ORIGINAL ARTICLE

Psychiatry and Clinical Psychopharmacology 2022;32(2):140-148
DOI:10.5152/pcp.2022.21335

Child and Adolescent Psychiatry Outpatient Clinic Referrals During Covid-19 Pandemic in Turkey

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ABSTRACT

Background: The objective of the current study was to assess how the coronavirus disease 2019 pandemic has affected mental health services compared to the same period of the year before the pandemic.

Methods: The data in the study were retrieved from the databases of the computer systems of the hospitals. All referrals in the child psychiatry outpatient clinic between March 1 and June 30, 2019, and between March 1 and June 30, 2020, constituted the sample.

Results: Of the 3110 referrals, 2246 were cases and 864 were repeating examinations. Of the 2246 cases, 70.5% (n=1583) were admitted in 2019, while 29.5% (n=663) were admitted in 2020. Of the cases who referred in 2019, 37.3% (n=590) were female, while this rate was 43.9% (n=291) in 2020. The mean age of 2019 cases was found to be 9.51 ± 4.17, while the mean age of 2020 cases was found to be 10.39 ± 4.06. While attention-deficit hyperactivity disorder, oppositional defiant disorder, conduct disorder, depressive disorder, panic disorder, school refusal, and sleep disorder rates increased significantly, specific learning disorders and mental retardation rates were found to be on the decrease in 2020. In 2019, 47.6% (n=754) of the cases were followed with medication, and in 2020, this rate increased to 63.2% (n=419).

Conclusion: Pandemic conditions affected the content of public hospital psychiatry referrals significantly. It can be thought that the significant decrease in the number of referrals may be the result of citizens obeying the prohibitions and the fear of disease transmission in families with the onset of the pandemic that precedes the existing psychiatric problems of children.

ARTICLE HISTORY

Received: December 29, 2021
Accepted: June 10, 2022

KEYWORDS: Child psychiatry, referrals, COVID-19 pandemic

INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic emerged in Wuhan, China, in the last months of 2019 and has affected the whole world as of today.[1] The World Health Organization has declared such a large-scale pandemic after a long time.[1] After the declaration of the pandemic, our country has also started to take the necessary measures, just like all the other countries in the world. The first coronavirus case in Turkey was detected on March 10, 2020, and the first death because of the coronavirus was detected on March 15, 2020. As of March 16, 2020, schools have been suspended, and television- and internet-based online education system has been started instead of going on with the formal education. On April 3, 2020, a curfew was imposed on young people under the age of 20, and at least the children with special needs were exempted from this ban.[2] After May 13, 2020, at first, hourly curfews were introduced, and then after June, curfews for young people were ended.[3]

Due to the closure of schools and quarantine measures, the daily routine of children and youth had got disrupted, and they had to face many anxieties and stressors. A study in a community sample showed a link between the quarantine period and anxiety and depressive disorders in children and youth.[4] In a study conducted in the United Kingdom, 83% of young people followed for psychiatric disorders stated that their current condition got worse because of the factors that concern their family health, school closures, loss of routine, and loss of social interaction.[5] In the same study, 26% of young people reported that they could not access mental health support.

An increase was observed in mental health problems in children and youth during the pandemic

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Cite this article as: Yazkan Akgül G, Yıldırım Budak B, Erdoğdu AB, Subaşı B, Yazgan Y. Child and adolescent psychiatry outpatient clinic referrals during covid-19 pandemic in Turkey. *Psychiatry Clin Psychopharmacol.* 2022;32(2):140-148.

process.[6,7] Unfortunately, due to the fact that the whole world was caught unprepared for this process, it was not possible to ensure the working integrity of mental health services. For example, during the pandemic process in our country, some hospitals terminated child and adolescent psychiatry admissions, except for emergency patients. However, as in the 2 hospitals in our study, some hospitals continued to accept patients in a flexible working hour and through the central appointment system. In order to reduce patient admissions to hospitals, the physical presence requirement for refills of prescription drugs with a report was temporarily removed, and refills were allowed directly from the pharmacies. The expiry date of disability documents was extended for 6 months with the aim of reducing the workload and unnecessary patient traffic.[3]

