



Original Article

The relationship between psychological distress and well-being among nurses in Türkiye during the COVID-19 pandemic

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Abstract

Objectives: Nurses were among the healthcare professionals at the forefront of the fight against the coronavirus 2019 pandemic and faced very stressful conditions. The aim of this study was to determine the level of psychological distress and well-being among nurses in Türkiye during this exceptionally challenging time.

Methods: A total of 351 nurses participated in this cross-sectional study. The data were collected early in the pandemic during the period of April through June 2020 using a personal information form, the General Health Questionnaire (GHQ-28), and the World Health Organization (Five) Well-Being Index (WHO-5).

Results: Among the study participants, 69.2% of the nurses worked as an essential frontline caregiver (emergency/intensive care units and pandemic wards). The mean WHO-5 score was 9.15 ± 4.77 and the mean GHQ-28 score reflecting psychological distress was 10.17 ± 7.02 . In all, 86% of the nurses reported an increased level of work-related stress. A low level of well-being was a predictor of psychological distress ($R^2 = .284$). The WHO-5 scores were negatively correlated with psychological distress scores ($p < 0.01$; $r = -0.535$).

Conclusion: Nurses working on the frontline during a pandemic are at great risk of developing adverse mental health outcomes. The study findings showed that the nurses' level of well-being was associated with the level of psychological distress. It is important to provide nurses with adequate psychological support to increase their sense of well-being and reduce psychological distress in order to ensure quality of care and maintain job satisfaction.

Keywords: COVID-19; nurses; psychological distress; stress; well-being.

A novel coronavirus spread worldwide after first appearing in China's Hubei province in late 2019. Coronavirus 2019 (COVID-19) quickly demonstrated high morbidity and mortality rates. The rapid spread and lack of information about how to treat the virus caused fear and panic worldwide.^[1,2] The disease was soon recognized as a public health issue of international importance, and the World Health Organization (WHO) declared a pandemic in March 2020.^[3] Although there have been recent outbreaks of other infectious diseases, such as

influenza A (H1N1), severe acute respiratory syndrome (SARS), and Middle East respiratory syndrome (MERS), the COVID-19 pandemic had significantly greater effects, including stressing health systems due to the uncertainties surrounding a virulent novel virus with a high transmission rate. Even early data indicated that while most COVID-19 patients recovered, the overall fatality rate was much greater than the SARS and MERS episodes combined.^[4] Healthcare professionals have always faced the risk of expo-

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Submitted Date: August 02, 2021 **Revised Date:** February 14, 2022 **Accepted Date:** March 27, 2020 **Available Online Date:** October 28, 2022

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What is presently known on this subject?

- Good health is more than the absence of disorder; it includes a sense of well-being in all domains. During the coronavirus 2019 (COVID-19) pandemic, nurses and other frontline professionals faced extremely challenging circumstances that created a greater risk of the development of adverse psychological effects.

What does this article add to the existing knowledge?

- The General Health Questionnaire results were positively correlated with work-related stress levels during the COVID-19 pandemic, and the World Health Organization (Five) Well-Being Index results revealed a negative correlation with the psychological distress scores. Well-being explained 28% of the change in the psychological distress level.

What are the implications for practice?

- Providing care during the unprecedented conditions of the COVID-19 pandemic was highly stressful and included increased risk of personal infection, yet the nurses' commitment to their patients and profession was evident. A large majority of the nurses surveyed expressed no intention to leave the profession despite the increased level of psychological distress and difficult circumstances. It is important to provide adequate support to preserve well-being and strengthen the ability of nurses to provide care.

sure to infectious diseases. In recent decades, they have encountered risks due to HIV/AIDS, SARS, swine influenza, and Ebola, among other well-known sources of infection.^[5] For instance, SARS data reveal that 20% of all cases were healthcare professionals.^[6] Initial data suggested that the same was true for COVID-19. A 2020 report published by the US Centers for Disease Control and Prevention indicated that healthcare professionals represented 22% of all reported cases of COVID-19 in the United States and that the nursing profession represented the largest single healthcare group among them (30%).^[7] In April 2020, the Turkish Ministry of Health announced that of 1 million health professionals, 7428 had been infected with COVID-19, and the number increased to 29,865 by September 2020.^[8,9] According to government documents, 380 healthcare professionals in Türkiye had lost their lives due to COVID-19 by January 2021.

