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Parental psychological distress associated with COVID-19 outbreak: A large-scale multicenter survey from Turkey

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Abstract

Aims Pandemics can cause substantial psychological distress; however, we do not know the impact of the COVID-19 related lockdown and mental health burden on the parents of school age children. We aimed to comparatively examine the COVID-19 related the stress and psychological burden of the parents with different occupational, locational, and mental health status related backgrounds.

Methods A large-scale multicenter online survey was completed by the parents ($n = 3,278$) of children aged 6 to 18 years, parents with different occupational (health care workers—HCW [18.2%] vs. others), geographical (İstanbul [38.2%] vs. others), and psychiatric (child with a mental disorder [37.8%]) backgrounds.

Results Multivariable logistic regression analysis showed that being a HCW parent (odds ratio 1.79, $p < .001$), a mother (odds ratio 1.67, $p < .001$), and a younger parent (odds ratio 0.98, $p = .012$); living with an adult with a chronic physical illness (odds ratio 1.38, $p < .001$), having an acquaintance diagnosed with COVID-19 (odds ratio 1.22, $p = .043$), positive psychiatric history (odds ratio 1.29, $p < .001$), and living with a child with moderate or high emotional distress (odds ratio 1.29, $p < .001$; vs. odds ratio 2.61, $p < .001$) were independently associated with significant parental distress.

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Conclusions Parents report significant psychological distress associated with COVID-19 pandemic and further research is needed to investigate its wider impact including on the whole family unit.

Keywords
COVID 19, pandemic, mental health, parent, children

Introduction

In the last days of 2019, when a cluster of pneumonia cases of unknown origin was reported in the city of Wuhan in China, no one could have predicted the health and economic impacts of the infection at the time. The viral infection that was later called Coronavirus disease (COVID-19) quickly became a deadly pandemic affecting almost every corner of the world including 213 countries, areas or territories, leaving a toll of over 3.5 million infected people and over 250,000 deaths within 5 months of the first confirmed death (World Health Organization, 2019).

Disasters, whether natural or human-made, lead to considerable uncertainty in terms of how the health, social and economic outcomes would be played out. Previous pandemics caused profound psychosocial effects on people at the individual, community, and global levels (Wang et al., 2020a) and influenza pandemics in particular caused increased incidences of various neuropsychiatric symptoms including anxiety, depression, suicidality, feeling of helplessness, fear of contamination, stress, and stigma or even mania, psychosis, and delirium(Hall et al., 2008).

Short communications or surveys conducted to investigate the risk factors associated with mental health problems in the current COVID-19 pandemic reported higher rates of depression (50.7%), anxiety (44.7%), insomnia (36.1%), and stress related symptoms (73.4%) among the medical staff (Liu et al., 2020); lockdown or quarantine as risk factors for loneliness, boredom, anger, anxiety, and depression (Zhang et al., 2020) and increased worries about physical health, anger, impulsivity and intense suicidal ideations in those with existing mental health problems (Hao et al., 2020). Additionally female sex, age group of 21 to 40 years and watching coronavirus related news too much were associated with higher level of anxiety (Moghanibashi-Mansourieh, 2020). In terms of the psychosocial effects of pandemics, some disadvantaged groups including the elderly, people with compromised immune function, those living or receiving care in congregate settings, and people with preexisting medical, psychiatric, or substance use problems may be more vulnerable than others (Pfefferbaum & North, 2020). In addition to the at risk groups listed above, the health care workers (HCWs) working in the frontline in the fight against pandemics have been identified as one of the most vulnerable groups to develop psychological distress and even diagnosable mental disorders including anxiety and depression (Chung et al., 2005; Honey and Wang, 2013; Khalid et al., 2016; Shechter et al., 2020). In a study investigating psychological impact of the COVID-19 on physicians in Turkey, 64.7% of the participants reported symptoms of depression, 51.6% had anxiety, and 41.2% had stress. Authors reported that female gender, younger age, being single, having less work experience, working in frontline were associated with higher scores, whereas having a child was associated with lower scores. In addition, there were other factors identified as associations of the worsened psychological impact, such as increased working hours, sudden increased number of COVID-19 patients, lower perception of support from peers and supervisors (Elbay et al., 2020). According to Chew et al. (2020), having symptoms of depression, anxiety, stress, and PTSD were significantly associated with the presence of physical symptoms experienced in the preceding month, even after controlling the age, gender, and comorbidities (Chew et al., 2020). As we shared above, although there is some literature published about the psychosocial distress of being a parent during the pandemics, still there are a lot of unknowns about the mental health burden of being a health care worker taking care of risky patients in addition to having to look after their physically or mentally sick children who are stuck at stuck at home during lockdown.

