DOI: 10.4274/terh.galenos.2020.34356
J Tepecik Educ Res Hosp 2022;32(2):195-200

CLINICAL RESEARCH / KLİNİK ARAŞTIRMA

Emotional Status, Stress and Insomnia in Pediatric Healthcare Workers During the COVID-19 Pandemic

COVID-19 Pandemisi Sırasında Çocuk Sağlığı ve Hastalıkları Çalışanlarında Emosyonel Durum, Stres ve Uykusuzluk

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Cite as: Elibol P, Eliaçık K, Çiçek A, Bardak Ş, Demir G, Berksoy E, Demirçelik Y, Kanık A, Helvacı M. Emotional Status, Stress and Insomnia in Pediatric Healthcare Workers During the COVID-19 Pandemic. J Tepecik Educ Res Hosp 2022;32(2):195-200

Abstract

Objective: Facing the critical situation of the pandemic, healthcare professionals are directly involved in the diagnosis, treatment, and care of patients with COVID-19 in the front line and they are at risk of developing psychological distress and other mental health symptoms. Here it is aimed to determine where the child clinic staff stand in terms of the psychological burden of the disease.

Methods: A hundred and fifty-one eligible physicians and nurses working in the Clinic of Pediatric, University of Health Sciences Turkey, İzmir Tepecik Education and Research Hospital who answered a web-based questionnaire between 10-20 June 2020 were included in the study. Socio-demographic questions, Depression, Anxiety and Stress Scale-21 (DASS-21), and Insomnia Severity Index (ISI) were used to evaluate the psychological determinants of the healthcare workers.

Results: Most of the participants were males (73.6%) and physicians (64.2%). Nearly two-thirds of the participants were employed in the COVID-19 related departments. We found strong correlations between DASS-21 subscale scores and ISI. Regarding socio-demographic variables, there were statistical differences for the results of ISI and DASS-21; such as male workers had more emotional problems and to be married had no protective effect during this pandemic.

Conclusion: Trying to understand mental health responses after this emerging public health problem, it can enable us to be prepared for the disaster for healthcare professionals and communities. None of the studies conducted does include child health and disease clinics and more research is needed about this topic.

Keywords: Insomnia, healthcare worker, pandemic, COVID-19, anxiety

Öz

Amaç: Koronavirüs hastalığı-2019 (COVID-19) pandemisi sırasında, sağlık çalışanları hastaların tanı, tedavi ve bakımı ile ön sırada ilgilenmekte; bu sırada psikolojik stres ve diğer mental sağlık problemleri yaşamaktadırlar. Bu çalışmada çocuk kliniği çalışanlarının hastalığın psikolojik yükünün neresinde durduğunu tespit etmek amaçlanmıştır.

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Received/Geliş tarihi: 15.09.2020
Accepted/Kabul tarihi: 10.12.2020

Öz

Yöntem: Sağlık Bilimleri Üniversitesi, İzmir Tepecik Eğitim ve Araştırma Hastanesi, Çocuk Sağlığı ve Hastalıkları Kliniği'nde çalışan ve 10-20 Haziran 2020 tarihleri arasında web tabanlı ankete katılmış 151 doktor ve hemşir/hemşire çalışmaya dahil edilmiştir. Sosyo-demografik sorular, Depresyon, Anksiyete ve Stres Skoru-21 (DASS-21) ve Uykusuzluk Şiddeti Ölçeği (ISI) sağlık çalışanlarının psikolojik durumunu belirleme amacıyla kullanılmıştır.

Bulgular: Katılımcıların çoğu erkek (%73,6) ve doktordu (%64,2). Çalışanların yaklaşık 2/3'ü COVID-19 ilişkili bölümlerde görev almıştı. ISI ve DASS-21 alt skorları arasında kuvvetli ilişkiler bulundu. Sosyo-demografik değişkenlere bağlı olarak ISI ve DASS-21 skorları arasında erkek veya evli olmanın istatistiksel olarak anlamlı fark oluşturduğu gözlendi. Evli olmanın psikolojik açıdan koruyucu olmadığı ve erkek olmanın daha fazla emosyonel durum değişikliğine neden olduğu saptandı.

Sonuç: Bu tip acil halk sağlığı problemleri sonrasında mental sağlık tepkilerini anlamaya çalışmak, sağlık çalışanları ve toplumda yer alan kişilerin afet durumlarına daha hazırlıklı olmasını sağlayabilir. Şimdiye kadar yapılan çalışmaların hiçbiri çocuk sağlığı kliniklerini kapsamamaktadır ve pandeminin psikolojik etkileri konusunda daha fazla çalışmaya ihtiyaç vardır.

