Araştırma Makalesi
Research Article

Anxiety and obsession levels of healthcare workers during the COVID-19 pandemic: A comparison of the peak and post-peak period.

COVID-19 PANDEMİSİ SIRASINDA SAĞLIK ÇALIŞANLARININ ANKSİYETE VE OBSESYON DÜZEYLERİ: 1. PİK VE 1. PİK SONRASI DÖNEMLERİN KARŞILAŞTIRILMASI

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ABSTRACT

Aim: The main aim of this cross-sectional study was to examine the changes in anxiety and obsession levels of doctors, nurses, health technicians and other hospital staff working in the healthcare field in Turkey during the peak 1 and post-peak 1 periods of Novel Coronavirus Disease (COVID-19) pandemic.

Method: 405 healthcare workers, aged between 18 and 65, working in a training and research hospital in Istanbul, participated in the study conducted in July and August 2020. Sociodemographic Data Form (SDF), Beck Anxiety Inventory (BAI), COVID-19 Obsession Scale (OCS), Coronavirus Anxiety Scale (CAS) and Thought Control Questionnaire (TCQ) were used in our study.

Results: As a result, anxiety and obsession levels of healthcare workers differed significantly in the two time periods and anxiety and obsession scale scores decreased after the 1st peak period. In our study, anxiety levels of nurses were found to be higher than those of physicians and other healthcare workers.

Conclusion: In conclusion, female healthcare workers experienced higher levels of pandemic-induced anxiety and preoccupation, and their ratings significantly declined during the post-peak period.

Keywords: COVID-19, healthcare professionals, anxiety and obsession levels

ÖZ

Amaç: Bu kesitsel çalışmanın temel amacı, Türkiye'de sağlık alanında çalışan doktor, hemşire, sağlık teknisyeni ve diğer hastane personelinin COVID-19 salgının 1. pik ve 1. pik sonrası dönemindeki anksiyete ve obsesyon düzeylerinde meydana gelen değişiklikleri incelemektir.

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Yöntem: 2020 yılının Temmuz ve Ağustos aylarında gerçekleştirilen çalışmaya, İstanbul'daki bir eğitim ve araştırma hastanesinde görev yapan, yaşları 18 ile 65 arasında değişen 405 sağlık çalışanı katılmıştır. Çalışmamızda Sosyodemografik Veri Formu (SDF), Beck Anksiyete Envanteri (BAE), COVID-19 Takıntısı Ölçeği (COVID-19 TÖ), Coronavirüs Kaygı Ölçeği (CKÖ) ve Düşünce Kontrol Anketi (DKA) kullanılmıştır.

Bulgular: Sonuç olarak sağlık çalışanlarının anksiyete ve obsesyon düzeyleri iki zaman diliminde önemli ölçüde farklılık gösterdi ve 1. pik dönemi ardından kaygı ve takıntı ölçeği puanları azaldı. Çalışmamızda hemşirelerin kaygı düzeyleri doktor ve diğer sağlık çalışanlarına göre daha yüksek bulunmuştur.

Sonuç: Sonuç olarak kadın sağlık çalışanları arasında salgının neden olduğu anksiyete ve obsesyon düzeylerinin arttığı ve pik sonrası dönemde puanlarda önemli bir düşüş olduğu görüldü.

Anahtar kelimeler: COVID-19, sağlık çalışanı, anksiyete ve obsesyon düzeyi

The first case of Novel Coronavirus Disease (COVID-19), a global pandemic, was reported in Wuhan, China, on December 31, 2019 (1), and the first COVID-19 case in Turkey was seen on March 11, 2020 (2). The World Health Organization (WHO) declared it a Pandemic on March 11, 2020, because there is no specific treatment, it causes rapid human-to-human respiratory transmission, and it poses a serious threat to physical and mental health (3). According to a WHO report dated March 14, 2021, COVID-19 has infected more than 189 million people worldwide, causing the deaths of more than 2.5 million people (4). In Turkey, the highest number of new cases were reported on April 11, 2020, and the highest number of deaths on April 19, 2020, during the pandemic's first peak period. The number of new cases and deaths has decreased as of 20 April 2020, with the number of new cases reaching a low in the first week of June. However, as a result of the lifting of many bans and increased socialization during the "reopening" period, which began on June 1, the number of daily cases surpassed 1500 by the first weeks of September, and the case curve rapidly increased towards the second peak (5).

