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TITLE: Comparison of Anxiety and Depression Levels of Children with and without Healthcare Professionals Parents During the COVID-19 Pandemic

AUTHORS: Dilek Sayik, Ayfer Aıkgoz, Yi Wen Wang, zlem Mumcu




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ORIGINAL ARTICLE

Comparison of Anxiety and Depression Levels of Children with and without Healthcare Professionals Parents During the COVID-19 Pandemic

COVID-19 Pandemisi Döneminde Ebeveyni/Ebeveynleri Sağlık Personeli Olan ve Olmayan Çocukların Anksiyete ve Depresyon Düzeylerinin Karşılaştırılması

¹Dilek Sayık , ²Ayfer Acikgoz , ¹Yi Wen Wang , ³Ozlem Mumcu 

¹Ingram School of Nursing, McGill University, 680 Rue Sherbrooke O #1800, Montréal, Canada
²Department of Pediatric Nursing, Eskisehir Osmangazi University, Eskisehir, Türkiye
³Department of Neonatal Intensive Care Unit, Eskisehir City Hospital, Eskisehir, Türkiye

Correspondence

Dilek Sayık, PhD, RN,
Ingram School of Nursing, McGill University, 680 Rue Sherbrooke O #1800, Montréal, QC H3A 2M7, Canada

E-Mail: dileksayik@hotmail.com

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ABSTRACT

Aim: Little is known about the effects of the pandemic on children and children whose parents are healthcare professionals. This study was conducted to compare the anxiety and depression levels of children aged 8-17 years with and without parents who are healthcare professionals during the COVID-19 pandemic period.

Material and Methods: This descriptive study was completed with 224 children. The research was conducted in Eskisehir, Türkiye, between 14 May and 14 June 2020, using the online survey method. The data were collected with the "Descriptive Information Form" and the "Depression Scale in Children-Renewed Form". $p < 0.05$ was considered statistically significant in the study.

Results: The average age of the children ($n=224$) is 13.63 ± 2.99 . Children received information about COVID-19 from television/internet (86.6%), parents (74.1%) and teachers (44.6%). There was no relationship between children's information acquisition characteristics and anxiety and depression scores ($p > 0.05$). The rate of parents working in the field of health is 51.3%. The anxiety and depression scores of children whose parent(s) were healthcare professional were statistically higher than those whose parents were not ($p=0.030$, $p=0.040$, respectively). It was determined that children whose parent(s) were healthcare professional were more worried about their parents going to work during the pandemic period and were afraid of contracting COVID-19 disease ($p=0.005$; $p=0.029$).

Conclusion: This study is important in terms of showing the effects of COVID-19 on children of healthcare workers and non-health professionals parents during the pandemic. It becomes clear that effective measures must be taken to protect the mental health of healthcare workers and their children, who are considered to be among the vulnerable groups during the epidemic period. For this reason, it may be beneficial to support children more effectively psychologically during pandemic periods and improve the working conditions of parents.

Keywords: Anxiety, COVID-19, Depression, Health Personnel, Child

ÖZ

Amaç: COVID-19 pandemisi özellikle sağlık çalışanlarının ruh sağlığını olumsuz yönde etkilemiştir. Pandemiyle yetişkinler üzerindeki etkisini gösteren çok sayıda araştırma bulunmaktadır. Ancak pandeminin çocuklar ve ebeveyni sağlık çalışanı olan çocuklar üzerine etkileri hakkında çok az şey bilinmektedir. Bu çalışma COVID-19 pandemisi döneminde ebeveyni/ebeveynleri sağlık personeli olan çocuklar ile, ebeveynleri sağlık personeli olmayan 8-17 yaş arası çocukların anksiyete ve depresyon düzeylerinin karşılaştırılması amacıyla yapıldı.

Gereç ve Yöntemler: Tanımlayıcı tipte olan bu araştırma, 224 çocuk ile tamamlandı. Araştırma Türkiye'nin Eskişehir ilinde 14 Mayıs- 14 Haziran 2020 tarihleri arasında online anket yöntemi ile yapıldı. Veriler "Tanıtıcı Bilgi Formu" ve "Çocuklarda Anksiyete ve Depresyon Ölçeği-Yenilenmiş Formu" ile toplandı. Çalışmada $p < 0.05$ istatistiksel olarak anlamlı kabul edilmiştir.