In Turkey, in 2020, online interviews could not be made with patients in public health institutions within the scope of telehealth. For this reason, all interviews continued to be made face-to-face. Some families were afraid of entering the hospital environment due to the high contagiousness of the virus, and a considerable decrease in patient admissions was seen. In a recent study from China, the total number of general outpatient visits dropped to 53% compared to that of the pre-COVID-19 outbreak,[8] while in Germany, the number of emergency psychiatry visits decreased to 59%.[9]

The extent to which childhood mental health services have been affected by COVID-19 is still unclear. Therefore, the objective of the current study was to assess how the COVID-19 pandemic has affected mental health services in 2 major urban public hospitals compared to the same period of the year before the pandemic, that is, 2019. The fact that no remote/telehealth services could be provided as part of the public health services that cover at least 97% of the child psychiatric referrals enables us to make a comparison between pandemic and pre-pandemic periods in terms of referral reason, diagnosis, and treatment patterns among others.

The main research questions of this study are to determine the changes in conditions of the public hospital in the period of March-June 2019-2020 in the following items:

MAIN POINTS

- While the number of coronavirus disease 2019 new cases and death number was increasing, the number of admissions to the child and adolescent psychiatry outpatient clinic was decreased.
- It was found that attention-deficit hyperactivity disorder, oppositional defiant disorder, conduct disorder, depressive disorder, panic disorder, school refusal, and sleep disorder increased significantly in 2020 when compared with the previous year.
- In 2019, 47.6% (n = 754) of the cases were followed with medication, while follow-up with medication rate increased to 63.2% (n = 419) in 2020.

1. The number of admissions and cases examined monthly,
2. Socio-demographic data of the patients (age, sex),
3. Referral status (index or chronic case,)
4. Goal of referral (psychiatric assessment and diagnosis, prescription management, forensic case, disability documentation, etc.),
5. Clinical diagnosis (Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5) based interview),
6. Treatment status (with or without medications).

METHODS

Study Design

The research was carried out in 2 public general hospital settings (Tekirdağ State Hospital and Medeniyet University Göztepe Training and Research Hospital). All charts of the patients who were admitted to the child and adolescent psychiatry (CAP) outpatient clinics between March 1 and June 30, 2020, and between March 1 and June 30, 2019, were included in the study. Data were retrieved from the hospital's electronic records system. Both hospitals serve to large catchment areas of low and low average socioeconomic status. Public hospitals are almost free of charge, and both hospitals are at easily accessible locations.

During the pandemic, the patients who had an appointment at the hospital admissions were screened by a triage nurse at the hospital entrance for coronavirus, and in case of a suspicious sign, those patients were directed to the pandemic outpatient clinics. Patients were interviewed by paying attention to the social distancing rules and mask precautions.

The data in the study were retrieved from the databases of the computer systems of the hospitals. All referrals in the child psychiatry outpatient clinic between March 1 and June 30, 2019, and between March 1 and June 30, 2020, constituted the sample. There was no difference between the 2 hospitals' sample in terms of gender and age ($P < .188$ and $P < .164$, respectively). The results of the outpatient admissions in 2 public hospitals were compared as a single group. Socio-demographic data such as age and gender, reasons for applying to the outpatient clinic, distribution of clinical diagnoses, and treatment methods used were obtained by examining the patients' files registered in the database in detail.

In those 2 public hospitals, the data of 2183 applicants with a mean age of 9.17 ± 3.99 years who applied to the child psychiatry outpatient clinic between March and June 2019 and 927 applications with a mean age of 10.66 ± 3.99 years who applied between March and June 2020 were evaluated within the scope of the study.

We contrasted these 2 groups of 2019 and 2020 on the following parameters: number of admissions, reasons for referrals, clinical diagnoses, treatment status, and medication types. Since a case had more than 1 admission (referral), it was determined how many separate cases were in the applications, and the analyses were made on the number of cases rather than admissions. As a result, although the number of admissions may be different, the same patient was defined as "a case." The patients who applied were also examined under 2 subheadings including the new and chronic cases. Children and adolescents who did not have any psychiatric outpatient admissions in the last year and who did not have any ongoing psychiatric treatment were classified as new (index) cases, whereas those who had 2 or more applications for any reason were considered as chronic cases.