When it comes to working during epidemics, healthcare workers are the most at risk (6). During disease periods, such as large-scale epidemics, health workers face physical and psychological strain (7). Situations such as increased infection and transmission risk, stigma, isolation, and a lack of communication with family members of healthcare workers working in the COVID-19 epidemic in Wuhan cause stress, anxiety, and depression symptoms, as well as psychological problems such as insomnia and anger, and these symptoms can impair employees' attention and decision-making. It is stated that it can have a negative impact on their ability to give and may have a long-term impact on their general health (8). Similarly, during the SARS pandemic, among the causes of anxiety in hospital workers were a lack of sufficient information about the pathogen, the rapid exchange of medical information and renewed procedures, extraordinary measures taken to ensure infection control, decreased communication among healthcare professionals, the influence of the media, stigma, and infection of healthcare workers. Furthermore, during the epidemic, increased work stress, concerns about one's own and other people's health, social isolation, and avoidance were found to be effective in the acute stress response of healthcare workers (9). In one study, more than half of the health workers who took part in the A/H1N1 influenza pandemic were concerned about the possibility of infecting their family and friends, as well as the effects of the disease on their health (10).

It is critical for preventive mental health to be able to define the mental health of healthcare professionals as

accurately as possible, taking into account the decrease in work efficiency and psychological problems that will result from the pandemic's mental damage in healthcare professionals. This cross-sectional study primarily aimed to examine changes in anxiety and obsession levels among doctors, nurses, health technicians, and other hospital staff working in Turkey's healthcare sector during the first peak and post-peak periods of the COVID-19 pandemic. It was hypothesized that hospital staff would experience heightened levels of anxiety and obsessions during the peak phase of the COVID-19 pandemic.

METHOD

Participants

Participants in the study, which was conducted in July and August 2020, include 405 healthcare professionals aged 18-65 who work in an Istanbul training and research hospital. The scales were shared through common social media platforms used by hospital staff, and 405 individuals completed them. The scales were completed in a single session. In the first set of questions for the OCS, BAI, and CAS, participants were instructed to 'consider the month of April when answering the questions,' while in the second set, they were asked to 'consider June and subsequent months when answering the questions.

Approval by the Ethics Committee

Beykent University Faculty of Medicine Training and Research Hospital Clinical Research received Ethics Committee approval with decision number 2020/0374.

The Study's Design

In this cross-sectional study, participants were sent a sociodemographic data form and scales via e-mail. First, an explanation of the scales to be used for the purpose of the study was provided online, and the study began with the approval of the informed consent form. The Sociodemographic Data Form (SDF), Coronavirus Anxiety Scale (CAS), Obsession with COVID-19 Scale (OCS), Beck Anxiety Inventory (BAI), and Thought Control Questionnaire (TCQ) were used in our study. CAS, OCS and BAI questions were asked separately for the COVID-19 pandemic's first peak and post peak phase. Participants were asked to respond using April 2020 as the peak period and June 2020 and the following period as the post peak period.

Scales

Sociodemographic Data Form (SDF): In the sociodemographic data form, questions about age, gender, marital status, having children, job description, how many years he worked, whether he had a physical-metabolic medical or psychiatric illness, whether he was in the COVID-19 diagnosis and treatment process, and whether he was diagnosed with COVID-19 were asked.

The Coronavirus Anxiety Scale (CAS): CAS, a one-dimensional, five-item Likert-type scale created by Lee et al. (11), is intended to evaluate dysfunctional anxiety associated with COVID-19. Evren et al. have demonstrated its validity and reliability in a Turkish sample (12).

Obsession with COVID-19 Scale (OCS): Lee et al. developed a one-dimensional, five-point Likert-type scale consisting of four questions to detect dysfunctional thought related to COVID-19 (13). Scores of 7 and higher indicate coronavirus-related dysfunctional thinking, according to et al (12).

Beck Anxiety Inventory (BAI): It is a self-assessment scale developed by Beck et al. (1988) to assess individuals' anxiety levels. It is a Likert-type scale with 21 items and a score range of 0-3. It is possible to say that as the scale score rises, so does the level of Anxiety (14,15). Conducted a Turkish validity and reliability study.

Thought Control Questionnaire (TCQ): Wells et al. created the scale in 1994 to reveal the frequency of intrusive thoughts and control strategies (16). The scale, which has 30 items and a 4-point Likert type, has 5 sub-dimensions. Subdimensions include distraction (TCQ-D), social control (TCQ-SC), worrying (TCQ-W), self-punishment (TCQ-SP), and reappraisal (TCQ-R). Yorulmaz conducted a validity and reliability study in Turkey in 2008 (17).

