ANXIETY SYMPTOMS IN HEALTHCARE WORKERS AND THEIR CHILDREN DURING THE COVID-19 PANDEMIC IN TURKEY

Türkiye'de COVID-19 Pandemisi Sırasında Sağlık Çalışanlarında ve Çocuklarında Anksiyete Belirtileri

Berkan ŞAHİN[1] ID, Esra HOŞOĞLU[2] ID, Bedia Sultan ÖNAL[2] ID

[1] Department of Child and Adolescent Psychiatry, Giresun University Faculty of Medicine, Giresun, TURKEY.
[2] Child and Adolescent Psychiatry Clinic, Giresun University Maternity and Children Training and Research Hospital, Giresun, TURKEY.

Approval for the study was granted by Giresun University Ethical Committee (date: 06.05.2020, no:24.004.2020/04).

Abstract

Aim: Infectious disease outbreaks not only affect the physical health of patients but also affect the psychological health and well-being of the uninfected population. High rates of psychiatric symptoms and stress are observed in the general population in COVID-19 pandemic and healthcare workers (HCWs) reported higher-risk perception and anxiety level. We aimed to evaluate the anxiety levels of HCWs and their children during the COVID-19 pandemic in Turkey.

Materials and Methods: A total of 121 HCWs and 121 HCWs' children aged 8-17 were included from 23 different cities to assess the anxiety level of them during the COVID-19 pandemic by using an online questionnaire. The Beck Anxiety Inventory and the parent Screen for Child Anxiety Related Emotional Disorders (SCARED) were applied to all the HCWs. The child SCARED which has a self-report scale for children of the HCWs had completed. COVID-19 Pandemic Questionnaire was applied to determine stress levels and lifestyle changes.

Results: All of the HCWs had mild to severe anxiety, about 17% reported moderate and 27% reported severe anxiety severity. 40 (33.06%) children were over cut-off for total score in both SCARED the parents and the child version. Children anxiety showed a positive correlation with Beck Anxiety Inventory and COVID-19 Pandemic Questionnaire (<0.001).

Conclusion: The current study found that HCWs and their children experienced a high level of anxiety in the COVID-19 pandemic. It was detected that a positive correlation between HCWs and their children's anxiety.

Keywords: Anxiety, children, pandemic, healthcare worker, COVID-19.

Öz

Amaç: Bulaşıcı hastalık salgınları sadece hastaların fiziksel sağlığını etkilemekle kalmaz, aynı zamanda enfekte olmamış nüfusun psikolojik sağlığını ve refahını da etkiler. COVID-19 pandemisinde genel popülasyonda yüksek oranda psikiyatrik semptom ve stres görülmekte ve sağlık çalışanları daha yüksek risk algısı ve anksiyete düzeyi bildirmiştir. Türkiye'de COVID-19 salgını sırasında sağlık çalışanlarının ve çocuklarının kaygı düzeylerini değerlendirmeyi amaçladık.

Materyal ve Metot: Çevrimiçi bir anket kullanarak COVID-19 pandemisi sırasındaki kaygı düzeylerini değerlendirmek için 23 farklı şehirden toplamda 121 sağlık çalışanı ve 8-17 yaş arası 121 sağlık çalışanının çocuğu çalışmaya dahil edildi. Beck Anksiyete Envanteri ve Çocuklarda Anksiyete Tarama Ölçeği (ÇATÖ) ebeveyn formu tüm sağlık çalışanlarına uygulandı. Sağlık çalışanlarının çocukları bir öz bildirim ölçeği olan ÇATÖ çocuk formunu tamamladı. Stres seviyelerini ve yaşam tarzı değişikliklerini belirlemek için bir COVID-19 Pandemi Anketi uygulandı.

Bulgular: Tüm sağlık çalışanlarının hafif ila şiddetli aralıkta anksiyetesi vardı, yaklaşık %17'si orta düzeyde ve %27'si şiddetli düzeyde anksiyete bildirdi. 40 (%33.06) çocuk, ÇATÖ ölçeğinin hem ebeveyn hem de çocuk versiyonunda kesme puanın üzerinde toplam skora sahipti. Çocukların kaygısı Beck Anksiyete Envanteri ve COVID-19 Pandemi Anketi ile pozitif korelasyon gösterdi (<0.001).

Sonuç: Sağlık çalışanlarının ve çocuklarının COVID-19 pandemisinde yüksek düzeyde anksiyete yaşadıkları bulundu. Sağlık çalışanları ve çocuklarının kaygısı arasında pozitif bir korelasyon olduğu tespit edildi.

