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RESEARCH

The impact of life events on child and adolescent psychiatry consultations

Yaşam olaylarının çocuk ve ergen psikiyatrisi konsültasyonlarına etkisi

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Abstract

Purpose: Children are exposed to many adverse life events, and this may cause psychiatric disorders. In this study, we aimed to investigate the effects of two different life events, the COVID-19 pandemic and the earthquake, on the consultations requested.

Materials and Methods: 1268 consultations requested from the child and adolescent psychiatry department between March 2019 and March 2023 were reviewed from hospital records. The specified period was divided into four distinct parts with one-year intervals: pre-pandemic, the first year of the pandemic, the second year of the pandemic, and post-pandemic. The age, gender, diagnoses of the cases, the department requesting consultation and the reason for consultation were recorded.

Results: There were statistically significant differences between periods in terms of departments requested consultation, consultation reasons, and diagnoses. Compared to previous periods, a decrease was found in pediatric emergency and general pediatric clinic consultations in the post-pandemic period. In contrast, an increase was seen in nephrology and intensive care unit department consultations because of earthquakes. In the first year of the pandemic, more consultations were requested from the hematology & oncology department compared to other years. While the rate of consultations requested for suicide attempts decreased in the post-pandemic period, consultations for psychiatric assessment increased.

Conclusion: Consultation-liaison psychiatry, which is at the center of interdisciplinary interaction, maintains its importance in the prevention and early diagnosis of psychological symptoms that can develop due to both organic events and the effect of trauma itself after the life events.

Keywords:. COVID-19, pandemic, earthquake, consultation, psychiatry

Öz

Amaç: Çocuk ve ergenler pek çok olumsuz yaşam olayına maruz kalmakta ve bu durum psikiyatrik bozukluklara neden olabilmektedir. Bu çalışmada, iki farklı yaşam olayının (COVID-19 pandemisi ve deprem) istenen konsültasyonlara etkisinin araştırılmasını amaçladık.

Gereç ve Yöntem: Mart 2019 ile Mart 2023 tarihleri arasında çocuk ve ergen psikiyatrisi bölümünden istenen 1268 konsültasyon hastane kayıtlarından tarandı. Belirlenen zaman dilimi bir yıllık aralıklarla pandemi öncesi, pandeminin ilk yılı, pandeminin ikinci yılı ve pandemi sonrası olmak üzere dört farklı döneme ayrıldı. Olguların yaşı, cinsiyeti, tanıları, konsültasyon isteyen bölüm ve konsültasyon nedeni kaydedildi.

Bulgular: Konsültasyon isteyen bölümler, konsültasyon nedenleri ve tanılar açısından dönemler arasında istatistiksel açıdan anlamlı farklılık vardı. Pandemi sonrası dönemde önceki dönemlere göre çocuk acil ve genel pediatri servislerinden istenen konsültasyonlarda azalma görülürken, deprem nedeniyle nefroloji servisi ve yoğun bakım ünitesinden talep edilen konsültasyonlarda artış tespit edildi. Pandeminin ilk yılında hematoloji&onkoloji bölümünden diğer yıllara göre daha fazla konsültasyon istendi. Pandemi sonrası dönemde intihar girişimi nedeniyle talep edilen konsültasyonların oranı azalırken, psikiyatrik değerlendirme için istenen konsültasyonların oranı arttı.

Sonuç: Disiplinler arası etkileşimin merkezinde yer alan konsültasyon-liyezon psikiyatrisi, yaşam olayları sonrasında hem organik olaylara hem de bizzat travmanın etkisine bağlı olarak gelişebilecek psikolojik belirtilerin önlenmesi ve erken tanısında önemini korumaktadır.

Anahtar kelimeler: COVID-19, pandemi, deprem, konsültasyon, psikiyatri

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INTRODUCTION

Adverse life events include situations related to health problems, academic stress, adjustment problems, interpersonal relationships, and other stressors[1]. Children are exposed to many stressors that are caused by humans, like wars or are not under the control of humans, like natural disasters such as floods, earthquakes, fires, and pandemics due to infectious agents and the measures taken as a result. After these adverse life events, many psychiatric symptoms and disorders may occur in children and adolescents, who are the most psychologically sensitive group.