Anahtar Kelimeler: Uykusuzluk, sağlık çalışanı, pandemi, COVID-19, anksiyete

Introduction

The outbreak of Coronavirus disease-2019 (COVID-19) in China has been declared as a Public Health Emergency by World Health Organization. The disease has spread out globally and has become the first issue in all newspapers, the internet, and through all society. It caused negative affection throughout the world population[1].

In 2012 Middle East Respiratory Syndrome Coronavirus known as MERS-CoV, especially seen in Korea, Taiwan, Singapore, and Saudi Arabia affected health care workers and caused anxiety, depression, aggression, and social stigmatization[2].

Although frontline healthcare workers are educated; the pressure of treatment risks, work overload, and lack of rest increased the probability of emotional dysfunction of healthcare workers. The emotional functioning and stress response has become a great issue for them[3]. Thus, there's a strong need for monitoring the emotional health of the frontline healthcare workers to shed light on some part of the problems on the healthcare workers. This study aims to determine the anxiety, depression, stress, and insomnia of the healthcare workers during the COVID-19 pandemic.

Materials and Methods

This cross-sectional study was carried out between 10 June 2020 and 20 June 2020. The participants were selected as nurses and doctors that work in the Department of Pediatrics, University of Health Sciences Turkey, İzmir Tepecik Education and Research Hospital. The volunteers were invited to take part in the study by clicking the link which was connected directly to take the survey. There were 312 doctors and nurses and 153 of them replied to the questionnaire. Two of them were excluded because lack of sufficient data for the queries. Then, the data of 151 eligible participants were evaluated in the study analyses.

The participants filled the form which consists of the questions about socio-demographic variables such as age, gender, profession, marital status, number of household members, working hours per week, any chronic illnesses, any contact with confirmed COVID-19 positive case, being tested for COVID-19 disease, stay quarantined or not. After these questions, they filled the forms which consist of insomnia severity index (ISI) and Depression, Anxiety and Stress Scale-21 (DASS-21).

The DASS-21 is self-report anxiety and depression scale that would cover the full range of core symptoms of anxiety and depression with high psychometric standards. It was first described by Lovibond and Lovibond[4] as a three-dimension emotional scale that consists of depression, anxiety, and stress subscales. It is a 21-item self-report questionnaire in which each item consists of four statements indicating different levels of a particular symptom experienced over the past week. It has been rated the extent to which they have experienced each symptom on a 4-point severity/frequency scale. It has adapted to the Turkish language by Sarıçam et al.[5,6]. The depression subscale is characterized principally by loss of self-esteem and incentive and is associated with a low perceived probability of attaining life goals of significance for the individual as a person. The anxiety scale emphasizes the links between the relatively enduring state of anxiety and the acute response of fear. The stress subscale measures a state of persistent arousal and tension with a low threshold for becoming upset or frustrated. Internal consistencies (coefficient alpha) for each scale for the DASS normative sample were: Depression 0.87; Anxiety 0.85; Stress 0.81[5,6].

The ISI is composed of seven items that evaluate: (a) the severity of sleep-onset (initial), (b) sleep maintenance (middle), (c) early morning awakening (terminal) problems, (d) satisfaction with current sleep pattern, (e) interference with daily functioning, (f) noticeability of impairment attributed to the sleep problem, and (g) level of distress caused by the sleep problem. Each item is rated on a five-point Likert scale (`0' not at all, `4' extremely) and the time interval is `in the last two weeks'. Total scores range from 0 to 28, with high scores indicating greater insomnia severity[7]. It has been adapted to Turkish culture by Boysan et al.[8] with an internal consistency of 0.79.

Statistical Analysis

The statistical analyses were performed using SPSS version 21.0 (IBM Corp, New York, USA). Descriptive statistics were used to describe the socio-demographic information of the participants. By using a Spearman correlation analysis, the reciprocal relation was determined between insomnia, stress, anxiety, and depression scores. Then, Mann-Whitney U test was performed to compare proportional data, such as the depression, anxiety, stress, insomnia scores regarding living alone, gender, being a nurse or physician, having a chronic disease, marital status, having children, working at COVID-19 related or non-related department.

Results

The mean age of the 148 participants was 34.42±9.14 years. The 64.2% (n=95) of the participants who answered the questions were physicians, n=109 (73.6%) of the volunteers were male. Nearly, half of them were married and most of them had no children. Among them, 29 (19.6%) of the volunteers have at least one chronic disease. Thirty-nine (26.4%) of the participants were living alone and 97 (65.5%) of the participants were employed in COVID-19 related departments (Table 1).

When we perform the DASS-21 subscale scores and ISI, we found strong correlations between the all subscales of these inventories (Table 2). Regarding the ISI and DASS-21, the median scores were given in Table 3.

