

Mental Health Difficulties of Turkish Healthcare Workers and Non-Healthcare Workers and Their Young Children During Coronavirus Disease 2019 Pandemic

ABSTRACT

Background: Young children and their caregivers have faced an increased risk of developing mental health difficulties during the coronavirus disease 2019 pandemic. However, very little is still known about the mental health of children younger than 6 years. Existing research suggests that families with caregiver/s who are healthcare workers may be at increased risk. The primary purpose of the paper is to report on the mental health difficulties experienced by young children and their caregivers in Turkey and to investigate if mental health outcomes are worse for young children and caregivers who are healthcare workers in comparison to non-healthcare workers during the first year of the coronavirus disease 2019 pandemic.

Methods: An online survey was completed by 158 caregivers of children aged 1-5 years during December 2020 in Turkey. Caregivers reported on pandemic related experiences, child and parent mental health.

Results: Up to 30% of caregivers reported their child was experiencing moderate to severe anxiety, depressive symptoms, and sleep disturbances. Between 36.2% and 39.2% of caregivers reported moderate to extremely severe levels of depression, anxiety, and/or stress symptoms. Multivariate analysis of covariance analyses found no significant differences between the healthcare worker and non-healthcare worker groups for child ($F(4,131) = 1.037, P > .05$) or parent mental health outcomes ($F(3,141) = 0.712, P > .05$).

Conclusion: Our study showed that one-third of children and their caregivers experienced mental health problems during the coronavirus disease 2019 pandemic unrelated to the caregiver's occupation in the health sector. It is important that all families with young children have access to mental health support during disruptive events.

Keywords: COVID-19 pandemic, healthcare workers, mental health, preschoolers, young children

Introduction

After the coronavirus disease 2019 (COVID-19) pandemic was declared by the World Health Organization on March 11, 2020, countries announced a series of different measures to decrease the risk of spread. Following the first case in Turkey, a total lockdown was declared for people aged 65 and over and then extended to people younger than 20 years old by the Ministry of The Interior.¹ Young people under 20 years old were only allowed outside between 1 and 4 PM on weekdays.¹ From the beginning of the COVID-19 pandemic, the most affected group by these restrictions were people younger than 20 years old in Turkey.

Social isolation, restrictions, school closures, changes in daily life routines, decreased out-of-home leisure activities, and family economic problems have been associated with increased risk of mental health problems for children and adolescents during the pandemic.² Studies focusing on the mental health of children and adolescents have reported that depressive symptoms, post-traumatic stress, anxiety, obsessive-compulsive disorder, suicidal behaviors,



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and sleep problems have increased during this period.^{2,3} A study involving 5823 children between the ages of 1-18 demonstrated a 15.3% to 43% increase in emotional and behavioral problems during the pandemic. In the preschool sub-group, oppositional behavior, crying, sleeping problems, clinging, sadness, and separation problems were reported to have increased by more than 20%.⁴ In the study by Schmidt et al,⁴ caregivers were asked whether the problems related to affective disorder, anxiety, and oppositional behavior during the COVID-19 pandemic had decreased, remained unchanged, or increased. For 36.5% of young children, their caregivers reported an increase in mental health difficulties. Cantiani et al⁵ also reported increased emotional and behavioral problems in children aged 2-6 years during the pandemic.

Caregiving during the pandemic has been particularly challenging for many parents.⁶ Recent studies have indicated that psychological distress has also increased for caregivers during this time.⁶ Reasons for this increase may be due to caregivers having more childcare responsibilities related to juggling housework and helping with remote school learning,⁷ decreased social support, imbalance between their personal and parental responsibilities, uncertainty in roles, and fear of transmission to their family.⁸ However, for some families, more time together at home might have served as a protective factor by contributing to more positive child and parent interactions and strengthened family relationships.⁹ Previous research has demonstrated that caregivers' mental health plays an important role in the development and maintenance of young children's emotional and behavioral difficulties. When young children are exposed to a negative event, they understand events through their caregiver's behaviors and emotional expression. Studies have shown that one of the most important factors affecting the mental health of children, especially for young children, is the mental health of their caregiver.¹⁰ In the literature, there are several studies that have reported that young children's internalizing problems, externalizing problems, and sleep problems are associated with their caregivers' mental health.¹¹ A study conducted during the COVID-19 pandemic in German-speaking countries showed that poor mental health of parents was related to emotional and behavioral problems in their young children.⁶