Based on the existing literature we hypothesized that the parents who worked in the health care sector; the parents who had a history of their own mental health problems and/or who had a child with a mental disorder or chronic physical illness would find it more difficult to cope with the stress and psychological burden of the COVID-19 outbreak.

Method

Study design

An online survey was circulated in social media and HCW parents were reached via professional messaging groups between April 1, 2020 and April 15, 2020. Also, parents of children under the care of child mental health services in five cities and nine hospitals were contacted via telephone and asked to complete the online survey. This 2-week time interval corresponded to the period when the infection showed a steep rise in Turkey. The first case of COVID-19 in Turkey was announced on March 10, 2020 and the first patient died on March 17. According to Turkish Ministry of Health reports, on April 1, the day when the current survey was commenced, the total number of COVID-19 cases and

fatalities were 277 and 15,679 in Turkey, respectively. The survey was terminated on April 15, when the total number of deaths and confirmed cases reached 1,518 and 69,392 in Turkey, respectively (Turkey Ministry of Health, 2020b).

The surveys were completed by 3,629 responding parents. A total of 20 cases were excluded due to failing to tick the consent box. In addition, 331 (9.0%) responders were excluded as they failed to provide correct answers to both trap questions. Of the remaining 3,278 respondents, 597 (18.2%) were HCWs, 2,687 (81.8%) were from general population, 1,252 (38.2%) were residents in Istanbul and 2,026 (61.8%) from other cities.

Parents of a child receiving treatment from a child psychiatry clinic in five cities from different geographical regions of the country were included. As Istanbul was the most severely affected city, a total of five hospitals capturing all geographical parts of the city were included from Istanbul, in addition to one university hospital from each of the cities of Izmir, Bursa, Samsun, and Erzurum. The study was approved by the research ethics committee of Hasan Kalyoncu University, Gaziantep/Turkey (Reference number: -804.01-E.2004130014).

Trap questions were used to identify non-attentive responders who did not pay attention to the instructions. Inclusion criteria were being the parent of a child aged between 6 and 18 years and providing written consent. Exclusion criteria were failing to tick the consent box in the survey and providing incorrect answers to both trap questions.

Measures

Electronic survey for sociodemographic and COVID-19 outbreak related questions

The survey consisted of questions under the following subheadings; sociodemographic information about the household members, beliefs, and attitudes of the parents about COVID-19 (such as the intensity of virus-related contamination anxiety of the self and their family members, impact of the pandemic upon the household socioeconomic status, anticipation of the post-pandemic future, family members' beliefs about the possible casual explanations including the conspiracy theories provided about the COVID-19, whether they were satisfied with the precautions taken by the government and their attitudes about stockpiling food, cash, or cleaning products); GHQ-12 questionnaire (to assess the intensity of the parental distress), attitudes of children related to infection (such as internalized or externalized attitudes including becoming clingy or demanding to go out, precautions taken against infection), attitudes towards lockdown and compulsory homeschooling, and the emotional subscale of the Strengths and Difficulties Questionnaire (SDQ) to assess the emotional burden of the pandemic on children.

General Health Questionnaire-12

(Goldberg, 1972, 1978) We used the General Health Questionnaire (GHQ) to assess the parental distress as it is one of the most commonly cited questionnaires for the same purpose. The total GHQ score reflects the level of overall psychological distress, and therefore we assessed the parental distress based on the GHQ total score. General Health Questionnaire is a self-rating screening device for identifying mior psychiatric disorders in the general population developed by Goldberg (1972, 1978) and validated in Turkish by Kılıç (1996). The Turkish validity and reliability study demonstrated its sensitivity as 0.74 and specificity as 0.84. Out of a list of factor models proposed, we used the Graetz (1991) in which GHQ-12 contained three factors, namely Anxiety and Depression, Social Dysfunction, and Loss of Confidence, which are strongly correlated with each other (0.8–0.9) (Gao et al., 2004). The severity scores are computed as the summed score of all items for each scoring method making the score range 0 to 36. Scores over the cut-off point of 12 could be classified as 'psychiatric caseness' (Jackson, 2007; Liang et al., 2016).