In an exploratory analysis to understand the impact of the pandemic, we investigated the associations between the number of admissions and the official number of COVID cases and COVID-related deaths that were announced to public daily. The number of daily COVID new cases was divided by 100 and reflected on the chart. Coronavirus disease case and death numbers were obtained from the official website of Turkish Ministry of Health.

The reasons for referrals to the outpatient clinic were psychiatric examination, prescription management, psychiatric examination for documentation of need for long-term prescription or individualized educational planning *(this group can be treated as "routine mental health visit" with documentation of the need or privilege)*, forensic case (such as abuse victims, eligibility for trial, etc.), referred by the juvenile courts for compulsory treatment *(in order to secure child's treatment regardless of parents' will)*, and disability documentation for psych opathology/neurodevelopmental disorders.

The diagnostic evaluations of the patients were classified according to the DSM-5 system.[10] Regarding the DSM-5, some of the applications in the group, such as toilet training and sibling jealousy, are classified as counseling services since they are not considered to be a disorder but still require clinical attention and mostly include single interviews, and "school refusal" was also added as an important clinical condition. Medication use cases were compared as a result of classification of drugs as anti-atten tion-deficit disorder (methylphenidate and atomoxetine), antidepressants (mainly Selective Serotonine Reuptake inhibitors "(SSRIs)"), mood stabilizers (lithium, valproic acid, carbamazepine, and lamotrigine), atypical antipsychotics (risperidone, aripiprazole, quetiapine, olanzapine, clozapine, etc.) and typical antipsychotic (mainly haloperidole). Supportive psychotherapy and developmental follow-up were performed in children and adolescents who were decided to be followed without medication.

The study was approved by Tekirdağ Namık Kemal University School of Medicine Ethics Committee with protocol number 2020.170.07.03.

Statistical analysis

Statistical analyses were performed by using Statistical Package for the Social Sciences software v20.0. Descriptive statistics were shown as mean ± standard deviation or frequency (%). The Pearson's Chi-square was applied to categorical variables when comparing psychiatric diagnosis, psychotic medications, and reasons for referral. Student's *t*-tests were used to analyze differences in continuous variables. The Fisher's exact test was applied for proportions. Odds ratio (OR) values of psychiatric diagnosis were calculated by multinominal logistic regression analysis when adjusting for age and sex, and OR values of referral reasons were calculated by the Mantel–Haenszel chi-square test when controlling for categorical variables such as sex. The results are presented as an OR with a CI of 95%. Pearson's correlation coefficients were applied for the relationship between the number of admissions in both years and the number of COVID-19 new cases/death number. The significance level was established as $\alpha = 0.05$

RESULTS

In our study, a total of 3110 referrals between March and June 2019 (2183) and between March and June 2020 (927) were evaluated. Of the 3110 referrals, 2246 were "cases," and 864 were repeating examinations. Of the 2246 cases, 70.5% (n = 1583) were admitted in 2019, while 29.5% (n = 663) were admitted in 2020 ($P < .001$). Of the cases who referred in 2019, 37.3% (n = 590) were female, while this rate was 43.9% (n = 291) in 2020 ($P = .003$). While no difference was found in gender between the years in new cases ($P = .486$), there were more females in chronic cases in 2020 when compared with 2019 ($P < .001$). No difference was found between months in this increase in the admission of chronic cases in females ($P = .928$). The mean age of 2019 cases was found to be 9.51 ± 4.17 years, while the mean age of 2020 cases was found to be 10.39 ± 4.06 years ($P < .001$). It was found that 74.3% (n = 1668) of the cases had referred once, while the rest had referred twice and more. Of the referrals in 2019, 68.9% (n = 1504) had referred once, while 87% (n = 807) of the 2020 referrals had referred once.

