

Changes in Child Psychiatry Presentations in the Second Wave of Coronavirus Disease 2019 Pandemic Compared to the Pre-pandemic Period and the First Wave: A Follow-up Study

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ABSTRACT

Background: It is to examine how child psychiatry admissions, diagnosis and treatment trends in the second wave (September-December 2020/SD20) of the coronavirus disease 2019 (COVID-19) pandemic change compared to the pre-pandemic (SD19) and the first wave (March-June 2020/MJ20).

Methods: Our study was planned as a multicenter, retrospective cross-sectional. Data were obtained from hospital computer systems databases. All patients admitted to the child psychiatry clinic on SD19 and SD20 constituted the study sample. In total, 5244 admissions were assessed.

Results: Of the admissions, 1459 were repeat exams, and 3785 were cases. 50.9% (n=1927) of the cases came in SD19 and 49.1% (n=1858) in SD20. In 2019, 37% (n=825) of cases were girls, compared to 41.6% (n=646) in 2020 (P=.004). The mean age of those who came in 2019 was 9.61 ± 4.08; The mean age of those who came in 2020 was 10.15 ± 5.38 (P=.002). In 2020, oppositional defiant conduct disorder, major depressive disorder, social anxiety disorder, obsessive-compulsive disorder, sleep-wake disorder, and dysthymia were significantly higher, while specific learning disorders, separation anxiety disorder, and intellectual disability were found to be lower.

Conclusion: The decrease in second-wave admissions is less than in the first wave. In the second wave, externalizing and internalizing problems have increased. Drug therapy was prioritized. Postponing admissions was less in the second wave.

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INTRODUCTION

The novel coronavirus disease (COVID-19) epidemic originated in Wuhan (Hubei, China) at the end of 2019 and then spread all over the world.¹ In our country, Türkiye, the first COVID-19 case was detected in March 2020. Lockdown and quarantine decisions to slow the spread of the epidemic caused financial losses and affected all segments of society. The domino effect has disturbed health services, and the current national health systems were at risk of regression.² Health services have been severely impacted; there has been a decline in hospital and polyclinic admissions, a shift in the reasons for admission, and a 42% fall in emergency room visits in the United States from March to April 2020 compared to the same time last year.³ During the peak of the acute-early period of the pandemic, access to pediatric emergency services decreased, most likely due

to fear of infection.⁴ According to a study conducted in Israeli pediatric surgical wards, compared to the previous year, children with delayed presentation and diagnosis of complicated appendicitis were more likely to have them due to parental worries, the use of telemedicine, and insufficient medical examination.⁵ With a similar research design, we evaluated the first leg of this follow-up study for March-June 2019 (MJ19) and March-June 2020 (MJ20). According to the findings of our previous study, the average number of patients seen in the child psychiatry outpatient clinic during the period of MJ20, which we mention as the first wave of the pandemic, decreased significantly compared to the period of MJ19. The patients' reasons for admission to the outpatient clinic and their diagnoses changed compared to the previous year.⁶

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At the beginning of the pandemic, a new process for everyone, the authorities, and the public needed more clarification about how to act in many situations. Up until the period we examined in the continuation of the pandemic process and the follow-up study, normalization steps were taken in June 2020, the concept of a new normal has emerged, the number of active cases and deaths changed, the mechanism of virus transmission and the effectiveness of precautions were better understood. The number of cases started to increase again in autumn; the restrictions were reinstated in November 2020, and schools were closed. The fact that the COVID-19 pandemic lasted longer than anticipated time disrupted people's routines and habits and brought new ones into their place. Individuals behaved differently when it came to the risk of disease transmission. With the prolongation of the process, there may be individual differences in coping strategies with anxiety and fear related to the pandemic and in keeping up with the new normal.⁷ According to a study, public acceptance and compliance are linked to fear-anxiety.⁸

Thus, the primary goal of our follow-up study is to assess the changes from the September-December 2020 (SD20) period, which we define as the second wave of the pandemic, to the same period the previous year (September-December 2019/SD19) regarding the numbers of hospital admissions, causes, psychiatric diagnoses, and treatment needs of individuals. We also aim to investigate the association between daily active cases and deaths and the number of admissions during the SD20 period.