Strengths and Difficulties Questionnaire

(Goodman et al., 1998) The SDQ comprises 25 items that spread equally across five subscales; emotional symptoms, conduct problems, hyperactivity/inattention, peer problems, and prosocial behavior. It is a valid and reliable instrument in Turkish, except the peer problem scale (Güvenir et al., 2008). As emotional response is more relevant to and can be detected at the very early stages of stress related situations, and in order to avoid burdening the parents with paper-work we only used that emotional subscale of the SDQ, in order to assess the emotional distress of the children. In the present study, we therefore, adopted the following cut-off scores suggested by Hoofs et al. (2015): 0–4 'normal', 5–6 'borderline', and 7–10 'abnormal'.

Statistical analysis

Statistical analysis was performed with IBM SPSS Statistics software, version 20.0. The significance level was set at $\alpha = 0.05$, and all tests were two-tailed. Chi-squared test was used for nominal (categorical) data. The GHQ-12 total and subscale scores and SDQ scores were expressed as mean and standard deviation. The *t*-test was used to determine significance of difference between the means of two sets of data. To determine potential risk factors for symptoms of distress (severe GHQ-12), multiple logistic regression as a multivariate analysis was performed, and the associations between risk factors and outcomes were presented as odds ratios (ORs) and 95% CIs, after adjusting for the confounders.

Results

Demographic characteristics and general findings of total sample

Majority of the 3,278 parents who responded to the survey were women (75.0%) and university graduates (51.3%). Sociodemographic variables and responses to a list of questions for the total sample and study groups are displayed in Table 1.

Health care worker parent versus non-health care worker parent

HCW parents were more likely than non-HCW parents to report; having a person close to them diagnosed with COVID-19 ($p < .001$), 'often/very often' talking about the pandemic at home ($p < .001$); 'often/very often' searching internet or social media for news on pandemic ($p < .001$); stockpiling food ($p < .001$); having 'a lot' of difficulties in caring for their children or arranging childcare ($p < .001$); but less likely to report compelling household members to take precautions against the infection ($p < .01$). In terms of protective measures, they were less likely to report wearing gloves whilst out ($p = .028$), however more likely to report frequently using disinfectants ($p = .046$). We asked them how they explained the reasons for the pandemic: HCW parents were more likely to believe that the COVID-19 outbreak happened due to similar reasons as the previous pandemics ($p = <.001$) and less likely to report 'a divine warning' as the reason for it ($p < .001$). More than half of the HCW parents (52.3%) reported that homeschooling was not good for their children as they were not getting proper education; (51.6%) reported their children spending too much time on digital devices (Table 2).

The GHQ-12 total and Anxiety/Depression and Social Dysfunction subscale scores were significantly higher among the HCWs (Table 3); however, the SDQ-emotional problems mean scores did not differ (Table 3).

Based on a cut-off value of 12 points in GHQ-12 to determine 'psychiatric caseness'; more than half of the total respondents (54.6%) exceeded the threshold. Rates of 'psychiatric caseness' was significantly higher among the HCW parents than the non-HCW parents ($p < .001$) (Table 3).

Child-related factors

Of the 3,228 parents who had a child aged 6 to 18 years, 1,239 (37.8%) of them were those who had a child known to mental health services. The mean age was 11.36 ($SD = 4.06$) years, 67.5% of them were boys and majority of them had problems related to inattention, hyperactivity, impulsivity, and undiagnosed minor conduct problems (61.3%).

