ORIGINAL ARTICLE

Behind COVID-19 pandemic backstage: anxiety and healthcare workers

Detrás del backstage de la pandemia de COVID-19: ansiedad y trabajadores de la salud

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Abstract

Background. *COVID- 19 disease causes serious anxiety in healthcare workers.* **Objective.** *This study was carried out to determine the relationship between the anxiety level of epidemic diseases and occupational satisfaction.* **Method.** *The "Disease Anxiety Scale," which consists of four subgroups and a total of 18 questions, and the "Vocational Satisfaction Scale," which consists of two subgroups and 20 questions, were utilized to investigate the relationship between epidemic disease anxiety and occupational satisfaction. The statistical analysis was performed using the SPSS 26.0 program.* **Results.** *A total of 395 nurses were included in the study. The mean age of the participants was 33, and 63% were women. About 35.4% of the participants had deaths due to the COVID-19 pandemic in their family or close environment. It was determined that 83% of the nurses have a pandemic disease anxiety. Occupational satisfaction and epidemic anxiety level (p = 0.005, r = 0.560), pandemic (p = 0.01, r = 0.525), economic (p = 0.001, r = –0.473), quarantine (p = 0.003, r = –0.503), and social life (p = 0.003, r = –0.507) were found to be negatively correlated. There was no significant difference between job satisfaction (t = 0.286, p = 0.08) and epidemic anxiety (t = 1.312, p = 0.06) in terms of gender.* **Conclusion.** *Most health-care professionals experience serious anxiety, especially during the pandemic period.*

Keywords: *Pandemic. Anxiety. Health. Health Workers.*

Resumen

Antecedentes. *La enfermedad de COVID- 19 causa ansiedad grave en los trabajadores de la salud.* **Objetivo.** *Determinar la relación entre el nivel de ansiedad de las enfermedades durante ña epidemia de COVID-19 y la satisfacción laboral.* **Método.** *Se utilizaron la Escala de Ansiedad por Enfermedad, que consta de cuatro subgrupos y un total de 18 preguntas, y la Escala de Satisfacción Vocacional, que consta de dos subgrupos y 20 preguntas, para investigar la relación entre la ansiedad por enfermedad epidémica y la satisfacción laboral. El análisis estadístico se realizó mediante el programa SPSS 26.0.* **Resultados.** *La edad media de los participantes fue de 33 años y el 63% eran mujeres. El 35.4% de los participantes tuvieron muertes a causa de la pandemia de COVİD-19 en su familia o entorno cercano. Se determinó que el 83% de los profesionales de enfermería tienen ansiedad por enfermedad pandémica. se Se encontraron correlacionados negativamente nivel de satisfacción laboral y ansiedad epidémica (p = 0.005, r = 0.560), pandemia (p = 0.01, r = 0.525), económica (p = 0.001, r = –0.473), cuarentena (p = 0.003, r = –0.503) y vida social (p = 0.003, r = –0.507). No hubo diferencia significativa entre la satisfacción laboral (t = 0.286, p = 0.08) y la ansiedad epidémica (t = 1.312, p = 0.06) en cuanto al sexo.* **Conclusiones.** *La mayoría de los profesionales de la salud experimentan una ansiedad grave, en especial durante el período de pandemia.*

Palabras clave: *Pandemia. Ansiedad. Salud. Trabajadores de la salud.*

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Introduction

The SARS-CoV-2 virus, which is the source of COVID-19, was first identified in Wuhan, China, in 2019. However, due to the virus's high capacity for transmission, 6 months later, the disease was largely widespread[1]. In May 2020, the World Health Organization (2020) called attention to the mental health impact of the global novel coronavirus (COVID-19) outbreak that continues to spread in many parts of the world[2]. The pandemic, in which we have been suffering since 2020 due to the SARS-CoV-2 coronavirus disease (COVID-19), has left its mark on our lives and changed our behaviors, perceptions, and environment[3]. According to the World Health Organization (WHO), as of August 15, 2022, 588,757,628 confirmed cases and 6,433,749 deaths have been reported globally[4]. Recent large-scale research has demonstrated that diverse public health initiatives are momentarily related to improved COVID-19 pandemic control[5]. However, the potential psychological and mental health effects of the COVID-19 pandemic should also be regarded carefully in addition to physical health[6]. Mental health gets considerably fewer employees for planning and resources, despite earlier research suggesting that the psychological effects of a catastrophic disaster had a wider and longer effect on people compared to physical injuries[6]. Therefore, the aim of this research is to reveal the anxiety status of healthcare workers during the COVID-19 pandemic.