Data analysis

The SPSS-24 package program was used to analyze the data collected during the course of the study. To determine whether the continuous variables fit the normal distribution, the Kolmogorov-Smirnov test was used.

Continuous variables were found to deviate from the normal distribution ($p<0.001$). Descriptive statistics are presented in the form of mean standard deviation for continuous variables and number of cases and (percentage) for categorical variables. The Spearman correlation test was used to determine whether there is a statistically significant relationship between continuous or sortable variables. The Wilcoxon Signed Ranks Test was used to compare peak and post-peak period scale scores, the Kruskal-Wallis test, and the Pairwise Comparison test was used to compare scale scores of groups of three and above, and the Mann Whitney U Test was used to compare scale scores of paired groups. In the study, statistical significance was determined using the $p<0.05$ level.

RESULTS

There were 239 female participants and 166 male participants in the study. Table 1 displays the demographic information of the participants.

Table 1: A table of the participants' sociodemographic data.

		N	%
Gender	Female	239	59.0
	Male	166	41.0
Marital status	Single	253	62.5
	Married	152	37.5
Task group	Doctor	106	26.2
	Nurse	144	35.6
	Technician	94	23.2
	Other	61	15.1
Participating in COVID diagnosis and treatment	Yes	245	60.5
	No	160	39.5
Obtaining a COVID diagnosis	Yes	19	4.7
	No	386	95.3
Having a psychiatric diagnosis in the past	Yes	7	1.7
	No	398	98.3
Having another medical illness diagnosed	Yes	43	10.6
	No	362	89.4

Table 2 displays the minimum, maximum, mean, and standard deviation values of the scale scores used in the study.

Table 2: Scale score descriptive findings.

	N	Minimum	Maximum	Mean	Std. Deviation
CAS-Peak period	405	5.00	25.00	8.1037	3.84593
CAS-Post-peak period	405	5.00	25.00	6.9901	2.96680
OCS-Peak period	405	4.00	20.00	8.0469	3.42389
OCS-Post-peak period	405	4.00	20.00	8.9704	3.64503
BAI-Peak period	405	.00	47.00	10.7062	10.89873
BAI-Post-peak period	405	.00	44.00	6.9210	8.59361
TCQ-D	405	6.00	24.00	15.3753	4.01881
TCQ-SC	405	6.00	23.00	14.7062	2.80383
TCQ-W	405	6.00	23.00	10.6938	3.02057
TCQ-SP	405	6.00	21.00	9.4617	2.67675
TCQ-R	405	6.00	24.00	14.2815	3.38967
Total TCQ	405	39.00	102.00	64.5185	9.93458

CAS: Coronavirus Anxiety Scale, OCS: COVID-19 Obsession Scale, BAI: Beck Anxiety Inventory, TCQ: Thought Control Questionnaire, TCQ-D: Thought Control Questionnaire-distraction, TCQ-SC: Thought Control Questionnaire-social control, TCQ-W: Thought Control Questionnaire-worrying, TCQ-SP: Thought Control Questionnaire-self-punishment, TCQ-R: Thought Control Questionnaire-reappraisal.

When the peak and post-peak periods were compared, it was discovered that 156 participants had a decrease in their CAS score, 148 participants had a decrease in their OCS score, and 221 participants had a decrease in their BAI score in the post-peak period. Table 3 shows a comparison of peak period and post-peak period scale scores.

Table 3: Shows the Wilcoxon Signed Ranks Test results for participants' peak and post-peak period CAS, OCS, and BAI scale scores.

	Group	N	Mean Rank	Sum of Ranks	Z	p
CAS	Negative ranks	156	88.76	13846.00	-10.075	**.000**
	Positive ranks	15	57.33	860.00		
	Ties	234				
OCS	Negative ranks	148	93.92	13900.50	-8.685	**.000**
	Positive ranks	30	67.68	2030.50		
	Ties	227				
BAI	Negative ranks	221	132.94	29379.00	-11.618	**.000**
	Positive ranks	31	80.61	2499.00		
	Ties	153				

Wilcoxon Signed Ranks Test

CAS: Coronavirus Anxiety Scale, OCS: COVID-19 Obsession Scale, BAI: Beck Anxiety Inventory.

A statistically significant difference was found in the comparison of the CAS, OCS, and BAI scores in terms of the genders of the participants in both the peak and post-peak periods, with women having higher scale scores than men in both periods. (Peak period u: 12264.5, $p<0.001$; 14958, $p<0.001$; 12615.5, $p<0.001$; post-peak period u: 14405.5, $p<0.001$; u: 15338.5, $p<0.001$; u: 14725, $p<0.001$).