The mental health impact of an epidemic on both individuals and communities has been widely discussed in the literature.^[10,11] Studies show that individuals can experience intense stress during such crises. Severe stress can lead to psychological distress that may have short- and long-term adverse effects on mental health.^[11] It can also affect individual well-being, including work capacity, family life, and the overall quality and duration of life.^[12-15] Anxiety is another source of potential mental health difficulties during times of great disruption and stress, such as a pandemic. This anxiety may be related to the risk of becoming sick, the possibility of losing family members or loved ones, uncertainty about the future, sudden changes in daily routines, restrictions on social life, and false information or beliefs that originate from some media sources.^[1,12,13]

The literature has demonstrated that the COVID-19 pandemic was no exception and also had a significant effect on mental well-being. The rapid spread of the virus, the necessity to enact sweeping restrictions and other changes, and new emerging variants challenged the coping capacity of health systems and individuals as they were forced to navigate new circumstances. Healthcare professionals were forced to manage numerous

challenges and grapple with death occurring on a scale and under conditions that were unfamiliar and emotional. They were prone to negative effects on their mental well-being and burnout.^[1,10,11] Nurses and other healthcare professionals at the forefront of the fight against COVID-19 faced a sudden battle environment for which no one was sufficiently prepared. The results included significant disruption to routines and a triage atmosphere, often with insufficient staff and limited availability of personal protective equipment (PPE) and other supply chain weaknesses. Healthcare staff were forced to manage the burden of a large number of patients within a healthcare system that was not equipped to meet their needs.^[16]

Nurses and others experienced various mental health challenges, such as intense pressure, fear of infection, anxiety, fatigue, frustration, stigma, sleep disturbances, loneliness, and desperation due to their increased workload.^[17] The literature indicates that healthcare workers were also at risk of developing severe clinical conditions, including post-traumatic stress disorder.^[18] Ethical dilemmas and many other challenges faced during the pandemic resulted in symptoms of stress, deterioration in quality of life, and a decrease in mental well-being.^[16,19,20] Some of these difficult situations included the need to make rapid emergency decisions, working in direct contact with a patient diagnosed with COVID-19, a larger than normal number of patients and working hours, adaptation to new care protocols and other new-normal modes of operation, managing a lack of PPE and other resources, and fear of transmission to family members.^[16,19-21]

Comprehensive study of the effects on nurses could be of great value. It is important to use reliable tools to measure psychological effects to obtain comparable data for the world literature. The objective of this study was to determine the psychological distress symptoms and mental well-being among nurses in Türkiye during the COVID-19 pandemic. The research sought to answer the following questions:

- What is the psychological distress level of nurses during the COVID-19 pandemic?
- What is the mental well-being level of nurses during the COVID-19 pandemic?
- What is the relationship between the psychological distress and mental well-being levels of nurses during the COVID-19 pandemic?

Materials and Method

Ethical Considerations

All of the procedures used in the study were approved by the Turkish Ministry of Health COVID-19 Scientific Research Evaluation Commission and the Istinye University Social and Human Sciences Research Ethics Committee on April 16, 2020 (No: 2020/04). The study data were collected online and the survey began with a request to provide informed consent.

Study Design

This was a cross-sectional, descriptive, and correlational study.

The research was conducted with nurses of several state and university hospitals across Türkiye. Full-time nurses who worked during the early phase of the COVID-19 pandemic between April and June 2020 constituted the population of the study. The convenience sampling method was used to issue an invitation to participate online. An online format was used due to pandemic restrictions and to reach nurses serving throughout the country. The target population was determined to be approximately 200,000 according to the latest data announced by the Ministry of Health in 2020. A 5% sampling error and group homogeneity were used to calculate that a total sample of 245 participants would be sufficient. In all, 351 nurses completed an online form (Google Forms; Google LLC, Mountain View, CA, USA) during the study period. Nurses who had been diagnosed with COVID-19 ($n=4$) were excluded from the study results.