Materials and methods

In this study, the survey method was preferred at the point of data collection. The questionnaires were delivered to the participants. "Epidemic disease Anxiety Scale" and "Vocational Satisfaction Scale" were applied face-to-face to the nurses who accepted to participate in our study, between January 2022 and June 2022. In the questionnaire, there are statements that reveal the level of pandemic disease anxiety and professional satisfaction, as well as descriptive personal characteristics of the participants.

The "Epidemic Disease Anxiety Scale" was developed by Sayar et al. and consists of a total of 18 statements. The statements in the scale were structured as a 5-point Likert scale, ranging from "1: Not at all suitable for me to 5: Completely suitable for me." The scale is "epidemic," (1, 2, 3, 4, 5, 6, and 7th statements); "economic" (phrases 8 and 9); "quarantine" (phrases 10, 11, 12, and 13); and "social life" (14, 15, 16, 17, and 18 statements)[7]. The expressions in the first dimension include the anxiety of the person about the epidemic diseases and the reflections of this anxiety in life. The second dimension, the economic dimension, expresses the economic concerns experienced by the person during the epidemic period. The third dimension, quarantine, expresses the anxiety of the person arising from the inability to maintain his usual social life and the uncertainty he experiences when he cannot go out during the epidemic period. The social life dimension refers to the concerns regarding the provision of vital needs in the event of an epidemic and the difficulties that may be experienced in social areas accordingly. The highest score that can be obtained from the entire scale is 90 and the lowest score is 18. A high score indicates that it is associated with high epidemic disease anxiety.

If the total score obtained from the scale is in the range of 18-32, "no anxiety," in the range of 33-46 "low anxious," in the range of 47-61 "moderately anxious," in the range of 62-75 "highly anxious," and in the range of 76-90 "very highly anxious." As a result of the reliability analysis of the scale, the internal consistency coefficient was determined as 0.90[7]. In our study, the internal consistency coefficient (Cronbach's alpha) was determined as 0.96.

There are a total of 20 statements in the "Vocational Satisfaction Scale" developed by Kuzgun et al. in 1999 (8). For these statements, the participants were allowed to answer between always (5), often (4), sometimes (3), rarely (2), and never (1). The minimum score that can be obtained from the scale is 20, and the maximum score is 100. When the scores obtained are high, it is considered that the individual's professional satisfaction is high. Items 4, 9, 10, 11, 14, and 19 are negative items and scored in reverse. As a result of the factor analysis of the scale, eligibility for qualifications (1, 2, 3, 4, 6, 8, 9, 10, 14, 15, 17, 18, and 19) and willingness to improve (5, 7, 11, 12, 13, 16, and 20) have been determined to consist of two subdimensions. As a result of the reliability analysis of the scale, the internal consistency coefficient was determined as 0.90[8]. In this study, the internal consistency coefficient was determined as 0.94.

Exploratory factor analysis was first applied for scale construct validity. The relationship between criterion validity and the sub-dimensions of the scale was examined by calculating the correlation coefficient of the Pearson product of moments. The reliability coefficient of the scale was determined by the

Cronbach alpha value. SPSS 26.0 statistical program was used to calculate the exploratory factor analysis, the Cronbach alpha internal consistency coefficient, and the correlation coefficient of the Pearson product of moments.

Results

All of the participants in our study were nurses. In this study, which included 395 nurses, the mean age was 33.4 years (standard error mean = 2.6). It is seen that 62.8% of the nurses are female and 37.2% are male. About 58% of them are married and 42% are single and 35.4% of them had deaths from COVID-19 in their family or close environment. It was determined that 23.5% had 0-4 years, 36.7% had 5-9 years, 31.6% had 10-14 years, 8.1% had 15 years, or more professional experience (Table 1).

It was determined that 17% of the nurses did not have an epidemic disease anxiety. However, 33.4% of the nurses were less anxious; 32.4% of them were moderately anxious; 13.2% of them were highly anxious; and finally, 4.1% of them were found to have a very high level of anxiety (Table 2).

To see if there is any difference between job satisfaction and epidemic anxiety in terms of if there are people who died from COVID-19 in the family or close environment, an independent t-test was performed. Results of the independent t-test indicated that there was no significant difference between job satisfaction (p = 0.08) and eligibility for qualifications (p = 0.13). It has been determined that there is a significant difference between the score of desire to improve in the profession (p = 0.04), outbreak score (p = 0.02), and epidemic anxiety total score (p = 0.02) (Table 3).