Caregivers who are healthcare workers (HCWs) may also be at particular risk of experiencing mental distress during the pandemic. Studies from the first year of the pandemic have shown that HCWs have reported higher depression and anxiety symptoms compared

to a community sample.¹² Higher risk of infection, increased workloads, having done specific test(s) related to COVID-19, fear of COVID-19 transmission to their family, and making difficult ethical decisions on the rationing of care are factors contributing to the increased rate of mental health difficulties in HCW.¹³ Although there were several studies investigating the mental health of HCWs, little is known about how the children of healthcare professionals and their parenting are affected during the pandemic.¹⁴ One known study has described 3 cases of children of healthcare professionals, and this study demonstrated child emotional and behavioral symptoms such as sleep disturbance and irritability.¹⁵

The primary aims of this study are to (i) report for the first time on the mental health outcomes for young Turkish children (1-5 years) and their caregivers during the first year of the COVID-19 pandemic and (ii) compare mental health outcomes between young children of HCWs and non-health care workers (NHCWs). To our knowledge, no studies have been published on the mental and behavioral health of young children (ages 1-5 years) and their caregivers in Turkey during the COVID-19 pandemic.

Material and Methods

Study Design

The current study is part of the COVID-19 Unmasked Global Collaboration, which is a prospective longitudinal study aiming to explore mental health outcomes in young children and their caregivers across 9 countries during the pandemic.¹⁶ See the study protocol for a detailed description of general project methods and a copy of measures developed specifically for this research.¹⁶ This study presents the baseline data from the Turkish site of the COVID-19 Unmasked Global Collaboration.

Recruitment and Procedures

The baseline data were collected between the 2nd and 12th of December 2020 via an online survey. The survey link was shared in social media groups. For reaching HCWs, closed messenger groups of medical doctors were used. For reaching caregivers who were NHCWs, information about the study was shared via closed messenger groups of caregivers of young children (e.g., kindergarten parent groups). Convenience sampling was used. Parents provided written informed consent and then completed the survey online. Ethical approval was obtained from the Ethics Committee of Istanbul Rumeli University (27.01.2021 2021/01- 02).

Participants

Participants were eligible for inclusion in this study if they were (i) an adult (18+ years) caring for a child between 1 and 5 years of age, (ii) had internet access to fill out the survey online, and (iii) were able to complete the survey in Turkish. Caregivers were categorized as either HCWs, defined as working medical doctors, nurses, and staff in the administrative field mostly located in hospitals in İstanbul, or NHCWs who were not working in a hospital setting during the time of survey completion. The HCW group was further grouped into medical doctors and non-physicians.

Measures

Demographics: This section of the survey consisted of 3 parts assessing child sociodemographic variables (gender, age), caregiver

MAIN POINTS

- In the current study, around 30% of young Turkish children were reported by their caregivers to be experiencing moderate to severe anxiety, depressive symptoms, and sleep disturbances during the coronavirus disease 2019 pandemic.
- Child mental health outcomes were unrelated to the caregiver's occupation in the health sector.
- Caregivers reported high rates of mental distress with up to 39% in the moderate to extremely severe range for depression, anxiety, and/or stress. However, contrary to expectations, there were no significant differences in the level of mental health difficulties experienced between caregivers who were healthcare workers vs. non-healthcare workers.

sociodemographic variables (gender, age, relationship status, educational status, employment changes during the pandemic), and family sociodemographic variables (income, number of children).

Coronavirus Disease 2019 Pandemic Exposure and Loss Questions:

The COVID-19 Pandemic Exposure and Loss Questions were developed for the COVID-19 Unmasked Study to assess the level of direct exposure and loss due to the COVID-19 pandemic experienced by young children and their caregivers.¹⁶ The questions include losses experienced during the pandemic and the potential threat of exposure to COVID-19 (e.g., child or family member diagnosed with COVID-19 and child or family members needing treatment for COVID-19). These questions have a yes/no format.