The coronavirus disease 2019 (COVID-19) pandemic, one of these situations, caused multiple stressors, such as restrictions and school closures. Although these restrictions were imposed periodically depending on the intensity of the pandemic in the countries, they left harmful traces on developing children and adolescents. It led to deteriorations in the mental health of young people, whether they had preexisting mental health conditions or not[2]. Diagnoses like major depressive disorder (MDD), anxiety disorder, stress-related disorders, somatic symptoms, and sleep and behavioral problems have increased in children and adolescents[3-7]. As well as pandemics, psychiatric symptoms may develop in children and adolescents after earthquakes, which is another critical and traumatic life event. Trauma and stressor-related disorders, especially post-traumatic stress disorder (PTSD), MDD, anxiety disorders, and sleep and behavioral problems, are common after earthquakes[8-10]. After the 2011 Van earthquake, 40.69% of children and adolescents reported severe PTSD symptoms, 37.70% met depression criteria, 36.73% exhibited dissociative symptoms, and 53.04% had a risk for developing anxiety-related disorder[11]. Approximately 22% and 16% of primary school children showed problematic behavior in the year of the disaster and the year after, respectively[12].

Child psychiatrists not only examine patients who apply to the outpatient clinic but also respond to consultations requested from many departments for various reasons. Child psychiatry consultations requested from emergency departments are primarily due to aggression in children[13]. Suicidal ideation and attempts have an essential place in emergency admissions in adolescents[14]. During the COVID-19 pandemic, there were changes in the work of child and adolescent psychiatry departments. Child psychiatry outpatient clinic admissions decreased compared to the previous year[15] Due to the measures taken, especially in the early periods of the pandemic, the number of actively working child psychiatry outpatient clinics decreased due to the decrease in non-urgent health services, flexible working and hospital staff being employed mainly in COVID-19 departments. This situation directed patients with mental complaints to emergency services. However, psychological symptoms developed in children and adolescents who were hospitalized during the pandemic[16]. Compulsory hospitalization in departments such as neurology, hematology & oncology and intensive care unit, long-term hospitalization, and the fear of COVID-19 contamination may have caused this. Disasters such as earthquakes are one of the reasons for the increase in hospital admissions and psychiatric evaluations due to various psychological symptoms in some cases. In children and adolescents who applied to the emergency department for five months after the earthquake in Mexico and required long-term treatment, acute stress disorder (ASD) was found in 68.9%, PTSD in 24.4% and anxiety disorder in 15.6%[17].

According to the current literature, psychological symptoms and psychiatric disorders can be observed in children and adolescents after both pandemics and earthquakes. The purpose of this study was to examine the effects of two different life events on child psychiatry consultations. When the literature was reviewed, there was no research evaluating the impact of these two adverse life events on consultations together. Primarily, it was aimed to examine the changes in consultations requested from the child psychiatry department before, during and after the pandemic. At the same time, the effect of the earthquakes centered in Kahramanmaraş, which is remarkably close to the center where the study was conducted, on the consultations was also assessed. Due to the decrease in child psychiatry outpatient clinic services, we expect the number of consultations requested from the emergency department to increase during pandemic periods compared to before the pandemic and decrease again in the post-pandemic period. Second, since the post-pandemic period covers the first month after the earthquake, we expect an increase in the number of consultations requested from the nephrology department and

intensive care units and the diagnosis of ASD compared to previous periods.