Of the referrals in 2019, 30.8% (n = 672) were in March, 32.8% (n = 716) were in April, 20.3% (n = 443) were in May, and 16.1% (n = 352) were in June, while the rates were 46.9% (n = 435), 15.5% (n = 144), 13.4% (n = 124), and 24.1% (n = 223), respectively, in 2020. The relationship between the number of admissions in both years and the number of COVID-19 new cases/death number is summarized in Figures 1 and 2. As shown in the graphics, in March and April 2020, while the number of COVID-19 new cases and

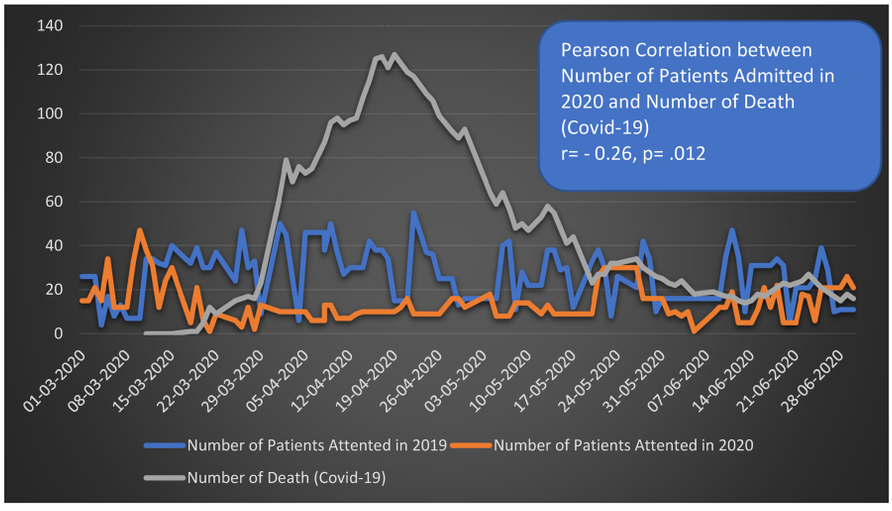

Figure 1. Correlation between the number of patients admitted to outpatient clinic in 2019 vs. 2020 and the number of deaths due to coronavirus disease 2019.

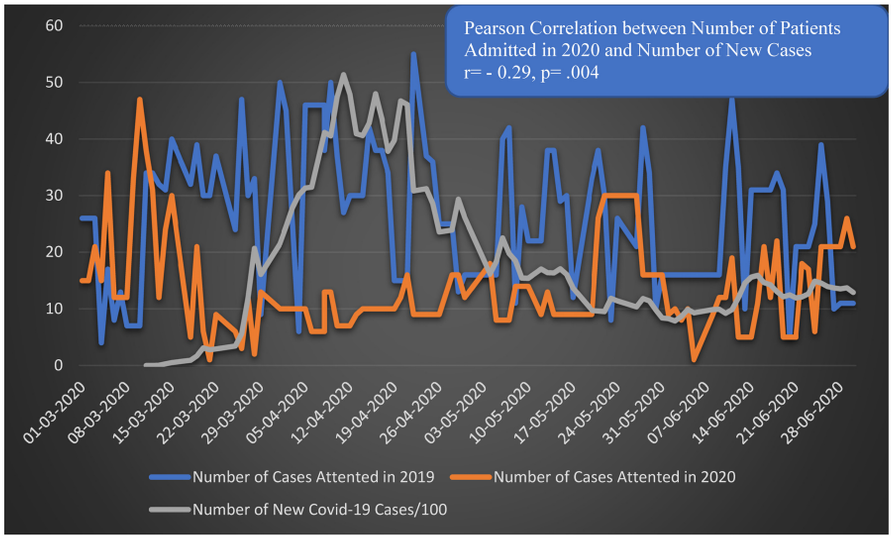

Figure 2. Correlation between the number of patients admitted to outpatient clinic in 2019 vs. 2020 and the number of new cases of coronavirus disease 2019.

Table 1. Reasons for Referral Before and During the Pandemic

		2019 (n = 1583) n (%)	2020 (n = 663) n (%)	Statistical Analysis
Referral for	Psychiatric examination *(routine mental health visit for diagnosis, supportive counsel, or monitorization of symptoms and impairment)*	936 (59.1)	376 (56.7)	***P* < .001**
	Prescription management	195 (12.3)	157 (23.7)	
	Psychiatric examination for documentation of need for long-term prescription or individualized educational planning *(this group can be treated as "routine mental health visit" with documentation of the need determined)*	154 (9.7)	53 (8)	
	Forensic case (such as abuse victims, eligibility for trial, etc.)	13 (0.8)	2 (0.3)	
	Referred by the juvenile courts for compulsory treatment *(in order to secure child's treatment regardless of parents' will)*	17 (1.1)	10 (1.5)	
	Disability documentation for psychopathology/neurodevelopmental disorders	271 (17.1)	65 (9.8)	

Mantel-Haenszel chi-square test, $P < .05$.

death number was increasing, the number of admissions to the CAP outpatient clinic decreased. On the other hand, in June 2020, while the number of COVID-19 new cases and death number was decreasing, the number of the admissions increased.