Pandemic Impact Questionnaire: Early Childhood: This scale was developed specifically for the COVID-19 Unmasked study to assess the negative and positive indirect impacts of the pandemic on young children and their families.¹⁶ Participants rated the impact of a series of COVID-19-related experiences on a 5-point Likert scale from 0="not at all" to 4="very much." The first part included 15 items that rated the impact of negative pandemic-related experiences such as changes in daily routines, lifestyle, and activities experienced by the child, the caregiver, and the family. The second part included 7 items that assess positive changes experienced in personal aspects, spiritual aspects, relating to others, and more appreciation of life. In this study, Cronbach's alpha was $\alpha=0.82$ for the negative impact scale and $\alpha=0.84$ for the positive impact.

Patient-Reported Outcomes Measurement Information System:

Early Childhood: The Patient-Reported Outcomes Measurement Information System: Early Childhood (PROMIS-EC)¹⁷⁻¹⁹ measures were recently adapted using PROMIS best practices and developmental science. For this study, child mental health and well-being outcomes were assessed using the following caregiver-report short-forms: 4-item anger/irritability, 8-item anxiety, 4-item depressive symptoms, 4-item sleep disturbance, 6-item self-regulation-frustration tolerance, 4-item positive affect, and 5-item child-caregiver interactions. The self-regulation-frustration tolerance and positive affect short forms are rated on a 5-point Likert scale from 1="poor" to 5="excellent." The other items are rated on a 5-point Likert scale ranging from 1="never" to 5="always."

The total sum of scores for each short-form was calculated and converted to *T*-scores using normative reference tables (USA pre-pandemic representative national sample). Higher scores on the anger/irritability, anxiety, depressive symptoms, and sleep health-disturbance scales represent more severe mental health difficulties, whereas higher scores on the self-regulation-frustration, positive affect, and child-caregiver interactions short-forms indicate better functioning. For anger/irritability, anxiety, depression symptoms, and sleep health-disturbance short-forms, a moderate score is 1 SD above the mean, and a severe score is 2 or more SDs above the mean (i.e., within normal limits $T \leq 59.99$; moderate $T=60.00-69.99$; severe $T \geq 70$). For self-regulation-frustration, positive affect, and child-caregiver interactions, a low score is 1 or more SDs below the mean, and a high score is 1 or more SDs above the mean (i.e., low $T \leq 40$; average $T=40.01-59.99$; high $T \geq 60.0$).

The PROMIS-EC measures have demonstrated good reliability and initial evidence of validity for use in early childhood.^{17,18,20} The internal

consistency for each short form in the current sample was very good: anger/irritability (Cronbach's $\alpha=0.87$), anxiety (Cronbach's $\alpha=0.88$), depressive symptoms (Cronbach's $\alpha=0.87$), self-regulation-frustration tolerance (Cronbach's $\alpha=0.89$), sleep disturbance (Cronbach's $\alpha=0.89$), positive affect (Cronbach's $\alpha=0.87$), and child-caregiver interactions (Cronbach's $\alpha=0.86$).

Depression Anxiety and Stress Scale: The Depression Anxiety and Stress Scale (DASS-21) was included to assess caregiver depression, anxiety, and stress symptoms, and the severity of depressive, anxiety, and stress scores were categorized as normal, mild, moderate, severe, and extremely severe according to the DASS scoring manual.²¹ The Turkish reliability of DASS-21 was found to be acceptable²² for the depression, anxiety, and stress subscales (Cronbach's $\alpha=0.87$, Cronbach's $\alpha=0.85$, and Cronbach's $\alpha=0.81$, respectively). The internal consistency in the current study was also high for the depression, anxiety, and stress subscales (Cronbach's $\alpha=0.88$, Cronbach's $\alpha=0.87$, and Cronbach's $\alpha=0.90$, respectively).

