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RESEARCH ARTICLE



# Evaluation of COVID-19-related psychological distress in parents of children referring to a child and adolescent psychiatry outpatient clinic: a university hospital sample

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## ABSTRACT

**Aims:** We aimed to determine parents' levels of anxiety and fear and suspicion in relation to the COVID-19 period and the possible predictive factors for these variables in families admitted to a child and adolescent psychiatry outpatient clinic of a university hospital in Turkey. In this way, it is hoped to contribute to the identification of priority target groups in psychosocial support services.

**Method:** The research study group consisted of 600 patients aged 0–18 years and their parents who were referred to a child and adolescent psychiatry outpatient clinic of a university hospital. Parents completed the COVID-19-related psychological distress (CORPD) scale and the data recording form developed specifically for this study. All cases included in the study were examined by a child and adolescent psychiatrist for diagnostic evaluation and their current diagnoses were recorded.

**Results:** Parents of children with any psychiatric diagnosis had higher suspicion scores on the CORPD scale and parents of children with high COVID-19-related anxiety also had higher anxiety and fear scores on the same scale. Logistic regression analysis revealed that negative changes in family relationships increased the risk of higher maternal COVID-19-related suspicion.

**Conclusions:** The most important factors associated with parental high CORPD levels were negative changes in family relationships and children with high COVID-19-related anxiety. Children's high COVID-19-related anxiety levels were associated with living with a single parent or separation from parents, negative changes in family relationships, previous COVID-19 infection in the family, and changes in daily routines.

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COVID-19; psychological distress; mental health; parents; children

## Introduction

When a cluster of pneumonia cases was reported in the city of Wuhan in China in December 2019, no one could have predicted that this outbreak would become the most consequential public health event threatening lives around the world. Only a few months later, the viral infection, later named Coronavirus disease (COVID-19), rapidly developed into a deadly pandemic that affected almost every country in the world and had multiple impacts on people worldwide [1,2]. The first cases of COVID-19 in Turkey were officially reported on 11 March 2020. On 13 March 2020, many schools were closed, just days after the first reported cases of COVID-19 in Turkey [3]. Schools were soon closed, school exams canceled and closures ordered followed by lockdown regulations in many countries as part of the fight against the pandemic. Daily case numbers have reached thirty thousand in Turkey, the highest level since the epidemic's beginning. Although more than a year has passed since this closure and some classes have partially reopened as case numbers have decreased, many children continue their education remotely for more than a year. This also meant that children were

stuck at home, and educating hyperactive children and adolescents with mental or physical disabilities and special needs full time without any outside support became a major challenge for many parents [3,4].

The pandemic COVID-19 has become a significant public health crisis, and its impact on mental health is a problem that is increasing daily [5]. A pandemic can have relevant psychological effects such as distress and feelings of fear, suspicion, uncertainty, and anxiety [6,7]. In a study conducted in China, moderate to severe anxiety and depression symptoms were observed in individuals weeks after the epidemic began [7]. The COVID-19-related fear and social isolation, economic constraints, and the abrupt changes in lifestyle and working conditions place a significant burden on mental health [8]. As in many other countries, mental health professionals play a role in psychosocial support services in our country. However, our knowledge of identifying priority target groups in this area is insufficient. Nevertheless, the Turkish Ministry of Health has launched the KORDEP project to provide a wide range of mental health support among the public [9].

Children and adolescents worldwide may be particularly vulnerable to the negative mental health effects of the COVID-19 pandemic if they are on lockdown at home, school is closed, and physical distancing measures are taken [5,10]. Lifestyle changes play an important role in the negative impact of COVID-19 on mental health. In a study of the effects of COVID-19-related restrictions on the behavior of children and adolescents over a 24-h day, it was found that physical activity decreased significantly, sedentary behavior increased, and sleep patterns/sleep quality were disrupted in children and adolescents [11]. At the same time, weight gain in children and adolescents was established to be due to both sedentary lifestyles and dietary changes [12]. In addition, a mandatory stay-at-home quarantine policy has been shown to lead to greatly increased participation in online gaming. Initiatives, such as #PlayApartTogether, which promote gaming for the purpose of socializing and distress reduction, may have positive effects. Although gaming can be a healthy coping strategy for most people, it also carries risks for some vulnerable individuals. Prolonged social isolation and technology-based activities risk perpetuating unhealthy lifestyle patterns [13]. Besides, children who already have psychiatric or neurodevelopmental problems are at higher risk for these drawbacks than children with normal development [14–16]. In a study of the impact of COVID-19 on child and adolescent psychiatry services at the onset of the pandemic in Europe from mid-April to mid-May 2020, 82 directors of child and adolescent psychiatry services in 20 countries who responded anonymously to an online questionnaire reported an increase in cases of anxiety disorders (36%), conduct disorders (27%), adjustment disorders (24%), obsessive-compulsive disorders (24%), and suicidal crises (24%) [17].

It has been shown that one of the most important determinants of children and adolescents' mental and physical well-being is the mental well-being of their parents. Parental psychological distress can have a negative impact on children's physical and mental health. Parental mental health problems have been associated with delays in child development [18] and lower quality of early interactions [19], which can have significant effects on children's socioemotional and cognitive development. Consequently, parental mental health is a highly vulnerable construct that may be affected by the COVID-19 pandemic [20].

Many studies have documented negative effects of the COVID-19 pandemic on parental mental health and child well-being [21–24]. Based on general stress theory [25] and a social-ecological perspective [26,27], it is hypothesized that the cumulative effects of these stressors, particularly in multiple contexts, may increase parental stress and anger, thereby increasing the risk of intrafamily tension and predicting family violence, including rigid discipline or maltreatment of children (physical, sexual, emotional abuse [physical, supervisory, or other neglect]) [27].

This study aimed to determine the levels of anxiety and fear and suspicion of parents in relation to the COVID-19 situation in Turkey and the possible predictive factors (past medical history, past COVID infection in the family,

symptomatic COVID infection in the child, online gaming patterns, adapting to online education, changes in family relationships, weight, sleep time, and chronotype) for these variables in families admitted to a child and adolescent psychiatry outpatient clinic of a university hospital in Turkey. In this way, it is hoped to contribute to the identification of priority target groups in psychosocial support services.