MATERIALS AND METHODS

Study design

The study was conducted at the Department of Child and Adolescent Psychiatry of Erciyes University School of Medicine. Our outpatient clinic is one of two different outpatient clinics in the city with a population of over one million. Consultations can be requested from all hospital departments, especially the university's children's hospital. Children are evaluated with a detailed clinical interview, according to the Diagnostic and Statistical Manual of Mental Disorders (DSM)-5, by three child and adolescent psychiatrists with residents. The Ankara Developmental Screening Inventory is administered to evaluate the child's development, and the Wechsler Intelligence Scale for Children-Revised is used to measure intelligence. In addition to the clinical interview, Atilla Turgay DSM-IV Based Child and Adolescent Disruptive Behaviour Disorders Rating Scale, Conners' Parent Rating Scale, and Conners' Teacher Rating Scale are used for attention-deficit hyperactivity disorder diagnosis, Childhood Autism Rating Scale and Autism Behavior Checklist for autism spectrum disorder diagnosis, Screen for Child Anxiety Related Emotional Disorders for anxiety disorders, and Children's Depression Inventory for MDD are other scales used in addition to the clinical interview. Kiddie-Schedule for Affective Disorders and Schizophrenia, Present and Lifetime Version could also be used.

Interviews with the children and their parents included in this study were conducted by child and adolescent psychiatrists and residents in their final year of training. Since the study aimed to investigate the impact of the pandemic, the consultations were examined by dividing them into four different periods. The first COVID-19 case in our country was seen in March 2020, and the restrictions were removed in March 2022. For this reason, four distinct groups were created: the pre-pandemic period between March 2019 and March 2020, the first year of the pandemic between March 2020 and March 2021, the second year of the pandemic between March 2021 and March 2022, and the post-pandemic period between March 2022 and March 2023. Age, gender, requesting department, reason for consultation written in the consultation text, and DSM-5 diagnoses of the cases were recorded using electronic hospital records. Electronic patient records contain all socio-demographic data, detailed medical history information, and test results. Ethics approval for this study was obtained from the Erciyes University Ethics Committee (number: 2023/676, date: October 25, 2023). The Ethics Committee waived the requirement for consent.

Sample

This study retrospectively reviewed 1268 consultations requested from the child and adolescent psychiatry department of Erciyes University Faculty of Medicine Hospital between March 2019 and March 2023. Data from cases aged 1-18 in both genders were evaluated, and only consultations requested from inpatient units were included. No exclusions were made because the hospital records of all patients contained sufficient information. So, the study population consisted of 749 girls and 519 boys.

Statistical analysis

Effect size analysis was performed with the Gpower (version 3.1.9.7) package program on the sample; it was found that the required minimum sample size was 395. The conditions determined for the power analysis were an alpha level of 0.05, df 30 and medium effect size. However, more people were reached in the study than the sample size determined for the effect size.

The data was analyzed by the IBM Statistical Program for Social Sciences (IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp). Q–Q plot normality and the Shapiro-Wilk test were used for distribution of the data. Summary statistics of the data were given as mean, standard deviation, percentage (%) and number (n). A comparison of categorical variables was made using Pearson's chi-square test and Fisher's exact test. An independent samples t-test was used to compare the means of two independent groups for normally distributed data. The statistical significance level for all analyses was $p<0.05$.

RESULTS

The study population consisted of 749 girls and 519 boys. There was a significant difference in age between genders. While the mean age of girls was

12.59±4.05, it was 10.64±4.69 for boys. Neurodevelopmental disorders (NDDs) were more common in boys, adjustment disorder, non-suicidal self-injury (NSSI), and conversion disorder (CD) were more common in girls (Table 1). 54% of the included cases did not have any chronic illnesses. 20% of them had epilepsy and other neurological diseases, and 4.2% had type 1 diabetes mellitus. The number of consultations requested increased over the years; 11.8% of the total was asked in the pre-pandemic period, 21.8% in the first year of the pandemic, 30% in the second year, and 36.3% in the post-pandemic period.

