



Perceived Need for Mental Health Services Among Healthcare Workers During the Coronavirus disease-19 Pandemic in Turkey: A Multicenter Cross-sectional Study

Abdulsamet Sandal¹, Dilek Karadoğan², Tahsin Gökhan Telatar³, Abdurrahman Kotan²,
 Esin Bilgin Konyalıhatipoğlu², Merve Yumrukuz Şenel⁴, Damla Karadeniz Güven⁵,
 Khurshud Hüseynova⁵, Burcu Yalçın⁶, Pelin Asfuroğlu⁷, Tuğba Ramaslı Gürsoy⁷,
 Tuğba Şişmanlar Eyüboğlu⁷, Fatma Gülsüm Karakaş⁸, Neslihan Köse⁹, Kaan Kara¹⁰,
 Selman Çelik¹¹, Ceren İlgar¹², Aycan Yüksel¹², Neşe Merve Güner Zırh², İnci Selimoğlu²,
 Pınar Yıldız Gülhan¹³, Merve Erçelik¹⁴, Ahu Cerit Çakır¹⁵, Nazlı Çetin¹⁶, İlknur Kaya¹⁷,
 Selen Karaoğlanoğlu¹⁸, Feride Marım¹⁷, Ümran Özden Sertçelik¹⁹, Kübra Uyar Er²,
 Neslihan Özçelik², Özlem Ataoğlu²⁰, Ökkeş Gültekin²¹, Aslıhan Banu Er²², Metin Akgün^{23,24}

¹Clinic of Occupational Diseases, Ankara Gazi Mustafa Kemal Occupational and Environmental Diseases Hospital, Ankara, Turkey

²Department of Chest Diseases, Faculty of Medicine, Recep Tayyip Erdoğan University, Rize, Turkey

³Department of Public Health, Faculty of Medicine, Recep Tayyip Erdoğan University, Rize, Turkey

⁴Clinic of Chest Diseases, Balıkesir State Hospital, Balıkesir, Turkey

⁵Department of Chest Diseases, Faculty of Medicine, Hacettepe University, Ankara, Turkey

⁶Clinic of Chest Diseases, Amasya Merzifon Karamustafa Paşa State Hospital, Amasya, Turkey

⁷Department of Pediatric Pulmonology, Faculty of Medicine, Gazi University, Ankara, Turkey

⁸Department of Chest Diseases, Cerrahpaşa Faculty of Medicine, İstanbul University-Cerrahpaşa, İstanbul, Turkey

⁹Clinic of Chest Diseases, Bilecik Training and Research Hospital, Bilecik, Turkey

¹⁰Clinic of Chest Diseases, Yedikule Chest Diseases and Thoracic Surgery Training and Research Hospital, İstanbul, Turkey

¹¹Department of Nursing, Faculty of Health Sciences, Yeditepe University, İstanbul, Turkey

¹²Department of Chest Diseases, Faculty of Medicine, Ufuk University, Ankara, Turkey

¹³Department of Chest Diseases, Faculty of Medicine, Düzce University, Düzce, Turkey

¹⁴Clinic of Chest Diseases, Afyonkarahisar Dinar State Hospital, Afyonkarahisar, Turkey

¹⁵Clinic of Chest Diseases, İstanbul Bahçelievler State Hospital, İstanbul, Turkey

¹⁶Department of Chest Diseases, Faculty of Medicine, Pamukkale University, Denizli, Turkey

¹⁷Department of Chest Diseases, Faculty of Medicine, Kütahya Health Sciences University, Kütahya, Turkey

¹⁸Department of Chest Diseases, Faculty of Medicine, Ordu University, Ordu, Turkey

¹⁹Clinic of Chest Diseases, Ankara City Hospital, Ankara, Turkey

²⁰Clinic of Chest Diseases, Düzce Atatürk State Hospital, Düzce, Turkey

²¹Clinic of Chest Diseases, Erzurum Oltu State Hospital, Erzurum, Turkey

²²Clinic of Chest Diseases, Uşak University Training and Research Hospital, Uşak, Turkey