Anahtar Kelimeler: Kaygı, çocuklar, pandemi, sağlık çalışanı, COVID-19.

INTRODUCTION

From the end of December 2019, coronavirus pneumonia has begun to spread from China to the rest of the world. The virus has been named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). In this article, we will address the disease as COVID-19. The rapid spread of COVID-19 was first described by the World

Health Organization (WHO) as an emergency endangering international public health. On March 11, 2020, COVID-19 was announced as a pandemic disease[1].

Infectious disease outbreaks not only affect the physical health of patients but also affect the psychological health and well-being of the uninfected population. When studies conducted in previous outbreaks have been examined, new infectious diseases such as severe acute respiratory syndrome (SARS) have been shown to increase levels of anxiety, depression, and stress in the general population[2].During the epidemic of the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) seen in 2012, when the effect of the epidemic on the risk perceptions, work, and personal lives of the healthcare workers (HCWs), they expressed higher levels of anxiety towards the risk of healthcare professionals transmitting MERS-CoV to their families. This issue was noted as the most predictive factor for the general level of anxiety among non-physicians. A significant number of HCWsstated they are concerned about the risk of getting MERS-CoV infection. The anxiety of HCWs regarding their professional and family responsibilities was reported as one of the main underlying problems during the epidemic[3].Research on the impact of outbreaks on the psychological well-being of HCWs indicates that many healthcare professionals are concerned about a high level of psychological distress, their own and their family's health, functionality, and fear of stigma[4].During the H1N1 influenza pandemic, a significant number of health workers reported moderate anxiety about the pandemic. This situation adversely affected their going to work despite a deep sense of duty[5].

Similarly, high rates of psychiatric symptoms and stress are observed in the general population in COVID-19 pandemic (16.5% moderate to severe depressive symptoms; 28.8% moderate to severe anxiety symptoms; 8.1% moderate to severe stress)[6].HCWs reported higher-risk perception and anxiety levels related to COVID-19 infection than the general population[7].It was found that social support showed a negative correlation with depression and anxiety in HCWs and this relationship was stronger than the general population[8].A recent study showed that due to COVID-19, socio-demographic and psychological variables in HCWs might be associated with anxiety, depressive symptoms, stress, and insomnia.COVID-19was thought to be an independent risk factor for stress in HCWs[9]. The misinterpretation of the COVID-19 pandemic demonstrates the potential for stress, which may grow to be anxiety and other psychological diseases[10].Anxiety levels of HCWs have been reported to be significantly associated with stress levels due to COVID-19[11].During a COVID-19 pandemic, a study evaluating the mental health burden of Chinese health workers reported 32% mild, 7% moderate, and 5% severe anxiety[12].These studies show that understanding the anxiety, behavior, and knowledge levels of healthcare professionals during the COVID-19 pandemic is important for taking appropriate measures.Family status could be one of the factors associated with the risk of adverse psychological outcomes. This risk was increased for staff with children at home or an infected family member, but decreased for staff with family support[13].In cases of intense occupational and mental stress, such as a pandemic, health workers and their families can be considered to be at psychological risk.

Previous family studies talked about the interaction between anxiety in mothers and their children[14]. Studies showed children couldget fear and avoidance behavior at an early age through observational learning and modeling. It was

reported that there might be a difference between the levels of anxiety observed by the family and reported by the child, and this provides different and valuable information about anxiety[15]. Data from epidemiological and family studies reported that anxiety disorders were familial, and mother anxiety predicted child anxiety when the effects of upbringing were evaluated[16,17]. Childhood anxiety disorders seem to be associated with parental anxiety and behavior management difficulties[18].In a study examining depressive symptoms in children of HCWs working under severe and stressful conditions, high scores were found within almost all children of female HCWs. It is suggested that scans and measures should be taken in this regard[19].

In order to present a different perspective to previous studies, this study aimed to evaluate the anxiety levels of various HCWs and their children during the COVID-19 pandemic in our country. As we know, there is no study in the literature evaluating the anxiety of both the child of health workers and health workers. Assessing the child of healthcare worker who are at higher risk for psychiatric symptoms during COVID-19 than the general population will help close this gap. This study aimed to contribute to developing an integrated psychological response to professional and psychological problems involving healthcare professionals and their families. In this way, we aimed to be helpful in evaluating HCWs and supporting preventive and therapeutic measures in severe outbreaks such as COVID-19.

