



Evaluation of worry level in healthcare professionals and mental symptoms encountered in their children during the COVID-19 pandemic process

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Abstract

This study was conducted to evaluate the worry level in healthcare professionals and the mental symptoms encountered in their children during the Coronavirus Disease 2019 (COVID-19) pandemic. The study was designed in a cross-sectional, descriptive and relational screening model. Target population of the study comprised healthcare professionals living in Turkey who had children aged 6 to 16 years. The study data was obtained from 457 healthcare professionals who were accessible online between June 15 and August 15, 2020. The Introductory Information Form, the Penn State Worry Questionnaire (PSWQ) and the Pediatric Symptom Checklist-17 (PSC-17) were used as data collection method. The mean age of the healthcare professionals was 39.82 ± 4.83 years and 88.6% of them were female, 58.6% were nurses, 9.0% were doctors and 54.3% were working in the pandemic service. The mean total PSWQ score of the healthcare professionals was 53.53 ± 11.82 and the mean total PSC-17 score of their children was 10.74 ± 5.68 . The mean PSWQ score of the healthcare professionals who had a psychological disease and provided care to COVID-19 patients was significantly higher. The PSC-17 scores were significantly higher in children with a mental disorder. There was a statistically significant positive correlation between the mean total PSWQ score of the healthcare professionals and the mean total PSC-17 score of their children. The study showed that children of healthcare professionals who experience all aspects of the pandemic, comprise an important risk group because they are unable to have physical contact with their parents and they experience the pandemic-related measures more.

Keywords COVID-19 · Pandemic · Healthcare professionals · Worry · Child · Mental symptom

Introduction

Background of the Study

In January 2020, the World Health Organization (WHO) reported the outbreak of a new Coronavirus Disease 2019, namely “COVID-19” and declared an “international public health emergency” (World Health Organization, 2020). This pandemic which was initially thought to be pneumonia but then identified as a new coronavirus outbreak in Wuhan of Hubei province of the People’s Republic of China in December 2019,

could not be taken under control. It spread to China’s other states in a short time and then to the whole world starting with the European continent (Wang et al., 2020).

According to the reports, 3387 healthcare professionals in China, at least 2629 healthcare professionals in Italy (8.3%) and more than 19,000 healthcare professionals in Spain were infected with COVID-19 in February 2020 (Neto et al., 2020; Ministry of Health, 2020; Mo et al., 2021). The possibility for healthcare professionals in the UK and the USA to test positive for COVID-19 is 12 times greater than the normal society and a total of 242 people (8.8%) out of 2747 testing positive in both countries are healthcare professionals (Nguyen et al., 2020). In addition countries with the highest ratio of deaths attributed to COVID-19 in healthcare professionals are Italy, Iran, the Philippines, Indonesia, China, Spain, the USA and the UK. Turkey ranks 14th (Ing et al., 2020; Kursumovic et al., 2020; The Guardian, May, 2020; Wang et al., 2020a).

During the COVID-19 outbreak, healthcare professionals’ risk of being infected and the stress caused by different factors in the working environment have increased their susceptibility

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to mental disorders (Joob & Wiwanitkit, 2020). According to the report by the WHO Department of Mental Health and Substance Use, the outbreak is a period of crisis and has caused stress across the population. Healthcare professionals are at greater risk in terms of the stress experienced and should use effective coping methods (World Health Organization, 2020a). Also local people should receive mental support during the COVID-19 outbreak, while healthcare professionals who work in close contact with COVID-19 patients should receive more specific support (Xiao et al., 2020b). Control measures for outbreaks and widespread fear and panic, especially for COVID-19-positive patients, their families and healthcare professionals and stigma lead to social exclusion which may result in psychological adjustment disorder and depression, including more negative reactions (Zhang et al., 2020). In the pandemic process the unpredictability of the disease, high morbidity, lack of precise information about seriousness and potential danger of the risk of death and misinformation, have contributed to the increase of healthcare professionals' anxiety and also increased other psychological symptoms (Adams & Walls, 2020; Bao et al., 2020; Wang et al., 2020). In addition to mental problems, healthcare professionals have been unable to touch their families and especially their children because of the pandemic and have been separated from their children for a long time (Rana, 2020).