## Material and methods

The research study group consisted of 600 patients aged 0–18 years and their parents who contacted Gazi University Faculty of Medicine, Child and Adolescent Psychiatry outpatient clinic between 13 February 2021 and 30 March 2021. Parents and children consented to participate in the study after being verbally informed about the purpose and method of the study; the COVID-19-related psychological distress (CORPD) scale and a data recording form developed specifically for this study were completed by the parents. All cases included in the study were examined by a child and adolescent psychiatrist to perform a diagnostic evaluation, and their current diagnoses were recorded. The study patients were then divided into two groups to compare relevant variables: the psychiatric patient group and the undiagnosed child group. The children were also divided into no/low and high COVID-19-related anxiety groups to investigate the association of COVID-19-related anxiety levels with different variables.

Parents who did not want to participate in the study or were illiterate were excluded. The study was approved by both the Ministry of Health Scientific Research Platform (2021-02-11T10\_39\_08) and the Clinical Research Ethics Committee of Gazi University Faculty of Medicine (22022021/181).

The scales used in the study; Data recording form: It was prepared by the researchers connected with this study and recorded the sociodemographic characteristics and medical history of the participants (children and their parents) and the pandemic history. This form also examined previous COVID-19 infection in the family, symptomatic COVID-19 infection in the child, online gaming behavior (a significant increase in online gaming), adapting to online education, changes in family relationships (negative and positive), weight gain (a significant increase in weight percentile), sleep duration (a decrease in sleep duration), and chronotype (an increase in eveningness chronotype).

CORPD scale: This scale was developed by Feng et al. to measure the level of psychological distress by COVID-19 and the validity and reliability study was conducted by Ay et al. in Turkey [28,29]. It consists of 12 items and contains two dimensions: Suspicion and Anxiety and Fear. The items of the scale are rated on a five-point Likert scale. They range from 1 to 5 (strongly disagree to strongly agree). The total score of all items on the scale reflects the level (degree) of psychological distress experienced by the person by COVID-19. High scores on the scale mean high levels of psychological distress related to COVID-19. The scale had good internal reliability with a Cronbach's  $\alpha$  of 0.88. The Cronbach's  $\alpha$  of the Anxiety and Fear subscale was 0.74, and the Cronbach's  $\alpha$  of the Suspicion subscale was 0.87 [28].

## Statistical analysis

The software IBM SPSS Statistics for Windows 22.0 (IBM SPSS Inc., Armonk, NY) was used for statistical analyses. Rates of changes during the COVID-19 pandemic (previous COVID-19 infection in the family, symptomatic COVID-19 infection in the child, a significant increase in online gaming, weight gain (a significant increase in weight percentile), adapting to online education, positive changes in family relationships) were presented using cross-tabulations. The chi-square test or Fisher's exact test (when the assumptions of the chi-square test do not apply due to low expected cell counts) was used to compare proportions between groups when appropriate. Parental scores of CORPD scale and parent and child ages were investigated using visual (histograms, probability plots) and analytic methods (Kolmogorov–Smirnov test) to determine whether or not they were normally distributed. For the non-normally distributed variables, descriptive analyzes were performed using minimum-maximum and medians. The Mann–Whitney U-test was used to compare these variables between groups. Parental subscales of anxiety and fear and suspicion were classified as high when parents reported scores of 4 or 5 for all items. Associations between different variables (demographic, family, and child characteristics and changes during the pandemic) and high COVID-19-related anxiety and fear and suspicion levels were calculated using univariate analysis. Variables for which the unadjusted  $p$  value in the univariate analysis was  $.25$  were identified as potential predictors and included in the logistic regression analysis (Backward LR method was used). The Hosmer–Lemeshow goodness-of-fit statistic was performed to assess model fit. A type 1 error level of 5% was used to derive statistical significance. A  $p$  value of  $<.05$  was considered significant for all analyses.

## Results

The sample consisted of 600 children referred to our child and adolescent psychiatry outpatient clinic. A total of 431 (71.8%) of them had at least one psychiatric diagnosis. The most common

psychiatric diagnoses were ADHD ( $N = 153$ , 25.5%), anxiety disorders ( $N = 72$ , 12%) and depression ( $N = 37$ , 6.2%). Other diagnoses were obsessive-compulsive disorder ( $N = 28$ , 4.7%), speech disorder ( $N = 36$ , 6%), ASD ( $N = 19$ , 3.2%), intellectual disabilities ( $N = 31$ , 5.2%), dyslexia ( $N = 26$ , 4.3%), conduct disorder ( $N = 19$ , 3.2%), tic disorder ( $N = 4$ , 0.7%), psychosis ( $N = 1$ , 0.2%), encopresis ( $N = 2$ , 0.3%), and post-traumatic stress disorder ( $N = 3$ , 0.5%).

### Comparisons of psychiatric patients (children with psychiatric diagnosis) and undiagnosed children (children with no diagnosis)

When comparing the groups of psychiatric patients and undiagnosed children, it was found that the age of children and the age of mother and father were significantly higher in the psychiatric patient group (for all,  $p < .001$ ). In terms of changes during the COVID-19 pandemic, a significant increase in weight percentile (weight gain) was significantly higher in the psychiatric patient group than others (undiagnosed children group) (22.7 vs. 13%,  $p = .007$ ). Again, parents of the psychiatric patient group reported more positive changes in family relationships than others (parents of the undiagnosed children group) (36.2 vs. 26.6%,  $p = .026$ ). We found no significant differences in other parameters of changes during the COVID-19 pandemic.

Comparing parental CORPD scale scores, we found that parental suspicion was greater in the psychiatric patient group ( $p = .026$ ) than in the undiagnosed children group (see Table 1 for details of the analysis).