Bulgular: Çocukların yaş ortalaması 13.63 ± 2.99 (min:8 – max:17)'dir. Çocukların %86,6 ($n=194$)'sı televizyon/internette, %74,1 ($n=166$)'i anne/babasından ve %44,6 ($n=100$)'sı öğretmenlerinden COVID-19 hastalığı hakkında bilgi aldığı belirlenmiştir. Çocukların bilgi edinme özellikleri ile anksiyete ve depresyon puanları arasında bir ilişki saptanmamıştır ($p > 0.05$). Sağlık alanında görev yapan ebeveyn sayısı %51,3 ($n=115$)'tür. Ebeveyni/ebeveynleri sağlık personeli olan çocukların anksiyete ve depresyon puanları, ebeveyni sağlık personeli olmayanlara göre istatistiksel olarak fazla olduğu saptanmıştır (sırasıyla $p=0,030$, $p=0,040$). Ebeveyni/ebeveynleri sağlık personeli olan çocukların, pandemi döneminde anne/babasının işe gidip gelmesinden daha fazla endişe duyduğu ve COVID-19 hastalığına yakalanmasından korktuğu belirlenmiştir ($p=0,005$; $p=0,029$).

Sonuç: Araştırmamız salgın döneminde COVID-19'un sağlık personeli ve sağlık personeli olmayan ebeveynlerin çocukları üzerindeki etkileri göstermesi açısından önemlidir. Salgın döneminde savunmasız gruplar arasında yer aldıkları düşünülen sağlık çalışanı ve çocuklarının ruh sağlığını korumaya yönelik önlemler (pandemi hakkında yapılandırılmış eğitim, psikolojik destek gibi) alınması gerektiği ortaya çıkmaktadır. Bu nedenle çocukların pandemi dönemlerinde ruhsal açıdan daha etkin şekilde desteklenmesi ve ebeveynlerin çalışma koşullarının iyileştirilmesi yararlı olabilir.

Anahtar Kelimeler: Anksiyete, COVID-19, Depresyon, Sağlık Personeli, Çocuk

Introduction

The COVID-19 (SARS-CoV-2) pandemic first started in Wuhan, China in December 2019 (1). After this date, the number of cases increased rapidly worldwide. In Türkiye, the first case was seen in March 2020 (2). According to the World Health Organization (WHO) report on the number of people infected with COVID-19

in the world, while the total number was 80 million in December 2020, it is seen that this number increased rapidly to 775 million in April 2024 (3). This situation has led countries to take strict rules such as social distancing and restrictive movement policies (such as closing schools, social activity centres, switching to remote

working in many institutions, mandatory isolation) to prevent the transmission of the disease (4). This study was conducted in Türkiye during the peak of the COVID-19 pandemic and the implementation of strict rules.

At the beginning of the COVID-19 disease, higher morbidity and mortality was observed in older adults, suggesting that having an advanced age was in a risk group in this disease (5). However, as studies were conducted in this field, it was determined that there were other risk groups. These risk groups include healthcare professional, smokers, older adults, people with chronic diseases (such as heart disease, hypertension, respiratory disease, diabetes, cancer), travellers, pregnant women (6) and children (7,8). Symptoms in children are usually asymptomatic or mild to moderate. Children are mostly infected by family members (9,10). The most risky children in terms of domestic contact are the children of healthcare workers. During the pandemic period, the difficulties in working hours and working conditions of healthcare workers have increased even more in order to combat the disease. As a result, studies have shown that healthcare workers are more likely to develop this disease (11-13), sleep problems (14), anxiety, depression (15), disruption in the dynamics of family life and fear of infecting family members (16,17) compared to other professional groups. It can be said that the policies implemented by countries to reduce transmission during the pandemic process affect some groups more negatively (11-17).

Another important group affected by the policies implemented during the pandemic period is children. In this process, children have been subjected to compulsory restrictions in areas of socialization and physical activity, such as interrupting face-to-face education and social activities, and as a result, children have faced many negative situations. Exposure to unexplained and unpredictable situations such as the pandemic, lack of regular caregivers, decrease in parental support are perceived as a threat by children. As a result, children may experience negative physical and psychological symptoms (18,19).

This study was conducted to compare the anxiety and depression levels of children aged 8-17 years with and without parents who are healthcare professionals during the COVID-19 pandemic period.