The COVID-19 pandemic has led to rapid, unprecedented changes in the lives of billions of children and adolescents. Also most countries have established strict lockdown policies as a measure to struggle with the COVID-19 pandemic and most adults, adolescents and children have been completely isolated. Although lockdown measures are usually on behalf of community, their psychological impacts should not be ignored (Liu et al., 2020a). The lockdown policies during the pandemic process and the deterioration of routines outside family and within family, have impeded children's mental, social, academic and motor development. They may even provide a basis for the emergence of a variety of psychiatric problems or aggravate some of the problems. Especially in this process families may be excessively anxious, intimidating, meticulous, protective and supportive. Parents' exaggerated sense of panic may negatively affect the mental health of children and young people (Ercan et al., 2020; Ravens-Sieberer et al., 2021). In addition lockdown measures may create worry, anxiety, fear of death, fear of parents' death and fear of staying in the hospital alone in children, which may have very dangerous impacts on their psychological development (APA, 2020; CDC, 2019; Dalton et al., 2020).

In addition to the efforts at various levels and the spread of the pandemic, other worrisome situations require community's particular attention to mental health issues. According to the intensity of susceptibility to mental disorders; psychiatrists, psychologists and other related groups should screen psychiatric disorders using medical risk groups

(Xiang et al., 2020). Children and adolescents, on the other hand, are among the major risk groups during crisis periods like pandemics. Also compared to adults, the COVID-19 pandemic may continue to have long-term negative consequences for children and adolescents (Shen et al., 2020). This risk has increased further, particularly because children of healthcare professionals who have experienced the outbreak in all aspects, have been unable to have physical contact with their parents and have faced measures related to the outbreak more (Singh et al., 2020). The studies conducted have found that separating from primary caregivers may make a child more vulnerable and pose a threat to his/her mental health (Cooper, 2020; Jiao et al., 2020; Liu et al., 2020b).

Statement of the Problem

Healthcare professionals may experience adverse mental health problems during the COVID-19 process. Reasons for this include long working hours, risk of infection, lack of protective equipment, loneliness, physical fatigue and separation from family (Kang et al., 2020). In the literature on mental problems encountered in COVID-19, the studies examined by March 2020 reported that symptoms of anxiety and depression were encountered at 16–28% and stress at 8%. Also healthcare professionals are an important risk group for negative mental health outcomes during the COVID-19 pandemic and mental health professionals should support them to stay focused (Rajkumar, 2020).

The literature states that when a person worries about his/her own health and the health of his/her loved ones and faces an uncertainty about the future, this may create fear, depression and anxiety or intensify the existing disorder. Also the literature stresses that when these worries are long-term, they may increase the risk for adult individuals to have serious mental health disorders including anxiety disorders such as panic, obsessive-compulsive, stress and trauma-related disorders. The groups that have a particularly higher risk in this respect are infected people, doctors and nurses (Fiorillo & Gorwood, 2020).

Specific groups may be more vulnerable to the emotional impacts of pandemics than others. Children and teenagers require extra attention to maintain and boost their mental health because they are in such a key stage of development (Miranda et al., 2020). This pandemic's history has seen unprecedented shifts in the recent world history. The abrupt alteration in children's routines is one of them. The long-term home confinement has adverse impacts on children's physical and mental health to a certain degree. The studies have shown that children experiencing lockdown are more likely to report high depressive and stress symptoms (Qiu et al., 2020; Xiang et al., 2020). The studies conducted reveal that children feel unsafe, scared and lonely during the COVID-19 process. Also children experience sleep disorder, nightmares, loss of

appetite, agitation, lack of attention and anxiety related to separation (Jiao et al., 2020). During the pandemic, family and community links and relationships are also critical for mental health outcomes. For most people, the presence of a supportive family can be protective against mental disturbance (Chatterjee et al., 2020; Sharma et al., 2020). An original study found that adolescents who are left alone throughout the workday are more prone to experience despair and anxiety (Chen et al., 2020). These negative impacts have been reported to be as dangerous as other traumatic experiences (Xie et al., 2020). Therefore attention to children's mental and behavioral health is necessary.