Parents of a child with existing mental disorder had higher GHQ-12 anxiety/depression scores (4.53 [± 2.60] vs. 4.28 [± 2.55]; $p < .001$). As expected, the mean SDQ-emotional scores were higher in children with existing mental disorder (2.59 [$SD = 2.7$] vs. 1.65 [$SD = 1.84$]; $p < .001$). (Table 3)

Analysis of the risk factors related to mental health outcomes

Multivariable logistic regression analysis showed that after controlling for confounders, being a parent working in health care (odds ratio 1.79; 95% CI = 1.48–2.18; $p < .001$), being a mother (odds ratio 1.67; 95% CI = 1.40–2.00; $p < .001$), being a younger parent (odds ratio 0.98; 95% CI = 0.97–0.99; $p = .012$), having a person with chronic disease at home (odds ratio 1.38; 95% CI = 1.18–1.63; $p < .001$), having an acquaintance diagnosed with COVID-19 (odds ratio 1.22; 95% CI = 1.01–1.50; $p = .043$), parental history of mental disorder (odds ratio 1.29; 95% CI = 1.11–1.50; $p < .001$) and borderline or abnormal SDQ cut-off scores (odds ratio 1.29; 95% CI = 1.11–1.50; $p < .001$; versus odds ratio 2.61; 95% CI = 1.64–4.17; $p < .001$) were independently associated with GHQ-12 scores above the threshold for 'psychiatric caseness' (Table 4).

Discussion

To the best of our knowledge, this is the first study reporting the COVID-19 related mental health outcomes among the parents. Our study presents some findings that are in line with the existing literature about the psychology of pandemics including the latest COVID-19 related research and also presents some new findings that warrant a thoughtful analysis.

As anticipated, parents reported certain emotional reactions and behaviors that are characteristics of major challenges or catastrophe. In terms of COVID-19, the present study demonstrates that parents worry 'a lot' about themselves or their loved ones contracting infection (59.8%); or about the future of their finances (70.2%); they struggle with caring for their children (53.2%) and start searching all resources available for news (66.2%) in order to cope with uncertainty. During the 2-week period of our survey, the level of infection in Turkey had just started to show a dramatic rise. However, we know that the level of worry or panic can change over the course of the pandemics. During the course of the 2009 influenza A H1N1v ('swine flu') pandemic, the degree of worry amongst the British people fluctuated between 9.6% and 32.9%. This fluctuation was noted to be associated with the volume of media coverage of the infection. Lower levels of worry about catching the infection led to lower uptake rates for protective behaviors and

Table 1. Sociodemographic and related characteristics of respondents.

Characteristic	Total	Occupation	
		HCW	Non-HCW
	N (%)/mean (SD)	N (%)/mean (SD)	N (%)/mean (SD)
Overall	3,278 (100)	597 (18.2)	2,687 (81.8)
Age	40.8 (6.88)	42.2 (6.85)	40.5 (6.84)***
Sex			
Women	2,459 (75.0)	167 (28.1)	634 (23.8)*
Men	805 (25.0)	428 (71.9)	2,031 (76.2)
Age > 65 at home	307 (9.4)	49 (8.2)	258 (9.6)
Adult with chronic illness	958 (29.2)	185 (31.0)	772 (28.9)
Child with chronic illness	161 (4.9)	15 (2.5)	146 (5.5)**
Contact with abroad in last 4 months	444 (13.5)	94 (15.8)	350 (13.1)
Someone close got COVID-19	546 (16.7)	155 (26.2)	391(14.6)***
Current/previous psychiatric contact	1,115 (34.0)	214 (35.8)	900 (33.6)
Financial status before pandemic			
Very bad/not good	247 (7.5)	23 (3.9)	224 (8.4)***
Moderate	1,613 (49.2)	205 (34.4)	1,406 (52.5)
Good/very good	1,417 (43.2)	368 (61.7)	1,047 (39.1)
Worry about impact on your finance			
None/little	977 (29.8)	224 (37.6)	752 (28.1)***
Some	1,216 (37.1)	249 (41.7)	965 (36.0)
A lot	1,084 (33.1)	123 (20.6)	960 (35.9)
Difficulty caring/arranging care for children			
None	1,436 (43.8)	182 (30.5)	1,253 (46.8)***
Some	1,457 (44.4)	306 (51.3)	1,149 (43.0)
A lot	383 (8.8)	109 (18.3)	273 (10.2)
Talking about pandemic at home			
Never/rarely	363 (11.1)	45 (7.5)	318 (11.9)***
Sometimes	1,141 (34.8)	180 (30.2)	961 (35.9)
Often/very often	1,774 (54.1)	372 (62.3)	1,398 (52.2)
Searching internet or social media for news on pandemic			
Never/rarely	270 (8.2)	28 (4.7)	242 (9.0)***
Sometimes	837 (25.5)	115 (19.3)	722 (27.0)
Often/very often	2,169 (66.2)	454 (76.0)	1,711 (64.0)
Worry about self/loved ones getting infected			
None/rarely	334 (10.2)	59 (9.9)	275 (10.3)
Sometimes	985 (30.0)	194 (32.5)	789 (29.5)
Often/very often	1,959 (59.8)	344 (57.6)	1,613 (60.3)
Took measures against infection			
Not at all/little	94 (2.9)	14 (2.3)	80 (3.0)
Some	1,063 (32.4)	210 (35.2)	853 (31.9)
A lot/very much	2,120 (64.7)	373 (62.5)	1,744 (65.1)
Stockpiled food			
No	1,503 (45.9)	241(40.4)	1,261 (47.1)***
Yes	1,774 (54.1)	356 (59.6)	1,415 (52.9)
Stockpiled cash at home			
No	2,315 (70.6)	399 (66.8)	1,915 (71.5)
Yes	963 (29.4)	198 (33.2)	762 (28.5)
Stockpiled cleaning products			
No	1,616 (49.3)	276 (46.2)	1,340 (50.1)
Yes	1,662 (50.7)	321 (53.8)	1,337 (49.9)