The referral rates between years by reasons for referral of the cases are shown in Table 1. After the effect of gender was controlled, the rates of new cases or chronic cases were compared according to the years in terms of the reasons for referral to hospital. Of the cases who came for psychiatric examination, 68.9% (n=645) in 2019 and 50% (n=188) in 2020 (Mantel-Haenszel OR=40.76 (1.74-2.84), $P < .001$) and of the cases who came for disability documentation for psychopathology referrals, 69.6% (n=189) in 2019 and 93.8% (n=61) in 2020 (Mantel-Haenszel OR=14.40 (0.05-0.43), $P < .001$) were new cases. While 69.2% (n=9) of the forensic cases were new cases in 2019, there were no new cases for forensic examination in 2020.

Table 2. General Characteristics and Psychiatric Disorders of the Cases Before and During the Pandemic

	2019 Total (n=1583) n (%)	2020 Total (n=663) n (%)	*P*	Odds Ratio (95% CI) Adjusted[a]
Age (mean ± std.dev)	9.51 ± 4.17	10.39 ± 4.06	<.001***	
Sex (female)	590 (37.3)	291 (43.9)	.003**	
New case	714 (45.1)	208 (31.4)	<.001***	
ADHD	624 (39.4)	326 (49.2)	<.001***	0.64 (0.53-0.78)***
ODD	82 (5.2)	64 (9.7)	<.001***	0.50 (0.36-0.70)***
MR	268 (16.9)	86 (13)	.019*	1.33 (1.02-1.73)*
CD	59 (3.7)	47 (7.1)	.001**	0.52 (0.35-0.78)**
SLD	199 (12.6)	62 (9.4)	.030*	1.38 (1.01-1.86)*
DD	62 (3.9)	39 (5.9)	.040*	0.89 (0.58-1.37)
Panic disorder	19 (1.2)	17 (2.6)	.019*	0.60 (0.30-1.16)
School refusal	10 (0.6)	10 (1.5)	.044*	0.44 (0.18-1.07)
Sleep disorder	6 (0.4)	16 (2.4)	<.001***	0.17 (0.06-0.43)***
	2019 March (n=487)	**2020 March (n=311)**		
ODD	31 (6.4)	34 (10.9)	.021*	0.54 (0.32-0.90)*
School refusal	2 (0.4)	10 (3.2)	.002**	0.12 (0.03-0.57)**
Specific phobia	1 (0.2)	5 (1.6)	.036*	0.13 (0.01-1.09)
	2019 April (n=520)	**2020 April (n=103)**		
ADHD	196 (37.7)	66 (64.1)	<.001***	0.31 (0.19-0.50)***
ODD	29 (5.6)	13 (12.6)	.009**	0.37 (0.18-0.76)**
Conduct disorder	14 (2.7)	8 (7.8)	.011*	0.43 (0.17-1.11)
MR	101 (19.4)	9 (8.7)	.009*	2.53 (1.21-5.26)*
	2019 May (n=321)	**2020 May (n=89)**		
ADHD	137 (42.7)	51 (57.3)	.014*	0.55 (0.33-0.89)*
Conduct disorder	16 (5)	10 (11.2)	.032*	0.41 (0.17-0.97)*
SLD	42 (13.1)	4 (4.5)	.022*	3.36 (1.16-9.72)*
Panic disorder	1 (0.3)	4 (4.5)	.009**	0.10 (0.01-1.89)*
Sleep disorder	1 (0.3)	4 (4.5)	.009**	0.08 (0.01-0.77)*
	2019 June (n=255)	**2020 June (n=160)**		
Conduct disorder	5 (2)	14 (8.8)	.001**	0.20 (0.07-0.58)**
SLD	33 (12.9)	10 (6.2)	0.029*	2.32 (1.11-4.86)*
MDD	5 (2)	11 (6.9)	0.011*	0.32 (0.11-0.98)*
Sleep disorder	1 (0.4)	6 (3.8)	0.015*	0.11 (0.01-0.93)*