MATERIAL AND METHODS

Participants

This cross-sectional survey study was designed to assess the anxiety levels of HCWs and their children aged 8-17 during the COVID-19 pandemic by using an anonymous online questionnaire. A snowball sampling strategy,

focused on recruiting the HCWs and their children living in Turkey, was utilized. The online survey was first disseminated to physicians and they were encouraged to pass it on to all HCWs in May 2020.The sample group includes HCWs and healthcare worker children in our country. Healthcare worker groups such as physician, pharmacist, nurse, health officer, biologist, secretary, and technician participated in the study. WhatsApp application is one of the common methods of communicating between healthcare professionals. The participants were reached through the WhatsApp application. Study measurement tools were created electronically via an online survey. Since it can be filled from both phone and computer, reaching with WhatsApp application provides direct access to healthcare professionals as well as increasing response rates. In the introduction part of the online form, it was announced that the questionnaire would continue if the consent of the survey and the study was given. The study questionnaire was created with the online form. Before the start of the study, it was evaluated whether it worked properly, and possible errors were corrected. The survey form participation link was delivered to HCWs through the WhatsApp application. A total of 121 HCWs and 121 healthcare worker children aged 8-17 were included in this cross-sectional study. The exclusion criteria were defined as any comorbid neurological disease, a history of trauma with more than one hour of loss of consciousness, the presence of any unstable or chronic medical disease, or having previously known psychiatric disorder. Thirty-two participants were excluded from the study due to exclusion criteria.

Procedure

Participants were assessed using the following measures. COVID-19 Pandemic Questionnaire, Beck Anxiety Inventory (BAI), which assesses its

self-anxiety and the parent Screen for Child Anxiety Related Emotional Disorders (SCARED), which assesses the anxiety of the child, were applied to all theHCWs. The child SCARED which has a self-report scale that assesses anxiety levels of the children of the HCWs, had completed.

A COVID-19 Pandemic Questionnaire was prepared by authors as a 4-point Likert scale consisting of 10 questions about COVID-19. Studies on the psychological effects of previous outbreaks were reviewed[4,5,14]. The structured questionnaire consists of questions covering several areas, such as stress and concerns about COVID-19, social life changes after COVID-19 and possible long-term consequences of the COVID-19 pandemic.

The Beck Anxiety Inventory (BAI) was used to measure the severity of anxiety for the previous week. It is a Likert-type scale consisting of 21 items and scored between 0-3. It was first developed by Beck et al.[20], and the validity and reliability of the Turkish version were performed by Ulusoy et al.[21]The scale severity is scored as follows:8-15 points = mild anxiety, 16-25 points = moderate anxiety, 26-63 points = severe anxiety.

The child and the parent Screen for Child Anxiety Related Emotional Disorders (SCARED) was developed by Birmaher et al.[22], and the validity and reliability study of the scale in Turkish was performed by Çakmakçı.[23] The child form is filled in by the child or by reading it to the child. The child is asked to mark the most appropriate option for each sentence. In the parent form, questions about the child are filled in by the parent. Turkish validity and reliability study was performed in the 8-17 age group. It includes 41Likert-type questions. Each item gets points between zero and two. The total score on the scale varies between 0-82. High scores indicate

high anxiety levels. The total score cut-off score is suggested as 25 and suggests the presence of an anxiety disorder. There are cut-off points of 5-factor points each calculated separately and are as follows: panic disorder and somatic symptom: total 7 points and above, generalized anxiety disorder: total 9 points and above, separation anxiety disorder: total 5 points and above, social phobia: total 8 points and above, school refusal: total 3 points and above.

Ethics

Approval for the study was granted by Giresun University Ethical Committee (date: 06.05.2020, no:24.004.2020/04).

Statistical analysis

All analyses were performed on SPSS versio21 (SPSS Inc., Chicago, United States of America). Kolmogorov-Smirnov test was used to determine whether variables are normally distributed. Data are given as mean ± standard deviation or median (minimum-maximum) for continuous variables according to normality of distribution and frequency (percentage) for categorical variables. Analysis between professions were performed with the independent samples T test for normally distributed variables and with the Mann Whitney U test for non-normally distributed variables. Comparisons between parent and child versions of SCARED sub-scale and total scores were performed with the Wilcoxon Signed Ranks test for quantitative data and with the McNemar test for qualitative data. Spearman correlation coefficients were calculated to evaluate relationships between scale and questionnaire scores. Two-tailed P-values of less than 0.05 were considered statistically significant.