Regarding living alone, gender, being a nurse or physician, having a chronic disease, marital status, having children, working at COVID-19 related or non-related department, there were statistically significant differences in gender for all subscales of ISI and DASS-21, insomnia scores of the nurses were significantly higher, and the health care workers who were living alone had significantly lower scores for the stress subscale (Table 4).

Table 1. Socio-demographic data of the health care workers

		n	%
Gender	Male	109	73.6
	Female	39	26.4
Occupation	Physician	95	64.2
	Nurse	53	35.8
Marital status	Single	68	45.9
	Married	80	54.1
Having children	Yes	67	45.3
	No	81	54.7
Living alone	Yes	39	26.4
	No	109	73.6
COVID-19 related department	Yes	97	65.5
	No	51	34.5
Chronic disease	Yes	29	19.6
	No	119	80.4

COVID-19: Coronavirus disease-2019

Discussion

Pandemics are stressful situations for the human beings. Especially the COVID-19 pandemic stressed all people around the world. Fear and anxiety regarding a novel disease and related events can be overwhelming. Professionals can detect critical emotional problems in child and adult populations. Public health actions, such as social distancing, can make people feel isolated and lonely, also can increase stress and anxiety. However, these actions are necessary to reduce the spread of COVID-19[9].

Our study population has consisted of mostly physicians and male gender. Approximately half of them were married. One-third of the participants were living alone, and the majority of the participants were working in the COVID-19 related departments. A significant ratio of them had at least one chronic disease. This study discussed these determinants, concerning scores of anxiety, depression, stress, and insomnia.

Primarily, our study analyzed the reciprocal relation between the scores of anxiety, depression, stress, and insomnia by a correlation analysis which showed consistency between the subscale scores of DASS-21 and perhaps unsurprisingly a strong correlation with insomnia scores. After this, other comparisons were interpreted in light of the results and literature.

Table 2. Spearman correlation analysis of the DASS-21 subscale scores and ISI					
Spearman correlation		**Insomnia**	**Stress**	**Anxiety**	**Depression**
Stress	Correlation coefficient	0.497*			
	Sig. (2-tailed)	<0.001			
	n	148			
Anxiety	Correlation coefficient	0.571*	0.686*		
	Sig. (2-tailed)	<0.001	<0.001		
	n	148	148		
Depression	Correlation coefficient	0.537*	0.742*	0.726*	
	Sig. (2-tailed)	<0.001	<0.001	<0.001	
	n	148	148	148	
DASS-21 Total Score	Correlation coefficient	0.589*	0.904*	0.867*	0.920**
	Sig. (2-tailed)	<0.001	<0.001	<0.001	<0.001
	n	148	148	148	148

*Correlation is significant at the 0.01 level (2-tailed). DASS-21: Depression, Anxiety and Stress Score-21, ISI: Insomnia severity index

Table 3. Insomnia severity index and DASS-21 of the participants					
	Insomnia Severity	**Stress**	**Anxiety**	**Depression**	**DASS-21 Total Score**
Mean	8.27	5.95	3.52	5.11	14.59
Median	8.00	6.00	3.00	5.00	13.00
Std. Deviation	5.47	3.46	2.91	3.53	8.98
Min.-max.	0-23	0-17	0-16	0-15	0-48

DASS-21: Depression, Anxiety and Stress Score-21, Min.: Minimum, max.: Maximum, Std.: Standard

Regarding gender anxiety, depression, stress, and insomnia scores were higher in male health care workers. We found higher anxiety, depression, stress, and insomnia scores among male health care workers. Perhaps men take more responsibility for outdoor jobs in social life. In a Coronavirus Poll conducted on 11-15 March 2020, there were some gender differences in men and women how they were experiencing the pandemic. Women were more likely to worry about both the health and economic issues with their families and were more likely to report taking protective measures. Women remain more likely than men to say their lives have been disrupted "a lot" during the outbreak (49% vs. 40%). And while self social distancing measures have increased dramatically for everyone, women are more likely than men to say they've stayed at home instead of going to work or doing other regular activities (81% vs. 69%), changed or canceled travel plans (72% vs. 66%), or sheltered in place (88% vs. 76%)[10].

About the occupational status, our nurses feel more insomniac rather than the physicians. In the comparison of the other mental health status, there was no difference between them. The possible reason for the difference in the ISI may be the variation of the night shift system between the nurses and physicians. Our nurses have resting time after night shifts while the physicians go on working. Thus physicians may not feel insomniac.

Concerning marital status and having children of our health care workers, there was no difference between being single or married. Besides, we did not find any difference in living alone. Being married and living with somebody were not found to be the possible protective factors from emotional dysfunction. In the stress subscale of DASS-21, the stress scores were lower in the health care workers who were living alone. Under normal conditions, the singles feel lonelier and have worse mental health status[11].