Over the years, there was a significant difference in the number of consultations requested from pediatric emergency, general pediatrics, intensive care unit, hematology and oncology, and nephrology departments. In the post-pandemic period, compared to previous periods, a decrease was detected in pediatric emergency and general pediatric clinic consultations, and an increase was found in nephrology and intensive care unit department consultations. In the pre-pandemic period, 19.3% of the consultations were requested from the pediatric emergency department; this rate was found to be 21.3%, 22.3%, and 14.3% for other years. General pediatrics department consultations were 21.3%, 20.9%, 22.3%, and 13.9%, respectively. It was 4.7%, 1.4%, 2.4%, 8% for the intensive care unit, and 6.7%, 4.7%, 6%, 10.4% for the nephrology department (Table 2). In the first year of the pandemic and post-pandemic period, more consultations were requested from the hematology & oncology department compared to other years (Table 2).

Table 1. Comparison of diagnoses between genders

Diagnoses	**Male n=519 n (%)**	**Female n=749 n (%)**	**p**
Adjustment disorder	66 (12.7)	162 (21.6)	<0.001
NSSI	12 (2.3)	70 (9.3)	
Major depressive disorder	12 (2.3)	27 (3.6)	
Anxiety disorders	29 (5.6)	51 (6.8)	
Neurodevelopmental disorders	95 (18.3)	60 (8)	
Bipolar affective disorder	-	10 (1.3)	
Psychotic disorders	13 (2.5)	12 (1.6)	
Conversion disorder	5 (1)	26 (3.5)	
Acute stress disorder	29 (5.6)	47 (6.3)	
Multiple	34 (6.6)	45 (6)	
None	224 (43.2)	239 (31.9)	

X^2, Fisher's exact test; n: Number, NSSI: Non-suicidal self-injury

Table 2. Comparison of departments requesting consultation between years

Departments	**Pre-pandemic n=150 n (%)**	**Pandemic (first year) n=277 n (%)**	**Pandemic (second year) n=381 n (%)**	**Post-pandemic n=460 n (%)**	**p**
Neurology	49 (32.7)	87 (31.4)	130 (34.1)	128 (27.8)	<0.001
Pediatric emergency	29 (19.3)	59 (21.3)	85 (22.3)	66 (14.3)	
General pediatrics clinics	32 (21.3)	58 (20.9)	85 (22.3)	64 (13.9)	
Infectious diseases	6 (4)	5 (1.8)	9 (2.4)	12 (2.6)	
Emergency department	3 (2)	3 (1.1)	5 (1.3)	10 (2.2)	
Intensive care unit	7 (4.7)	4 (1.4)	9 (2.4)	37 (8)	
Hematology&Oncology	4 (2.7)	29 (10.5)	13 (3.4)	44 (9.6)	
Nephrology	10 (6.7)	13 (4.7)	23 (6)	48 (10.4)	
Pediatric surgery	5 (3.3)	8 (2.9)	7 (1.8)	16 (3.5)	
Others	5 (3.3)	11 (4)	15 (3.9)	35 (7.6)	

X^2, n: Number

There was also a significant difference in the reasons for consultation (suicide attempt, psychiatric evaluation, and differential diagnosis) between years. While the rate of consultations requested for suicide attempts decreased in the post-pandemic period, consultations requested for psychiatric assessment increased. The consultation reason was a suicide attempt in 19.3% of the pre-pandemic period, and it was 15.9%, 16.8%, and 10% for other years, respectively. These rates were 43.3%, 55.2%, 50.9%, and 56.3% for psychiatric evaluation (Table 3). For differential diagnosis, consultations were requested at least in the first year of the pandemic, and the rates were 19.3%, 7.6%, 11.3%, and 10.9%, respectively (Table 3).