### Comparisons of undiagnosed children (children with no diagnosis) and the diagnosis types of psychiatric patients in terms of changes during the COVID-19 pandemic

In general, the rate of previous COVID-19 infection in the family was higher in undiagnosed children (except in the children

Table 1. Comparisons of psychiatric patients (children with psychiatric diagnosis) and undiagnosed children (children with no diagnosis).

	Psychiatric patient group $N = 431$ (71.8%)	Undiagnosed child group $N = 169$ (28.7%)	Statistics
	Min–max (median)	Min–max (median)	
Age of the child	2–19 (12)	1–18 (9)	$Z = -5.005$ , $p < .001$
Age of the mother	23–58 (39)	21–59 (37)	$Z = -3.990$ , $p < .001$
Age of the father	25–64 (43)	23–70 (40.5)	$Z = -3.975$ , $p < .001$
Changes during the COVID-19 pandemic	$N$ (%)	$N$ (%)	
• Previous COVID-19 infection in the family	112 (27.9)	53 (35.8)	$\chi^2 = 3.194$ , $p = .074$
• Symptomatic COVID-19 infection in the child	25 (5.8)	15 (8.9)	$\chi^2 = 1.845$ , $p = .174$
• A significant increase in online gaming	141 (32.7)	64 (37.9)	$\chi^2 = 1.434$ , $p = .231$
• A significant increase in weight percentile (weight gain)	98 (22.7)	22 (13)	$\chi^2 = 7.169$ , $p = .007$
• Adapting to online education	227 (52.7)	81 (47.9)	$\chi^2 = 1.091$ , $p = .296$
• Positive changes in family relationships	156 (36.2)	45 (26.6)	$\chi^2 = 4.988$ , $p = .026$
• Negative changes in family relationships	161 (37.4)	63 (37.3)	$\chi^2 < 0.001$ , $p = .986$
• A decrease in sleep duration	120 (27.8)	43 (25.4)	$\chi^2 = 0.353$ , $p = .552$
• An increase in eveningness chronotype	231 (53.6)	80 (47.3)	$\chi^2 = 1.905$ , $p = .168$
Parental psychological distress scale	Min–max (median)	Min–max (median)	
• Anxiety and fear	5–25 (19)	5–25 (19)	$Z = -0.984$ , $p = .325$
• Suspicion	7–35 (21)	7–35 (20)	$Z = -2.224$ , $p = .026$
• Total	12–60 (41)	12–60 (39)	$Z = -1.932$ , $p = .053$

Boldface values are  $p < .05$ .

with depression and dyslexia). In the children with intellectual disabilities and speech disorders, this rate was significantly lower than the undiagnosed children ( $p = .015$  and  $p = .023$ , respectively). On the other hand, children with depression had a higher own symptomatic COVID-19 infection ( $p = .008$ ).

We found no significant difference in online gaming in behavioral changes, but rates of a significant increase in weight percentile (weight gain) were significantly higher in children with dyslexia, ASD, and OCD than undiagnosed children ( $p = .001$ ,  $p = .043$ ,  $p = .002$ ; respectively). It was also concluded that children with ADHD and anxiety had significantly higher adapting rates to online education ( $p = .021$ ,  $p = .001$ ), while those with speech disorders had significantly lower rates ( $p = .003$ ). Also, parents reported more positive family relationships in children with anxiety and OCD ( $p < .001$  for both), while negative family relationships were more common in children with depression ( $p = .013$ ). During the COVID-19 pandemic, regarding sleep habits, children with ADHD and depression had significantly higher rates of an increase in eveningness chronotype ( $p = .008$  and  $p = .05$ , respectively) and children with dyslexia had significantly higher rates of a decrease in sleep duration ( $p = .029$ ) (see Table 2 for details of the analysis).

### Comparisons of children (groups with no/low COVID-19-related anxiety and high COVID-19-related anxiety) based on their COVID-19-related anxiety levels

Based on parent reports, children were divided into no/low and high COVID-19-related anxiety groups. Five hundred thirty-eight parents reported their children's anxiety levels (196 reported no or low anxiety levels and 342 reported high anxiety levels). When comparing the groups, we detected that children with high COVID-19-related anxiety

were significantly older than the others (children with no/low COVID-19-related anxiety) (median 13 and 9 years, respectively), and as expected, the age of both mother and father was also higher in this group. Considering family characteristics, the proportion of living with a single parent was significantly higher in the high COVID-19-related anxiety group (15 vs. 3.6%). Assessment of changes during the COVID-19 pandemic revealed that rates of previous COVID-19 infection in the family, separation from parents, negative changes in family relationships, a significant increase in online gaming, and an increase in eveningness chronotype were significantly higher in the high COVID-19-related anxiety group ( $p = .004$ ,  $.003$ ,  $<.001$ ,  $.006$ ,  $<.001$ ; respectively). Interestingly, despite all these negative results, adapting to online education was also significantly higher ( $p < .001$ ) in this group.

Looking at the parental psychological distress, parent anxiety and fear scores were significantly higher in the high COVID-19-related anxiety group ( $p = .043$ ) than in the no/low COVID-19-related anxiety group (see Table 3 for details of the analysis).

### The predictors of maternal/paternal COVID-19-related anxiety and fear and suspicion levels

To find the predictors of high maternal/paternal COVID-19-related anxiety and fear and suspicion levels, we examined the differences in demographic variables (age of parent (mother/father) and child, education level of parent (mother/father), monthly income level, living with a single parent, number of children in the family), characteristics of the child and family (child's psychiatric disorder or chronic medical problems, internalizing problems in the family), and changes during the COVID-19 pandemic (separation from the child, negative changes in family relationships, previous COVID-19

Table 2. Comparisons of undiagnosed children (children with no diagnosis) and the diagnosis types of psychiatric patients in terms of changes during the COVID-19 pandemic.