To see if there is any difference between job satisfaction and epidemic anxiety in terms of professional working time, one-way ANOVA was performed. Results of one-way ANOVA indicated that there was no significant difference between job satisfaction (F = 0.864, p = 0.06) and epidemic anxiety (F = 0.142, p = 0.18) and professional working time.

To see if there is any difference between job satisfaction and epidemic anxiety and in terms of marital status and gender, an independent t-test was performed. Results of the independent t-test indicated that there was no significant difference between job satisfaction (t = −0.791, p = 0.12) and epidemic anxiety (t = −0.477, p = 0.09) and marital status. There was no significant difference between job satisfaction (t = 0.286, p = 0.08) and epidemic anxiety (t = 1.312, p = 0.06) in terms of gender.

Correlation analysis was applied to determine the relationship between occupational satisfaction and epidemic anxiety level. Occupational satisfaction and epidemic anxiety level (r = −0.560, p = 0.005), epidemic (r = 0.525, p = 0.01), economic (r = −0.473, p = 0.001), quarantine (r = −0.503, p = 0.003), and social life (r = −0.507, p = 0.003) were found to be negatively correlated. Conformity to qualifications and epidemic disease anxiety level (r = −0.600, p = 0.001), epidemic (r = 0.550, p = 0.004), economic (r = −0.505, p = 0.001), quarantine (r = −0.545, p = 0.001), and social life (r = −0.555, p = 0.004) were found to be negatively correlated. Epidemic anxiety level with the

Table 1. Demographic data

Characteristics	Mean	SD
Age	33.4	6.7
Professional experience	8.6	9.2
	n	**%**
Gender		
Female	248	62.8
Male	147	37.2
Marital status		
Married	229	58
Single	166	42
Deaths from COVID-19 in their family or close environment		
Yes	140	35.4
No	255	64.6
Professional experience		
0–4 year	93	23.5
5–9 year	145	36.7
10–14 year	125	31.6
>15 year	32	8.1

Table 2. Epidemic anxiety status

Anxiety levels	n	%
No anxious	67	17
Less anxious	132	33.4
Moderately anxious	128	32.4
Highly anxious	52	13.2
Very high anxious	16	4.1
Total	395	100

Table 3. Comparison of results of epidemic anxiety and occupational satisfaction by the status of those who died in the family or close environment due to COVID-19

Dimensions	Are there people who died from COVID-19 in the family or close environment?	n	Mean	Standard deviation	t	p
Job satisfaction total score	Yes	140	78.29	17.096	1.761	0.08
	No	255	75.11	17.267		
Eligibility for qualifications	Yes	140	50.93	12.313	1.503	0.13
	No	255	49.03	11.869		
Desire to improve in the profession	Yes	140	27.36	5.504	2.053	0.04
	No	255	26.08	6.187		
Epidemic anxiety total score	Yes	140	43.11	15.609	−2.327	0.02
	No	255	47.17	17.083		
Outbreak	Yes	140	15.66	6.054	−2.411	0.02
	No	255	17.28	6.553		
Economic	Yes	140	4.83	2.115	−1.837	0.07
	No	255	5.25	2.254		
Quarantine	Yes	140	9.92	3.969	−1.925	0.06
	No	255	10.76	4.208		
Social life	Yes	140	12.70	5.427	−2.012	0.05
	No	255	13.88	5.646		

desire to develop (r = −0.406, p = 0.001), epidemic (r = 0.407, p = 0.001), economic (r = −0.347, p = 0.006), quarantine (r = −0.354, p = 0.001), and social life (r = −0.344, p <.005) were found to be negatively correlated (Table 4).

Discussion

With the current workload created by the virus around the world, HCWs have a high risk of infection during the diagnosis, treatment, and care of COVID-19 patients[9,10]. Professional satisfaction, it involves the satisfaction of the employee with the job, which takes place when the requirements of the profession and the demands of the employee overlap[11]. Low professional satisfaction may result in nurses not being cared for, not having a sense of belonging, not seeing themselves as a part of the team, and not being rewarded, which may negatively affect their performance[12,13].

Zhang et al. conducted a survey in 2020 with 1357 nurses from 10 hospitals in China, the country where the COVID-19 disease first emerged[14]. Nearly half of the participants (46%) were nurses. Most sharing (36%) had more than 9 years of work experience[14]. In another cross-sectional research involving 261, (72% female) frontline nurses from the Philippines were included in the study. The mean age was 30 years, and the mean year in the nursing profession was 8.32 years[15]. The present study was conducted among 395 nurses. The average age of the participants was 33 years, the average work experience was 8.6 years, and 62% of them were female.