Table 3. Distribution of reasons for requesting consultation by years

Reason for consultations	Pre-pandemic n=150 n (%)	Pandemic (first year) n=277 n (%)	Pandemic (second year) n=381 n (%)	Post-pandemic n=460 n (%)	p
Suicide attempt	29 (19.3)	44 (15.9)	64 (16.8)	46 (10)	<0.001
Psychiatric evaluation	65 (43.3)	153 (55.2)	194 (50.9)	259 (56.3)	
Aggression	14 (9.3)	31 (11.2)	33 (8.7)	57 (12.4)	
Child abuse	4 (2.7)	4 (1.4)	4 (1)	2 (0.4)	
Treatment noncompliance	4 (2.7)	18 (6.5)	25 (6.6)	20 (4.3)	
Differential diagnosis	29 (19.3)	21 (7.6)	43 (11.3)	50 (10.9)	
Side effects pre-op evaluation	3 (2)	6 (2.2)	16 (4.2)	21 (4.6)	
Suicide ideation	2 (1.3)	-	2 (0.5)	5 (1.1)	

X^2, Fisher's exact test, n: Number

Also, significant differences were found in the number of patients with bipolar affective disorder (BAD), CD, and ASD when the distribution of diagnoses by years was examined. BAD and CD were seen at the lowest rates in the post-pandemic period. BAD was observed in 2.7% of patients in the pre-pandemic period, and this rate was found to be 0.7%, 0.8%, and 0.2% in other years. These rates for CD were 6.7%, 3.2%, 2.4% and 0.7%, respectively. However, the diagnosis of ASD increased proportionally in this period. The rates were 0.7%, 1.1%, 1.8% and 14.1%, respectively (Table 4 and Figure 1).

Table 4. Comparison of diagnoses determined in the consultation evaluation before, during, and after the COVID-19 pandemic

Diagnoses	Pre-pandemic n=150 n (%) 150	Pandemic (first year) n=277 n (%)	Pandemic (second year) n=381 n (%)	Post-pandemic n=460 n (%)	p
Adjustment disorder	30 (20)	47 (17)	62 (16.3)	89 (19.3)	<0.001
NSSI	10 (6.7)	19 (6.9)	32 (8.4)	21 (4.6)	
Major depressive disorder	2 (1.3)	6 (2.2)	15 (3.9)	16 (3.5)	
Anxiety disorders	12 (8)	16 (5.8)	27 (7.1)	25 (5.4)	
Neurodevelopmental disorders	17 (11.3)	30 (10.8)	46 (12.1)	62 (13.5)	
Bipolar affective disorder	4 (2.7)	2 (0.7)	3 (0.8)	1 (0.2)	
Psychotic disorders	3 (2)	8 (2.9)	8 (2.1)	6 (1.3)	
Conversion disorder	10 (6.7)	9 (3.2)	9 (2.4)	3 (0.7)	
Acute stress disorder	1 (0.7)	3 (1.1)	7 (1.8)	65 (14.1)	
Multiple	4 (2.7)	17 (6.1)	32 (8.4)	26 (5.7)	
None	57 (38)	120 (43.3)	140 (36.7)	146 (31.7)	