Aim and Hypothesis

In order for health workers and their children to cope effectively with the difficulties brought by the Covid-19 process, it is necessary to determine the level of their mental problems and what they are affected by (Rana, 2020). For this reason, as a result of the information obtained in line with the relevant literature, we have assumed that there may be direct correlations between the mental states of health workers and the psychosocial problems of their children.

Children and adolescents are overburdened, have a considerably higher risk of mental health disorders and suffer from psychosomatic ailments than before the epidemic. In order to prevent subclinical mental health problems from turning into evident mental disorders, children and adolescents who are at risk of developing mental health problems should be detected earlier.

Young people with mental health disorders and their access to healthcare services require targeted earlier preventive and therapeutic interventions. For these reasons the study discussed two vulnerable groups in the pandemic process. One of them is healthcare professionals and the other is their children. Identifying the mental problems of these two groups will contribute to the development of systematic mental health programs, including the stress adaptation required for healthcare professionals and their children. They facilitate drawing conclusions which allow health policy, preventative and clinical practice to provide appropriate support in the current crisis and similar future circumstances. A proposed follow-up study will explore how children and adolescents react to the COVID-19 pandemic's future trajectory, as well as the pandemic's long-term impacts and resources and resilience characteristics that may help children cope better. This study sought to evaluate the anxiety level in healthcare professionals and the mental symptoms encountered in their children during the COVID-19 pandemic. As a result, the study proposed the following leading questions and hypothesis in accordance with its purposes.

1- What are the psychological impacts of the COVID-19 pandemic on healthcare professionals?

2- What are the psychological impacts of the COVID-19 pandemic on the children of healthcare professionals?

H1: There is a statistically significant correlation between the anxiety levels of healthcare professionals during the COVID-19 pandemic and their children's mental symptoms.

Methods

Design

The study was conducted in a cross-sectional, descriptive and relational screening model for the evaluation of the anxiety level in healthcare professionals and the mental symptoms encountered in their children during the COVID-19 pandemic.

Participants and Procedures

Target population of the study comprised healthcare professionals with children aged 6 to 16 years. Healthcare professionals with more than one child took part in the study which comprised only children aged 6 to 16 years. Since face-to-face contact was not possible, the participants were sampled via a web-based self-report survey (Google Forms®). An online survey form was created and distributed in each city using a snowball sampling method to increase participation through social media. It was sent to the smart phones of people who were mostly from Ordu, Giresun, Samsun and Trabzon provinces in Turkey. The study data was obtained from 457 healthcare professionals who were accessible online between June 15 and August 15, 2020. Prior to the completion of the survey, information was given about the objectives of the study and informed consent was obtained. The participants were asked to complete a set of measures in the survey. The participants were required to complete the survey and answer all the questions to submit.

Inclusion Criteria

The study included healthcare professionals who worked actively in hospitals during the COVID-19 pandemic process (were not on sick leave or on maternity leave.), were mother or father to a child aged 6 to 16 years, had no disabilities in their children and agreed to take part in the study.

Measures

In the study an "Introductory Information Form", the "Penn State Worry Questionnaire" and the "Psychosocial and Behavioral Issues Checklist-17" were applied.

Introductory Information Form The Introductory Information Form prepared by the researchers has questions about socio-

demographic characteristics of healthcare professionals and their children. The questions related to healthcare professionals aim to determine their age, sex, educational background, marital status, number of children, emotions and thoughts about the pandemic process, unit they work in, working conditions and lockdown in the COVID-19 process. The questions related to children of healthcare professionals aim to determine their sex, age, physical and psychological problems and care of children in this process.