Data Analysis

All statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) Statistics, version 26.0 (IBM SPSS Corp.; Armonk, NY, USA). There were no missing data, as all questions in the online survey needed a response. Descriptive statistics are presented using mean (SD), and frequencies with percentages. Statistically, values of $P < .05$ were accepted as significant for the main analysis, and the *P*-value was reported directly to indicate the level of significance of the findings. The Kolmogorov-Smirnov test indicated normal distributions for all continuous dependent variables; therefore, parametric tests were used to examine differences in continuous variables between the 2 groups (HCW and NHCW). The *T*-tests were used to compare age differences between groups. Chi-square tests were used to compare the distribution of categories. The Fisher-Freeman-Halton test was used to compare variables with 3 or more categories when an expected count problem occurred.

In the second step, the HCW group was categorized as medical doctors and non-physicians to check if there were any mental health differences. Since the number of participants was fewer than 30, the Mann-Whitney *U*-test was used to reveal any differences in terms of depression, anxiety, and stress scores between medical doctors and non-physicians.

In a third step, the categorical mental health and well-being outcomes for children of HCW and NHCWs were compared using Fisher-Freeman-Halton tests. To compare mean scores of the mental health difficulties of children between HCW and NHCW, multivariate analysis of covariance (MANCOVA) was conducted. The multivariate normality test with SPSS was done to determine the distance of the Mahalanobis, and the chi-square value was calculated. Outliers were excluded. The significance value for Box's *M* test was set at $P < .005$ since this test is highly sensitive.²³ In the case of a significant Box's *M*, the *F*-value was calculated based on the Pillai's trace as recommended previously.²⁴ Anger/irritability, anxiety, depressive symptoms, and sleep health-disturbance were entered as the dependent variables, and child gender was entered as a covariate. For the caregiver-specific variables, mental health differences were compared between HCWs and NHCWs with Fisher-Freeman-Halton tests for categories of mental health and a MANCOVA for the continuous outcomes. In the MANCOVA, gender, preexisting mental health

problems, and a COVID-19 diagnosis were entered as covariates, and the depression, anxiety, and stress sub-scales were entered as dependent variables.

Results

Sociodemographic Characteristics

The total number of participants in this study was $n = 158$. The mean age of participating caregivers was 34.26 ($SD = 3.59$) years and the majority (127, 79.9%) were female. The average age of the children was 40.82 ($SD = 16.11$) months and 90 (56.7%) were boys.

In the HCW group, 50 (71.4%) caregivers worked as medical doctors, while 20 (28.6%) caregivers were non-physicians. Results of the Mann–Whitney U -test indicated that there was no difference between the doctors and non-physicians in terms of depression, anxiety, and stress ($z = -1.49$, $P = .135$; $z = -1.53$, $P = .126$; $z = -1.17$, $P = .240$, respectively).

In this study, caregivers who were HCWs reported significantly higher education levels and income. There were significantly more female caregivers in the NHCW group (see Tables 1 and 2 for sample characteristics and comparisons between HCW ($n = 70$) and NHCW ($n = 88$) families.

Coronavirus Disease 2019 Exposure and Impact

Overall, 6 (3%) children and 27 (17%) caregivers were diagnosed with COVID-19, and 46 (29.3%) had close contact with a person diagnosed with COVID-19. Seventeen families (10.7%) lost a loved one to COVID-19. Significantly more children and caregivers from the HCW group had tested positive for COVID-19 than in the NHCW group ($P < .014$). It was found that significantly more children ($n = 23$, 32.9%) in the HCW group were separated from their caregiver for more than 1 day ($P = .003$; see Tables 1 and 2). For the Pandemic Impact Questionnaire: Early Childhood (PIC:EC) scale, the negative and positive impact of the COVID-19 pandemic on the family was significantly higher in the NHCW group.