Materials And Methods

Research type, location, and time

This study is of descriptive type. The research was conducted in Eskisehir province of Türkiye between May 14 and June 14, 2020.

Sampling and recruitment

The study was completed with 224 children, who could be reached online, who met the inclusion criteria and agreed to participate in the study. Data were gathered through snowball sampling. The survey was distributed from May 2020 to June 2020. Participants were sent a link to the survey and completed it remotely via an online survey platform (WhatsApp). In the instructions created for the research, necessary explanations were made (such as residing in Eskisehir, parent and child must fill out the survey together) and detailed information about how to fill out the measurement tools. Informed consent was obtained from all parents and children before survey completion.

The inclusion criteria were that the child was between the ages of 8-17, the child and the parent agreed to participate in the study, and all questions in the questionnaire were filled in completely.

Data collection tools

Data were collected with the 'Introductory Information Form' and 'Revised Child Anxiety and Depression Scales'.

Introductory Information Form

This form includes questions about the socio-demographic characteristics of the child and parents and information about the child's COVID-19 disease (9,20,21).

Revised Children's Anxiety and Depression Scale (RCADS)

It was developed by Chorpita et al. (2000). The Cronbach Alpha coefficient of the scale was found to be 0.95 and 0.90 (20). The scale was adapted into Turkish by Gormez et al. (2017) and the Cronbach Alpha coefficient was found to be 0.95. The scale consists of 47 questions aiming to screen anxiety disorders and depression in children and adolescents and is a 4-point Likert scale (0=never, 1=sometimes, 2=frequently, 3=always). The scale has 6 sub-dimensions. These are generalised anxiety disorder, separation anxiety disorder, panic disorder, obsessive-compulsive disorder, social phobia and major depressive disorder. For the total anxiety score; generalised anxiety disorder, separation anxiety disorder, panic disorder, obsessive-compulsive disorder and social phobia sub-dimension

items are summed. For the total internalising disorder score, major depressive disorder sub-dimension items are added to the total anxiety score. Higher scores indicate an increased level of anxiety and depressive symptoms (21). The Cronbach Alpha coefficient of this study was found to be 0.95.

Statistical analysis

Data were expressed as n, percentage, mean, standard deviation, minimum and maximum values. The suitability of the data for normal distribution was analysed by Kolmogorov-Smirnov and Shapiro-Wilk tests, descriptive statistics (skewness and kurtosis coefficients) and graphs (normal distribution curve and histogram). The range of skewness and kurtosis coefficient values for normal distribution was accepted as ± 2.00 (22). Mann-Whitney U and Kruskal-Wallis H tests

$p < 0.05$ was considered statistically significant.

Results

The study was completed with 224 children. The mean age of the children was 13.63 ± 2.99 (min:8 - max:17). 90.2% (n=202) of the children had a nuclear family structure, 65.6% (n=147) of the children's family income was equal to their expenses and 21.9% (n=49) of the children's family income was higher than their expenses. 24,1% (n=54) of the children are only children and 64,3% (n=144) have one or two siblings. 14.3% (n=32) of the children had chronic diseases (n=12 - 5.4% metabolic disease, n=5 - 2.2% heart disease and n=15 - n=6.7% respiratory system disease) and 1.8% (n=4) had psychological diseases (n=2 - 0.9% anxiety disorder, n=2 - 0.9% bipolar disorder and obsessive-compulsive disorder). 86.6% (n=194) of the