(Continued)

Table 1. (Continued)

Characteristic	Total	Occupation	
		HCW	Non-HCW
	N (%)/mean (SD)	N (%)/mean (SD)	N (%)/mean (SD)
Compelled household members to take precautions			
No	1,063 (32.4)	239 (40.0)	823 (30.7)***
Yes	2,215 (67.6)	358 (60.0)	1,854 (69.3)
How sufficient precautions taken by government?			
Not sufficient at all	500 (15.3)	76 (12.7)	423 (15.8)***
Partially sufficient/unsure	1,763 (53.8)	376 (63.0)	1,385 (51.7)
Rather/completely sufficient	1,015 (31.0)	145 (23.3)	869 (32.5)

HCW= Health Care Workers.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 2. Mental and behavioral responses related to the COVID-19 outbreak.

	Total (N = 3,278)	HCWs (N = 597)	Non-HCW (N = 2,677)
Previous psychiatric contact			
No	2,163 (65.9)	383 (64.1)	1,777 (66.3)
Yes	1,115 (34.0)	214 (35.8)	900 (33.6)
Depression	525 (16.0)	96 (16.1)	429 (16.0)
Irritability, anger control problems	206 (6.3)	31 (5.2)	175 (6.5)
Panic or anxiety related problems	382 (11.7)	72 (12.1)	310 (11.6)
Obsessive compulsive disorder	64 (1.9)	11 (1.8)	53 (2.0)
Bipolar disorder or psychosis	29 (0.9)	3 (0.5)	26 (1.0)
Family conflict problems	156 (4.8)	19 (3.2)	137 (5.1)*
Other	12 (0.4)	2 (0.3)	10 (0.4)
Precautions taken against infection			
Wearing mask outside	2,573 (78.5)	480 (80.4)	2,091 (78.1)
Wearing gloves	1,642 (50.1)	275 (46.1)	1,366 (51.0)*
Frequent hand washing	3,035 (92.6)	555 (93.0)	2,477 (92.5)
Frequent use of disinfectants	1,668 (50.9)	326 (54.6)	1,341 (50.1)*
Avoiding crowded places	2,949 (90.0)	546 (91.5)	2,400 (89.7)
Reasons behind outbreak			
Similar reasons to previous outbreaks	1,463 (44.6)	31 9(53.4)	1,141 (42.6)***
A divine warning	1,140 (34.8)	174 (29.1)	965 (36.0)***
Biological weapon created to reduce population	725 (22.1)	140 (23.5)	585 (21.9)
No idea	403 (12.3)	56 (9.4)	347 (13.0)*
Thoughts about homeschooling			
Bad as my child not getting proper education	1,814 (55.3)	312 (52.3)	1,501 (56.1)
Bad as old routines disrupted	719 (21.9)	132 (22.1)	586 (21.9)
Bad as child spending too much time on digital devices	1,714 (52.3)	308 (51.6)	1,405 (52.5)
Good - my child enjoys being at home	1,147 (35.0)	214 (35.8)	933 (34.9)

HCW= Health Care Workers.
*$p < .05$. **$p < .01$. ***$p < .001$.

lower acceptance rates for vaccination (Rubin et al., 2010). There has been a list of short communications or surveys mainly from China reporting various socio-psychological impacts of COVID-19 on the daily life of people, including reduced contact with others (78.9%), decreased attendance to public places (94.8%), increased frequency of hand washing (95.8%), taking more care of room ventilation (88.8%) (Fakhar et al., 2020) as well as concerns about virus transmission (50.2%), worries about the family safety (48.2%), and feeling helpless (23.2%) (Roy et al., 2020). Findings of the present study are grossly in line with these reports as the protective measures taken by the parents are compatible with their high levels of worry.