	Undiagnosed children <i>N</i> = 169 <i>N</i> (%)	ADHD <i>N</i> = 153 <i>N</i> (%)	Anxiety <i>N</i> = 72 <i>N</i> (%)	Depression <i>N</i> = 37 <i>N</i> (%)	ID <i>N</i> = 31 <i>N</i> (%)	Dyslexia <i>N</i> = 26 <i>N</i> (%)	ASD <i>N</i> = 19 <i>N</i> (%)	OCD <i>N</i> = 28 <i>N</i> (%)	Speech disorders <i>N</i> = 36 <i>N</i> (%)
Changes During the COVID-19 Pandemic									
• Previous COVID-19 infection in the family	53 (35.8)	43 (29.5)	24 (35.3)	13 (36.1)	3 (11.5) <sup>d</sup>	8 (36.4)	2 (11.1)	6 (22.2)	4 (12.9) <sup>h1</sup>
• Symptomatic COVID-19 infection in the child	15 (8.9)	1 (0.7) <sup>a1</sup>	7 (9.7)	9 (24.3) <sup>c1</sup>	2 (6.5)	1 (3.8)	0 (0)	3 (10.7)	0 (0)
• A significant increase in online gaming	64 (37.9)	63 (41.2)	20 (27.8)	9 (24.3)	7 (22.6)	12 (46.2)	3 (15.8)	7 (25)	11 (30.6)
• A significant increase in weight percentile (weight gain)	22 (13)	29 (19)	16 (22.2)	7 (18.9)	7 (22.6)	11 (42.3) <sup>e1</sup>	6 (31.6) <sup>f</sup>	11 (39.3) <sup>g1</sup>	6 (16.7)
• Adapting to online education	81 (47.9)	93 (60.8) <sup>a2</sup>	51 (70.8) <sup>b1</sup>	18 (48.6)	13 (41.9)	12 (46.2)	5 (26.3)	17 (60.7)	7 (19.4) <sup>h2</sup>
• Positive changes in family relationships	45 (26.6)	48 (31.4)	37 (51.4) <sup>b2</sup>	6 (16.2)	10 (32.3)	8 (30.8)	6 (31.6)	19 (67.9) <sup>g2</sup>	14 (38.9)
• Negative changes in family relationships	63 (37.3)	69 (45.1)	22 (30.6)	22 (59.5) <sup>c2</sup>	8 (25.8)	11 (42.3)	5 (26.3)	5 (17.9)	6 (16.7) <sup>h3</sup>
• A decrease in sleep duration	43 (25.4)	45 (29.4)	22 (30.6)	14 (37.8)	9 (29)	12 (46.2) <sup>e2</sup>	3 (15.8)	6 (21.4)	0 (0) <sup>h4</sup>
• An increase in eveningness chronotype	80 (47.3)	95 (62.1) <sup>a3</sup>	42 (58.3)	24 (64.9) <sup>c3</sup>	11 (35.5)	17 (65.4)	7 (36.8)	15 (53.6)	7 (19.4) <sup>h5</sup>

Statistics for significant differences (Pearson chi-square results were used for frequency values  $> 25$ ; Yates chi-square results for frequency values 5–25; and Fisher's exact test results for frequency values  $< 5$ ).

For children with ADHD: <sup>a1</sup> $\chi^2 = 11.496$ ,  $p = .001$ ; <sup>a2</sup> $\chi^2 = 5.343$ ,  $p = .021$ ; <sup>a3</sup> $\chi^2 = 7.045$ ,  $p = .008$ .

For children with anxiety: <sup>b1</sup> $\chi^2 = 10.692$ ,  $p = .001$ ; <sup>b2</sup> $\chi^2 = 13.791$ ,  $p < .001$ .

For children with depression: <sup>c1</sup> $\chi^2 = 7.038$ ,  $p = .008$ ; <sup>c2</sup> $\chi^2 = 6.162$ ,  $p = .013$ ; <sup>c3</sup> $\chi^2 = 3.730$ ,  $p = .05$ .

For children with intellectual disabilities: <sup>d</sup> $\chi^2 = 5.969$ ,  $p = .015$ .

For children with dyslexia: <sup>e1</sup> $\chi^2 = 13.750$ ,  $p < .001$ ; <sup>e2</sup> $\chi^2 = 4.773$ ,  $p = .029$ .

For children with ASD: <sup>f</sup> $\chi^2 = 4.642$ ,  $p = .043$ .

For children with OCD: <sup>g1</sup> $\chi^2 = 11.885$ ,  $p = .002$ ; <sup>g2</sup> $\chi^2 = 18.617$ ,  $p < .001$ .

For children with speech disorders: <sup>h1</sup> $\chi^2 = 5.187$ ,  $p = .023$ ; <sup>h2</sup> $\chi^2 = 8.700$ ,  $p = .003$ ; <sup>h3</sup> $\chi^2 = 4.761$ ,  $p = .029$ ; <sup>h4</sup> $\chi^2 = 10.107$ ,  $p = .001$ ; <sup>h5</sup> $\chi^2 = 8.345$ ,  $p = .004$ .

Boldface values are  $p < .05$ .

**Table 3.** Comparisons of children (groups with no/low COVID-19-related anxiety and high COVID-19-related anxiety) based on their COVID-19-related anxiety levels.