Several studies have shown a high prevalence of post-traumatic stress disorder symptoms, anxiety, fear, depression, and frustration in emergency professionals involved in the 2002-2004 SARS epidemic[16]. The most common symptoms included recurrent and intrusive thoughts about events experienced during patient care, difficulties falling asleep, memory and concentration, hypervigilance and hyperarousal, outbursts of anger, loss of motivation to work, mood dysregulations, avoidant behaviors toward activities and workplaces, alcohol or drug abuse, numbness, isolation, and psychological detachment[16]. The COVID-19 pandemic and the difficulties it brings with it, such as the workload intensity, worsening of

Table 4. Results of correlation analysis of the relationship between epidemic anxiety and occupational satisfaction

Dimensions	Mean	Standard deviation	1	2	3	4	5	6	7	8	9
Job satisfaction total score (1)	76.24	17.253	-								
Eligibility for qualifications (2)	49.70	12.047	0.979**	-							
Desire to improve in the profession (3)	26.53	5.978	0.913**	0.811**	-						
Epidemic anxiety total score (4)	47.73	1.669	–0.560**	–0.600**	–0.406**	-					
Outbreak (5)	16.71	6.420	–0.525**	–0.550**	–0.407**	0.898**	-				
Economic (6)	5.10	2.213	–0.473**	–0.505**	–0.347**	0.856**	0.720**	-			
Quarantine (7)	10.46	4.139	–0.503**	–0.545**	–0.354**	0.924**	0.727**	0.765**	-		
Social life (8)	13.46	5.591	–0.507**	–0.555**	–0.344**	0.927**	0.706**	0.762**	0.879**	-	
Gender (9)	33.43	6.744	–0.183**	–0.160**	–0.205**	0.160**	0.174**	0.125*	0.154**	0.112*	-

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

working conditions, increase in working hours, and intensity of night shifts, also reduce the satisfaction of healthcare workers with their profession[17]. In a study conducted in China, the presence of psychopathology was evaluated in 1257 health workers exposed to COVID-19. A sizeable proportion of participants reported symptoms of depression (50%), anxiety (45%), insomnia (34%), and distress (72%). Nurses, women, frontline healthcare workers, and those working in Wuhan showed higher severity on all measures of mental health symptoms than other healthcare workers[18]. In a study by Pérez-Cano et al., 630 participants completed a questionnaire with an average age of 26.77 and 10.30 standard deviation. According to the survey, depression, and anxiety affected more than 40% of the participants, while stress affected < 30%. Of the subjects who experienced anxiety, 18.6% also had moderate-to-very severe depression or stress[13]. In our study, anxiety was detected in 83% of the participants and the total epidemic anxiety score was 47.7 (see: range for moderate anxiety: 47-61). We found a negative correlation between total epidemic anxiety score and total job satisfaction score ($p = 0.05$, $r = -0.560$).

According to Taylor and Asmundson, some health anxiety is a helpful reaction to physical disorders. Anxiety levels that are considered normal ensure that the appropriate steps are taken to either avoid or treat sickness. Health anxiety, however, may become an issue if it is persistent, overwhelming, or much bigger than the seriousness of the threat to one's health[19]. Compared to others who had no such experience, health-care personnel who were quarantined and worked in SARS units or had family or friends who had the disease experienced much higher levels of anxiety, depression, frustration, terror, and post-traumatic stress[20]. In our study, we also tested to see if there is any difference between job satisfaction and epidemic anxiety in terms of if there are people who died from COVID-19 in the family or close environment. Our study indicated that there was no significant difference between job satisfaction and eligibility for qualifications. It has been determined that there is a significant difference between the score of desire to improve in the profession, outbreak score, and epidemic anxiety total score. Accordingly, we found higher levels of epidemic anxiety scores in health-care personnel that had family or friends who had the disease experienced compared to others who had no such experience.

Doctors in Germany reported significant levels of depressive and anxious symptoms[21], and medical and nursing professionals in Hong Kong were found to be susceptible to burnout, anxiety, and mental tiredness[22]. In addition, health-care professionals from other disciplines, such as surgeons and anesthesiologists, are also affected psychologically by the crisis. These professionals include frontline respiratory and intensive care doctors and nurses. Sadly, there have also been instances of suicides as a result of the mounting psychological pressure and a great fear of death that health-care professionals are experiencing; this is especially concerning considering the fact that doctors already have a higher suicide risk than the general population[23].

Conclusions

This study found that during the COVID-19 pandemic, there was a significant frequency of moderate anxiety among health-care personnel. The need for appropriate support is crucial. More research on the measures that are most successful in reducing these risks would help the response.