Table 3. Association of occupation and location with GHQ-12 scores and cut-off score.

	Total sample	HCWs	Non-HCWs	Child with mental disorder	Child without mental disorder
	Mean (*SD*)	Mean (*SD*)	Mean (*SD*)	Mean (*SD*)	Mean (*SD*)
GHQ-12 total	12.24 (3.96)	13.12 (3.67)	12.04 (3.99)***	12.30 (4.06)	12.19 (3.89)
Anxiety/depression	4.38 (2.58)	4.68 (2.60)	4.31 (2.07)***	4.53 (2.60)	4.28 (2.55)**
Social dysfunction	6.68 (1.99)	7.19 (2.07)	6.57 (1.96)***	6.57 (19.4)	6.75 (2.02)
Loss of confidence	1.18 (1.40)	1.25 (1.34)	1.17 (1.42)	1.21 (1.41)	1.16 (1.39)
SDQ-emotional problems	2.01 (2.06)	1.87 (1.94)	2.04 (2.09)	2.59 (2.7)	1.65 (1.84)***
	Associations based on GHQ-12 and SDQ-emotional problem cut-off score (⩾12 points) for 'Psychiatric Caseness'				
	N (%)	N (%)	N (%)	N (%)	N (%)
GHQ-12 ⩾ 12	1,791 (54,6)	397 (66,5)	1,392 (52,1)***	674 (54,4)	1,117 (55.0)
SDQ (0–4)	2,895 (88.3)	544 (92.4)	2,357 (88.3)*	1,011 (81.8)	1,884 (93.5)***
Borderline (5–6)	267 (8.1)	32 (5.4)	235 (8.8)	170 (13.8)	97 (4.8)
Abnormal (⩾7)	88 (2.7)	13 (2.2)	75 (2.8)	55 (4.4)	33 (1.6)

HCWS = Health Care Workers; GHQ = General Health Questionnaire; SDQ = Strength And Difficulties Questionnaire.
*$p < .05$. **$p < .01$. ***$p < .001$.

Our findings of the female sex and positive contact history are compatible with the study by Leung et al. (2003); however, as compared to the SARS epidemic and swine flu pandemic reported above, the degree of worry is a lot higher in our sample, which is an anticipated and reasonable difference considering the worldwide chaos caused by the COVID-19.

Pandemics are not immune to conspiracy theories and there a list of them being circulated in the media. Although there were suspicions from academics about the way WHO handled 2009 influenza A/H1N1 pandemic; Cohen and Carter (2010) general population may also show some attraction towards conspiracy theories. For instance, the misguided video posts were reported as far more popular than the posts dispersing accurate public health information about the Zika virus infection (Sharma et al., 2017). Our findings show some level of suspicion among the Turkish people too, as almost a quarter of general population (22.1%) and a slightly higher percentage of health care workers (23.5%) believed that it was a biological weapon created to reduce the population.

In a longitudinal study on COVID-19 related mental health outcomes, the moderate-to-severe stress, anxiety, and depression levels did not show a significant decline after 4 weeks. Experiencing physical symptoms, perceived poor health status, and history of chronic illness were significantly associated with higher scores of distress and mental disorders (Wang et al., 2020b). In our study, depression and anxiety related disorders were the most common diagnoses reported by the respondents (16.0% and 11.7%, respectively). Our findings showed that presence of past psychiatric problems was an independent risk factor for current psychological distress based on GHQ-12 scores. This in line with a recent study where the levels of anxiety, depression, stress, and insomnia were reportedly higher among the psychiatric patients, who also had more health concerns, impulsivity, and suicidal ideation (Hao et al., 2020).