Penn State Worry Questionnaire (PSWQ) The PSWQ (Meyer et al., 1990) is a popular 16-item measurement tool often used in research on pathological worry and in the evaluation of clinical applications. The original PSWQ which has a 5-point Likert type rating system, is used as a single factor and a single total score is obtained by summing all item scores. Of the 16 items that make up the PSWQ, eleven are scored normally, while five (1, 3, 8, 10 and 11) are scored reversely. The lowest and highest possible scores to be obtained from the scale are 16 and 80, respectively. An increase in the total score indicates an increase in the level of pathological concern. Yılmaz et al. (2008) conducted the Turkish language validity study of the scale. The Cronbach's alpha and split-half reliability coefficients of the scale were 0.91 and the test-retest reliability coefficient was 0.88 (Yılmaz et al., 2008). Significant and positive correlations between the scores obtained from the PSWS and metacognition ($r = 0.58$), obsessive-compulsive symptoms ($r = 0.49$), trait anxiety ($r = 0.67$), anxiety symptoms ($r = 0.43$) and depression symptoms ($r = 0.46$) indicate a convergent validity of the PSWS (Yılmaz et al., 2008).

Pediatric Symptom Checklist-17 (PSC-17) The PSC-17 is used for the early diagnosis of psychosocial problems of children (aged 6 to 16 years) by enabling parents to evaluate their children's behavior (Gardner et al., 1999). The Turkish validity and reliability study of the scale was conducted and it showed that Turkish parents can use the scale (Erdogan & Öztürk, 2011). All items of the PSC-17 are positive. The scores from all items are summed (Not True/ Never = 0, Sometimes or Somewhat True = 1, Very or Often True = 2). The highest and lowest possible scores to be obtained from the scale are 34 and 0, respectively. A total score of 12 and above for the child diagnosed indicates that there is a psychosocial problem. These children need to be evaluated profoundly for a definitive diagnosis (Erdogan & Öztürk, 2011; Gardner et al., 1999).

Ethical Considerations

The data of the study was collected voluntarily after obtaining approval from Ordu University Medical Faculty Clinical Research Ethics Committee (decree dated 14/05/2020 and numbered 100-KAEK-89) and legal permits from the

Ministry of Health of the Republic of Ordu (decree dated 02/05/2020 and numbered 2020–05-02T11_18_26). In the online data collection form the healthcare professionals were first informed of the study purpose. Prior to the completion of the questionnaire, they were required to sign informed consent online if they chose to take part. The healthcare professionals were told that they could withdraw from the study at any stage and the “principle of respect for autonomy”, “principle of confidentiality and protection of privacy” and “principle of non-harm/usefulness” and ethical principles were fulfilled.

Data Analysis

Fitness of the data to normal distribution (Kolmogorov-Smirnov test) and homogeneity of group variances (Levene test) were checked for qualitative variables. The Student t-test or analysis of variance (ANOVA) were used for independent groups in the analysis of variables meeting these assumptions. The Mann-Whitney U test or Kruskal-Wallis test were used in independent groups for variables not meeting the assumptions or obtained as discrete/categorical. The Pearson's correlation coefficients were calculated to determine the mean total PSWQ score of the healthcare professionals and the mean total PSC-17 score of their children. The presence of correlation was defined with the relation coefficients greater than $r = 0.250$. The significance level was set at $p < 0.05$.