RESULTS

Socio-demographic and clinical features

We included 121 parents and 121 children into our study. It consisted of participants who

participated in the study from 23 different cities. Eighty-three (68.60%) of the parents were working as a physician. The mean age of the children was 11.88 ± 3.21 (8-17) and 62(51.24%) children were boys. Mean Beck Anxiety Inventory score was found as 16.56 ± 13.60 and median value was 13 (range 0-52). SCARED parent version mean total score was found as 20.24 ± 14.46 and median value was 19 (range 0-72). SCARED child version mean total score was found as 18.91 ± 14.22 and median was 17 (range 0-70) (Table 1).

Table 1. Socio-demographic characteristics and scale scores

Parent (N =121)	
Mother	91 (75.21%)
Father	30 (24.79%)
Profession (N =121)	
Physician	83 (68.60%)
Nurse	6 (4.96%)
Health officer	4 (3.31%)
Technician	5 (4.13%)
Secretary	16 (13.22%)
Pharmacist	6 (4.96%)
Biologist	1 (0.83%)
City (N =114)	
Ankara	19 (15.70%)
Giresun	28 (23.14%)
İstanbul	35 (28.92%)
Konya	10 (8.26%)
Others	29 (23.97%)
Age of parent (N =121)	43.33 ± 6.82 (27-70)
Gender of child (N =121)	
Girl	59 (48.76%)
Boy	62 (51.24%)
Age of child (N =121)	11.88 ± 3.21 (8-17)
Beck Anxiety Inventory score (N =121)	16.56 ± 13.60 (0-52)
Minimal	38 (31.40%)
Mild	29 (23.97%)
Moderate	21 (17.36%)
Severe	33 (27.27%)
SCARED-Parent Total Score (N =121)	20.24 ± 14.46 (0-72)
SCARED-Child Total Score (N =121)	18.91 ± 14.22 (0-70)

Data are given as mean ± standard deviation (minimum-maximum) for continuous variables and as frequency (percentage) for categorical variables; SCARED = Screen for Child Anxiety Related Disorders.

Evaluation of the COVID-19 Pandemic Questionnaire

We prepared a questionnaire with 4-point Likert scale (not at all, slightly, moderately, very much) to determine stress levels and lifestyle changes during coronavirus pandemic (Table 2). The content of the questions and the percentage of those who answered in the form of "very much" are as follows:Q1 −74 (61.16%) individuals think his/her work is "very much" risky for the disease. Q2 −50 (41.32%) individuals have "very much" anxiety to transmit the disease to his/her family. Q3 −21 (17.36%) individuals feel "very much" desperate about the pandemic. Q4 −20 (16.53%) individuals think it is "very much" hard to diagnose coronavirus patients. Q5 −23 (19.01%) individuals are "very much" anxious of using elevators. Q6−56 (46.28%) individuals are "very much" anxious of using public transport vehicles. Q7 −12 (9.92%) individuals think it is "very much" hard to treat patients with coronavirus. Q8 −36 (29.75%) individuals think the disease would stand "very much" longer. Q9 −44 (36.36%) individuals had "very much" changes on hygiene habits. Q10 −48 (39.67%) individuals think he/she has "very much" risk of getting the disease (Figure 1). We graded questions 0 (not at all) to 3 (very much) points so minimum possible total score was 0 and maximum possible total score was 30. Mean total score of the questionnaire was calculated as 18.92 ± 4.94 and median was 19 (range 5-30). One (0.83%) individual has the maximum point. Cronbach's alpha was calculated as 0.781, so we could say our questionnaire has good internal consistency and Spearman-Brown coefficient was calculated as 0.881.

Table 2. COVID-19 Pandemic Questionnaire

Q1 How risky do you find your profession about getting coronavirus?

Q2 Do you have anxiety about transmitting the disease to your family?

Q3 Do you feel desperate about the pandemic?

Q4 I think it is hard to diagnose coronavirus patients.

Q5 I'm anxious of using an elevator.

Q6 I am anxious of using any public transport.

Q7 I think it is hard to treat patients with coronavirus.

Q8 I think the coronavirus will stand in the society for a long time.

Q9 Have your hygiene habits changed due to coronavirus (such as hand washing, avoiding contact)?