The second goal of our follow-up study is to compare the results obtained in the MJ20 period, when the first study was conducted,⁶ with similar data in the SD20 period and to investigate how people's health demands are affected in different pandemic periods.

MATERIAL AND METHODS

Our study, designed as a multicenter, retrospective cross-sectional study, was conducted between January 1, 2021 and March 31, 2021 in the child psychiatry clinics of two public general hospitals in Türkiye. These hospitals are

located in two metropolitan cities in the Marmara region of Türkiye. The data in the study were obtained from the databases of the hospitals' computer systems by two experienced child psychiatrist specialists. The study's sample consisted of every patient admitted to the child psychiatric outpatient clinic between SD19 and SD20. Every patient between the ages of 0-18 who was admitted to the child psychiatry outpatient clinic within the specified date ranges of both years and whose data could be accessed from the computer system was included in the study. Informed consent was obtained from the participants and their families. Exclusion criteria not applied.

The clinicians who conducted the study carefully reviewed the patient files entered into the database to obtain sociodemographic information about the patients, such as gender, the patient's reason for applying to the outpatient clinic, the distribution of clinical diagnoses, and the types of treatments used.

Data from SD20 are compared with data from the same period of the previous year. The reasons for the patients to apply to the polyclinic were investigated in 7 groups such as psychiatric examination, prescription, psychiatric examination for documentation of need for long-term prescription or individualized educational planning, forensic case, referred by the juvenile courts for compulsory treatment, disability documentation for psychopathology/neurodevelopmental disorders and child psychiatry emergency consultation. Diagnostic groupings of the patients were classified according to the DSM-5 system (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition). Some of the admissions are in the group that does not have a diagnosis in DSM-5, such as boundary problems, adolescence problems, and sibling jealousy; this group is classified as a one-session counseling service. Drug use was evaluated separately for all drugs and compared over drug groups such as anti-ADHD (attention deficit hyperactivity disorder), antidepressant, mood stabilizer, and atypical and typical antipsychotic. Psychotherapy and developmental examination were performed in those who were followed up without medication.

Since a patient had more than one admission, the number of separate cases in the admissions was determined, and the analyses were made on the number of cases, not the visits. The admitted patients were also divided into two groups according to whether they were new or followed-up cases. Those who were referred for the first time were considered new cases, and those who had two or more admissions for any reason were considered follow-up cases. The number of daily active cases and deaths during the pandemic period was determined as comparison points. The change in the number of admissions to the outpatient clinic in SD20 and the link between these parameters were examined. Given the high daily detection rate, it was divided by 100 and displayed on the chart. The Ministry of Health website provided the case and death numbers.

MAIN POINTS

- Outpatient admissions decreased in the second wave of the pandemic, but this decrease was not as significant as in the first wave.
- The families did not postpone their admissions, which they delayed for mild complaints in the first and second waves.
- In the first and second waves of the pandemic, the adolescent age group was more severely impacted.
- In the second wave of the pandemic, there has been an increase in sleep problems, externalizing issues such as oppositional defiant-conduct disorder, and internalizing problems such as major depressive disorder, social anxiety disorder, obsessive-compulsive disorder, and dysthymia.

The data of 5244 children, including 3069 children with a mean age of 9.61 ± 4.08 years at SD19 and 2175 children with a mean age of 10.15 ± 5.38 years at SD20, were evaluated within the scope of the study.

Statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) version 20.0 (IBM SPSS Corp., Armonk, NY, USA). First, it was checked whether the data conformed to a normal distribution. Descriptive statistics are mean (SD) or frequency (%). The chi-square test was applied to categorical variables when comparing psychiatric diagnosis, psychotic medications, and reasons for admission. In the chi-square test, pairwise comparisons were calculated using post hoc analysis with Bonferroni correction, and Fisher's exact test was applied for proportions. Yates correction was made in the chi-square test. Student's *t*-tests were used to analyze differences in continuous variables. The Pearson correlation coefficient was used for statistical analysis. Odds ratio (OR) values of psychiatric diagnosis were calculated by multinomial logistic regression analysis when adjusting for age and sex, and OR values of admission 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 confidence interval of 95%. The significance level was established as $\alpha=0.05$.