Results

Of the healthcare professionals, 88.6% were female, 58.6% were nurses, 9.0% were doctors, 16.2% were midwives, 3.9% were emergency medical technicians and 16.3% were other professionals (anesthesia technicians, laborants, paramedics, X-ray technicians). The mean age of the healthcare professionals was 39.82 ± 4.83 years and 54.7% of them had a bachelor's degree, 54.3% were employed in a pandemic service and 45.3% had had continuous night shifts for the last month. 26% of the healthcare professionals had a chronic physical illness and 7.2% had a psychological illness. 40% of the healthcare professionals provided care to diagnosed/suspected COVID-19 patients and 11.8% were in quarantine during the COVID-19 process. The sex of the healthcare professionals was significantly correlated with the mean PSWQ score. The mean total scale score of the male healthcare professionals was higher than the female healthcare professionals ($p = 0.009$). The mean PSWQ score of the healthcare professionals who had a psychological disease and provided care to COVID-19 patients was significantly higher ($p = 0.001$). Furthermore the mean PSWS score of the front-line healthcare professionals ($n = 274$) who provided care to COVID-19 patients ($n = 183$) was significantly higher than the non-front-

line healthcare professionals who did not provide care to COVID-19 patients ($p = 0.030$) (Table 1).

56.2% of the children of the healthcare professionals were male and their mean age was 9.91 ± 3.29 years. 61.9% of the healthcare professionals had two children. Of the children, 9% had a chronic physical illness and 2% had a psychiatric illness. The PSC-17 scores were significantly higher in the children with a psychiatric illness ($p = 0.000$). Additionally the PSC-17 scores of the children of the front-line healthcare professionals who provided care to COVID-19 patients were significantly higher (Table 2).

Table 3 examines feelings and thoughts of the healthcare professionals about the pandemic. Of the healthcare professionals, 38.9% stated that they always had fears about the COVID-19 pandemic, 41.4% were tired because of the busy work schedule, 36.9% were always sad because they could not see/touch to their kids and 71.8% were always afraid of infecting their family with COVID-19.

The total PSWQ score of the healthcare professionals was 53.53 ± 11.82 . The total PSC-17 score of the children of the healthcare professionals was 10.74 ± 5.68 (Table 4).

The correlation analysis between the mean total PSWQ score of the healthcare professionals and the mean total PSC-17 score of their children was statistically significant and there was a positive weak correlation ($r = +0.333$; $p = 0.001$) (Table 5). The mean total PSWQ score of the healthcare professionals increased as the mean total PSC-17 score of their children increased.

Discussion

The impacts of COVID-19 on mental health have been designated as a high priority for investigation (Holmes et al., 2020). Understanding the psychological impacts in various populations may provide a theoretical foundation for identifying at-risk persons and developing remedies. This information may also aid in the creation of health policies and resource allocations, both of which are crucial for global public health (Luo et al., 2020).

In our study 38.9% of the healthcare professionals stated that they had always had fears about the COVID-19 pandemic, 41.4% were often tired due to the intense work tempo, 36.9% were always sad because they could not see/touch their kids and 71.8% were afraid of infecting their family with COVID-19. Long-term exposure to large-scale infected patients directly increases the risk for healthcare professionals to get infected and increases the risk of psychic depletion due to work intensity, facing too many deaths in a very short period of time, intense clinical activity and reduced rest periods (Wang et al., 2020; Neto et al., 2020). Also work-related stress is a major concern for healthcare professionals (Neto et al., 2020). This could explain why healthcare personnel

have higher trait anxiety levels. According to a study conducted in Italy, healthcare professionals' risk perception and anxiety levels are higher during the COVID-19 epidemic than in the general population (Simione & Gnagnarella, 2020).

In the study the total Penn State Worry Questionnaire (PSWQ) score of the healthcare professionals was 53.53 ± 11.82 . As of February 8, 2020, 72 mental health-related studies were conducted online during COVID-19, 21 of which were associated with the mixed population, 9 with the general population, 18 with students and 23 with healthcare professionals' mental health. 50.7% of the healthcare professionals (overall anxiety disorder scale total score > 5) experienced anxiety, 36.1% experienced insomnia (Insomnia Severity Index Total Score > 8 points) and 73.4% experienced stress (effect of events total score > 9 points) (Liu et al., 2020a). In a study conducted with 180 healthcare professionals who provided care to COVID-19 patients, the mean anxiety score of 55.3 ± 14.2 was positively correlated with stress and negatively correlated with sleep quality and social support. (Xiao et al., 2020a). A study conducted with nurses supporting the struggle against the COVID-19 infection in Wuhan, found that the stress overload scale and self-assessment anxiety scale mean scores of the nurses were higher than the national standards and there was a highly significant correlation between stress and anxiety in a positive direction (Mo et al., 2021). Besides, a study on COVID-19 in India identified six important roles for mental health professionals and stated that one of these important roles is to provide mental health care for healthcare professionals (Banerjee, 2020).