	No/low COVID-19-related anxiety group <i>N</i> = 196	High COVID-19-related anxiety group <i>N</i> = 342	Statistics
	Min-max (median)	Min-max (median)	
Age of the child	1–18 (9)	2–19 (13)	$Z = -6.193, p < .001$
Age of the mother	21–57 (37)	22–59 (40)	$Z = -3.795, p < .001$
Age of the father	23–64 (41)	27–70 (43)	$Z = -3.305, p = .001$
	<i>N</i> (%)	<i>N</i> (%)	
Low monthly income of the family	96 (49.5)	159 (52.3)	$\chi^2 = 0.376, p = .540$
Internalizing problems in the family	13 (6.6)	36 (10.5)	$\chi^2 = 2.223, p = .182$
Living with a single parent	7 (3.6)	51 (15)	$\chi^2 = 16.285, p < .001$
Changes during the COVID-19 pandemic			
• Symptomatic COVID-19 infection in the child	8 (4.1)	27 (7.8)	$\chi^2 = 2.923, p = .127$
• Previous COVID-19 infection in the family	44 (22.7)	114 (34.5)	$\chi^2 = 8.167, p = .004$
• Death of a family member due to COVID-19 infection	9 (4.6)	14 (4.3)	$\chi^2 = 0.038, p = .846$
• Separation from parents	8 (4.2)	42 (12.2)	$\chi^2 = 9.481, p = .003$
• Negative changes in family relationships	55 (28.1)	157 (45.6)	$\chi^2 = 16.179, p < .001$
• A significant increase in online gaming	54 (27.6)	135 (39.2)	$\chi^2 = 7.504, p = .006$
• A significant increase in weight percentile (weight gain)	33 (16.8)	82 (23.8)	$\chi^2 = 3.651, p = .056$
• Adapting to online education	86 (43.9)	205 (59.6)	$\chi^2 = 12.410, p < .001$
• A decrease in sleep duration	49 (25)	105 (30.5)	$\chi^2 = 1.868, p = .172$
• An increase in eveningness chronotype	79 (40.3)	214 (62.2)	$\chi^2 = 24.136, p < .001$
Parental psychological distress scale	Min-max (median)	Min-max (median)	
• Anxiety and fear	5–25 (18)	5–25 (20)	$Z = -2.027, p = .043$
• Suspicion	7–35 (20.5)	7–35 (21)	$Z = -0.703, p = .482$
• Total	12–57 (38)	12–60 (41)	$Z = -1.547, p = .122$

Boldface values are  $p < .05$ .

**Table 4.** Effects of different variables on parental COVID-19-related psychological distress scale scores in univariate logistic regression analyses.

	Maternal anxiety and fear		Paternal anxiety and fear		Maternal suspicion		Paternal suspicion	
	OR (CI 95%)	<i>p</i>	OR (CI 95%)	<i>p</i>	OR (CI 95%)	<i>p</i>	OR (CI 95%)	<i>p</i>
Age of parent (mother/father)	0.99 (0.97–1.026)	.91	0.98 (0.94–1.02)	.51	0.96 (0.92–1.007)	<b>.10</b>	1.02 (0.95–1.08)	.53
Education level of parent (mother/father) (year)	1.03 (0.98–1.08)	<b>.21</b>	1.04 (0.95–1.13)	.32	0.99 (0.92–1.07)	.91	1.14 (0.99–1.31)	<b>.06</b>
Monthly income level <sup>a</sup>	1.08 (0.73–1.59)	.69	1.20 (0.05–2.22)	.55	0.83 (0.47–1.48)	.54	2.38 (0.88–6.44)	<b>.08</b>
Living with a single parent <sup>b</sup>	1.27 (0.69–2.33)	.43	0.85 (0.27–2.67)	.79	1.16 (0.49–2.74)	.72	0.48 (0.06–3.88)	.49
Number of children in the family	0.90 (0.72–1.13)	.39	1.06 (0.75–1.49)	.71	1.10 (0.80–1.51)	.54	0.95 (0.57–1.98)	.95
Negative changes in family relationships <sup>b</sup>	0.83 (0.56–1.24)	.38	1.05 (0.56–1.96)	.86	2.18 (1.23–3.84)	<b>.007</b>	1.05 (0.42–2.59)	.91
Internalizing problems in the family <sup>b</sup>	1.40 (0.71–2.74)	.32	1.06 (0.32–3.44)	.91	0.76 (0.26–2.25)	.62	3.60 (0.99–13.13)	<b>.05</b>
Separation from the child <sup>b</sup>	1.46 (0.76–2.78)	<b>.25</b>	2.34 (0.67–8.13)	<b>.17</b>	1.42 (0.48–4.16)	.52	0.69 (0.13–3.43)	.65
Age of the child	0.97 (0.93–1.01)	.27	0.94 (0.88–1.01)	<b>.12</b>	0.95 (0.89–1.01)	<b>.11</b>	1.04 (0.95–1.15)	.34
Child's psychiatric problem <sup>b</sup>	1.19 (0.78–1.81)	.40	0.59 (0.29–1.19)	<b>.14</b>	1.61 (0.82–3.17)	<b>.16</b>	1.03 (0.37–2.80)	.95
Child's chronic medical problems <sup>b</sup>	0.67 (0.41–1.10)	<b>.11</b>	1.37 (0.66–2.87)	.39	1.53 (0.69–3.38)	.29	0.46 (0.13–1.65)	<b>.23</b>
Previous COVID-19 infection in the family <sup>b</sup>	1.26 (0.81–1.96)	.28	0.94 (0.48–1.83)	.85	1.28 (0.68–2.41)	.43	0.29 (0.08–1.05)	<b>.06</b>
Symptomatic COVID-19 infection in the child <sup>b</sup>	2.94 (1.26–6.85)	<b>.01</b>	0.50 (0.14–1.75)	.28	2.02 (0.46–8.76)	.34	0.00 (0.00–0.00)	.99
Death of a family member due to COVID-19 infection	1.008 (0.41–2.43)	.98	1.11 (0.15–8.07)	.91	1.13 (0.32–4.00)	.84	2.09 (0.20–21.09)	.53

OR: odds ratio; CI: confidence interval. Bold face values are  $p < .25$ .

<sup>a</sup>Monthly income level was coded as 0 = equal or lower than minimum wage, 1 = higher than minimum wage.

<sup>b</sup>These variables were coded as 0 = no, 1 = yes.

infection in the family, and death of a family member due to COVID-19 Infection) using univariate analysis. Variables with a  $p$  value less than .25 were then included in the logistic regression analysis. Logistic regression analysis revealed that symptomatic COVID-19 infection of the child increased the risk of higher maternal COVID-19-related anxiety and fear (OR: 2.71) and negative changes in family relationships increased the risk of higher maternal COVID-19-related suspicion (OR: 2.25). On the other hand, we found no predictor of the risk of higher paternal COVID-19-related anxiety and fear and suspicion (see Tables 4–6 for details of the analysis).