Q10 Do you think you are at risk of getting coronavirus?
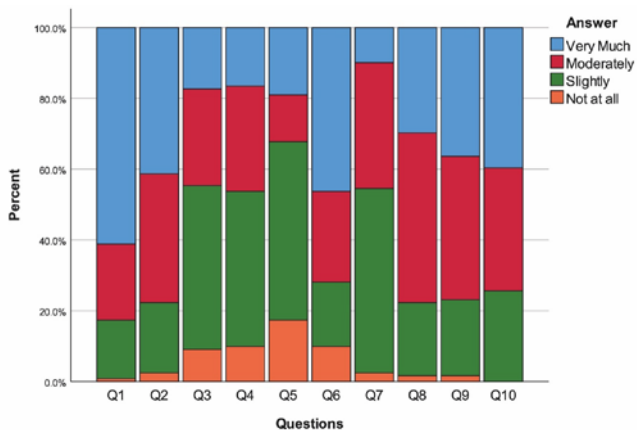
Figure 1. Distribution of answers to COVID-19 pandemic questionnaire for each Likert scale question.

Evaluation of the parent and the child anxiety and correlations

When we evaluated SCARED sub-scale scores, we found social anxiety disorder, school refusal and total scores were significantly higher in the parent version than in the child version. There were no significant differences between versions with regard to other sub-scale scores. Forty (33.06%) children were over cut-off for total score in both the parents and the child version (P =1.000) (Table 3).

When we evaluated relationships between Beck Anxiety Inventory, COVID-19 Pandemic Questionnaire and SCARED scores, we found a positive correlation between Beck Anxiety Inventory and the questionnaire (R =0.486, P <0.001). Also, all SCARED sub-scale and total scores except school refusal in the child version had a positive correlation with Beck Anxiety Inventory and COVID-19 Pandemic Questionnaire (Table 4).

When we evaluated Beck Anxiety Inventory, COVID-19 Pandemic Questionnaire and SCARED scores with regard to profession, we found generalized anxiety disorder scores of both SCARED versions were significantly higher in physician than the other HCWs (P =0.025 and P =0.030). On the other hand, there were no significant differences between groups with regard to other scores (Table 5).

Table 3. Summary of Screen for Child Anxiety Related Disorders (SCARED) sub-scale and total scores

	Parent version	Child version	P
Panic disorder and somatic symptom	2 (0-21)	2 (0-20)	0.427
Over cut-off (≥7)	19 (15.70%)	22 (18.18%)	0.607
Generalized anxiety disorder	4 (0-18)	4 (0-15)	0.111
Over cut-off (≥9)	19 (15.70%)	16 (13.22%)	0.629
Separation anxiety disorder	5 (0-15)	4 (0-16)	0.148
Over cut-off (≥5)	62 (51.24%)	57 (47.11%)	0.359
Social anxiety disorder	6 (0-14)	5 (0-14)	0.043
Over cut-off (≥8)	36 (29.75%)	28 (23.14%)	0.057
School refusal	1 (0-8)	0 (0-8)	0.017
Over cut-off (≥3)	28 (23.14%)	25 (20.66%)	0.664
Total score	19 (0-72)	17 (0-70)	0.044
Over cut-off (≥25)	40 (33.06%)	40 (33.06%)	1.000

Data are given as median (minimum-maximum) for continuous variables according to normality of distribution and as frequency (percentage) for categorical variables.

Table 4. Correlations between Beck Anxiety Inventory, Screen for Child Anxiety Related Disorders (SCARED) and COVID-19 Pandemic Questionnaire scores

		Beck Anxiety Inventory	COVID-19 Pandemic Questionnaire
Beck Anxiety Inventory	R	-	0.486
	P	-	<0.001
SCARED Parent Version			
Total Score	R	0.401	0.432
	P	<0.001	<0.001
SCARED Child Version			
Total Score	R	0.283	0.365
	P	0.002	<0.001

R = Spearman correlation coefficient.