In this study the mean PSWQ score of the front-line healthcare professionals who provided care to COVID-19 patients was significantly higher than the non-front-line healthcare professionals who did not provide care to COVID-19 patients ($p = 0.030$). Rapid spread of the SARS-CoV-2 leads to mental disorders in different populations; however, front-line healthcare professionals have a higher possibility for mental disorders and psychiatric morbidities because they have close contact with infected patients and experience work overload, isolation and discrimination more frequently (Liu et al., 2020a; Du et al., 2020). These results explain why front-line healthcare professionals experience anxiety at a higher level. In a relevant study conducted with the general population, nurses who worked individually with COVID-19 patients and nurses who did not work individually with COVID-19 patients, trauma symptoms were higher in the general population and nurses who did not work individually with COVID-19 patients, compared to nurses who worked individually with COVID-19 patients (Liu et al., 2020a). Healthcare professionals are at a significant risk for negative mental health outcomes encountered in the COVID-19 process (Rajkumar, 2020).

In the study the total PSC-17 score of the children of the healthcare professionals was 10.74 ± 5.68 . The highest and

Table 1 Comparison of Descriptive Characteristics of Healthcare Professionals and Penn State Worry Questionnaire (PSWQ) Scores

	n	%	Penn State Worry Scale (PSWQ)
Profession			
Nurse	268	74.8	54.43±12.29
Doctor	41	9.0	51.84±11.65
Midwifery	74	16.2	53.12±10.69
Emergency Medicine Technicians (EMT)	18	3.9	54.55±10.89
Other*	56	12.3	53.05±13.92
			KW=4.768 p =0.590
Sex			
Women	405	88.6	53.05±11.67
Men	52	11.4	48.50±12.31
			t=2.633 p =0.009
Marital Status			
Married	422	92.3	52.41±11.81
Single	35	7.7	54.05±12.03
			t=0.791 p =0.430
Family Type			
Nuclear family	424	92.8	52.50±11.69
Extended family	33	7.2	53.00±13.52
			t=0.233 p =0.816
Education Status			
High school	33	7.2	52.48±10.59
Associate Degree	80	17.5	53.17±9.81
License	250	54.7	52.64±12.04
Postgraduate-doctorate	94	20.6	51.73±13.23
			F=0.288 p =0.877
Working Service			
Pandemic Service	250	54.7	55.82±11.13
Intensive care	95	20.8	54.13±11.30
Services	37	8.1	51.61±11.77
Emergency	47	10.3	52.67±12.49
Other...	28	6.1	52.68±12.66
			KW=1.721 p =0.632
A chronic physical illness			
Yes	119	26.0	53.42±12.46
No	338	74.0	52.22±11.59
			t=0.946 p =0.345
A psychiatric illness			
Yes	33	7.2	59.30±12.77
No	424	92.8	52.01±11.59
			t=3.45 p =0.001
How it works during the pandemic process			
Continuous night	207	45.3	52.22±11.36
Continuous day	41	9.0	52.80±11.79
Night-Day shift	103	22.5	52.00±11.71
24-h block attack	106	23.2	54.80±14.36
			F=0.637 p =0.592
Caring for patients diagnosed with COVID-19			
Front-line health employee	274	60.0	54.06±11.92
Non- front-line health employee	183	40.0	51.58±11.68