However, during the COVID-19 outbreak, health care workers strictly avoided infecting households. Every day, they struggled to protect their patients, their communities, and themselves from the coronavirus. Many of them worked 24-hour shifts in

Table 4. The comparison of ISI and DASS-21 regarding living alone, gender, being a nurse or physician, having a chronic disease, marital status, having children, working at COVID-19 related, or non-related department

	Gender Median (IQR)		p*	Occupation Median (IQR)		p*	Marital status Median (IQR)		p*	Having children Median (IQR)		p*	Living alone Median (IQR)		p*	COVID-19 related department Median (IQR)		p*	Chronic disease Median (IQR)		p*
	Male	Female		Physician	Nurse		Single	Married		Yes	No		Yes	No		Yes	No		Yes	No	
Insomnia	9 (8)	6 (7)	**0.006**	7 (7)	10 (9)	**0.021**	9 (7)	7 (8)	0.132	8 (8)	7 (7.5)	0.978	7 (6)	8 (7.5)	0.430	8 (7)	8 (9)	0.595	12 (12)	7 (6)	0.112
Stress	6 (5)	4 (4)	**0.012**	6 (4)	5 (4)	0.564	6 (5)	6 (4.75)	0.788	6 (4)	6 (5)	0.563	4 (5)	6 (4)	**0.030**	6 (4)	6 (6)	0.226	7 (5)	5 (5)	0.068
Anxiety	4 (4)	1 (4)	**0.000**	3 (4)	4 (5)	0.260	4 (4.75)	3 (4.75)	0.055	3 (5)	3 (4)	0.889	3 (4)	3 (5)	0.887	3 (5)	4 (4)	0.711	3 (3.5)	3 (4)	0.564
Depression	5 (4.5)	3 (6)	**0.044**	5 (6)	4 (5)	0.754	5 (5.75)	4 (5)	0.263	4 (4)	5 (5.5)	0.760	4 (5)	5 (5.5)	0.295	5 (5)	4 (5)	0.318	5 (7)	4 (5)	0.375
DASS-21 Total score	14 (13)	8 (12)	**0.003**	13 (16)	13 (10.5)	0.925	14.5 (14.25)	12.5 (12)	0.305	13 (13)	13 (14)	0.940	12 (13)	13 (15)	0.195	13 (14)	12 (13)	0.317	15 (14)	13 (13)	0.217

*Mann-Whitney U test, IQR: Interquartile range, DASS-21: Depression, Anxiety and Stress Score-21, COVID-19: Coronavirus disease-2019, ISI: Insomnia severity index

overcrowded hospitals. Some isolated themselves from their families to keep them safe. Many people self-quarantined and socially isolated to avoid even a chance encounter with someone or something carrying COVID-19, health care professionals willingly exposed themselves to the pandemic every day[12].

And the last covariates of our study were to work in a COVID-19 related department or to have a chronic disease. These determinants did not make any difference in our health care workers' mental health. It may sign that the outbreak had affected all groups in the same way. However, because of the cross-sectional design of our study, we could not detect the cause-effect relationship of the outbreak on the mental health status of our health care workers.

Study Limitations

The results of our study should be interpreted with some limitations. First, we obtained the data with self-report instruments without a psychiatric interview, which can give an objective evaluation. However, the validated instruments that we used have strong consistency and they are used widely in scientific research. Also, the design of the study did not allow us to detect the direct cause-effect relationship to rule out all psychological determinants of the healthcare workers.

Conclusion

The COVID-19 outbreak had a different effect on health care workers who have variable working conditions. To work in a COVID-19 related department or to have a chronic disease did not differ the mental health status regarding our study results. Working in a crowded hospital may impact all of the staff in the same way. The results of the study may affect the politics of who is going to plan the health care workers' economic and social conditions in the future.

Acknowledgements

Thanks to Ferhan Elmalı for statistical analysis.

Ethics

Ethics Committee Approval: This study was compliant with the Declaration of Helsinki and approved by University of Health Sciences Turkey, İzmir Tepecik Education and Research Hospital (08.06.2020/7-19).

Informed Consent: Online informed consent was obtained.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: P.E., A.Ç., Ş.B., G.D., Y.D., Concept: K.E, E.B., A.K., M.H., Design: P.E., K.E., E.B., A.K., M.H., Data Collection or Processing: P.E., A.Ç., Ş.B., G.D., Y.D., Analysis or Interpretation: P.E., K.E., E.B., Y.D., A.K., Literature Search: P.E., K.E., A.Ç., Ş.B., G.D., M.H., Writing: P.E., K.E., E.B., M.H.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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