Table 5. Summary of Beck Anxiety Inventory, COVID-19 Pandemic Questionnaire and Screen for Child Anxiety Related Disorders (SCARED) scores with regard to profession

	Physician (N =83)	Others (N =38)	P
Beck Anxiety Inventory	13 (0-52)	13.5 (0-49)	0.896
COVID-19 Pandemic Questionnaire	19.29 ± 4.60	18.11 ± 5.57	0.222
SCARED Parent Version			
Panic Disorder and Somatic Symptom	3 (0-21)	2 (0-15)	0.220
Generalized Anxiety Disorder	5 (0-18)	2 (0-11)	0.025
Separation Anxiety Disorder	5 (0-15)	4 (0-15)	0.483
Social Anxiety Disorder	6 (0-14)	4.5 (0-14)	0.174
Significant School Avoidance	1 (0-8)	1 (0-4)	0.782
Total Score	20 (0-72)	15 (0-52)	0.096
SCARED Child Version			
Panic Disorder and Somatic Symptom	2 (0-20)	1 (0-10)	0.297
Generalized Anxiety Disorder	5 (0-15)	2 (0-12)	0.030
Separation Anxiety Disorder	4 (0-16)	4 (0-12)	0.405
Social Anxiety Disorder	6 (0-14)	5 (0-13)	0.195
Significant School Avoidance	0 (0-8)	0 (0-7)	0.323
Total Score	19 (0-70)	13.5 (0-44)	0.094

Data are given as mean ± standard deviation or median (minimum-maximum) for continuous variables according to normality of distribution and as frequency (percentage) for categorical variables.

DISCUSSION

Research on the mental health effects of the COVID-19 pandemic in the general population and vulnerable groups such as HCWs is encouraged[24].To our knowledge, it is the first study in the literature evaluating the anxiety of HCWs and their children. In this way, the current study provides a closer look at the psychological status of HCWs. This study, which we designed in the light of this information, had three main aims; 1) to evaluate anxiety symptoms and pandemic-related thoughts and behaviors of HCWs, 2) to evaluate anxiety symptoms of children of the HCWs in terms of parents and children, 3) to examine whether or not there was a correlation between healthcare professionals and their children anxiety symptoms.

The study sample comprised 121 HCWs and 121 their children aged 8-17 years. Most of the HCWs who participated in the study from 23 different cities were "physician" and "mother". The applied anxiety scale showed that all of the HCWs had mild to severe anxiety, about 17% reported moderate and 27% reported severe anxiety severity. During previous outbreaks, high stress, depression, and anxiety were reported in healthcare professionals[2,5]. Similarly, more anxiety was reported in HCWs than in the general population during the COVID-19 pandemic period[7].According to the results of our study, there are similar studies with the anxiety levels of HCWs during COVID-19[6,25], as well as studies reporting lower anxiety[26,27]. The inconsistent results in the studies may be due to socio-demographic and psychological variables in HCWs[9].It was reported that the incidence of anxiety was higher in female healthcare professionals than in male after COVID-19 pandemic[27]. The fact that the majority of HCWs participating in our study were female might be a variable related to anxiety.

COVID-19 Pandemic Questionnaire has good internal consistency, prepared to evaluate stress levels and lifestyle changes during coronavirus pandemic. Statements that were reported to be high in stress and anxiety were as follows: 61% of the participants stated that his/her work is "very much" risky for the disease, 41% of the participants stated that they have "very much" anxiety to transmit the disease to his/her family, 47% of the participants stated that they are "very much" anxious of using public transport vehicles and40% of the participants stated they have "very much" risk of getting the disease. In the previous study, HCWs reported higher anxiety towards the risk of transmitting the infection to their families. And it was the most predictive factor for the general level of anxiety[3]. According to our

questionnaire, we found high anxiety, stress and life changes related to individual and family. It was found a positive correlation between Beck Anxiety Inventory and the COVID-19 Pandemic Questionnaire. Our results were consistent with previous studies. Previous studies have found that COVID-19 pandemic could be an independent risk factor for stress in HCWs[9].Our results support that stress can create a potential for anxiety and other psychiatric disorders[10].

Children's anxiety symptoms were evaluated via the child and the parent SCARED. Predominantly, the child and the parent anxiety version were found to be consistent. When total anxiety scores were evaluated, it was confirmed in both parent and self-reports that 33% of children had above cut-off score. According to both parents and self-reports, half of the children of HCWs had above the cut-off score of the separation anxiety disorder. It suggests that one of two children experience psychiatric symptoms that can be diagnosed as a separation anxiety disorder. When other sub-scales were examined, social anxiety disorder, school refusal, panic disorder and somatic symptom, and generalized anxiety disorder were reported in order of frequency. Epidemiological studies in children aged 6-17 years showed that anxiety disorders were increasing, reporting an incidence of approximately 5.3%[28]. The high rates in our study suggested potential individual or environmental variables. Separation from caregivers such as pandemic and quarantine forces children into crisis situations and makes them susceptible to psychiatric disorders. Some measures, such as increasing children's communication time with their parents and children's access to disease information via comic books, are recommended to prevent potential mental health problems that may arise between children quarantined or

separated from their parents during the COVID-19 outbreak[29].