Data Collection

Measurement Tools

The online survey consisted of 3 parts: a form to gather sociodemographic and work-related history, the 28-item version of the General Health Questionnaire (GHQ-28), and the World Health Organization (Five) Well-Being Index (WHO-5). Sociodemographic and work-related history questions collected data related to gender, age, educational level, marital status, parental status, presence of family support, wards worked, years of work as a nurse, changes to regular job duties, overtime work, workload, intention to quit, in-service training related to COVID-19, and PPE usage. There were 2 additional questions related to the participants' perceptions about work-related stress and a subjective evaluation of their general health using a visual analog scale (range: 0-10).

The nurses' general mental health was measured using the GHQ-28. This is a robust and well-validated self-report tool used to screen and assess psychological distress and possible psychiatric morbidity. The GHQ-28 is a scaled version of the longer original instrument first developed by Goldberg (1978) and has been translated into at least 38 languages. The questionnaire consists of 28 items divided into 4 subscales: somatic symptoms (items 1–7), anxiety or insomnia (items 8–14), social dysfunction (items 15–21), and severe depression (items 22–28). All of the items measure symptoms experienced in the previous few weeks. Respondents use a 4-point, Likert-type scale (0-3 points) to express frequency. Subsequently, the data were rescored using a score of 0 for the first 2 responses, indicating a better or similar state, and 1 point for responses indicating a worse experience. A higher total score indicates greater psychological distress.^[22,23] Numerous studies have investigated the validity and reliability of the scale, returning excellent Cronbach alpha values of .90-.95 and it has been used in many studies of general populations. The Cronbach alpha value of the GHQ-28 was calculated to be .91 in this study.

The WHO-5 was developed to serve as a valid, reliable, short, and effective self-report tool to assess and measure the lev-

el of individuals' psychological and mental well-being and quality of life. Respondents grade their experience during the previous 2 weeks related to 5 statements using a 6-point, Likert-type scale of "at no time" (0 points) to "all of the time" (5 points), yielding a maximum raw score of 25 points. A score of 0 represents the worst imaginable well-being and 25 represents the best imaginable well-being. The WHO-5 has been adapted and translated into more than 30 languages; a Turkish version was developed in 1999 by a public health physician. The official Turkish version of the scale is available on a website that provides access to a variety of adaptations: <https://www.psikiatri-regionh.dk/who-5/who-5-questionnaires/Pages/default.aspx>.^[24] The scale has been used in diverse sample groups and it has proven to be a suitable and reliable tool for individuals older than 9 years of age.^[25–27] A Turkish psychometric study of the scale determined a Cronbach alpha value of .81 for adults and .86 for older adults.^[25] The Cronbach alpha value of the WHO-5 scale was calculated to be .83 in this study.

Data Analysis

The data obtained from the study were analyzed using IBM SPSS Statistics for Windows, Version 25.0 software (IBM Corp., Armonk, NY, USA). Descriptive statistical methods (numbers, percentile, mean, SD) were used to analyze the sociodemographic data. Normality tests were used to verify the data distribution. An independent samples t-test, analysis of variance, and Pearson's and Spearman's correlation coefficient analysis were performed to compare the mean values of mental health outcomes and sample characteristics. The Bonferroni test was used as a post hoc test to determine the direction of the relationship. Simple linear regression analysis was used to assess the significance of the relationship between mental health outcomes. The Cronbach alpha value was used to evaluate the reliability of the scales and subscales.

Results

Sociodemographic and Other Characteristics

A total of 351 nurses submitted a complete survey. Among them, 243 (69.2%) reported that they worked as a frontline caregiver (in emergency units, intensive care units, or pandemic wards) during the pandemic period studied. Table 1 illustrates the sociodemographic and other characteristics of the participants. The mean age of the nurses was 30 ± 8.13 years. The majority were female (89.7%), were unmarried/single (54.4%), had a bachelor's degree or higher (79.8%), lived in a nuclear family (82.1%), and had no more than 5 years of nursing experience (51%). A total of 234 (66.7%) nurses had been sent to support other departments or hospitals due to the pandemic. Many of the participants had received training for care of patients diagnosed with COVID-19 (59.3%) and a large majority of nurses (86.3%) indicated that their work-related stress levels increased after the COVID-19 pandemic;