Table 1. Comparison of children's characteristics and scores on the RCADS

Variables (n=224)		Total Anxiety Score		Statistical Analysis	Total Internalising Disorder Score		Statistical Analysis
	n (%)	Median	Min-Max		Median	Min-Max	
Age (X±\$S; 13,63±2,99)							
Under 10 years of age	50 (22.3)	23.50	5.00-89.00	K=6.158 p=0.046	29.00	8.00-107.00	K=7.680 p=0.021
11-14 years	67 (29.9)	20.00	0.00-91.00		25.00	0.00-114.00	
Over 15 years	107 (47.8)	27.00	6.00-75.00		35.00	9.00-99.00	
Gender							
Female	137 (61.2)	25.00	3.00-91.00	U=-0.895 p=0.371	32.00	4.00-114.00	U=-1.443 p=0.149
Male	87 (38.8)	21.00	0.00-79.00		26.00	0.00-97.00	
Place of residence							
Village/District	48 (21.4)	27.00	3.00-89.00	U=-1.111 p=0.267	31.50	4.00-107.00	U=-0.980 p=0.327
Province	176 (78.6)	23.00	0.00-91.00		30.00	0.00-114.00	
Survival of Parents							
Yes	204 (91.1)	24.00	0.00-91.00	U=-1.454 p=0.146	30.00	0.00-114.00	U=-1.345 p=0.179
No	20 (8.9)	22.00	6.00-56.00		27.50	7.00-66.00	
Status of Diagnosed Chronic Diseases							
Yes	32 (14.3)	28.00	7.00-75.00	U=-1.527 p=0.127	36.50	11.00-99.00	U=-1.537 p=0.124
No	192 (85.7)	22.50	0.00-91.00		29.00	0.00-114.00	
Status of Diagnosed Psychological Disorders							
Yes	4 (1.8)	21.50	11.00-23.00	U=-0.732 p=0.464	29.00	16.00-32.00	U=-0.518 p=0.605
No	220 (98.2)	23.50	0.00-91.00		30.00	0.00-114.00	
Parent(s) being a Healthcare Professional							
Yes	98 (43.8)	28.00	5.00-91.00	U=5131.5 p=0.030	38.00	5.00-114.00	U=5226.5 p=0.040
No	126 (56.3)	20.00	0.00-60.00		26.00	0.00-83.00	
U= Mann-Whitney U test, K= Kruskal-Wallis test RCADS= Revised Child Anxiety and Depression Scales							

U= Mann-Whitney U test, K= Kruskal-Wallis test
RCADS= Revised Child Anxiety and Depression Scales

were applied to data sets consisting of independent variables and not normally distributed. Spearman and Pearson Correlation tests were applied to non-normally distributed data sets to determine the relationship between variables and their directions. Analyses were performed using IBM SPSS Statistics 21.0 (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.) programme. In the study,

children stated that they received information about COVID-19 disease from television/internet, 74.1% (n=166) from their parents and 44.6% (n=100) from their teachers. There was no relationship between these characteristics of the children and their anxiety and depression scores (RCADS) ($p > 0.05$). The total number of parents working in the health field was 115 (51.3%) (n=81 - 70.4% nurses/midwives/health officers, n=20 -

17.4% doctors, n=10 - 8.7% pharmacists/psychologists/ social workers/audiometrists/medical secretaries and n=4 - 3.5% health technicians). In Table 1, information about the comparison of the characteristics of the children and the scores of the RCADS is given.

Of children, 96.4% (n=216) know that COVID-19 is transmitted in close contact with people, 97.8% (n=219) know what COVID-19 is, 98.7% (n=221) know that it is important to wear a face mask to protect against COVID-19, and 99.6% (n=223) know that it is important to wash hands to protect against COVID-19. In addition, 75.9% (n=170) of the children knew that it is important to sleep regularly to prevent COVID-19, 92.0% (n=206) knew that it is important to eat a healthy diet to prevent COVID-19, 95.5% (n=214) knew that it is important to keep a distance of at least one meter between people to prevent COVID-19 transmission, and 98.7% (n=221) knew that it is important to avoid touching hands to face and mouth when going out of the house to prevent COVID-19 transmission. There was no relationship between these statements of the children and their anxiety and depression scores (RCADS) ($p>0.05$). Table 2 shows the comparison of the anxiety and fear of COVID-19 disease with whether the parents of the children were health professional or not.

However, children's anxiety and depression was not impacted by their sources of COVID-19 information and the majority of children understood COVID-19 prevention knowledge. Previous studies (16,23-25) have shown that healthcare professionals who have children and work on the front lines during the pandemic period experience more anxiety. Similarly, in this study, it was found that children whose parents were healthcare professionals had higher anxiety, depression and concern scores. The higher anxiety and depression scores among children of healthcare professionals may be attributed to their heightened awareness of the risks faced by their parents. For example, exposure to stressful information, fear of their parents contracting the virus, unpredictable parental work hours, and prolonged separation may exacerbate children's mental health concerns (26). Furthermore, previous research indicates that children are sensitive to the stress levels and mental health of their parents (27), especially during pandemics when family functioning and routines are disrupted. Akdag et al. (2023) found that "physicians and nurses had significantly higher emotional exhaustion scores than others" (26). Finally, research from past pandemics (e.g., H1N1, SARS) also showed increased mental health issues among healthcare professionals, children of frontline workers, and psychosocial disruptions