When we evaluated relationships between HCWs and their children's anxiety scores, it was found a positive correlation. And there was a stronger correlation with anxiety reported by parents. Even having a child at home was reported to be an increased risk for psychological outcomes for HCWs[13].Considering the previous parent-child anxiety relationship, having a HCWs parent for the child, and having a child for a HCWs could create a mutual predisposition to anxiety development[16-18]. Comparative studies with the general population are required to prove this relationship more clearly.

Finally, the relationship of the results with professional groups was investigated. Since the majority of the HCWs who participated in our study were physicians, the participants were divided into two groups, as physicians and other HCWs. There was no difference between the anxiety symptoms score reported between the two groups. A comparison was made in terms of the anxiety levels of the children, and the scores of generalized anxiety disorder were significantly higher in the children of the physicians according to both the parent and the child statement. Some studies report more anxiety in nurses than doctors[27,30]. We did not perform such a comparison because the number of nurses participating in our study was relatively low. The studies to be carried out by increasing the number of other professional groups may reveal the difference between the groups. The absence of a significant difference in terms of anxiety in the two groups may have contributed to the similarity of anxiety levels in the children of both groups, supporting the correlation between the HCWs and their child.

Limitations

There are still several limitations in the present study. Initially, we evaluated only the anxiety of HCWs, other psychiatric disorders were not evaluated. The scope of study was limited because most of the participants were physicians. Since the study was carried out for 10 days, we do not have the results of longitudinal tracking. Because there were no participants from the general population, no comparison with this group. The possible bias may have been caused by the fact that the study sample was composed of occupational groups with high levels of anxiety and stress. However, we do not have objective data on risky patient contact situations of a sample of diverse occupational groups. Although the study sample was communicated through professional communication channels, the participation of our study pattern via the online form may have weakened data security.

CONCLUSION

The current study found that HCWs and their children experienced a high level of anxiety in the COVID-19 pandemic. Separation anxiety symptoms were predominantly reported in children. Moreover, stress during COVID-19 pandemic can create a potential for anxiety in both HCWs and their children. We noted a positive correlation between HCWs and their children's anxiety. One of the critical measures in a pandemic is to develop effective mental health strategies. Special attention should be paid to the mental health of children as well as HCWs. Supportive care to protect mental well-being or improve the mental health of HCWs and their children is recommended.

References

1. WHO Director-General's opening remarks at the media briefing on COVID19 -March 2020. from https://www.who.int/dg/speeches/detail/who-director-

general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

2. Wu KK, Chan SK Ma TM. Posttraumatic stress, anxiety, and depression in survivors of severe acute respiratory syndrome (SARS). J Trauma Stress. 2005;18(1):39-42.

3. Alsubaie S, Temsah MH, Al-Eyadhy AA, Gossady I, Hasan GM, Al-rabiaah A, et al. Middle East Respiratory Syndrome Coronavirus epidemic impact on healthcare workers' risk perceptions, work and personal lives. J Infect Dev Ctries. 2019;13(10):920-926.

4. Maunder RG, Lancee WJ, Rourke S, Hunter JJ, Goldbloom D, Balderson K, et al. Factors associated with the psychological impact of severe acute respiratory syndrome on nurses and other hospital workers in Toronto. Psychosom Med. 2004;66(6):938-942.

5. Goulia P, Mantas C, Dimitroula D, Mantis D Hyphantis T. General hospital staff worries, perceived sufficiency of information and associated psychological distress during the A/H1N1 influenza pandemic. BMC Infect Dis. 2010;10(1):322.

6. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health. 2020;17(5):1729.

7. Simione L, Gnagnarella C. Differences between health workers and general population in risk perception, behaviors, and psychological distress related to COVID-19 spread in Italy. PsyArXiv. 2020;doi:10.31234/osf.io/84d2c.

8. Liu X, Shao L, Zhang R, Wei Y, Li J, Wang C, et al. Perceived Social Support and Its Impact on Psychological Status and Quality of Life of Medical Staffs After Outbreak of SARS-CoV-2 Pneumonia: A Cross-Sectional Study. SSRN Elec J. 2020;doi:10.2139/ssrn.3541127.