Table 1. Sociodemographic and other characteristics of the nurses (n=351)

Sociodemographic variables		Mean±SD	n (%)
Gender	Male		36 (10.3)
	Female		315 (89.7)
Age (years)		30±8.13	
Education	Bachelor's degree or higher		280 (79.8)
	High school/2-year degree		71 (20.2)
Marital status	Unmarried/Single		191 (54.4)
	Married		160 (45.6)
Family type	Nuclear family		288 (82.1)
	Other		63 (17.9)
Has children	Yes		132 (37.6)
	No		219 (62.4)
Work ward	Frontline (pandemic clinics, intensive care units, and emergency department)		243 (69.2)
	Other		108 (30.8)
Years of work as a nurse	0-5		178 (50.7)
	6-10		54 (15.4)
	≥11		119 (33.9)
Work ward change	Yes		234 (66.7)
	No		117 (33.3)
Work hours change	Yes		239 (68.1)
	No		112 (31.9)
Work-related stress during COVID-19 pandemic	Increased		303 (86.3)
	Decreased		14 (4.0)
	No change		34 (9.7)
Prior training about caring for patients with COVID-19	Yes		208 (59.3)
	No		143 (40.7)
Lack of availability of personal protective equipment	Yes		123 (35)
	No		228 (65)
Intention to leave the profession	Yes		82 (23.4)
	No		269 (76.6)
Work-related stress level		7.81±2.05	
Subjective general health status		6.29±1.92	

however, most reported no intention to leave the nursing profession (76.6%).

Psychological Distress and Mental Well-being Outcomes and Relationship

Table 2 provides the psychological distress and mental well-being outcomes of the nurses surveyed. The mean WHO-5 score was 9.15±4.77 and the mean GHQ-28 score was 10.17±7.02.

The WHO-5 score was negatively correlated with the GHQ-28 ($p<0.01$; $r=-0.535$). Simple regression analysis revealed that well-being had a statistically significant effect on the participants' psychological distress level ($F:139.694$; $p<0.05$). The nurses' well-being explained 28% of the change in the psychological distress level. A one-unit decrease in well-being increased the psychological distress level by 0.78 units.

Table 2. Mental health outcomes of the nurses (n=351)

Mental health variables	Mean (SD)	Possible range	r	p	B	t	p
WHO-5 Well-Being Index	9.15 (4.77)	0 to 25	-0.535	0.000	-0.787	-11.819	0.000
GHQ-28	10.17 (7.02)	0 to 27					

*F: 139.694, $p<0.05$; R^2 (95% confidence interval)=.284; *r: Pearson's correlation coefficient. GHQ-28: General Health Questionnaire; WHO-5: World Health Organization (Five) Well-Being Index.

Differences Between Mental Health Outcomes and Sociodemographic Characteristics Subgroups

Table 3 shows the differences between the WHO-5, the GHQ-28, and sociodemographic characteristic subgroups. Statistically significant differences in the levels of psychological distress (GHQ-28) were observed between subgroups according to the following variables: caring for patients with COVID-19, wards of work, prior training about caring patients with COVID-19, the lack of availability of PPE, intention to leave the profession, change in work hours, work-related stress level changes, and exercise status. The WHO-5 revealed statistically significant differences between subgroups using the following variables: education level, caring for patients with COVID-19, prior training about caring for patients with COVID-19, the lack of availability of PPE, work-related stress level changes, and exercise status. The GHQ-28 results were positively correlated with work-related stress levels during the COVID-19 pandemic ($r=.510$) and negatively correlated with the subjective general health level scores ($r=-.422$). The WHO-5 scores were negatively correlated with work-related stress levels during the COVID-19 pandemic ($r=-.339$) and positively correlated with the self-reported general health level scores ($r=.463$).