Mental Health Outcomes

A clinically meaningful number of caregivers reported that their child had anger/irritability ($n = 20$, 16.1%), anxiety ($n = 47$, 30.8%), depressive symptoms ($n = 45$, 28.9%), and sleep disturbances ($n = 50$, 32%) in the moderate to severe range (see Table 3). However, the majority of caregivers ($n = 118$, 75%) reported that their child's self-regulation–frustration tolerance and positive affect ($n = 127$, 89.7%) scores were in the average to high range (see Table 3). Most caregivers ($n = 141$, 89.7%) rated the quality of the child–caregiver interaction as good.

Caregivers reported high rates of mental distress with up to 39% in the moderate to extremely severe range for depression ($n = 62$, 39.2%), anxiety ($n = 58$, 36.7%), and/or stress ($n = 47$, 39.2%) (see Table 4).

Differences in Mental Health Outcomes Between Healthcare Worker and Non-Healthcare Worker Families

In order to ascertain whether notable distinctions existed among groups in terms of the count of children encountering mental health challenges within varying degrees of normalcy (within normal limits, moderate, or severe), as well as displaying levels of well-being ranging from low to high, Fisher–Freeman–Halton tests were carried out. No significant differences were found between groups for any of the

Table 1. Sample Characteristics and Impact of COVID-19 on Young Children

	HCW (n = 70) n (%)	NHCW (n = 88) n (%)	χ^2/t	P
Age (months), mean (SD)	41.02 (SD = 14.06)	41.19 (SD = 18.18)	0.064	.949
Gender			1.155	.332
Female	33 (47.1)	34 (38.6)		
Suspected to have COVID-19			9.671	.014
No	47 (67.1)	77 (87.5)		
Yes, but not tested	16 (22.9)	7 (8)		
Yes, but tested negative	3 (4.3)	2 (2.3)		
Yes, tested positive, treated at home	4 (5.7)	2 (2.3)		
Yes, tested positive and hospitalized	-	-		
Required medical treatment			0.847	.655
Yes	13 (18.6)	15 (17)		
No	57 (81.4)	71 (81.8)		
Child separated from caregiver			11.478	.003
Yes	23 (32.9)	10 (11.4)		
No	47 (67.1)	77 (87.5)		
Close contact diagnosed with COVID-19			5.297	.071
Yes	27 (38.6)	20 (22.7)		
No	43 (61.4)	67 (76.1)		
Close contact hospitalized with COVID-19			1.254	.729
Yes	5 (7.1)	4 (4.5)		
No	65 (92.9)	83 (94.3)		
Family member died from COVID-19			1.792	.408
Yes	10 (14.3)	8 (9.1)		
No	60 (85.7)	79 (89.8)		
Exposure to COVID-19 related information			4.373	.494
Never	14 (20)	25 (28.4)		
Less than once/week	15 (21.4)	21 (23.9)		
Once/day	23 (32.9)	28 (31.8)		
Several times/days (<1 hour)	14 (20)	10 (11.4)		
Several times/days (>1 hour)	4 (5.7)	3 (3.4)		

COVID-19, coronavirus disease 2019; HCW, healthcare workers; NHCW, non-healthcare workers.

PROMIS-EC scales (Table 3). Next, a 1-way MANCOVA was conducted to examine differences between groups for the raw score of the PROMIS-EC scales assessing mental health difficulties, controlling for child gender (Box's M test of equality of covariance matrices = 8.91, $P = .568$). There were no statistically significant differences found between groups, $F(4,131) = 1.037$, $P = .391$.

Fisher–Freeman–Halton tests showed the proportion of parents experiencing different categories of depression or stress did not differ between HCW and NHCWs (Table 4). There were significant