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Conflicts of interest

The authors declare no conflicts of interest.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. Right to privacy and informed consent. The authors have obtained approval from the Ethics Committee for analysis and publication of routinely acquired clinical data and informed consent was not required for this retrospective observational study.

References

1. Santos-López G, Cortés-Hernández P, Vallejo-Ruiz V, Reyes-Leyva J. SARS-CoV-2: basic concepts, origin and treatment advances. Gac Med Mex. 2021;157:84-9.
2. Bernardo A, Mendoza NB, Simon PD, Cunanan A, Dizon J, Tarroja M, et al. Coronavirus Pandemic Anxiety Scale (CPAS-11): development and initial validation. Curr Psychol. 2022;41:5703-11.
3. Nicolini H. Depression and anxiety during COVID-19 pandemic. Cir Cir. 2020;88:542-7.
4. World Health Organization. Coronavirus Disease (COVID-19) Outbreak. Geneva: World Health Organization; 2022. Available from: https://covid19.who.int [Last accessed on 2022 Aug 16].
5. Pan A, Liu L, Wang C, Guo H, Hao X, Wang Q. Association of public health ınterventions with the epidemiology of the COVID-19 outbreak in Wuhan. JAMA. 2020;323:1915-23.
6. Allsopp K, Brewin CR, Barrett A, Williams R, Hind D, Chitsabesan P. Responding to mental health needs after terror attacks. BMJ. 2019;366:l4828.
7. Sayar GH, Ünübol H, Tutgun-Ünal A, Tarhan N. Salgın hastalık kaygı ölçeği: geçerlilik ve güvenirlik çalışması. Psikiyatr Güncel Yaklaşı. 2020;12(Suppl 1):382-97.
8. Kuzgun Y, Aydemir-Sevim S, Hamamcı Z. Mesleki Doyum Ölçeği'nin geliştirilmesi. Türk Psikolojik Danışma ve Rehberlik Dergisi. 1999;2:14-8.
9. Şahin HH, Baş Y, Şenel E. Analysis of cytokine and COVID-19 associated cytokine storm researches in scientific literature: a bibliometric study. Injector. 2022;1:2-15.
10. Baber A. The effect of the COVID-19 pandemic on the psychological state of healthcare workers around the world: a review. Injector. 2022;1:16-30.
11. Galindo-Vázquez O, Ramírez-Orozco M, Costas-Muñiz R, Mendoza-Contreras LA, Calderillo-Ruíz G, Meneses-García A. Symptoms of anxiety, depression and self-care behaviors during the COVID-19 pandemic in the general population. Gac Med Mex. 2020;156:298-305.
12. Toudert D. Towards a predictive model for prevention of the risk of COVID-19 infection. Gac Med Mex. 2021;157:231-6.
13. Pérez-Cano HJ, Moreno-Murguía MB, Morales-López O, Crow-Buchanan O, English JA, Lozano-Alcázar J, et al. Anxiety, depression, and stress in response to the coronavirus disease-19 pandemic. Cir Cir. 2020;88:562-8.
14. Zhang M, Zhou M, Tang F, Wang Y, Nie H, Zhang L, et al. Knowledge, attitude, and practice regarding COVID-19 among healthcare workers in Henan, China. J Hosp İnfect. 2020;105:183-7.
15. Labrague LJ, de Los Santos J. Fear of COVID-19, psychological distress, work satisfaction and turnover intention among frontline nurses. J Nurs Manag. 2021;29:395-403.
16. Conversano C, Marchi L, Miniati M. Psychological distress among healthcare professionals ınvolved in the Covid-19 emergency: vulnerability and resilience factors. Clin Neuropsychiatry. 2020;17:94-6.
17. Demir Y, Mermutluoğlu Ç. Leptospirosis accompanying COVID-19: a case report. J Clin Tri Exp Invest. 2022;1:60-3.
18. 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:e203976.
19. Taylor S, Asmundson GJ. Treating health anxiety: a cognitivebehavioral approach. 1st ed. New York: The Guilford Press; 2004.
20. Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. Lancet Psychiatry. 2020;7:228-9.
21. Bohlken J, Schömig F, Lemke MR, Pumberger M, Riedel-Heller SG. COVID-19 pandemic: stress experience of healthcare workers-a short current review. Psychiatr Prax. 2020;47:190-7.
22. Cheung T, Fong TK, Bressington D. COVID-19 under the SARS cloud: mental health nursing during the pandemic in Hong Kong. J Psychiatr Ment Health Nurs. 2020;28:115-7.
23. Montemurro N. The emotional impact of COVID-19: from medical staff to common people. Brain Behav Immun. 2020;87:23-4.