Table 2. Comparison of worry and fear of COVID-19 disease in terms of whether the parents of the children are healthcare professionals or not

Variables (n=224)	Total n (%)	Health Professional Parents	Non-health Profession- al Parents	Statistical Analysis
During the COVID-19 disease period, the child worried about their mothers and/or fathers going/coming to and from work				
Yes	147 (65.6)	74 (76.3)	73 (%57.5)	χ²=12.282 p=0.005
No	77 (34.4)	23(23.7)	54 (42.5)	
The child's fear their mother and/or father will contract COVID-19 while going to and coming from work				
Yes	183 (81.7)	86 (88.7)	97 (76.4)	χ²=5.548 p=0.029
No	41 (18.3)	11 (11.3)	30 (23.6)	
The child's fear their mother and/or father will infect their with COVID-19 while going to and coming from work				
Yes	152 (67.9)	72 (74.2)	80 (63.0)	χ²=3.183 p=0.101
No	72 (32.1)	25 (25.8)	47 (37.0)	
χ²=Chi-square				

Discussion

This study aimed to compare the anxiety and depression levels of children whose parents are healthcare professionals and those whose parents are not during the COVID-19 pandemic. We found that children of healthcare professionals showed higher anxiety and depression scores compared to other children. In particular, children of healthcare professionals were more concerned about their parents going to work and contracting COVID-19.

(28). In the light of these findings, it can be said that healthcare professionals and their children face more mental problems during the pandemic period.

The absence of a significant relationship between COVID-19 information sources, anxiety, and depression indicates that merely having information does not necessarily equate to reduced anxiety or depression. The quality and manner of information delivery may play a more critical role for children, who

have different learning needs and preferences. In our study, the majority of children received their COVID-19 information from media (television and internet), which are not always adapted for children. These adult-centric forms of communication may therefore have been difficult to understand for children (29). Additionally, children are highly influenced by their social contexts (30,31). Thus, decontextualized COVID-19 information derived from media may be less influential than the ways that their caregivers, friends, and social circles react to the information.

Strengths and limitations

The study was conducted in a single city (Eskişehir, Türkiye) and may not be representative of other regions or countries. Furthermore, the use of online surveys might have limited participation to those with internet access. In addition, this study used snowball sampling. This method is a non-probability sampling method, not all participants in the universe have an equal chance of being selected. Another limitation is that although the instructions for completing the questionnaire stated that the respondent had to reside in Eskişehir province, it is possible that a respondent from a different province may have completed the questionnaire. Yet, by specifically targeting children whose parents are healthcare professionals, the study provides valuable insights into a vulnerable subgroup that is often at higher risk due to the stressful nature of their parents' jobs. The study also includes a substantial sample size of 224 children, yielding preliminary findings which set the stage for future investigations into this population and insights related to the social impacts of global pandemics.

Conclusion

This study underscores the significant mental health impact of the COVID-19 pandemic on children of healthcare professionals showed higher anxiety and depression scores compared to other children. These findings contribute to the understanding of stress experienced by family members of frontline workers, highlighting the need for targeted mental health support for children. Implementing support systems in schools and communities could mitigate these mental health issues as social support has been shown to foster resilience. Protecting the mental health of healthcare professionals and their families is crucial for the overall resilience of the healthcare systems and families during pandemics. Enhanced psychological support and improved working conditions for healthcare

professionals can alleviate some of the burdens on their children, as well as community-based resources to support resilience.

Future studies should include diverse geographic locations to enhance generalizability and follow children over time to provide deeper insights. Finally, in-depth qualitative studies that explore the personal experiences and coping mechanisms of these children can help to inform specific interventions, policies, and practice.

Ethical approval

Ethics committee approval (date 28.05.2020 and number 25403353-050.99-E.50146) from the Eskişehir Osmangazi University and institutional permission from the of the Ministry of Health (2020-05-09T15_17_23) were obtained before the research was conducted. Only parents and their children whose informed consent was obtained after the information were included in the study.

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Declaration of competing interest

None.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request. The datasets generated during and analysed during the current research are available from the corresponding author on reasonable request.

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