The ethics committee of Istanbul Medeniyet University Göztepe Prof. Dr. Süleyman Yalçın City Hospital approved the study (Approval No: 2021/0121; Date: February 10, 2021.) Informed consent was obtained from the participants and their families.

RESULTS

In total, 5244 admissions were examined for our study during the SD19 (3059) and SD20 (2185) periods. In total,

3785 of the 5244 admissions were cases, while 1459 were repeated examinations. 50.9% ($n=1927$) of the 3785 cases occurred in 2019, while 49.1% ($n=1858$) occurred in 2020. The proportion of female cases increased from 37% ($n=825$) in 2019 to 41.6% ($n=646$) in 2020 ($P=.004$). While there was no gender difference between years in newly admitted cases ($P=.229$), female child cases increased significantly in 2020 compared to 2019 in cases with follow-up ($P=.003$). The mean age of those who came in 2019 (9.61 ± 4.08) was considerably lower than the mean age of those who came in 2020 (10.15 ± 5.38) ($P < .001$).

In total, 2846 cases, or 75.2%, were admitted just once (In 2019 and 2020, 74.8% and 75.8%, respectively, of the cases were admitted once).

Compared to 2019, when 24.9%, 30.1%, 17.7%, and 27.3% of instances occurred in September, October, November, and December, these rates were 34.6%, 24.8%, 20.1%, and 20.5% in 2020. Figures 1 and 2 show the correlation between the number of admissions in the SD period and the number of new COVID-19 cases and deaths for the 2 years in the SD period.

While 37.8% of the incoming cases were new in 2019, this rate was 34.7% in 2020 ($P=.023$). Controlling for gender, the Mantel-Haenszel adjusted OR for new cases was 1.12 ($P=.082$). Despite the frequency of new cases in women has declined over time (41% and 36.1%, respectively; $P=.022$), similar rates of new cases were found in men in 2019 and 2020 ($P=.223$; respectively, 35.8% and 33.7%). The rates of admission between the years according to the reasons for the admission of the cases are shown in Table 1.

In 2019, 47.6% of cases were followed with medication, 48.6% without prescription, and 3.7% received one-session counseling. In contrast, in 2020, 63.2% of cases were followed with medication, 33.6% were followed without medication, and 3.2% received one-session consulting ($P < .001$). Risperidone ($P < .001$), aripiprazole ($P=.001$),

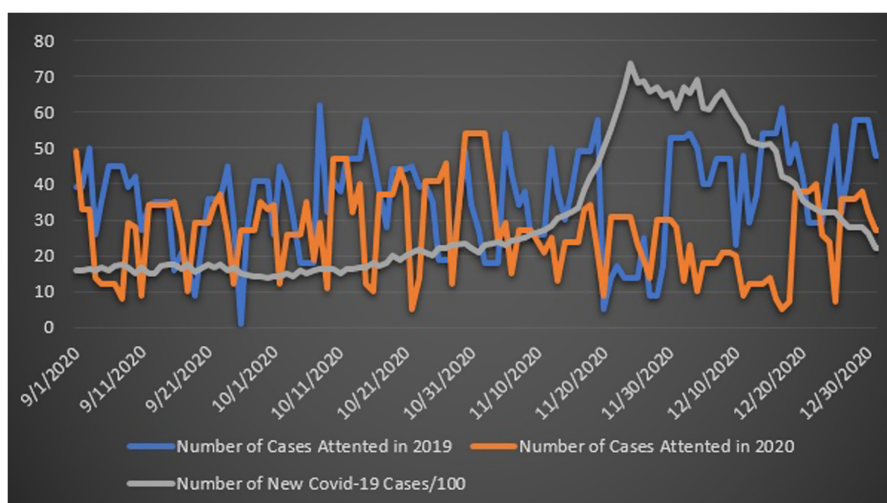


Figure 1. Correlation between the number of patients admitted to the outpatient clinic in September-December 2019 vs. 2020 and the number of new coronavirus disease 2019 cases.