Discussion

This study provides additional findings that can be used to understand the psychological distress experienced by nurses who cared for patients with COVID-19, including their mental well-being and quality of life. Our results revealed supporting evidence that nurses could benefit from mental health services, and particularly during extreme conditions such as a pandemic. The majority of the nurses surveyed reported increased psychological distress during the COVID-19 pandemic. Nonetheless, despite the increased level of psychological distress, including exposure to a greater risk of infection, a large majority of the nurses expressed no intention to leave the nursing profession. The nurses' commitment to their patients and their profession was evident. They were highly motivated and very dedicated even in the face of stressful conditions and conflicts between their commitment to work and self-care. Prior training about caring for patients with COVID-19 and providing sufficient PPE and other resources had a positive impact on the nurses' motivation and resilience. This is similar to the experience reported by nurses globally who cared for individuals during the COVID-19 pandemic.^[13,19,28,29] In this study, the mean age of the nurses was 30 years. In contrast to some other reports in the current literature, age was not a significant variable in terms of psychological distress or mental well-being and quality of life.^[2]

In this study, nurses reported moderate levels of psychological distress and low levels of mental well-being and quality of life. There was a moderate negative correlation between the well-being and psychological distress scores. Compared with previous epidemics (e.g., SARS), the life-threatening na-

ture and consequences of the COVID-19 global outbreak were much greater.^[30] Several factors, such as an increased workload, a lack of PPE, and increased work hours, create greater risks for mental health issues.^[14,21] Poor mental well-being was a predictor for psychological distress, which emphasizes the importance of ongoing support for nurses' well-being and mental health.^[19,30,31]

Our findings showed that the mean GHQ-28 score was higher among the nurses who were caring for patients with COVID-19, who did not get prior training related to COVID-19, who reported a lack of PPE, who were working in pandemic clinics, intensive care units, and emergency departments as a frontline employee, expressed an intention to leave the nursing profession, had worked extended hours, had increased level of stress, and those who no longer had the opportunity to exercise. There was a moderate, positive correlation between nurses' psychological distress and work-related stress levels during the COVID-19 pandemic. We also observed a medium and negative correlation between psychological distress and the general health level scores that participants rated subjectively, which would suggest that the worse the work-related stress, the greater the level of psychological distress, and that a poorer subjective general health perception was associated with a worse psychological distress level. At the time of this study, the context of high COVID-19 infection rates and experiencing conflicts between the responsibility to care for patients and a nurse's right to self-care was the most critical factor that triggered psychological distress. Early in the pandemic, the predictability of the situation was unclear and the number of cases increased daily. The frontline nurses frequently faced different care protocols each day, and had to manage the fear of becoming infected or infecting family members. These were some of the factors that were seen to be significant risk factors for increased stress levels among healthcare professionals in the literature worldwide.^[1,14,28]

The WHO-5 results indicated that nurses who had a higher level of education (bachelor's degree or postgraduate) reported better mental well-being and quality of life. The findings also showed that the quality of life of the nurses who cared for patients with COVID-19, experienced the lack of access to sufficient PPE, and those who expressed an intention to leave the profession was significantly lower. The quality-of-life measurement of the nurses who reported that their work-related stress level had not changed was considerably higher. There was a moderate, negative correlation between the work-related stress and quality of life scores and a medium, positive correlation between the subjectively rated general health and quality of life scores. In addition, the findings showed that exercise was an important variable for quality of life. The nurses who started exercising after the COVID-19 pandemic reported a significantly higher quality of life than those who did not have the opportunity to exercise anymore. After the outbreak of COVID-19, nurses and other healthcare professionals struggled as frontline workers. The conditions exposed them to considerable stress due to the fear of becom-

Table 3. Differences in mental health among/between various sociodemographic and other characteristic subgroups of nurses (n=351)