X^2, n: Number, NSSI: Non-suicidal self-injury

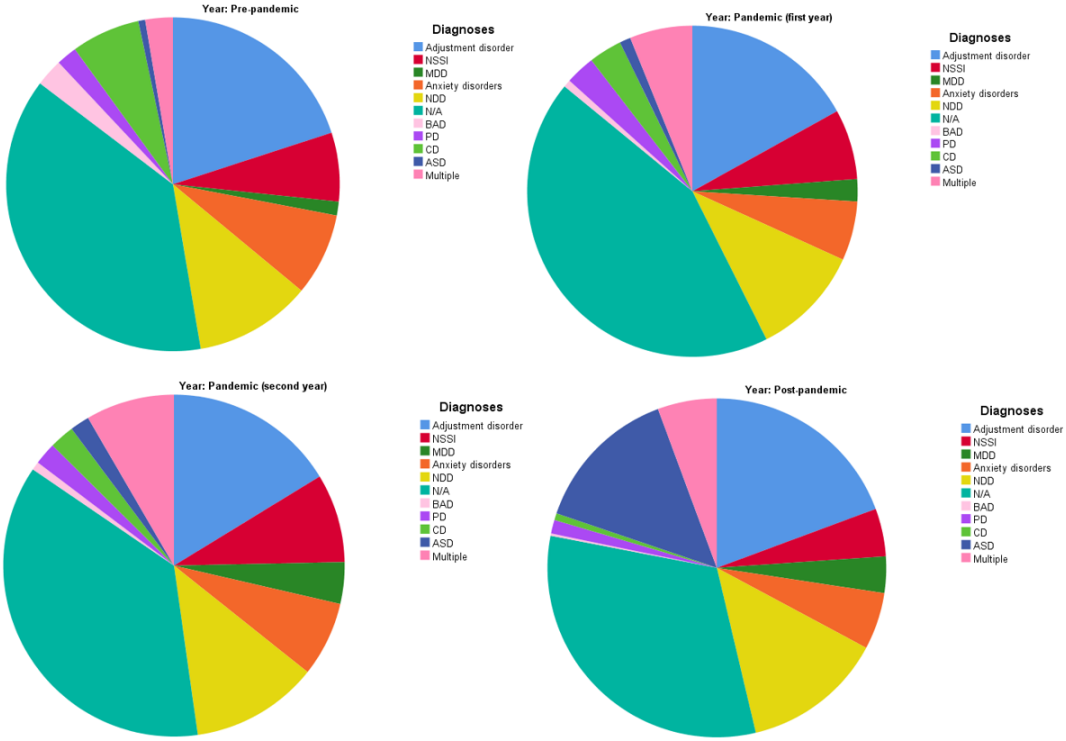

Figure 1. Distribution of diagnoses in four different time periods

ASD: Acute stress disorder, BAD: Bipolar affective disorder, CD: Conversion disorder, MDD: Major depressive disorder, N/A: Not available (children without psychiatric diagnosis), NDD: Neurodevelopmental disorders, NSSI: Non-suicidal self-injury, PD: Psychotic disorders

DISCUSSION

This study examined consultations requested from child and adolescent psychiatry department before the pandemic, two years of the pandemic, and during the post-pandemic period. The difference between the departments requesting consultation and the reasons for consultation between years are essential in terms of the impact of the pandemic on child psychiatry consultations. In addition, the Kahramanmaraş earthquakes on February 6, 2023, which were within the scope of the post-pandemic period, also affected the consultations.

There was a significant difference between the mean ages of the male and female cases included in the study. The average age of girls was significantly higher. The reason for this is that, as can be seen in Table 1, NDD, which are diagnosed at early ages, were more common in boys, and conditions such as adjustment disorder, CD, BAD, and NSSI were more common in girls, consistent with the literature[18-21].

There was an increase in the number of consultations requested over the years. Although the use of child emergency services decreased by approximately 50% in the early periods of the quarantine[22], it is thought that this was because patients mostly applied to pediatric departments and sought consultation from these departments, especially in the first year of the pandemic, due to the closure of outpatient clinics, as well as an increase in mental illnesses due to the pandemic effect in the following years.

Data in the literature support these findings. Child psychiatry outpatient clinic admissions decreased compared to the previous year during the pandemic[15]. The proportion of children's mental health-related emergency visits among all pediatric emergency visits increased beginning in April 2020 and remained high through October. Compared to 2019, the rate of mental health-related visits for children aged 12-17 and 5-11 increased by approximately 31% and 24%, respectively[23]. Temporary decreases in all mental health examinations were detected during the

quarantine in the spring of 2020. In autumn 2020 and winter 2021, consultation requests in primary care increased and continued at a higher level in 2021. Consultations in specialist care have increased since the spring of 2021[24]. In another study, the number and rate of pediatric patients receiving psychiatry and psychology consultations increased during the pandemic. Participants also became proportionally older and female. The study group was more likely to need antipsychotics during the pandemic[25].