Table 2. Characteristics of Participating Caregivers and Impact of COVID-19

Demographics	HCW (n=70)	NHCW (n=88)	χ^2/t	P
	n (%)	n (%)		
Age (years), mean (SD)	34.43 (SD=2.65)	34.18 (SD=4.20)	0.450	.654
Gender			7.39	.009
Female	49 (70)	77 (87.5)		
Relationship status			0.05	.816
Married/partnered	68 (97.1)	86 (97.7)		
Separated/divorced	2 (2.9)	2 (2.3)		
Employment status			27.93	<.001
Full-time	60 (85.7)	44 (50)		
Part-time	4 (5.7)	12 (13.6)		
Not working due to health	1 (1.4)	2 (2.3)		
Own work	-	1 (1.1)		
Not working	4 (5.7)	18 (20.5)		
Other	1 (1.4)	10 (11.4)		
Education level			22.26	<.001
Primary school	-	1 (1.1)		
High school	-	9 (10.2)		
University	20 (28.6)	44 (50)		
Master/PHD	50 (71.4)	33 (37.5)		
Household income, TL ^a			27.50	<.001
3000	-	3 (3.4)		
3000-6000	1 (1.4)	9 (10.2)		
6000-12 000	11 (15.7)	33 (37.5)		
12 000-24 000	37 (52.9)	23 (26.1)		
24 000	17 (24.3)	9 (10.2)		
Do not want to report	4 (5.7)	10 (11.4)		
Chronic health condition			43.99	.111
Yes	22 (31.4)	15 (17.2)		
No	48 (68.6)	71 (80.7)		
Suspected to have COVID-19			32.868	<.001
No	16 (22.9)	58 (65.9)		
Yes, but not tested	11 (15.7)	11 (12.5)		
Yes, but tested negative	25 (35.7)	10 (11.4)		
Yes, tested positive	17 (24.3)	8 (9.1)		
Yes, tested positive and hospitalized	1 (1.4)	1 (1.1)		
Required medical treatment			5.876	.053
Yes	9 (12.9)	24 (27.3)		
No	61 (87.1)	63 (71.6)		
Exposure to COVID-19-related information			8.230	.115
Never	3 (4.3)	2 (2.3)		
Less than once/week	11 (15.7)	6 (6.8)		
Once/day	27 (38.6)	47 (53.4)		
Several times/day (<1 hour)	23 (32.9)	20 (22.7)		
Several times/day (>1 hour)	27 (38.6)	12 (13.6)		
Stress associated with employment change			4.417	.491
None	13 (18.6)	27 (30.7)		
Mild	14 (20.0)	17 (19.3)		
Medium	24 (34.3)	26 (29.5)		
Severely	13 (18.6)	12 (13.6)		
Extremely	6 (8.6)	5 (5.7)		
Changes in work conditions			8.647	.080
Incomes/hours increased	18 (25.7)	9 (10.2)		
Incomes/hours decreased	20 (28.6)	24 (27.3)		
It remained same	23 (32.9)	35 (39.8)		
Lost job	-	1 (1.1)		
Other	9 (12.9)	18 (20.5)		

Displayed are valid percentages. The Fisher-Freeman-Halton test was used to analyze contingency tables with more than 2 × 2 cells.

COVID-19, coronavirus disease 2019; HCW, healthcare workers; NHCW, non-healthcare workers; TL, Turkish Lira.

Table 3. Well-Being of Turkish Children of Healthcare and Non-Healthcare Workers

	HCW (n=70)		NHCW (n=88)		P
	n	%	n	%	
Irritability/anger					
Within normal limits (T=<60)	57	41.6	80	92	.126
Moderate (T=60-69; >1 SD)	11	15.7	6	6.9	
Severe (T=>70; >2 SD)	2	2.9	1	1.1	
Anxiety					
Within normal limits (T=<60)	45	64.3	65	74.7	.305
Moderate (T=60-69; >1 SD)	23	32.9	19	21.8	
Severe (T=>70; >2 SD)	2	2.9	3	3.4	
Depressive symptoms					
Within normal limits (T=<60)	50	71.4	63	70.9	1.000
Moderate (T=60-69; >1 SD)	19	27.1	24	27.9	
Severe (T=>70; >2 SD)	1	1.1	1	1.2	
Sleep disturbance					
Within normal limits (T=<60)	47	67.1	60	69	.599
Moderate (T=60-69; >1 SD)	19	27.1	25	28.7	
Severe (T=>70; >2 SD)	4	5.7	2	2.3	
Positive affect					
Low (T=<40)	11	15.7	19	21.8	.664
Average (T=40-59)	48	68.6	55	63.2	
High (T=>60)	11	15.7	13	14.9	
Self-regulation-frustration tolerance					
Low (T=<40)	21	30.0	18	20.7	.375
Average (T=40-59)	43	61.4	59	67.8	
High (T=>60)	6	8.6	10	11.5	
Child-caregiver interaction					
Poor (T=<40)	7	10.0	8	9.2	1.000
Good (T=40-59)	63	90	78	89.7	
Excellent (T=>60)	0	0	1	1.1	

