrals to the pediatric crisis clinic: reasons for referral, diagnosis and disposition. *J Can Acad Child Adolesc Psychiatry* 2010; 19: 297-302.

10. Sills MR, Bland SD. Summary statistics for pediatric psychiatric visits to US emergency departments, 1993-1999. *Pediatrics* 2002; 110: e40. [\[CrossRef\]](#)
11. Newton AS, Ali S, Johnson DW, Haines C, Rosychuk RJ, Keaschuk RA, et al. A 4-year review of pediatric mental health emergencies in Alberta. *CJEM* 2009; 11: 447-54.
12. Cloutier P, Kennedy A, Maysenhoelder H, Glennie EJ, Cappelli M, Gray C. Pediatric mental health concerns in the emergency department: caregiver and youth perceptions and expectations. *Pediatr Emerg Care* 2010; 26: 99-106. [\[CrossRef\]](#)
13. Matsu CR, Goebert D, Chung-Do JJ, Carlton B, Sugimoto-Matsuda J, Nishimura S. Disparities in psychiatric emergency department visits among youth in Hawai'i, 2000-2010. *J Pediatr* 2013; 162: 618-23. [\[CrossRef\]](#)
14. Janssens A, Hayen S, Walraven V, Leys M, Deboutte D. Emergency psychiatric care for children and adolescents: a literature review. *Pediatr Emerg Care* 2013; 29: 1041-50. [\[CrossRef\]](#)
15. Pittsenbarger ZE, Mannix R. Trends in pediatric visits to the emergency department for psychiatric illnesses. *Acad Emerg Med* 2014; 21: 25-30. [\[CrossRef\]](#)
16. Gökçen C, Köylü R. Evaluation of cases under 18 years admitted for attempted suicide to the emergency service and transferred to the psychosocial support unit. *Eurasian J Emerg Med* 2011; 10: 18-21.
17. Toklucu MÖ, Akova S, Aydoğdu S, Yazar AS, Kul M. Demographic features of suicide attempt cases applied to umraniye education and research hospital pediatric emergency department between 2010 and 2012. *JOPP Derg* 2012; 4: 119-23. [\[CrossRef\]](#)
18. American Psychiatric Association. Diagnostic and statistical manual of mental disorders, DSM-IV, 4th ed. Washington, DC: American Psychiatric Association, 1994.
19. Way BB, Allen MH, Mumpower JL, Stewart TR, Banks SM. Interrater agreement among psychiatrists in psychiatric emergency assessments. *Am J Psychiatry* 1998; 155: 1423-8. [\[CrossRef\]](#)
20. Santiago LI, Tunik MG, Foltin GL, Mojica MA. Children requiring psychiatric consultation in the pediatric emergency department: epidemiology, resource utilization, and complications. *Pediatr Emerg Care* 2006; 22: 85-9. [\[CrossRef\]](#)
21. Cuypers PJ, Danckaerts M, Sabbe M, Demyttenaere K, Bruffaerts R. The paediatric psychiatric emergency population in a university teaching hospital in Belgium (2003-2008). *Eur J Emerg Med* 2014; 21: 384-6. [\[CrossRef\]](#)
22. Frosch E, McCulloch J, Yoon Y, DosReis S. Pediatric emergency consultations: prior mental health service use in suicide attempters. *J Behav Health Serv Res* 2011; 38: 68-79. [\[CrossRef\]](#)
23. Mansbach JM, Wharff E, Austin SB, Ginnis K, Woods ER. Which psychiatric patients board on the medical service? *Pediatrics* 2003; 111: E693-8. [\[CrossRef\]](#)
24. Stewart C, Spicer M, Babl FE. Caring for adolescents with mental health problems: challenges in the emergency department. *J Paediatr Child Health* 2006; 42: 726-30. [\[CrossRef\]](#)
25. Healy E, Saha S, Subotsky F, Fombonne E. Emergency presentations to an inner-city adolescent psychiatric service. *J Adolesc* 2002; 25: 397-404. [\[CrossRef\]](#)
26. Larkin GL, Beautrais AL. Emergency departments are underutilized sites for suicide prevention. *Crisis* 2010; 31: 1-6. [\[CrossRef\]](#)
27. Goldstein AB, Silverman MA, Phillips S, Lichenstein R. Mental health visits in a pediatric emergency department and their relationship to the school calendar. *Pediatr Emerg Care* 2005; 21: 653-7. [\[CrossRef\]](#)
28. Peterson BS, Zhang H, Santa Lucia R, King RA, Lewis M. Risk factors for presenting problems in child psychiatric emergencies. *J Am Acad Child Adolesc Psychiatry* 1996; 35: 1162-73. [\[CrossRef\]](#)
29. Grupp-Phelan J, Mahajan P, Foltin GL, Jacobs E, Tunik M, Sonnett M, et al. Referral and resource use patterns for psychiatric-related visits to pediatric emergency departments. *Pediatr Emerg Care* 2009; 25: 217-20. [\[CrossRef\]](#)
30. Frosch E, dosReis S, Maloney K. Connections to outpatient mental health care of youths with repeat emergency department visits for psychiatric crises. *Psychiatr Serv* 2011; 62: 646-9. [\[CrossRef\]](#)
31. Snowden LR, Masland MC, Libby AM, Wallace N, Fawley K. Racial/ethnic minority children's use of psychiatric emergency care in California's Public Mental Health System. *Am J Public Health* 2008; 98: 118-24. [\[CrossRef\]](#)
32. Mahajan P, Alpern ER, Grupp-Phelan J, Chamberlain J, Dong L, Holubkov R, et al. Epidemiology of psychiatric-related visits to emergency departments in a multicenter collaborative research pediatric network. *Pediatr Emerg Care* 2009; 25: 715-20. [\[CrossRef\]](#)
33. Huffman LC, Wang NE, Saynina O, Wren FJ, Wise PH, Horwitz SM. Predictors of hospitalization after an emergency department visit for California youths with psychiatric disorders. *Psychiatr Serv* 2012; 63: 896-905. [\[CrossRef\]](#)
34. Christodulu KV, Lichenstein R, Weist MD, Shafer ME, Simone M. Psychiatric emergencies in children. *Pediatr Emerg Care* 2002; 18: 268-70. [\[CrossRef\]](#)
35. Waseem M, Prasankumar R, Pagan K, Leber M. A retrospective look at length of stay for pediatric psychiatric patients in an urban emergency department. *Pediatr Emerg Care* 2011; 27: 170-3. [\[CrossRef\]](#)
36. Wharff EA, Ginnis KB, Ross AM, Blood EA. Predictors of psychiatric boarding in the pediatric emergency department: implications for emergency care. *Pediatr Emerg Care* 2011; 27: 483-9. [\[CrossRef\]](#)