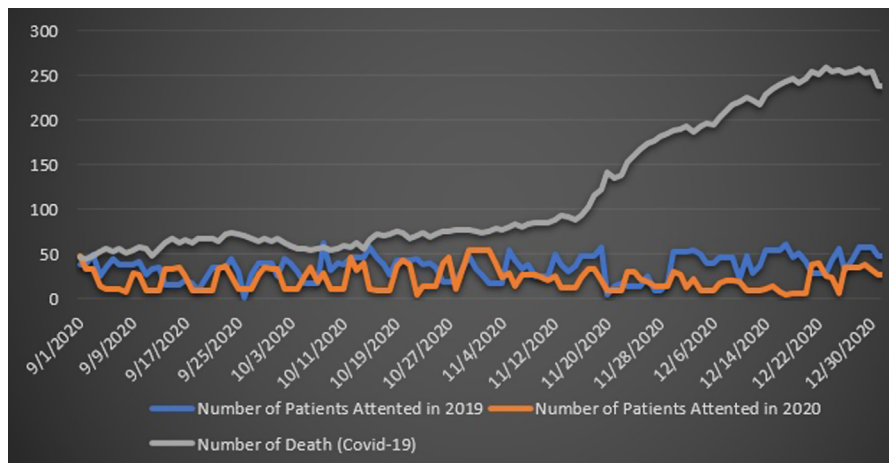


Figure 2. Correlation between the number of patients admitted to the outpatient clinic in September-December 2019 vs. 2020 and the number of coronavirus disease 2019 deaths.

quetiapine ($P < .001$), olanzapine ($P=.005$), sertraline ($P < .001$), escitalopram ($P < .001$) mirtazapine ($P=.001$) was used more frequently in new case admissions in 2020, whereas aripiprazole ($P=.001$), fluoxetine ($P=.028$), and escitalopram ($P < .001$) were used more regularly in the follow-up case admissions (Table 2).

Axis 1 DSM-5 mental disorder diagnosis rates in 2019 vs. 2020 differences are shown in Table 3. In the first step, age and sex were added to the model as a covariate, and the multivariable logistic regression model was statistically significant, $\chi^2(2)=15.393, P < .001$. All other variables in Table 3 were added in the second step, and the multivariable logistic regression model was statistically significant, $\chi^2(10)=164.972, P < .001$. In 2020, oppositional defiant disorder (ODD), conduct disorder (CD), major depressive disorder (MDD), dysthymia, social phobia (SP), obsessive-compulsive disorder (OCD) and sleep-wake disorder (SWD)

were significantly higher, while specific learning disorder (SLD), intellectual disability (ID), and separation anxiety disorder (SAD) were found to be lower.

DISCUSSION

Our study analyzed admissions to child psychiatric outpatient clinics at two large public hospitals in different metropolitan cities of the Marmara region in the second pandemic wave. Although it is seen that the number of admissions is lower in the second wave compared to the same period of the year before the pandemic, it is seen that the rate of decline is not as high as in the first wave. These findings suggest that in the second wave, individuals may be accustomed to the pandemic process and precautions and not delay their admission to the hospital as much as in the early period. European countries in the

Table 1. Reasons for Admission in the Second Wave

| | | SD19 n = 3059 n (%) | SD20 n = 2185 n (%) | P | Phi Effect Size |
|---------------|--|---------------------------|---------------------------|-------|-----------------|
| Admission for | Psychiatric examination (routine mental health visit for diagnosis, supportive counsel, or monitorization of symptoms and impairment) | 1714 (56%) | 1511 (69.2%) | <.001 | 0.133 |
| | Prescription management | 384 (12.6%) | 241 (11%) | .093 | -0.023 |
| | Psychiatric examination for documentation of need for long term prescription or individualized educational planning | 399 (13.0%) | 188 (8.6%) | <.001 | -0.069 |
| | Forensic case (such as abuse victims, eligibility for trial, etc.) | 8 (0.3%) | 5 (0.2%) | .814 | -0.003 |
| | Court-mandated treatment and referred by the juvenile courts for compulsory treatment (in order to secure child's treatment regardless of parents' will) | 19 (0.6%) | 31 (1.4%) | .003 | 0.040 |
| | Health board report and disability documentation for psychopathology/ neurodevelopmental disorders | 500 (16.3%) | 183 (8.4%) | <.001 | -0.117 |
| | Emergency service admissions | 35 (1.1%) | 26 (1.2%) | .879 | 0.002 |

Chi-square test, post hoc analysis with Bonferroni correction, $P < .003$. SD19, September-December 2019; SD20, September-December 2020.