HCW, healthcare workers; NHCW, non-healthcare workers.

differences in caregiver anxiety with more HCW than NHCW caregivers in the extremely severe anxiety category ($P < .005$). The Box's M value of the MANCOVA analysis was 15.50 and $P = .019$. The MANCOVA analysis revealed no significant differences in anxiety, depression, or stress symptoms between caregivers of HCW and NHCW ($F(3,141) = .712, P = .546$).

Discussion

The aim of this study was to describe the mental health and well-being of young Turkish children during the first year of the pandemic and to compare the mental health of children and caregivers who were HCW and NHCW. To our knowledge, this is the first study to compare mental health outcomes of young children and their parents depending on their occupation as HCW vs. NHCW. The findings indicated between 16% and 32% of young children in the sample had anger/irritability, anxiety, depressive symptoms, and/or sleep disturbances in the moderate to severe range. Furthermore, 25% of young children had low levels of self-regulation/frustration tolerance, 10.3% had low positive affect, and 9.6% were rated as having poor child-caregiver interactions. A significant proportion of caregivers (36.2%–39.2%) reported depression, anxiety, and stress symptoms in

Table 4. Mental Health Outcomes for Caregivers Who Are Healthcare (n = 70) and Non-Healthcare Workers (n = 88)

	Depression		Anxiety		Stress	
	Healthcare Worker n (%)		Healthcare Worker n (%)		Healthcare Worker n (%)	
	No	Yes	No	Yes	No	Yes
Normal	34 (38.6)	29 (41.4)	46 (52.3)	37 (52.9)	46 (55.7)	42 (60.0)
Mild	19 (21.6)	14 (20.0)	7 (8.0)	10 (14.3)	12 (13.6)	11 (15.7)
Moderate	21 (23.9)	15 (21.4)	25 (28.4)	10 (14.3)	21 (23.9)	12 (17.1)
Severe	8 (9.1)	11 (15.7)	9 (10.2)	4 (5.7)	9 (10.2)	3 (4.3)
Extremely severe	6 (6.8)	1 (1.4)	1 (1.1)	9 (12.9)	0 (0.0)	2 (2.9)
	<i>P</i> = .409		<i>P</i> = .005		<i>P</i> = .272	

the moderate to severe ranges. The negative and positive impacts of the COVID-19 pandemic were higher for NHCW families. There were no differences in the mean child or caregiver mental health scores between HCW and NHCW families.

Based on the emerging literature, it was hypothesized that young children and caregivers in the HCW group would have worse mental health outcomes. However, no significant differences were found between the children in the HCW vs. NHCW groups for anger/irritability, anxiety, depressive symptoms, sleep disturbance, self-regulation/frustration tolerance, or positive affect. The lack of difference between the 2 groups might be explained by the finding that there was no difference between the mental health of their caregivers. It has been repeatedly demonstrated previously that child mental health is related to caregiver mental health.⁴ A study which investigated the moderated effect of maternal mood on young children's mental health has shown that depressive and anxiety symptoms were associated with higher emotional and behavioral problems during the pandemic.¹⁰

Furthermore, the 2 groups were exposed to different stressors which we were not able to control in this study. For example, our results demonstrated that the children of HCWs were more frequently separated from their caregivers and were more frequently exposed to COVID-19, while the children of caregivers who were NHCWs had a lower socioeconomic status and their families were more severely exposed to the negative effects of COVID-19. Another possible explanation is that HCWs had more information about COVID-19, and this might have had a protective effect on their children.