Table 1 (continued)

	n	%	Penn State Worry Scale (PSWQ)
			t=2.182 p=0.030
Quarantined in the COVID process			
Yes	54	11.8	52.55±10.91
No	403	88.2	52.53±11.95
			t=0.011 p=0.991
Mean±SD (Min-Max)			
Age	39.82±4.83	(25–56)	
Professional experience	17.86±6.24	(1–38)	
Your daily working hours for the last 1 month	10.23±6.32	(8–24)	

*anesthesia technician, laborant, paramedic, X-ray technician

lowest possible scores to be obtained from the scale are 34 and 0, respectively. A total score of 12 and above for the child diagnosed indicates that there is a psychosocial problem. In

Table 2 Comparison of Descriptive Characteristics of Children of Healthcare Professionals and Pediatric Symptom Checklist –17 (PSC-17)

	n	%	Pediatric Symptom Checklist - 17 (PSC-17)
Number of children			
1	117	25.6	54.70±11.70
2	283	61.9	51.78±11.94
3	49	10.7	52.95±11.13
4 and above	8	1.8	44.87±8.13
			KW=2.43 p=0.009
The sex of the child			
Girl	200	48.8	10.49±5.57
Boy	257	56.2	10.94±5.77
			t=1.616 p=0.405
A chronic physical disease of your child			
Yes	41	9.0	10.80±4.99
No	416	91.0	10.74±5.75
			t=1.616 p=0.405
A psychiatric illness of your child			
Yes	10	2.2	18.30±4.00
No	447	97.8	10.57±5.60
			MWU=594.000 p=0.000
Taking care of the children in this process			
Family elders	133	29.1	10.66±5.69
My partner	153	33.5	10.66±5.19
They look at themselves	138	30.2	11.16±5.96
Caretaker	33	7.2	10.36±7.68
			F=0.201 p=0.938
Mean±SD (Min-Max)			
The age of the child	9.91±3.29	(6–16)	

the study we found a result very close to the limit of psychosocial problems. According to Xie et al. (2020) 23% of 2nd to 6th grade children have faced depressive symptoms and 19% have faced anxiety symptoms during the pandemic. According to Zhou et al. (2020) 44% of children aged 12 to 18 years have faced depressive symptoms, 37% have faced anxiety and 31% have faced both types of symptoms. According to Jiao et al. (2020) one-third of children and adolescents aged 3 to 18 years are clinging, inattentive, irritated and concerned. Furthermore, recent nationwide studies in the United States have found that children's and adolescents' psychological and behavioral health has deteriorated since the epidemic (Patrick et al., 2020; Gassman-Pines et al., 2020). Similarly, two non-representative European studies from Italy and Spain indicated that mental health problems in children and adolescents, such as conduct problems, irritation and loneliness, have increased during the COVID-19 lockdown (Ezpeleta et al., 2020; Orgiles et al., 2020).

The study found a significant correlation between the PSWQ of the healthcare professionals and the total PSC-17 score of their children ($p=0.001$). The literature states that children are a particularly vulnerable group due to their limited comprehension of events and as they have limited coping strategies, they are affected by the damages of physical/mental events. Children experience physical/social isolation during the COVID-19 pandemic due to higher exposure to parental stress, as well as fears, uncertainties and important changes in their routine. Also children's separation from their parents pushes them toward a crisis and increases the psychiatric disorder risk (Liu et al., 2020b). Therefore in order to properly handle the needs of children during a pandemic, it is crucial to understand their emotions and reactions (Imran et al., 2020). Cattellino et al. (2021) stated in their study that special attention should be paid to adolescents' self-efficacy in regulating basic negative emotions in order to encourage positive coping strategies to face difficulties arising from daily life and non-normative events. A study conducted in China to determine