A statistically significant difference was found between the scores of CAS (h: 14.570, p: 0.002), OCS (h: 18.761, $p<0.001$), and BAI (h: 18.270, $p<0.001$) when the peak period scale scores of the participants were compared according to their duties in the hospital (Table 4). According to post hoc pairwise comparisons test results, during the peak period of the participants, the CAS scores of nurses were statistically significantly higher than both doctors and other hospital staff, OCS scores are higher in nurses and technicians than in other hospital workers, BAI scores are higher for nurses than doctors and other health professionals, and it was determined that it was higher in technicians than in other healthcare workers.

Table 4: Comparison of peak period scale scores based on participant task distribution.

	Description of the job	N	Mean Rank	H	p	Post hoc
CAS	Doctor	106	185.15	14.570	**.002**	Nurse> Other
	Nurse	144	227.90			Nurse> Doctor
	Technician	94	206.03			
	Other	61	170.58			
OCS	Doctor	106	188.70	18.761	**.000**	Nurse> Other
	Nurse	144	221.27			Technician > Other
	Technician	94	223.04			
	Other	61	153.85			
BAI	Doctor	106	187.07	18.270	**.000**	Technician > Other
	Nurse	144	227.72			Nurse> Other
	Technician	94	212.55			Nurse> Doctor
	Other	61	157.61			

Kruskal-Wallis test, post hoc Pairwise Comparison test

CAS: Coronavirus Anxiety Scale, OCS: COVID-19 Obsession Scale, BAI: Beck Anxiety Inventory.

In the comparison of the scale scores of the participants after the peak period according to their duties in the hospital; A statistically significant difference was found between CAS (h:19.453, p<0.001), OCS (h:13.592, p: 0.004), BAI (h: 19.000, p<0.001) scores. They have significantly higher CAS scores than doctors, nurses have significantly higher OCS scores than doctors and other hospital staff, and nurses and technicians have significantly higher BAI scores than doctors. These findings are based on the results of a post hoc pairwise comparison test. Table 5.

Table 5: Shows the Spearmans Correlation analysis results for the participants' TCQ, CAS, OCS, and BAI scores.

		CAS Peak period	CAS Post peak period	OCS Peak period	OCS Post peak period	BAI Peak period	BAI Post peak period
TCQ-D	r	.077	.080	.041	.001	.066	-.006
	p	.120	.106	.411	.977	.182	.903
TCQ-SC	r	.077	.123	.072	.061	.071	.135
	p	.122	**.013**	.147	.217	.154	**.007**
TCQ-W	r	.275	.273	.219	.239	.282	.254
	p	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
TCQ-SP	r	.299	.255	.246	.242	.338	.270
	p	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
TCQ-P	r	.128	.094	.088	.047	.130	.039
	p	**.010**	.058	.078	.341	**.009**	.435
Total TCQ	r	.250	.245	.181	.165	.239	.171
	p	**.000**	**.000**	**.000**	**.001**	**.000**	**.001**

AS: Coronavirus Anxiety Scale, **OCS:** COVID-19 Obsession Scale, **BAI:** Beck Anxiety Inventory, **TCQ:** Thought Control Questionnaire, **TCQ-D:** Thought Control Questionnaire-distraction, **TCQ-SC:** Thought Control Questionnaire-social control, **TCQ-W:** Thought Control Questionnaire-worrying, **TCQ-SP:** Thought Control Questionnaire-self-punishment, **TCQ-R:** Thought Control Questionnaire-reappraisal.

DISCUSSION

The anxiety and obsession levels of healthcare workers were compared during the peak and post-peak periods of the COVID-19 epidemic in this study. As a result, there was a significant difference in the anxiety and obsession levels of healthcare professionals between the two periods, and the anxiety and obsession scale scores were lower after the peak period.

In a study conducted in China, healthcare workers were given the Symptom Checklist (SCL-90) as a pre-test and post-test at 6-week intervals during the epidemic and post-epidemic period. Except for somatization, there was a significant decrease in anxiety, obsessions, and other symptoms in the post-epidemic period, with the highest decrease in anxiety symptoms (18). There was a similarity between the findings of this study and the findings of our study. The increased workload during the peak period, as well as the uncertainty about the disease and its treatment, may have caused anxiety and obsession symptoms to emerge in healthcare workers. During the epidemic, nurses had the highest anxiety levels, followed by other healthcare workers and doctors. During the epidemic period, obsessive-compulsive symptoms have the highest scores.