New case, not diagnosed previously; ADHD, attention-deficit hyperactivity disorder; DD, oppositional defiant disorder; DMDD, disruptive mood dysregulation disorder; CD, conduct disorder; SLD, specific learning disorder; MDD, major depressive disorder; MR, mental retardation. *Multinominal logistic regression analysis.*

[a]Adjusted for sex and age, *$P < .05$, **$P < .01$, ***$P < .001$.

Table 3. Types of Psychotropic Medications Before and During the Pandemic

	2019 (n=1583) n (%)	2020 (n=663) n (%)	Statistical Analysis
AntiADD	459 (29)	242 36.5	***P* < .001**
Antidepressant	182 (11.5)	123 (18.6)	***P* < .001**
Atypical antipsychotics	234 (14.8)	161 (24.3)	***P* < .001**
Mood stabilizers	5 (0.3)	4 (0.6)	*P*=.246*
Typical antipsychotics	6 (0.4)	0 (0)	*P*=.189*

*Fisher's exact test, $P < .05$.
AntiADD, anti-attention-deficit disorder medications.

Psychiatric diagnoses are shown in Table 2. While attention-deficit hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), conduct disorder (CD), depressive disorder (DD), panic disorder (PD), school refusal, and sleep disorder increased significantly in 2020, specific learning disorders and mental retardation were found to be on the decrease. After the effect of age and gender was removed, the increase in DD, PD, and school refusal rates lost its significance. Disorders with the same rate within 2 years, such as autism spectrum disorder, bipolar disorder, and psychotic disorder, etc., are not shown in the table.

In 2019, 47.6% (n=754) of the cases were followed with medication, 48.6% (n=769) were followed without medication, and 3.7% (n=59) were given counseling service, while follow-up with medication rate increased to 63.2% (n=419), follow-up without medication rate decreased to 33.6% (n=223), and 3.2% (n=21) of the patients were given counseling service ($P < .001$) in 2020. Types of psychotropic medications are summarized in Table 3.

DISCUSSION

As a result of our study, in the early stages of the COVID-19, referrals to child psychiatry outpatient clinics of public hospitals were examined, which are considered to be highly representative of the population in big cities. As expected, the results showed that both due to compulsory measures implemented by the state and the postponement of some needs by the public, the number of admissions was lower in 2020 and more than two-thirds of the patients were from 2019. During the pandemic, the follow-up of COVID-19 patients was mostly carried out in public hospitals; therefore, other patients hesitated to come to the hospitals due to the risk of being infected. There was a serious decrease in the number of referrals as a result of the families delaying their admissions to hospitals for a period of a few months due to the risk of infection during the transportation to and the time spent at the hospital. In a survey by Chinese Society of Child and Adolescent Psychiatry in 33 hospitals with CAP centers across the country in March and April 2020, it was reported that 3 hospitals stopped accepting patients, and the number of referrals decreased by 53% in total, varying between 0% and 90% in other hospitals.[8] There was also a negative correlation between the distance of the hospitals to Wuhan and on percent reduction of inpatient/outpatient services. This brings to mind that the primary factor affecting the change in the number of referrals is the risk of infection. In the United States, the rates of patients who referred to pediatric emergency department with psychiatric complaints decreased by 60.84 in 2020 when compared with 2019.[11] In a study conducted in a private psychiatry clinic in Ireland for ADHD, it was found that the referrals decreased by 80% in the early period of pandemic.[12]

When differences in gender were examined, female patients had more admissions in 2020, and there were more admissions for females in the chronic patient group without any difference between months. It is not clear whether the predominance of female patients (chronic and de novo) in our 2020 sample is due to higher prevalence of anxiety and depression among females during pandemic[4] or a general trend of more females in psychiatric referrals.[13] In a study conducted during the pandemic, while female gender was a risk factor for psychiatry referral, this risk factor was not found to differ between 2020 and 2019, and another study also indicated that the decline was more prominent in males compared to females.[11,14]