## Discussion

This study was a descriptive study primarily examining parental psychological distress related to COVID-19 and related variables in a sample of a child psychiatry outpatient clinic at a university hospital. The study reached three important conclusions. First, parents of children with a psychiatric diagnosis (ADHD, ASD, anxiety/depression, ID, dyslexia, OCD, SD, etc.) have higher suspicion scores on the CORPD scale. In a study examining the psychological state of 1450 parents of children with special needs (OSD, ID, visual, or hearing

**Table 5.** Effects of different variables on maternal COVID-19-related psychological distress types in multivariate logistic regression analysis.

Variables	Adjusted OR	95% CI		p Value
		Lower	Upper	
<b>Maternal anxiety and fear</b>				
Step 1				
Education level of mother	1.02	.97	1.08	.312
Separation from the child	.47	.23	.98	.045
Child's chronic medical problems	.66	.40	1.10	.115
Symptomatic COVID-19 infection in the child	2.81	1.13	6.96	.025
Step 2				
Separation from the child	.48	.23	.99	.047
Child's chronic medical problems	.66	.40	1.10	.117
Symptomatic COVID-19 infection in the child	2.76	1.12	6.81	.027
Step 3				
Separation from the child	.50	.24	1.03	.062
Symptomatic COVID-19 infection in the child	<b>2.71</b>	1.10	6.69	<b>.030</b>
<b>Maternal suspicion</b>				
Step 1				
Age of the mother	.97	.92	1.02	.299
Negative relationships in the family	2.25	1.25	4.05	.006
Age of the child	.95	.87	1.03	.211
Child's psychiatric problem	1.87	.92	3.80	.080
Step 2				
Negative relationships in the family	<b>2.25</b>	1.25	4.03	<b>.007</b>
Age of the child	<b>.92</b>	.86	.99	<b>.028</b>
Child's psychiatric problem	1.85	.91	3.74	.085

OR: odds ratio; CI: confidence interval

The backward LR method was used. Boldface values are  $p < .05$ .**Table 6.** Effects of different variables on paternal COVID-19-related psychological distress types in multivariate logistic regression analysis.

Variables	Adjusted OR	95% CI		p value
		Lower	Upper	
<b>Paternal anxiety and fear</b>				
Step 1				
Separation from the child	2.08	.58	7.45	.25
Age of the child	.96	.89	1.03	.29
Child's psychiatric problem	.57	.27	1.20	.14
Step 2				
Separation from the child	2.04	.57	7.25	.26
Child's psychiatric problem	.54	.26	1.13	.10
Step 3				
Child's psychiatric problem	.51	.25	1.05	.07
<b>Paternal suspicion</b>				
Step 1				
Education level of father	1.08	.91	1.28	.35
Monthly income level	1.50	.46	4.85	.49
Internalizing problems in the family	2.85	.71	11.37	.13
Child's chronic medical problems	.61	.16	2.29	.46
Previous COVID-19 infection in the family	.36	.09	1.32	.12
Step 2				
Education level of father	1.11	.95	1.29	.16
Internalizing problems in the family	3.04	.77	11.99	.11
Child's chronic medical problems	.60	.16	2.25	.44
Previous COVID-19 infection in the family	.36	.10	1.34	.13
Step 3				
Education level of father	1.11	.96	1.29	.14
Internalizing problems in the family	3.10	.79	12.12	.10
Previous COVID-19 infection in the family	.36	.10	1.33	.12
Step 4				
Internalizing problems in the family	3.44	.89	13.28	.07
Previous COVID-19 infection in the family	.34	.09	1.23	.10

OR: odds ratio; CI: confidence interval. The backward LR method was used.

impairment) during the period of the COVID-19 pandemic, it was concluded that parents in the autism and ID groups were more likely to have anxiety and depression problems [30].

It is known that during the COVID-19 pandemic, many parents of children with a neurodevelopmental disorder

(ADHD, ASD, ADD, ADS, etc.) reported that they needed special counseling to cope with their child's behavioral and mental health problems and to prevent existing problems from worsening [31,32]. Based on these findings, parents of children with psychiatric disorders should be one of the first target groups to develop psychosocial support programs.

The second important finding of our study is that parents of children with high COVID-19-related anxiety have higher anxiety and fear scores on the CORPD scale. This finding may be related to the 'Stress Contagion' hypothesis. Liu and Duan hypothesize that the current pandemic is a chronic stressor that can potentially wear down our bodies and lead to long-term health consequences. In the context of children and families, the direct and indirect effects of pandemic-related stress may be exacerbated and multiplied by a process of stress spread among family members; they referred to this process, the psychosocial stress experienced and spread by children and parents as a result of the pandemic, as stress contagion [33]. Therefore, the family system should be considered as a whole when providing psychosocial support. Third, in this study, logistic regression analysis revealed that negative changes in family relationships increased the risk of higher maternal COVID-19-related suspicion. In addition, negative changes between family members were found to be related to childhood depression. Even though the lockdown gives family members more time to share and be together, the quality of that time can be compromised as parents are heavily burdened by work commitments, full-time parenting duties, and being cooped up in the house. Also, the daily stressors associated with 24-h parenting in a poor quality environment have such a negative impact on the quality of parent-child interaction that the effect of lockdown is masked. The emphasis on family well-being is well known, as there is high-quality evidence that children's adjustment depends largely on the overall climate and relationships in a family [34] and that interventions to improve children's well-being are more effective when they incorporate family components [35]. Family members face immediate threats to their relationships, rituals, rules, and routines due to COVID-19, which can have a significant impact on children's coping strategies during this time. Therefore, it is crucial for families to maintain and nurture their relationships and shared beliefs to provide security and hope for children during this pandemic time of adversity and uncertainty [36].

When considering the factors associated with high COVID-19-related anxiety levels in children admitted to our outpatient clinic, we found that children with high COVID-19-related anxiety were significantly older than others. This finding is thought to be related to higher awareness of the pandemic in the older age group. Regarding family characteristics, we detected that rates of living with a single parent, separation from parents, and negative changes in family relationships were significantly higher in the high COVID-19-related anxiety group. This may be related to increased parental stress and difficulties in parent-child relationships during the COVID-19 pandemic period [37]. In addition, we observed that the rate of previous COVID-19 infections in the family was significantly higher in the high COVID-19-related anxiety group. This result suggests that children with family members who have already experienced COVID-19 infection should be the priority target group to provide psychosocial support.