		GHQ-28 (Mean±SD)	Test value	p	WHO-5 (Mean±SD)	Test value	p
Gender	Male	10.51±6.96	2.755 ^t	0.006	8.97±4.61	-2.063 ^t	0.040
	Female	7.14±6.91			10.69±5.78		
Education	Bachelor ¹	9.99±7.22	0.408 ^F	0.747	9.25±4.56	6.115 ^F	0.000
	2-year degree ²	11.69±6.43			5.86±4.14		(2<1,4)
	High-school ³	10.23±7.14			8.41±4.56		
	Postgraduate ⁴	10.19±6.53			10.55±5.28		
Marital status	Single	10.38±6.79	0.617 ^t	0.538	9.18±4.84	0.150 ^t	0.881
	Married	9.91±7.30			9.11±4.69		
Family type	Nuclear family	10.43±7.06	1.536 ^t	0.125	9.21±4.72	0.505 ^t	0.614
	Other	8.94±6.75			8.87±5.00		
Caring for patients with COVID-19	Yes	11.08±7.03	3.737 ^t	0.000	8.67±4.66	-2.815 ^t	0.005
	No	8.10±6.58			10.21±4.85		
Work ward	Pandemic clinics and ICU ¹	11.30±6.85	4.593 ^F	0.004	9.01±4.86	1.182 ^F	0.317
	Other adults, pediatric ICU ²	9.74±7.13		4<1,3	8.93±4.75		
	Emergency department ³	12.52±7.52			8.29±4.44		
	Other ⁴	8.75±6.58			9.70±4.83		
Work ward change	Yes	10.59±7.28	1.621 ^t	0.106	8.90±4.76	-1.371 ^t	0.171
	No	9.31±6.40			9.64±4.75		
Prior training about caring patients with COVID-19	Yes	9.32±6.85	-2.754 ^t	0.006	9.39±4.66	1.116 ^t	0.244
	No	11.40±7.09			8.79±4.92		
Lack of availability of personal protective equipment	Yes	12.2±7.08	4.116 ^t	0.000	8.23±5.07	-2.679 ^t	0.008
	No	9.05±6.75			9.64±4.52		
Intention to leave the profession	Yes	15.15±6.51	7.988 ^t	0.000	6.67±3.99	-5.600 ^t	0.000
	No	8.64±6.45			9.90±4.73		
Smoker	Yes	11.23±6.91	-1.975 ^t	0.049	8.55±4.97	-1.626 ^t	0.105
	No	9.65±7.03			9.43±4.65		
Alcohol use	Yes	10.75±7.16	0.843 ^t	0.400	9.79±5.11	1.359 ^t	0.175
	No	9.99±6.98			8.96±4.66		
Has children	Yes	10.61±6.92	1.5380 ^t	0.125	9.25±4.83	0.520 ^t	0.603
	No	9.42±7.15			8.97±4.68		
Years working as a nurse	0-51	10.62±6.93	3.145 ^F	0.050			
	1,2>3	9.31±4.71	0.322 ^F				
	0.725						
	6-102	11.41±6.96			9.22±5.23		
	≥113	8.92±7.05			8.87±4.67		
Work hours change	Yes	11.05±7.17	3.487 ^t	0.001	9.33±4.88	1.023 ^t	0.307
	No	8.28±6.33			8.77±4.51		
Work-related stress level change	Increased ¹	10.96±6.98	15.649 ^F	0.000	8.84±4.70	6.155 ^F	0.002
	Decreased ²	4.36±5.23		1>2,3	9.29±4.84		3>1
	No change ³	5.44±4.81			11.82±4.66		
Exercise status	No more opportunity to exercise ¹	12.08±6.91	3.212 ^F	0.015	7.77±3.89	3.671 ^F	0.007
	No change in exercise frequency ²	8.36±6.20		3<1	10.00±4.88		1<5
	Increased exercise frequency ³	6.84±6.24			11.32±5.70		
	Decreased exercise frequency ⁴	9.11±6.41			9.89±5.15		
	Started exercising in the last 2 months ⁵	7.50±4.74			12.50±4.17		
How would you score your work-related stress level during the COVID-19 pandemic?				0.510 ^r	p<0.01	-0.339 ^r	p<0.01
How would you score your general health?				-0.422 ^r	p<0.01	0.463 ^r	p<0.01
Age				-0.097 ^r	p>0.05	-0.006 ^r	p>0.05

*F: Analysis of variance (Group differences determined by Bonferroni test); *r: Spearman's correlation coefficient; *t: Independent sample t-test. GHQ-28: General Health Questionnaire; WHO-5: World Health Organization (Five) Well-Being Index.

ing infected or transmitting the infection to family members.^[21] During these unprecedented times, nurses worked under enormous pressure; they frequently worked extended hours in unfamiliar wards, in a new social environment, and faced shortages of PPE, among other challenges.^[14,15,32] The current literature results similarly report low quality of life and poorer mental well-being among healthcare workers who cared for COVID-19 patients.