Table 2. Types of Psychotropic Medications before Pandemic and in the Second Wave of Pandemic

| | SD19 n=2231 n (%) | SD20 n=1554 n (%) | P | Phi Effect Size |
|---|-------------------------|-------------------------|-------|-----------------------|
| Considering the Drugs Separately | | | | |
| Methylphenidate | 530 (23.8%) | 412 (26.5%) | .054 | -0.031 |
| Atomoxetine | 80 (3.6%) | 66 (4.2%) | .299 | -0.017 |
| Risperidone | 170 (7.6%) | 219 (14.1%) | <.001 | -0.105 |
| Aripiprazole ^a | 84 (3.8%) | 94 (6.0%) | .001 | 0.055 |
| Quetiapine | 4 (0.2%) | 19 (1.2%) | <.001 | -0.066 |
| Olanzapine | 6 (0.3%) | 15 (1.0%) | .005 | -0.046 |
| Zuclopenthixol ^a | 3 (0.1%) | 4 (0.3%) | .455 | -0.014 |
| Haloperidol ^a | 6 (0.3%) | 6 (0.4%) | .566 | -0.010 |
| Fluoxetine | 108 (4.8%) | 101 (6.5%) | .028 | -0.036 |
| Sertraline | 98 (4.4%) | 141 (9.1%) | <.001 | -0.095 |
| Escitalopram | 6 (0.3%) | 25 (1.6%) | <.001 | -0.073 |
| Venlafaxine ^a | 0 (0%) | 1 (0.1%) | .411 | 0.019 |
| Hydroxyzine | 10 (0.4%) | 11 (0.7%) | .290 | -0.017 |
| Valproate ^a | 5 (0.2%) | 9 (0.6%) | .077 | -0.029 |
| Lithium ^a | 1 (0.0%) | 4 (0.3%) | .166 | -0.029 |
| Mirtazapine ^a | 4 (0.2%) | 15 (1.0%) | .001 | -0.055 |
| Considering the Drug Groups | | | | |
| Methylphenidate and atomoxetine | 459 (29.0%) | 242 (36.5%) | .001 | |
| Antidepressant | 215 (9.6%) | 264 (17.0%) | <.001 | -0.109 |
| Atypical antipsychotics | 257 (11.5%) | 338 (21.8%) | <.001 | -0.138 |
| Mood stabilizers | 6 (0.3%) | 14 (0.9%) | .008 | -0.043 |
| Typical antipsychotics | 10 (0.4%) | 12 (0.8%) | .197 | -0.021 |

^aFisher's exact test.

SD19, September-December 2019; SD20, September-December 2020.

early period found that public belief in the effectiveness of protective measures taken to limit the spread of COVID-19 is high.⁹ The study conducted in the first wave in our country determined that the number of admissions to the emergency psychiatry outpatient clinic and hospitalizations to the psychiatry service decreased significantly in the acute period of the pandemic.¹⁰ In a study examining child psychiatry outpatient clinic admissions during the pandemic, the admission rate in the pre-pandemic period was 53% of the total participants. In comparison, this rate decreased to 46% in the second wave.¹¹

When the gender difference between the two years was examined, the findings showed that girls were referred significantly more in the SD20 period than in the SD19 period, and there were significantly more girls in the follow-up cases. The gender disparity in the pandemic's early period was similarly mirrored in our findings. In many studies conducted during the pandemic, the gender-based effects of COVID-19 were examined, and different results were obtained. It is still unclear whether the impact of the