²³Department of Chest Diseases, Faculty of Medicine, Atatürk University, Erzurum, Turkey

²⁴Department of Chest Diseases, Faculty of Medicine, Ağrı İbrahim Çeçen University, Ağrı, Turkey

Corresponding author: Abdulsamet Sandal, Clinic of Occupational Diseases, Ankara Gazi Mustafa Kemal Occupational and Environmental Diseases Hospital, Ankara, Turkey
e-mail: asandal@hotmail.com.tr

Received: December 05, 2022 Accepted: March 26, 2023 Available Online Date: xxxxxx • DOI: 10.4274/balkanmedj.galenos.2023.2022-12-5

Available at www.balkanmedicaljournal.org

ORCID iDs of the authors: A.S. 0000-0002-9718-7769; D.K. 0000-0001-5321-3964; T.G.T. 0000-0002-3261-3464; A.K. 0000-0002-0113-4399; E.B.K. 0000-0002-4276-5998; M.Y.Ş. 0000-0003-0205-5075; D.K.G. 0000-0002-5050-7147; K.H. 0000-0002-2357-0124; B.Y. 0000-0002-9281-871X; P.A. 0000-0002-9575-3982; T.R.G. 0000-0002-7064-7585; T.Ş.E. 0000-0001-7284-4999; F.G.K. 0000-0003-1887-7989; N.K. 0000-0001-5241-4043; K.K. 0000-0001-5896-2497; S.Ç. 0000-0003-0114-1684; C.İ. 0000-0002-6517-0209; A.Y. 0000-0003-0183-6232; N.M.G.Z. 0000-0001-7173-6961; İ.S. 0000-0001-8628-5315; P.Y.G. 0000-0002-5347-2365; M.E. 0000-0003-4597-7168; A.C.Ç. 0000-0002-9313-9225; N.Ç. 0000-0002-9077-0580; İ.K. 0000-0002-0227-9215; S.K. 0000-0001-9274-6237; F.M. 0000-0002-5677-7842; Ü.Ö.S. 0000-0001-8394-6544; K.U.E. 0000-0001-9730-3419; N.Ö. 0000-0002-4672-6179; Ö.A. 0000-0002-3308-8219; Ö.G. 0000-0001-9753-8744; A.B.E. 0000-0002-7832-6233; M.A. 0000-0003-3404-4274..

Cite this article as:

Sandal A, Karadoğan D, Telatar TG, et al. Perceived Need for Mental Health Services Among Healthcare Workers During the Coronavirus disease-19 Pandemic in Turkey: A Multicenter Cross-sectional Study. *Balkan Med J.*;

Copyright@Author(s) - Available online at <http://balkanmedicaljournal.org/>

Background: The coronavirus disease-2019 pandemic has contributed to work-related psychosocial risks in healthcare workers.

Aims: This study evaluated the perceived need for mental health services and related factors in Turkish healthcare workers practicing in pandemic hospitals.

Study Design: Cross-sectional study.

Methods: Data were collected from face-to-face interviews with healthcare workers at 19 pandemic hospitals in 13 provinces between September and November 2021. The study survey included the evaluation of the perceived need for and utilization of mental health services in the previous year, as well as sociodemographic, health-related, and work-related characteristics, the General Health Questionnaire-12, the World Health Organization Quality of Life-BREF (WHOQoL-BREF) questionnaire, and the Fear of coronavirus disease-2019 scale (FCV-19S).

Results: Of 1,556 participants, 522 (33.5%) reported a perceived need for mental health services, but only 133 (8.5%) reported receiving

these services. Multiple logistic regression analysis of the perceived need for mental health services revealed significant relationships with lower age, female sex, being a current smoker, having a chronic disease, having a mental disorder, coronavirus disease-2019 contact within the last three months in settings other than the home or workplace, a positive coronavirus disease-2019 vaccination history, being a physician, being a non-physician healthcare professional, and coronavirus disease-2019 contact within the last three months at work. After adjustment for these characteristics, higher General Health Questionnaire-12 and FCV-19S scores and lower WHOQoL-BREF domain scores were related to the perceived need for mental health services in logistic regression analyses.