Limitations

This study has several limitations. First, the results presented here were derived from a cross-sectional study, limited to an online survey. Second, due to the anonymous nature of the survey, it is not possible to determine the participation rate with greater specificity. Furthermore, we could not assess and compare the nurses' psychological distress or mental well-being and quality of life before the pandemic. Finally, a larger sample size and longitudinal studies are needed to verify and expand on the results.

Conclusion

Pandemics can cause severe and varied psychological effects on the public. Nurses who serve as essential workers in emergency units, intensive care units, and pandemic wards have a high risk of developing adverse mental health issues. Our findings showed that nurses' well-being levels could predict psychological distress. The nurses' well-being scores were negatively correlated with psychological distress levels. Governments and health authorities should consider creating specific initiatives at regional and national levels to address mental health issues, provide social support, and sustain motivation and job satisfaction. Regular screening of nurses working on the frontline should be evaluated for stress and other mental health-related difficulties. We believe that it is necessary to provide adequate psychological support for nurses to empower resilience and mental well-being as part of a recovery effort and their regular work environment to prepare them for the future. Future research with larger samples that evaluates the potential benefits of initiatives to increase mental well-being would be beneficial.

Conflict of interest: There are no relevant conflicts of interest to disclose.

Peer-review: Externally peer-reviewed.

Authorship contributions: Concept – Z.O.; Design – Z.O., E.A.; Supervision – Z.O.; Fundings - Z.O., E.A., Y.A.; Data collection &/or processing – Z.O., E.A., Y.A.; Analysis and/or interpretation – Z.O.; Literature search – Y.A., Z.O.; Writing – Z.O., E.A.; Critical review – Z.O., E.A., Y.A.

References

- Ceri V, Cicek I. Psychological well-being, depression and stress during COVID-19 pandemic in Turkey: A comparative study of healthcare professionals and non-healthcare professionals. *Psychol Health Med* 2021;26:85–97.
- Spoorthy MS, Pratapa SK, Mahant S. Mental health problems faced by healthcare workers due to the COVID-19 pandemic-A review. *Asian J Psychiatr* 2020;51:102119.
- World Health Organization. Coronavirus disease (COVID-19) 2019. Events as they happen. Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>. Accessed Mar 30, 2021.
- Mahase E. Coronavirus covid-19 has killed more people than SARS and MERS combined, despite lower case fatality rate. *BMJ* 2020;368:m641.
- Morley G, Grady C, McCarthy J, Ulrich CM. Covid-19: Ethical challenges for nurses. *Hastings Cent Rep* 2020;50:35–9.
- Wu P, Fang Y, Guan Z, Fan B, Kong J, Yao Z, et al. The psychological impact of the SARS epidemic on hospital employees in China: Exposure, risk perception, and altruistic acceptance of risk. *Can J Psychiatry* 2009;54:302–11.
- Hughes MM, Groenewold MR, Lessem SE, Xu K, Ussery EN, Wiegand RE, et al. Update: Characteristics of health care personnel with COVID-19 - United States, February 12-July 16, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:1364–8.
- Saatçı E. COVID-19 Pandemic and health professionals: Keep them alive or survive?. *Turk J Fam Pract* 2020;24:153–66.
- Turkish Ministry of Health. Minister Koca evaluated the latest situation regarding the coronavirus. Available at: <https://www.saglik.gov.tr/TR,68676/bakan-koca-koronaviruse-iliskin-son-durumu-degerlendirdi.html> Accessed Sep 15, 2020.
- Fiorillo A, Gorwood P. The consequences of the COVID-19 pandemic on mental health and implications for clinical practice. *Eur Psychiatry* 2020;63:e32.
- 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;17:1729
- Alizadeh A, Khankeh HR, Barati M, Ahmadi Y, Hadian A, Azizi M. Psychological distress among Iranian health-care providers exposed to coronavirus disease 2019 (COVID-19): A qualitative study. *BMC Psychiatry* 2020;20:494.
- Shen X, Zou X, Zhong X, Yan J, Li L. Psychological stress of ICU nurses in the time of COVID-19. *Crit Care* 2020;24:200.
- Stojanov J, Malobabic M, Stanojevic G, Stevic M, Milosevic V, Stojanov A. Quality of sleep and health-related quality of life among health care professionals treating patients with coronavirus disease-19. *Int J Soc Psychiatry* 2021;67:175–81.
- Suryavanshi N, Kadam A, Dhupal G, Nimkar S, Mave V, Gupta A, et al. Mental health and quality of life among healthcare professionals during the COVID-19 pandemic in India. *Brain Behav* 2020;10:e01837.
- Turale S, Meechamnan C, Kunaviktikul W. Challenging times: Ethics, nursing and the COVID-19 pandemic. *Int Nurs Rev* 2020;67:164–7.
- Tan R, Yu T, Luo K, Teng F, Liu Y, Luo J, et al. Experiences of clinical first-line nurses treating patients with COVID-19: A qualita-