9. Spoorthy MS. Mental health problems faced by healthcare workers due to the COVID-19 pandemic-a review. Asian J Psychiatr. 2020;51:102119.

10. Buheji M, Jahrami H Dhahi AS. Minimising Stress Exposure During Pandemics Similar to COVID-19. Int J Psychol Behav Sci. 2020;10:9-16.

11. Xiao H, Zhang Y, Kong D, Li S Yang N. The effects of social support on sleep quality of medical staff treating patients with coronavirus disease 2019 (COVID-19) in January and February 2020 in China. Med. Sci. Monit. 2020;26:e923549-923541.

12. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open. 2020;3(3):e203976-e203976.

13. Kisely S, Warren N, McMahon L, Dalais C, Henry I Siskind D. Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: rapid review and meta-analysis. BMJ. 2020;369:m1642.

14. Moore PS, Whaley SE Sigman M. Interactions between mothers and children: impacts of maternal and child anxiety. J Abnorm Psychol. 2004;113(3):471-476.

15. Bowers ME, Reider LB, Morales S, Buzzell GA, Miller N, Troller-Renfree SV, et al. Differences in Parent and Child Report on the Screen for Child Anxiety-Related Emotional Disorders (SCARED): Implications for Investigations of Social Anxiety in Adolescents. J Abnorm Psychol. 2020;48(4):561-571.

16. Bögels SM, van Oosten A, Muris P Smulders D. Familial correlates of social anxiety in children and adolescents. Behav Res Ther. 2001;39(3):273-287.

17. Weissman MM. The epidemiology of anxiety disorders: rates, risks and familial patterns. J Psychiatr Res. 1988;22:99-114.

18. Manassis K Hood J. Individual and familial predictors of impairment in childhood anxiety disorders. J Am Acad Child Psy. 1998;37(4):428-434.

19. Erten Bucaktepe PG, Çelik SB, Tekeli A, Öztekin C, Çelepkolu T, Demir V, et al. Frequency of depressive symptoms in health workers' children. Dicle Med J. 2015;42(2).

20. Beck AT, Epstein N, Brown G Steer RA. An inventory for measuring clinical anxiety: psychometric properties. J Consult Clin Psychol. 1988;56(6):893.

21. Ulusoy M, Sahin NH Erkmen H. The Beck anxiety inventory: psychometric properties. J Cogn Psychother. 1998;12(2):163-172.

22. Birmaher B, Khetarpal S, Brent D, Cully M, Balach L, Kaufman J, et al. The screen for child anxiety related emotional disorders (SCARED): Scale construction and psychometric characteristics. J Am Acad Child Psy. 1997;36(4):545-553.

23. Çakmakçı F. Çocuklarda anksiyete bozukluklarını tarama ölçeği geçerlik ve güvenirlik çalışması. Turk J Child Adolesc Ment Health. 2004;11(2).

24. Holmes EA, O'Connor RC, Perry VH, Tracey I, Wessely S, Arseneault L, et al. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. Lancet Psychiatry. 2020;doi:10.1016/S2215-0366(20)30168-1.

25. Kaveh M, Davari-tanha F, Varaei S, Shirali E, Shokouhi N, Nazemi P, et al. Anxiety levels among Iranian health care workers during the COVID-19 surge: A cross-sectional study. medRxiv. 2020;doi:10.1101/2020.05.02.20089045.

26. Lu W, Wang H, Lin Y Li L. Psychological status of medical workforce during the COVID-19 pandemic: A cross-sectional study. Psychiatry Res. 2020:112936.

27. Huang J, Han M, Luo T, Ren A Zhou X. Mental health survey of 230 medical staff in a tertiary infectious disease hospital for COVID-19. Chinese journal of industrial hygiene and occupational diseases. 2020;38(3):E001-E001.

28. Bitsko RH, Holbrook JR, Ghandour RM, Blumberg SJ, Visser SN, Perou R, et al. Epidemiology and impact of health care provider–diagnosed anxiety and depression among US children. J Dev Behav Pediatr. 2018;39(5):395.

29. Liu JJ, Bao Y, Huang X, Shi J Lu L. Mental health considerations for children quarantined because of COVID-19. Lancet Child Adolesc Health. 2020;4(5):347-349.

30. Gautam M, Kaur M, Mahr G. COVID-19 associated psychiatric symptoms in healthcare workers: viewpoint from internal medicine and psychiatry residents. Psychosomatics. 2020;doi:10.1016/j.psym.2020.04.009.