Table 3. General Characteristics and the Psychiatric Disorders of the Patients in the Second Wave

| | SD19 Total n=2231 n (%) | SD20 Total n=1554 n (%) | P | Odds Ratio (95% CI), P ^a |
|---------------------|-------------------------------|-------------------------------|--------|--|
| Age (mean/sd) | 9.61 | 10.15 | 0.002 | |
| Sex (female) | 825 (37) | 646 (41.6) | 0.004 | |
| New case | 1113 (49.9) | 736 (47.4) | 0.126 | |
| ODD | 65 (2.9) | 81 (5.2) | <0.001 | 0.53 (0.38-0.75), <.001 |
| CD | 74 (3.3) | 77 (5) | 0.011 | 0.67 (0.49-0.94), .020 |
| MDD | 75 (3.4) | 140 (9) | <0.001 | 0.38 (0.28-0.52), <.001 |
| Social phobia | 21 (0.9) | 42 (2.7) | <0.001 | 0.38 (0.22-0.63), <.001 |
| OCD | 42 (1.9) | 61 (3.9) | <0.001 | 0.49 (0.33-0.73), .001 |
| Sleep-wake disorder | 6 (0.3) | 29 (1.9) | <0.001 | 0.16 (0.06-0.37), <.001 |
| SAD | 20 (0.9) | 5 (0.3) | 0.032 | 2.85 (1.07-7.63), .037 |
| ID | 388 (17.4) | 177 (11.4) | <0.001 | 1.63 (1.34-1.97), <.001 |
| SLD | 304 (13.6) | 132 (8.5) | <0.001 | 1.69 (1.36-2.10), <.001 |

SES mainly low average, and low, not individually determined. Public hospitals are almost free of charge and two locations are at easily accessible locations. Multivariate multinomial logistic regression analysis. "New case" refers to not diagnosed previously.

CD, conduct disorder; ID, intellectual disability; MDD, major depressive disorder; OCD, obsessive compulsive disorder; ODD, oppositional defiant disorder; SAD, separation anxiety disorder; SD19, September-December 2019; SD20, September-December 2020; SLD, specific learning disorder.

^aAdjusted for sex and age.

*P < .05.

**P < .01.

***P < .001.

epidemic on girls and boys is equal. In a study conducted in the UK, it was found that the mental health of girls was affected more negatively than boys during the pandemic.¹² Similar to our previous study, the average age of the applicants in the SD20 period was significantly higher than in the SD19 period when we looked at the results regarding average age. Families might not have brought their young children, school-age behavior problems might not have been sufficiently noticed due to the closed schools, and adolescents may have more difficulty with the pandemic and need more psychological support, among other factors, which might have impacted this result. Adolescence is when more time is spent with peers and sensitivity to social contexts increases.¹³ During the pandemic, adolescents have been away from school, social life, and outdoor activities, and domestic conflicts have increased. This situation considerably adversely affected the mental health of adolescents, a psychologically vulnerable group.¹⁴

Regarding the number of cases in the first wave, while the case admissions were almost the same as the previous year, we see that the rate of case admission increased in the second wave. Since each case is an admission made by a different person, proportionally, more individuals seek help in the child psychiatry outpatient clinic in the SD20 period. The pandemic has increased new-onset psychiatric illness and symptom exacerbation and relapse in previously diagnosed cases.¹⁵ This situation might direct both new cases and cases with sub-threshold symptoms who did not apply before the pandemic to seek help from mental health centers. A study conducted among healthcare professionals examined the period of approximately two years before and after March 2020. Compared to the period before March 2020, it has been observed that there has been a significant increase in individuals seeking help from mental support programs during the pandemic.¹⁶

When we examined the admissions as new and followed-up cases, it was found that new cases decreased significantly in the SD20 period compared to the SD19 period, and the cases with follow-up increased. This change was in the same direction in the MJ19 and MJ20 periods. Follow-up cases occurred more among the admissions in the first and second waves. During the first wave of COVID-19, the mental health of children and adolescents tends to deteriorate, with or without a prior psychiatric diagnosis. However, worsening was more common in those with a previous psychiatric diagnosis.¹⁷ It has been shown that individuals with pre-pandemic psychiatric disorders experience more psychiatric symptoms during the pandemic. Compared to healthy controls, these individuals have more depression, anxiety, stress, insomnia, and impulsivity, and suicidal thoughts.¹⁸ It has been shown that adolescents with a pre-pandemic diagnosis of OCD have worsening and exacerbation of their symptoms in the acute phase of the pandemic and may develop additional symptoms.¹⁹