The older age group was predominant in 2020 admissions. Stewart et al[14] also reported more referral declining in younger clients. Adolescents were exposed to higher levels of stress and were more worried about their own and their families' health because they were more knowledgeable about the pandemic when compared with the younger age groups. Besides, their social and academic lives were significantly interrupted at a critical time; therefore, this led them to be the more affected group in terms of the living conditions.[15]

While the highest number of CAP outpatient clinic cases were in the months of March > April > May > June in 2019, the highest number of cases were in the months of March > June > May > April in 2020. This finding is parallel with the increased incidence of COVID-19 cases and following the strict regulations by health and public authorities during those 2 months.

In the correlation analysis between outpatient clinic referrals and COVID-19 new cases and death numbers in 2020, it was found that the number of cases to the outpatient clinic decreased as the number of COVID-19 cases and death numbers increased. Despite the fact that restrictive measures remained the same during and between those surges of April/May 2020, it is thought that the priority of families' who followed up-to-date data

about COVID-19 was to protect themselves from the virus in the pandemic; hence, they postponed their outpatient clinic referrals. Although a decrease in the number of patients has been mentioned in 2 studies similar to our study, no data was reported about the correlation between this decrease by months and the severity of the pandemic process.[8,11] In a recent study, the highest decrease in referrals was found in April and May 2020.[16]

The total number of referrals was found to decrease significantly, and when the referrals of patients were grouped as chronic and new cases, this decrease appeared to be due to the decrease in the number of new case referrals. While patients with chronic conditions continued their follow-up, new cases may have delayed their referrals more, and financial concerns limited utilization of already scarce private health services. Future work to differentiate the net effect of the pandemic on decreasing new cases should also focus on whether the number of new cases will be higher than usual in months after the pandemic and in the periods when the measures are loosened and cases and deaths are less.

When the reasons for coming to hospital were examined, the number of patients who came for psychiatric examination, disability documentation for psychopath ology/neurodevelopmental disorders, and forensic case decreased, while the number of patients who came to have medication prescribed and were "referred by the juvenile courts for compulsory treatment" increased. As a result of these referrals, it can be concluded that the families delayed index psychiatric evaluations, and they continued by trying not to delay the treatment of chronic cases whose conditions were determined. No new forensic case applications were made in 2020. The implementation of some restrictions in judicial processes was effective in not having forensic cases at the outpatient clinics. In this period, disability documentation-related referrals also decreased due to the closure of special education centers and the automatic extension of the validity of expired documentation for psychopathology/neurodevelopmental disorders.

When DSM-5 diagnoses were examined, it was found that ADHD, ODD, CD, DD, PD, school refusal, and sleep disorder increased significantly in 2020 when compared with the previous year, while specific learning disorder and mental retardation diagnoses were found to be decreased. After eliminating the effect of age and gender, the increase in ADHD, ODD, CD, and sleep disorder was found to continue when examined as a whole rather than separating the new and chronic cases.

It is noteworthy that the great majority of applications were suffering from ADHD in April, May, and June 2020, when the total number of patients was the lowest. The reason why this diagnosis is prevalent is that even the young people who do not have attention-deficit problems had difficulty while trying to focus on the lectures in front of a screen. Besides, the fact that children with hyperactivity have increased displaying impulsive behaviors due to the restriction of motor movement at home added up to the problems of focusing due to difficulty of following the online lectures.[17] Since most families started struggling more while trying to cope with the overall stress and to maintain a balance between the new life conditions and their children, it has become more crucial to maintain the treatment of both chronic and new ADHD cases.

When all the months are put together, it can be seen that referrals of ADHD and disruptive behaviors disorders are increasing at an increasing rate. Families of children and adolescents with ADHD and externalizing disorders have experienced difficulties in coping with those children at home because of the disruption of children's daily routine and unavailability of outdoor activities. In a study conducted by Viner et al[18] in 2020, increased rates of irritability, inattention, and conduct problems have been reported in all age groups.

In 2020, there were no patients diagnosed with school refusal in the 3 months after March 2020. As a result of the transition to online education system, although children's attendance issue continued, they did not end up being diagnosed due to the tolerating attitudes of schools, the more difficult form of absenteeism, and the effects of staying at home to reduce anxiety symptoms.