- tive study. *J Nurs Manag* 2020;28:1381–90.
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. Sperling D. Ethical dilemmas, perceived risk, and motivation among nurses during the COVID-19 pandemic. *Nurs Ethics* 2021;28:9–22.
 20. Zhu J, Stone T, Petrini M. The ethics of refusing to care for patients during the coronavirus pandemic: A Chinese perspective. *Nurs Inq* 2021;28:e12380.
 21. 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;288:112936.
 22. Sterling M. General Health Questionnaire - 28 (GHQ-28). *J Physiother* 2011;57:259.
 23. Sakakibara BM, Miller WC, Orenczuk SG, Wolfe DL; SCIRE Research Team. A systematic review of depression and anxiety measures used with individuals with spinal cord injury. *Spinal Cord* 2009;47:841–51.
 24. Psychiatric Center North Zealand. The WHO-5 website. WHO-5 Questionnaires. 2020. Available at: <https://www.psykiatri-regionh.dk/who-5/who-5-questionnaires/Pages/default.aspx>. Accessed Mar 10, 2020.
 25. Eser E, Çevik C, Baydur H, Güneş S, Esgin TA, Öztekin ÇS, et al. Reliability and validity of the Turkish version of the WHO-5, in adults and older adults for its use in primary care settings. *Prim Health Care Res Dev* 2019;20:e100.
 26. Topp CW, Østergaard SD, Søndergaard S, Bech P. The WHO-5 Well-Being Index: A systematic review of the literature. *Psychother Psychosom* 2015;84:167–76.
 27. World Health Organization. Wellbeing measures in primary health care/the DEPCARE project: Report on a WHO meeting. Stockholm, Sweden 12-13 February 1998. Available at: https://www.euro.who.int/__data/assets/pdf_file/0016/130750/E60246.pdf. Accessed Mar 27, 2021.
 28. Gunawan J, Aunguroch Y, Marzilli C, Fisher ML, Nazliansyah, Sukarna A. A phenomenological study of the lived experience of nurses in the battle of COVID-19. *Nurs Outlook* 2021;69:652–9.
 29. Kim SC, Quiban C, Sloan C, Montejano A. Predictors of poor mental health among nurses during COVID-19 pandemic. *Nurs Open* 2021;8:900–7.
 30. Hu D, Kong Y, Li W, Han Q, Zhang X, Zhu LX, et al. Frontline nurses' burnout, anxiety, depression, and fear statuses and their associated factors during the COVID-19 outbreak in Wuhan, China: A large-scale cross-sectional study. *EClinicalMedicine* 2020;24:100424.
 31. Galehdar N, Kamran A, Toulabi T, Heydari H. Exploring nurses' experiences of psychological distress during care of patients with COVID-19: A qualitative study. *BMC Psychiatry* 2020;20:489.
 32. Young HM, Fick DM. Public health and ethics intersect at new levels with gerontological nursing in COVID-19 pandemic. *J Gerontol Nurs* 2020;46:4–7.