The decrease in consultations requested from pediatric emergency and general pediatric departments in the post-pandemic suggests that patients are more likely to apply to child psychiatry outpatient clinics. Again, the increase in consultations requested from the intensive care unit and nephrology department during this period is related to the crush syndrome that developed after the earthquake, the growing need for dialysis, multiple fractures, and other underlying reasons. A nine-year-old girl, who was consulted from the anesthesia intensive care unit on the 12th day of the earthquake, lost her father in the earthquake and was trapped under the rubble for 11 hours. Following the amputation of both legs, she had impaired consciousness, visual hallucinations, agitation, and disorientation that became evident in the evening hours. These symptoms related to delirium improved with haloperidol 0.5 mg/day, and she was later diagnosed with ASD due to re-experiencing the event, inability to remember certain aspects, irritability, crying, inability to sleep at night, alertness, and anxiety symptoms.

The compulsory hospitalization of children and adolescents, being away from their relatives due to quarantine, and the fear of COVID-19 can be associated with the high number of consultations requested from the haematology and oncology clinic in the first year of the pandemic. Anxiety scores were found to be higher in pediatric haematology and oncology patients receiving chemotherapy than in those dependent on transfusion. Additionally, anxiety scores were found to be higher in those who were aware of the pandemic than in those who were not[26]. Children and adolescents with malignancy were more likely to experience anxiety due to COVID-19 infection compared to general population estimates[27]. In our study sample, an 11-year-old female patient who was treated in this clinic was diagnosed with T-cell lymphoblastic lymphoma in the first month of the pandemic. She was consulted in the second month of hospitalization with symptoms of not wanting to separate from her father, sadness, concerns about the disease, extreme intolerance to health-related issues, irritability, and insomnia. She was diagnosed with adjustment disorder after the psychiatric examination and treated with fluoxetine 10 mg/day.

Compared to other years, it is seen that the number of consultations requested due to suicide attempts decreased in the post-pandemic period. Admissions to a pediatric emergency department were examined, and it was found that suicide attempts reached the maximum level in 2021, showing a more significant increase compared to the previous year. This condition has been associated with the COVID-19 pandemic[28]. Visits for self-harm or suicide increased 6.69% during the pandemic[29]. In these studies, suicide attempts during the pandemic period were examined, and in our research, the decrease in the number of consultations requested due to suicide attempts in the post-pandemic period may be related to the fact that patients could more easily apply to the outpatient clinics during this period, had easy access to their medications, and had regular follow-ups. The increase in consultations requested for psychiatric evaluation in the post-pandemic period may be associated with the ongoing impact of adverse events experienced during the pandemic period on mental health.

It is seen that BAD and CD diagnoses decreased, and ASD increased in the post-pandemic period compared to other years. The number of patients diagnosed with BAD in our study is limited in interpreting this result, and it needs to be investigated in a larger population to detect the pandemic effect. The decrease associated with CD may be related to the individual's focus on his/her environment rather than his/her body due to the decline of COVID-19 and changes in daily life issues. The increase in ASD diagnoses was because the earthquake was felt strongly in the study center, which is 250 and 300 km away from the epicenters of the earthquakes, dated February 6, 2023, respectively, and the study center received many referrals from earthquake centers. For example, a 16-year-old female patient whom the orthopedic clinic consulted on the fourth day of the earthquake remained under the rubble for eight hours, and her psychological symptoms began during this period. There was irritability, fear, re-experiencing, alertness, crying, not wanting to be alone, feeling like dying, and difficulty falling asleep.

The limitations of this research include the retrospective nature of the study and the possibility that some comorbid conditions may have been missed, especially since rapid evaluation was required in the pediatric emergency department. Also, no semi-structured interview was used to diagnose every patient. Another limitation was that only the cases admitted after the earthquakes in the last month of the post-pandemic period were included; thus, the pandemic and the post-earthquake period were analyzed together.

In conclusion, after events affecting children and adolescents, child and adolescent psychiatrists sometimes provide consultation-liaison psychiatry services rather than outpatient services. During these periods, knowing the reasons for seeking consultation, patient profiles, and differences in psychiatric diagnoses is vital for both the development of preventive approaches and maintaining mental health services without disruption. At the same time, longitudinal studies can be conducted in the future to evaluate psychiatric symptoms and their predictors associated with trauma in children who are assessed by consultation examination and found to have mental disorders related to adverse life events.

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