When the daily active cases and deaths of COVID-19 in the second wave were examined, it was revealed that both of them significantly increased in our nation in November 2020, continued in December 2020, and concurrently started to decline in these months for outpatient clinic admissions. Although there is no precise date for the start of the second wave, the daily number of active COVID-19 cases and deaths started to increase again in autumn. Some restrictions, lifted with the normalization steps in June 2020, were reinstated by the government on November 20, 2020, and continued to be applied in December 2020. It has been shown that almost all non-COVID-19 admissions to emergency services decreased at the beginning of the pandemic.²⁰ Consistent with our results, a study conducted in Italy showed that while the same hospitals showed a collapse after the first wave, admissions tended to decrease slowly rather than collapse after the second wave.²¹

The change in the request for a report from the polyclinic, forensic cases, health measures, and health committee

admissions in the previous period of the same year was similar in the first wave. However, while prescribing rates increased in the first wave compared to the second wave, the rates of coming for a psychiatric examination decreased. Since the psychiatric examination period is relatively long, individuals may postpone their examination admissions due to the fear of contamination risk in the first wave. It can be concluded that individuals are less likely to avoid prescribing, a service requiring a shorter time. In the pandemic, there were cases of new-onset psychosis.^{22,23} In cases diagnosed with a pre-pandemic eating disorder, symptoms worsened during the pandemic, and in the first one-year period, which includes the early and second waves, the number of eating disorder-related admissions increased compared to previous years.²⁴ For these reasons, it can be concluded that individuals do not delay coming to psychiatric examinations to address their mental state as much as in the first wave. Child psychiatry emergency consultation admissions decreased in the second wave compared to the pre-pandemic period. Since the emergency room where contamination may be high, individuals may still be hesitant to come.

Regarding the *DSM-5* diagnostic categories, while ODD, CD, SWD, and ADHD increased significantly in the first wave compared to the same period of the previous year, it is noteworthy that the increase in ADHD did not occur in the second wave. In another study reporting similar results, it was reported that ADHD decreased and MDD and anxiety disorder increased during the second wave.¹¹ The stay-at-home and online education in the first wave have been challenging for children with ADHD. A study reported worsening ADHD/inattention and total scores in these children in the first wave.²⁵

Face-to-face education has yet to start, and many private education centers continue online education. Thus, the families' and teachers' recognition and referral of SLD and ID, as well as the diagnoses associated with academic success, to the clinics have reduced. With the children staying at home with their parents and continuing their education at home, it is anticipated that separation anxiety will decrease.

Oppositional defiant disorder symptoms and internalizing problems such as depression, anxiety, and OCD were more prevalent in spring 2020 than in the pre-pandemic period in a study.^{19,26,27} In quarantine, externalizing behaviors such as conduct disorders, defiant conduct, aggression, controlling rage, and ADHD significantly increased.²⁷⁻²⁹ Interestingly, in one study that covers both the early and second waves of the pandemic, while a decrease was found in the diagnosis of disruptive/impulse control/behavior disorder in the first year, the frequency of ADHD did not change. This decrease in CD was explained by restricting adolescents' social environments, which may reduce peer interactions and conflicts.³⁰

The children and adolescents have been impacted by the pandemic and experienced trouble falling asleep, nocturnal awakenings, nightmares, and sleep terrors more frequently.³¹ After the initial pandemic wave, it was shown that adolescents' social anxiety had increased.³² According to a study, social distance rules contribute to the persistence of social anxiety in young individuals.³³