Table 3 Health Care Professionals ‘feelings and thoughts about Pandemic

Feelings and thoughts about pandemic	Never		Sometimes		Often		Always	
	n	%	n	%	n	%	n	%
I have fears about the COVID-19 pandemic	10	2.2	119	26.0	150	32.8	178	38.9
I’m tired because of the busy work schedule	14	3.1	132	28.9	189	41.4	122	26.7
I’m sorry I couldn’t see / touch my kids	37	8.1	113	24.7	126	27.6	181	36.9
I’m afraid to infect my family with the COVID-19 infection	5	1.1	22	11.4	72	15.8	328	71.8

the behavioral and emotional problems in children and adolescents during the COVID-19 period, found that the most common problems are fear for family members to catch a fatal disease, commitment, attention deficit, bad temper and fear (Jiao et al., 2020). In addition children cannot express their emotions as adults and closing of schools and separation from friends create stress and anxiety in children. Inclusion of crisis events like pandemics in mass media and unconfirmed data circulating in social media increase mental disorders (Dalton et al., 2020). The results of this study and relevant studies in the literature indicate that the pandemic and lockdown process have affected children negatively; however, not at a diagnostic level. This may be associated with better level of social support systems in Turkey. The results of this study and relevant studies in the literature indicate that children have been affected by the pandemic and lockdown process negatively, but not at the diagnostic level. This may be associated with good level of social support systems in Turkey.

Limitations

The main limitation to the present study is that it was not possible to access the children’s reports due to the lockdown restrictions. Thus only the parents reported the information. Despite this limitation, the study provides data on psychological impacts of the COVID-19 lockdown on healthcare professionals and their children. Another limitation is that cross-sectional studies mostly fail to specify a definite reason behind a correlation. In detail, this limitation can prevent a profound understanding of the nature of the causal correlation between study variables. Besides, the use of self-report measures may only reflect the feelings of persons during the assessment and

not reveal the real emotions they have suffered. Finally, based on a negligible correlation between the study variables, health planners should act with caution when designing interventions according to these findings.

Conclusion

As a result of the study in which we aimed to evaluate the anxiety level in healthcare professionals and the mental symptoms encountered in their children during the COVID-19 pandemic, the anxiety level of the healthcare professionals was at a pathological level (above average). The children showed psychosocial symptoms. As their anxiety symptoms increased, their risk of showing psychosocial symptoms also increased. The healthcare professionals who provided care to COVID-19 patients experienced higher worry (pathological) and their children showed symptoms at a higher level. Based on these findings, it is possible to conclude that the healthcare professionals and their children were negatively affected by the COVID-19 process.

The study once again showed that children of healthcare professionals who have experienced all aspects of the pandemic, comprise an important risk group because they are unable to have physical contact with their parents and have long experienced the pandemic-related measures. Besides, during the outbreak it is envisaged that mental health specialists (psychiatrists, psychiatric nurses) should actively take part in the general intervention process of the disease so that mental health and psychosocial response can be activated in time.

Again, during the COVID-19 outbreak healthcare professionals should be given continuous and effective spiritual

Table 4 Penn State Worry Questionnaire of Health Care Professionals (PSWQ) and Mean Total Pediatric Symptom Checklist (PSC-17) Score of Children

Scale Total Points	Minimum	Maximum	Mean	Standart Deviation
PSWQ	17	80	53.53	11.82
PSC-17	0	31	10.74	5.68

Table 5 Relationship Between Penn State Worry Questionnaire of Health Care Professionals (PSWQ) and Pediatric Symptom Checklist-17 (PSC-17) of Children

Penn State Worry Scale (PSWQ)		
	<i>p</i> Value	<i>r</i>
Pediatric Symptom Checklist - 17 (PSC-17)	0.001	+0.333

support, while children of healthcare professionals who work in close contact with COVID-19 patients should be given more specific support. To this end, we believe that mental healthcare professionals will contribute to the management of the process by establishing online and telephone support lines addressing to mental health issues, identifying risk factors and providing mental care, implementing programs specifically structured for healthcare professionals and their children.

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Data Availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Conflict of Interest The authors declare that they have no conflict of interests.

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