On March 13, 2020 all schools in Turkey were closed and this was just a few days after the first confirmed COVID-19 case here. However, in contrast to previous disease outbreaks, school closure soon became worldwide, exams were cancelled, and this was followed by lockdown regulations. This also meant that children were stuck at home and parenting hyperactive kids or children with disabilities and special needs without any external support have become a challenge for the parents. We hypothesized that having a child with existing mental disorder(s) would be strongly associated with increased parental psychological distress during the COVID-19 pandemic. This was partially supported, as although the child's mental disorder was not associated with parental 'psychiatric caseness', the anxiety/depression score in their parents were significantly higher. To support the consistency of the findings and reflect the current impact of the pandemic, the emotional distress scores were significantly higher among the children with a mental disorder. The psychiatric diagnosis per se of the child is not directly related to COVID-19, as the children had it before the pandemic; however, the level of emotional distress as demonstrated by the current SDQ score reflects the current mental state of the child.

As opposed to our prediction, presence of a child with chronic physical illness was not associated parental psychological distress. This finding is interesting and somewhat incompatible with the existing literature, which emphasizes that the parental mental health burden of having a child with

Table 4. Risk factors for GHQ-12 outcome identified by multivariable logistic regression analysis.

GHQ-12 risk +	Count	Row *N* %	OR (%95 CI)
Occupation			
Non-HCW	1,081	40.50%	1 (Reference)
HCW	316	52.90%	1.80 (1.48-2.18)***
Sex			
Women	1,135	46.30%	1.68 (1.40–2.00)***
Men	257	32.00%	1 (Reference)
Age	40.3	±6.9	0.99 (0.97–0.10)*
Location			
Istanbul	853	42.20%	1 (Reference)
Other	545	43.60%	1.02 (0.88–1.20)
Adult with chronic illness			
No	923	39.90%	1 (Reference)
Yes	473	49.60%	1.38 (1.18–1.63)***
Child with chronic illness			
No	1,316	42.30%	1 (Reference)
Yes	82	51.20%	1.10 (0.78–1.56)
Relative or friend had COVID-19			
No	1,124	41.40%	1 (Reference)
Evet	271	49.80%	1.23 (1.01–1.49)
Parental psychopathology			
No	850	39.50%	1 (Reference)
Yes	546	49.00%	1.29 (1.11–1.50)***
Child with mental disorder			
No	2,038	62.2	1 (Reference)
Yes	1,239	37.8	1.01 (0.99–1.03)
SDQ top			
Normal	1,184	41.00%	1 (Reference)
Borderline	147	55.10%	1.68 (1.30–2.18)***
Abnormal	59	67.00%	2.61 (1.64–4.16)

HCWs = Health Care Workers; GHQ = General Health Questionnaire; SDQ = Strength and Difficulties Questionnaire; CI = Confidence of Interval.
*$p < .05$. **$p < .01$. ***$p < .001$.

physical illness is almost as high as having a child with mental disorder (Cousino and Hazen, 2013).

As a last note, times of hardship may also open windows of new opportunities for creativity, improvement, and building new services. The first infected COVID-19 case in Turkey was announced 3 months after the first case in China. Therefore, there has been a time for the national and local health services to get prepared for the pandemic. The Turkish Ministry of Health initiated KORDEP project (Turkey Ministry of Health, 2020a) to provide mental health support to general public and RUHSAD project (Association of Private Hospitals and Healthcare Organizations, 2020) as a mental health intervention program targeting front-line health care workers and their children via telephone contact and videoconferencing.

The present study has a number of limitations including the study design being a cross-sectional and electronic survey, age-restriction of children for inclusion, relying on parents for child-related questions, and use of restricted number of screening questionnaires. However, it also has a list of strengths such as a large and almost a nationwide representative sample of the participants, a comparative analysis of parents working in health care sector, and inclusion of parents of children with mental disorders.

Author's Contribution

VG, MTK, AB, UD, and MCT were involved in study conception and design. ZDA, FB, EG, ZK, NS, and other authors collected the data, and UD, EG, VG, and AB completed the data analysis. VG, AK, YYG, İK, UD, NİE, AG, HT, and MO contributed to data interpretation. VG, MTK, AB, and UD wrote the first draft and all authors commented on the manuscript and provided input on the final manuscript.

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Data availability

The data that support the findings of this study are available from the corresponding author (VG) upon reasonable request.

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