Considering the treatment needs of the admissions, in the SD20 period, the admission rates of cases requiring medicated follow-up and coming for one-session consultation increased. In contrast, the number of cases requiring follow-up with therapy decreased. In the first wave, the change in cases requiring medication follow-up and treatment was similar to the SD20 period. Unlike the second wave, one-session consultations decreased compared to last year. The impact of the pandemic on the tendency to prescribe psychotropic drugs is unclear. In a clinic where patients with developmental and behavioral problems were followed, the trend of prescribing psychotropic medications during the one year before and after the pandemic was examined. Although more patients were contacted via telehealth services in the first year of the pandemic, there has been a decrease in psychotropic drug prescription.³⁴ In the second wave, the cases and their families do not delay their admissions as much as in the first wave, even for mild mental problems. This may explain the increase in the admission rates requiring one-session counseling in the second wave compared to the first wave. Measures taken in the second wave, such as keeping COVID-19 and non-COVID-19 admission units separately in hospitals, prevented admissions as much as in the first wave. It was said that decreasing the number and severity of COVID-19 cases in the summer period could reduce the initial fear of contamination among individuals.²¹

Considering the drug groups in the SD20 period, antidepressants, atypical antipsychotics, and mood stabilizers, and when the drugs were examined separately, it was found that sertraline, escitalopram, mirtazapine, risperidone, aripiprazole, quetiapine, and olanzapine use increased significantly compared to the SD19 period. In addition, anti-ADHD treatment use decreased significantly compared to the SD19 period. Unlike the second wave, there was an increase in anti-ADHD treatment in the first wave, and no significant change was found in mood stabilizers⁶ (Akgül et al. 2022). One study evaluated the usage of psychotropic medications before and during the pandemic's first year. The usage of stimulants and sedative/hypnotic/anticholinergic medications significantly decreased in the first quarter of 2020; the use of antidepressants nonsignificantly changed in the fourth quarter. The closure of schools during this time might reduce the usage of stimulants, whereas occurrences of new-onset anxiety and depression increased the use of antidepressants.³⁵ In a different study, telehealth services most commonly prescribed stimulants, then SSRIs, and then atypical

antipsychotics throughout the first year of the pandemic.³⁴ Due to the interruption of mental health services at the beginning of the pandemic, there has been a decrease in the start of new antidepressant, antipsychotic, and anxiolytic treatments in the United States.³⁶

While the COVID-19 pandemic causes considerable changes in the functioning of societies and governments, in this process, children and adolescents who are mentally vulnerable were also among those who were primarily affected. The pandemic's longer-than-expected duration has resulted in new problems. The second wave of the pandemic began in the fall of 2020, and while there were more COVID-19 deaths and active cases, outpatient clinic admissions began to decline once more, although not as much as during the first wave period. While ADHD and externalizing disorders were more prominent in the first wave, it was determined that there was an increase in both externalizing and internalizing problems in the second wave. It was observed that families prioritize drug therapy over long-term therapy in terms of treatment, similar to the first wave. In addition, the delay in admissions due to fear of contamination and restrictions in the first wave was less in the second wave of the pandemic.

It is noteworthy that most longitudinal studies conducted during the pandemic in children and adolescents are about depression and anxiety. There are gaps in the literature on other psychiatric diagnoses and evaluating the psychological impact of the pandemic on young children.

Longer-term follow-up studies are needed to evaluate pre-pandemic risk factors to determine the course of those who experience symptom exacerbation or have a new-onset psychiatric diagnosis after the pandemic.

Strengths and Limitations

When we look at the limitations of our study, although the study was conducted in two different cities, it is located in the same region of Türkiye. It is not known what kind of mental risk factors those affected in the second wave had before the pandemic. In addition, the severity of symptoms of children and adolescents with a psychiatric diagnosis was not evaluated. Anxiety-fear level about infection transmission and infection risk perception of those admitted to the hospital in the second wave were not assessed.

Our study's strengths include its multi-center design, the data collected following psychiatric interviews conducted by two physicians, and the comparison of the second wave of the pandemic with the pre-pandemic period. Additionally, when we examine the literature, we find that most studies have been conducted in the early period; only some have been conducted later. Most psychiatric diagnostic evaluation studies were conducted in the first wave. The strength of our follow-up study is that the survey results provide information about psychiatric diagnoses in the first and second waves of the pandemic.

Ethics Committee Approval: This study was approved by the Ethics Committee of Istanbul Medeniyet University Göztepe Prof. Dr. Süleyman Yalçın City Hospital (Approval No: 2021/0121; Date: February 10, 2021).

Informed Consent: Informed consent was obtained from the participants and their families who agreed to take part in the study.

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