A systematic review of child and adolescent weight gain during the COVID-19 pandemic showed that children,

adolescents, and young adults gained weight [38]. In addition, we determined that children with psychiatric diagnoses had significantly higher weight gain than others (undiagnosed children), although weight gain in outpatient children occurs in all children. During the ongoing COVID-19 pandemic, changes in dietary behavior, increased food intake and unhealthy foods, such as potatoes, meat and sugary drinks have been noted. Another problem is food insecurity due to financial reasons. As the imposed restrictions limited exercise outside the home, physical activity has also been limited, another risk factor for weight gain [38]. As a result, COVID-19 restrictions have disrupted the daily lives of children, adolescents, and young adults, leading to changes in their eating behaviors and physical activity. To protect them, health care providers should highlight the risk of obesity and offer prevention strategies, including parental involvement. Ideally, global policies, guidelines, and precautions should be established.

All children increased online gaming, with no significant differences between groups in this study. This finding suggests that children are in front of screens for both online education and online gaming [39]. A systematic review of longitudinal studies of the relationship between screen time and mental health in young people reported an association between screen time and depression. In contrast to depressive symptoms, there was no evidence of a longitudinal association between screen time and other internalizing mental health symptoms, including anxiety, self-esteem, and general internalizing problems; however, specific studies are needed in this area [40]. In our study, rates of a significant increase in online gaming and an increase in eveningness chronotype were significantly higher in the high COVID-19-related anxiety group. Also, when comparing changes in sleep habits, children with ADHD and depression had significantly higher rates of eveningness chronotype than others. It was suggested that these two diagnostic groups are more prone to sleep disorders. An association between eveningness chronotype and emotional difficulties has also been reported [41]. A study of chronotypes and trauma reactions in children with ADHD in home confinement due to COVID-19 concluded that children with eveningness chronotype in ADHD had significantly more sleep problems and trauma symptoms than children with non-eveningness chronotype [42]. In the group with depression and ADHD, it is useful to pay special attention to sleep hygiene recommendations. The fact that the history of a previous COVID-19 infection is significantly higher in children with a depression diagnosis than in the others may be due to the neuropsychiatric effects associated with COVID-19, which are not yet fully known [43].

Study limitations; parents' psychological distress was determined by self-report, and parents were not examined by an adult psychiatrist. In addition, the research data were collected from families presenting to a child psychiatry clinic at a university hospital, so the results relate to parents and children with 'help-seeking behaviors,' which is an essential step in psychosocial support, and the results do not fully represent the population sample.



## Conclusion

Parents of children with psychiatric disorders have had higher levels of COVID-19-related psychological distress than others during the COVID-19 pandemic. The main factors associated with high levels of distress are negative changes in family relationships and children with high COVID-19-related anxiety. High COVID-19-related anxiety levels in children have been associated with living with a single parent or separation from parents, negative changes in family relationships, previous COVID-19 infection in the family, and changes in daily routines. Consequently, parents with mentally ill children (children with psychiatric illnesses) should be one of the priority target groups in the provision of psychosocial support services during the COVID-19 pandemic. As part of psychosocial support, it is beneficial to promote family relationships, improve the quality of parent-child interactions, and provide training on organizing children's daily routines.

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## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Data availability statement

The data that support the findings of this study are available on request.

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## References

- [1] Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 Novel Coronavirus in Wuhan, China. *Lancet*. 2020; 395(10223):497–506.
- [2] Burki T. Outbreak of coronavirus disease 2019. *Lancet Infect Dis*. 2020;20(3):292–293.
- [3] Bikmazer A, Kadak MT, Gormez V, et al. Parental psychological distress associated with COVID-19 outbreak: a large-scale multi-center survey from Turkey. *Int J Soc Psychiatry*. 2020; 002076402097024.
- [4] Willner P, Rose J, Stenfort Kroese B, et al. Effect of the COVID-19 pandemic on the mental health of carers of people with intellectual disabilities. *J Appl Res Intellect Disabil*. 2020;33(6):1523–1533.
- [5] Holmes EA, O'Connor RC, Perry VH, et al. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *Lancet Psychiatry*. 2020;7(6):547–560.
- [6] Brooks SK, Weston D, Greenberg N. Psychological impact of infectious disease outbreaks on pregnant women: rapid evidence review. *Public Health*. 2020;189:26–36.
- [7] Wang G, Zhang Y, Zhao J, et al. Mitigate the effects of home confinement on children during the COVID-19 outbreak. *Lancet*. 2020;395(10228):945–947.
- [8] Ornell F, Schuch JB, Sordi AO, et al. Pandemic fear and COVID-19: mental health burden and strategies. *Braz J Psychiatry*. 2020; 42(3):232–235.
- [9] Turkey Ministry of Health. 2020. Coronavirus online mental support program (KORDEP); [cited 2020 April 20]. Available from: [https://dosyaism.saglik.gov.tr/Eklenti/103059,web\\_gorselpdf.pdf?](https://dosyaism.saglik.gov.tr/Eklenti/103059,web_gorselpdf.pdf?)
- [10] Lee J. Mental health effects of school closures during COVID-19. *Lancet Child Adolesc Health*. 2020;4(6):421.
- [11] Bates LC, Zieff G, Stanford K, et al. COVID-19 impact on behaviors across the 24-Hour day in children and adolescents: physical activity, sedentary behavior, and sleep. *Children*. 2020;7(9):138.
- [12] Rundle AG, Park Y, Herbstman JB, et al. COVID-19-related school closings and risk of weight gain among children. *Obesity*. 2020; 28(6):1008–1009.
- [13] King DL, Delfabbro PH, Billieux J, et al. Problematic online gaming and the COVID-19 pandemic. *J Behav Addict*. 2020;9(2): 184–186.
- [14] Nonweiler J, Rattray F, Baulcomb J, et al. Prevalence and associated factors of emotional and behavioural difficulties during COVID-19 pandemic in children with neurodevelopmental disorders. *Children*. 2020;7(9):128.
- [15] Aishworiya R, Kang YQ. Including children with developmental disabilities in the equation during this COVID-19 pandemic. *J Autism Dev Disord*. 2021;51(6):2155–2158.
- [16] O'Sullivan K, Clark S, McGrane A, et al. A qualitative study of child and adolescent mental health during the COVID-19 pandemic in Ireland. *Int J Env Res Pub Health*. 2021;18(3):1062.
- [17] Revet A, Hebebrand J, Anagnostopoulos D, et al. ESCAP CovCAP survey of heads of academic departments to assess the perceived initial (April/May 2020) impact of the COVID-19 pandemic on child and adolescent psychiatry services. *Eur Child Adolescent Psychiatry*. 2021;1–10.
- [18] Kingston D, Tough S. Prenatal and postnatal maternal mental health and school-age child development: a systematic review. *Matern Child Health J*. 2014;18(7):1728–1741.
- [19] Stein A, Lehtonen A, Harvey AG, et al. The influence of postnatal psychiatric disorder on child development. Is maternal preoccupation one of the key underlying processes? *Psychopathology*. 2009;42(1):11–21.
- [20] Vescovi G, Riter HS, Azevedo EC, et al. Parenting, mental health and Covid-19: a rapid systematic review. *Psicol Teoria e Prática*. 2021;23(1):1–28.
- [21] Brown SM, Doom JR, Lechuga-Pena S, et al. Stress and parenting during the global COVID-19 pandemic. *Child Abuse Negl*. 2020; 110(Pt 2):104699.