The current findings add knowledge to the increasing number of studies on the mental health of children during the pandemic by addressing a specific group of young children in Turkey. The number of children experiencing moderate to severe mental health difficulties seems to be higher than those reported in a pre-pandemic study in Turkey.²⁵ A meta-analysis, including 10 epidemiological studies conducted before the pandemic, reported the prevalence of having any disorder in children between 1 and 7 years was 20.1%, 8.5% of children met the criteria for an anxiety disorder, and 1.1% for depressive disorders.²⁶ Although the rates we found cannot be directly compared to pre-pandemic or international results because of different methodologies and social factors, they show that there is a substantial number of Turkish children who may be in need of mental health support.

In the current study, we found that 1 in 3 caregivers reported moderate to severe levels of anxiety, depression, and stress. Previous

studies investigating the mental health of adults have shown that anxiety and depression symptoms increased during the pandemic.²⁷ Furthermore, previous studies investigating differences in mental health problems in the general population and HCWs showed mixed results, with 1 showing no differences between HCW and NHCW²⁸ and 1 showing more anxiety in the HCW group.²⁹ It was hypothesized that caregivers who were HCWs would have higher depression, anxiety, and stress levels compared to caregivers who were NHCWs. There were some differences on the category level with more HCWs experiencing severe levels of anxiety. However, contrary to our expectations, differences in depression, anxiety, and stress levels between HCWs and NHCWs were not significant after controlling for gender, mental health history, and COVID-19 diagnosis. Some reasons for this may be due to some of the significant differences found between the 2 groups on factors that have been shown to influence adult mental health during the pandemic. In the literature, decreased household income, female gender, long working hours, and contamination fears were factors associated with higher anxiety and depression symptoms during the pandemic.²⁷ In this study, caregivers in the NHCW group reported lower household income and education levels, whereas there was a higher percentage of female HCWs. Additionally, the negative impact subscale from the PIC:EC, which assesses, among other factors, financial difficulties, losing social support, and the problems related to caregiving during the pandemic, was found to be higher for NHCW families. It has been reported that the burden of caregiving during the COVID-19 period increased as the time spent with children in the home increased and caregivers became more responsible for the child's education and less able to take breaks outside of the home or away from their children.² In comparison, healthcare professionals were able to continue their work in hospitals and have social interaction and support with their friends and colleagues.² Caregivers in the HCW group might have also had more access to information and resources for mental health issues and the management of COVID-19. Hence, some of the indirect negative impacts of the COVID-19 pandemic may have been experienced less intensively in the HCW group. On the other hand, the positive impact subscale of the PIC:EC-scale, assessing personal strength, appreciation of life, and spiritual change, was found to be higher in NHCW.

There were several limitations in the study that need to be mentioned. The questionnaires which evaluate the effect of the COVID-19 pandemic on mental health were used for the first time in this study. So, there was no validation of Turkish translations for these questionnaires and the data may not reflect a normative sample. Considering the sample of the study, it is not known which department HCW participants worked in. Future studies related to young

children's mental health of HCW should investigate symptomatic differences between young children of caregivers working in different departments at the hospital (e.g., HCWs working in the emergency department are exposed to more threatening conditions, contamination issues, and other stressors compared to HCWs working in the mental health department). Additionally, we were not able to reach caregivers who did not have online access due to pandemic conditions. There might be a selection bias that decreases the generalizability of study findings. Furthermore, the sample size might not provide sufficient power to detect small effects in the multivariate analyses. Future studies should make it possible to reach caregivers who have no online access and assess the longitudinal effects of the COVID-19 pandemic on the mental health of young children and caregivers.

The findings from this study contribute to our understanding of how the COVID-19 pandemic is affecting the mental health and well-being of very young children, a population that is often neglected. Around 30% of Turkish children and their caregivers were experiencing moderate to severe levels of mental health difficulties regardless of HCW status. This provides further evidence for the need to recognize and provide access to mental health resources and treatment to young children and families during disruptive events.

Ethics Committee Approval: This study was approved by the Ethics Committee of İstanbul Rumeli University University (Approval No: 2021/01-02, Date: January 27, 2021).

Informed Consent: Written informed consent was obtained from the parents who agreed to take part in the study.

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