Nurses' anxiety levels were found to be higher than doctors' and other health workers' in our study. Furthermore, the anxiety and obsession symptoms of employees who provided medical services during the epidemic's peak period were significantly higher than those of other employees, while only the obsessive symptoms were significantly higher in the post-peak period. Nurses' anxiety levels were found to be higher than doctors' and other healthcare professionals' in studies conducted in China (19, 20, 21). A study conducted in Saudi Arabia discovered that nurses' anxiety levels were higher during the pandemic period (22). In one study, it was discovered that the anxiety, OCD, somatization, and depression scores of hospital healthcare professionals were higher than those of other hospital employees (23). Furthermore, the fact that medical service workers are more likely to come into contact with infected people than other workers may explain this situation.

In our study, women's scale scores were statistically significantly higher than men's in both the peak and post-peak periods. Female health workers had higher anxiety levels than male health workers, according to a study conducted in Turkey (24, 25). Women's anxiety levels were found to be higher in a study conducted with healthcare professionals in Spain (26). A similar finding was reported in a Chinese study (20). Female physicians were found to have higher anxiety levels in a study with doctors in Pakistan, and it was reported that there are two major causes of anxiety in doctors, the first being a lack of protective equipment, and the second being the transmission of the disease to family members (27). This can be explained by the fact that women have a higher incidence of anxiety disorders than men.

In a Chinese study, the presence of a medical disease through contact with COVID-19 patients was identified as a risk factor for obsessive compulsive symptoms. Female gender, medical disease presence, and contact with COVID patients have all been identified as risk factors for anxiety symptoms (23). Another study found that working in the intensive care unit, front-line treatment of covid, exhaustion, and secondary traumatization predicted anxiety (28). Another study found that being a doctor and being male were among the factors predicting anxiety that were negatively related to anxiety (29). While female gender and participation in COVID diagnosis and treatment were found to be risk factors for anxiety and obsessive symptoms during the peak period, only female gender was found to be a risk factor in the post-peak period. This could be due to increased knowledge about disease transmission, easier availability of protective equipment, and a reduction in workload.

Anxiety and punishment, which are sub-dimensions of the thought control scale (TCQ), were discovered to have a positive and weak correlation with the scales used in both phases (coronavirus anxiety, coronavirus obsession and beck anxiety scales). Coronavirus anxiety and beck anxiety scales; re-evaluation in the peak phase and social control sub-dimensions in the post-peak phase demonstrated a positive and weak correlation, respectively. The cognition system may have used the strategy of urgent reassessment to reduce the negative affect and experience during the peak phase (30). New regulations for public health have been introduced as part of the process known as the new normal, which

coincides with the post-peak period. The social control factor may have allowed society to keep up with this process and new habits (31). The health professionals may have caused them to focus on undesirable thoughts and results with the stress of being at risk at all times by using self-punishment and worrying strategies during the peak and post-peak phase (32). While working in the frontline poses a risk to healthcare professionals' mental health, the level of cognition used a temporary positive strategy such as re-evaluation to protect itself, but also suppressed itself by incorporating both phases such as anxiety and self-punishment.

CONCLUSION

As a result, the frequency of anxiety and obsessions caused by the pandemic has increased among female health workers. Anxiety levels in nurses and obsession levels in health technicians were found to be significantly higher than in the other groups. The post-peak phase saw a significant decrease in scores. According to the TCQ scale, which determines the methods developed to combat unwanted and unpleasant thoughts; reevaluation in the peak phase, worrying and self-punishment in both phases; and a significant relationship between the social control sub-dimension and the scales in the post-peak phase. It is critical to provide psychological support for the mood they experience according to the peak phases in order to reduce the worries of health workers, ensure their mental health, and increase their work efficiency. Psychological pressure has increased in nurses working with the suspected patient group, and anxiety levels may have been higher than in hospital staff working with the tested patient group. We believe that clear and trustworthy information on this subject reduces stress. At the same time, these studies provide important clues about the type of psychological intervention that should be performed by concretizing which psychological symptoms outweigh among different branches and revealing the triggering causes. The elimination or reduction of triggering factors helps to balance health workers' mental health. Mental health deterioration will become chronic in the following periods, causing harm to the individual first and then to society. It is also critical to research intervention methods to avoid this.

The study's limitations

The fact that the questionnaire was administered online, the number of nurses who participated was higher than in the other groups, and the application of this study during the post-peak period were all limitations in our study. Additionally, the study's limitations were compounded by the inability to conduct face-to-face interviews, which precluded the establishment of a clinical diagnosis.

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