- [22] Cameron EE, Joyce KM, Delaquis CP, et al. Maternal psychological distress & mental health service use during the COVID-19 pandemic. *J Affect Disord.* 2020;276:765–774.
- [23] Hessami K, Romanelli C, Chiurazzi M, et al. COVID-19 pandemic and maternal mental health: a systematic review and Meta-analysis. *J Matern Fetal Neonatal Med.* 2020;1–8.
- [24] Patrick SW, Henkhaus LE, Zickafoose JS, et al. Well-being of parents and children during the COVID-19 pandemic: a national survey. *Pediatrics.* 2020;146(4):e2020016824.
- [25] Agnew R. Foundation for a general strain theory of crime and delinquency\*. *Criminology.* 1992;30(1):47–88.
- [26] Belsky J. Etiology of child maltreatment: a developmental-ecological analysis. *Psychol Bull.* 1993;114(3):413–434.
- [27] Connell CM, Strambler MJ. Experiences with COVID-19 stressors and parents' use of neglectful, harsh, and positive parenting practices in the northeastern United States. *Child Maltreat.* 2021;26(3):255–266.
- [28] Feng LS, Dong ZJ, Yan RY, et al. Psychological distress in the shadow of the COVID-19 pandemic: preliminary development of an assessment scale. *Psychiatry Res.* 2020;291:113202.
- [29] Ay T, Oruç D, Özdoğru AA. Adaptation and evaluation of COVID-19 related psychological distress scale Turkish form. *Death Stud.* 2021;1–9.
- [30] Chen SQ, Chen SD, Li XK, et al. Mental health of parents of special needs children in China during the COVID-19 pandemic. *Int J Environ Res Public Health.* 2020;17(24):9519.
- [31] Smile SC. Supporting children with autism spectrum disorder in the face of the COVID-19 pandemic. *CMAJ.* 2020;192(21):E587.
- [32] Summers J, Baribeau D, Mockford M, et al. Supporting children with neurodevelopmental disorders during the COVID-19 pandemic. *J Am Acad Child Adolesc Psychiatry.* 2021;60(1):2–6.
- [33] Liu CH, Doan SN. Psychosocial stress contagion in children and families during the COVID-19 pandemic. *Clin Pediatr.* 2020;59(9–10):853–855.
- [34] Browne DT, Plamondon A, Prime H, et al. Cumulative risk and developmental health: an argument for the importance of a family-wide science. *Wiley Interdiscip Rev Cogn Sci.* 2015;6(4):397–407.
- [35] Haine-Schlagel R, Walsh NE. A review of parent participation engagement in child and family mental health treatment. *Clin Child Fam Psychol Rev.* 2015;18(2):133–150.
- [36] Prime H, Wade M, Browne DT. Risk and resilience in family well-being during the COVID-19 pandemic. *Am Psychol.* 2020;75(5):631–643.
- [37] Gadermann AC, Thomson KC, Richardson CG, et al. Examining the impacts of the COVID-19 pandemic on family mental health in Canada: findings from a national cross-sectional study. *BMJ Open.* 2021;11(1):e042871.
- [38] Stavridou A, Kapsali E, Panagouli E, et al. Obesity in children and adolescents during COVID-19 pandemic. *Children.* 2021;8(2):135.
- [39] Sultana A, Tasnim S, Hossain MM, et al. Digital screen time during the COVID-19 pandemic: a public health concern. *F1000Res.* 2021;10:81.
- [40] Tang S, Werner-Seidler A, Torok M, et al. The relationship between screen time and mental health in young people: a systematic review of longitudinal studies. *Clin Psychol Rev.* 2021;86:102021.
- [41] Dags N, McGlinchey EL, Talbot LS, et al. Double trouble? The effects of sleep deprivation and chronotype on adolescent affect. *J Child Psychol Psychiatry.* 2012;53(6):660–667.
- [42] Çetin FH, Uçar HN, Türkoğlu S, et al. Chronotypes and trauma reactions in children with ADHD in home confinement of COVID-19: full mediation effect of sleep problems. *Chronobiol Int.* 2020;37(8):1214–1222.
- [43] Vindegaard N, Benros ME. COVID-19 pandemic and mental health consequences: systematic review of the current evidence. *Brain Behav Immun.* 2020;89:531–542.