Increasing rates of sleep-related problems were also reported. Children's disrupted daily rhythms include interruption of daily school routines, sharp increase in screen exposure, and decreased physical activities, which in return increase sleep disorders. Apart from the disruption of daily routines, the stress during the crisis can also result in sleep disorders.[19]

The diagnoses of specific learning disorder and mental retardation, which are closely related with continued formal education in schools, frequently occur in the second term of the first grade, and the referrals frequently occur in this time period. Parents of children with reading and writing difficulties did not even apply to outpatient clinic because they associated this with online education and were not sufficiently aware of the difficulty itself. In addition, families knew they would not be able to receive any interventions due to the closure of special education centers and supportive education programs.

In our sample, cases associated with internalizing disorders such as DD, PD, and anxiety disorders were on the increase. Previous epidemics also resulted in the increase in psychiatric disorders such as anxiety and depression in the society.[20] In addition to the perceived risk of contracting the COVID-19 virus as the primary result of the pandemic, the losses caused by changes such as being away from school environment and suspension of daily activities due to the pandemic resulted in an increase in internalizing disorders in children. In a study conducted on adolescents

between the ages of 12 and 18 in China, depressive symptoms were found with a rate of 43.7%, while anxiety symptoms were found with a rate of 37.4%.[4] In a survey study conducted with 7143 adolescents, anxiety symptoms of various levels were found in 24.9%[21]; in another study conducted on children and adolescents, the prevalence of depression was reported as 12.33%, while the prevalence of anxiety was reported as 6.26%.[6]

In 2020, the rate of follow-up for medication therapy increased significantly, while the applications of non-medication follow-up by patients who mostly received therapy and were followed for improvement and the patients who came for counseling without diagnosis decreased. In this group, an increase was seen in the use of stimulants, atypical antipsychotics, and antidepressants which may be associated with the increase in some diagnosis groups. However, although the rates in the usage of medication had increased and since some drugs can be prescribed for different diagnoses (e.g., SSRIs are used for both anxiety disorders and depressive disorders), it was not found which drug increased in specific diagnosis groups. No changes were found in antipsychotic and mood regulator treatment.

CONCLUSION

Pandemic conditions affected the content of public hospital psychiatry referrals significantly. It can be thought that the significant decrease in the number of referrals may be the result of citizens obeying the prohibitions and the fear of disease transmission in families with the onset of the pandemic that precedes the existing psychiatric problems of children.

It was found that families mostly had difficulties in coping with ADHD and externalizing disorders and therefore they continued the follow-up and treatment of their children with these disorders, and medical treatment was an indispensable part of these follow-ups.

The strength of our study was that this study gives us an observational view of children's mental health and it is critical in understanding which factors might be contributing to the mental health needs of children and adolescents, especially in the early period of the pandemic.

The limitation of our study was the fact that it was not possible to clearly distinguish the many effects—economic causes, transportation, fear caused by pandemic—which occurred due to extraordinary conditions in the first months of 2020. Although the correlation with the number of deaths reflects emotional factors such as fear, it was not possible to reveal the effect of the presence of official restrictions in the same period.

We were not able to discern several factors contributing to the decline in the numbers of patients referred due to the unusual circumstances of the first months of the pandemic; thus, our findings are far from conclusive. It will be important to compare those findings from the early months with the findings from later periods of the pandemics.

Data: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethics Committee Approval: Ethics committee approval was received from the Local Ethics Committee of Tekirdağ Namık Kemal University School of Medicine with protocol number 2020.170.07.03.

Informed Consent: All authors whose names appear on the submission approved the version to be published.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - G.Y.A., B.Y.B., A.B.E., B.S., Y.Y.; Design - G.Y.A., B.Y.B., A.B.E., B.S., Y.Y.; Supervision - S.K., S.F.D.; Materials - G.Y.A., B.Y.B., A.B.E.; Data Collection and/or Processing - G.Y.A., B.Y.B., A.B.E.; Analysis and/or Interpretation - G.Y.A., B.Y.B., A.B.E.; Writing - G.Y.A.

Declaration of Interests: The authors have no conflicts of interest to declare.

Funding: The authors declared that this study has received no financial support.

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