Conclusion: The findings indicate a substantial need for mental health services amongst Turkish healthcare workers during the pandemic and outline participants' characteristics regarding high-priority groups for the intervention. Future research may focus on developing actions and evaluating their efficiency.

INTRODUCTION

The coronavirus disease-2019 (COVID-19) pandemic has impacted workers in many fields, with the health sector being one of the most negatively affected. The occupational risk of viral transmission, the massive demand for health services, and the unavailability of protective measures have led to a work-related psychological burden among healthcare workers (HCWs).¹ Studies showed that mental health problems were more frequently observed in frontline HCWs,² highlighting the importance of mental health services for HCWs during this period.

Several surveys investigated HCWs' use of mental health services during the pandemic. According to a survey conducted in the United States (U.S.), 13% of 1,327 HCWs received mental health services, while 18% did not use needed services.³ Another online survey of 1,119 HCWs from the U.S. revealed a similar unmet need in 39% of HCWs and 45% of the nurse subgroup.⁴ A study from Pakistan revealed that only 9.9% of 1,094 HCWs received counseling or psychotherapy despite 82.2% utilizing online psychological resources.⁵ These results address the imbalance between needing and receiving mental health services among HCWs.

Studies on predictors of requiring and utilizing mental health services during emergency states are relatively scarce.⁶ Although psychological health status is the primary determinant,⁷ recent findings highlight a decrease in mental health service use even in patients with a previous diagnosis of mental disorders during the pandemic.⁸ Thus, additional factors, including sociodemographic characteristics, physical health and COVID-19 history, social relationships, and environmental conditions, may have a role.⁶ Regarding HCWs, exposure to occupational COVID-19 risks and the resulting anxiety and fear may also contribute to the

situation. Besides features related to requiring mental health services, some characteristics may also serve as barriers or be altered by needing and/or utilizing mental health services. This complex nature requires a comprehensive multifactorial assessment.

Frontline HCWs have been investigated since the early days of the pandemic as they are a high-risk group for infection. In addition to sociodemographic, health-related, and work-related features, the psychosocial status and dimensions of the quality of life of HCWs have been evaluated using various well-established scales.⁹ Moreover, new tools have been developed to assess fear and anxiety related to COVID-19.¹⁰ As mentioned above, HCW parameters may be analyzed to determine their relationship with the need for and utilization of mental health services. Such an analysis may also determine high-priority groups for future interventions in terms of mental health services for HCWs.

According to 2020 statistics, the total number of HCWs exceeded 1.1 million in Turkey.¹¹ Turkish HCWs practicing at dedicated pandemic hospitals, where both suspected and confirmed COVID-19 cases were managed,¹² encountered psychological risks due to COVID-19. A single-center Turkish study with 435 HCWs reported that 18.6% of participants received mental support during the pandemic.¹³ However, wide-scale studies investigating the need for mental health services among Turkish HCWs during the pandemic are lacking. Therefore, this study aimed to evaluate the perceived need for mental health services and related factors in HCWs practicing in pandemic hospitals in Turkey. The research questions were: (1) what is the prevalence of the perceived need for mental health services among HCWs practicing in pandemic hospitals in Turkey, (2) which sociodemographic, health-related, and work-related factors are related to the perceived need for mental health services, and (3) are mental health status, quality of life, and COVID-19 fear related to the perceived need for mental health services?

MATERIAL AND METHODS

Study Design and Setting

This work was a multicenter cross-sectional study. Of 1,004 pandemic hospitals located in 81 provinces of Turkey,¹² the study was conducted in 19 pandemic hospitals located in 13 provinces where the researchers practiced (Figure 1). The study data were collected between September 27, 2021, and November 11, 2021. The Strengthening the Reporting of Observational Studies in Epidemiology guidelines for reporting cross-sectional studies¹⁴ were followed, and the related checklist is presented in Appendix 1.

Participants

The inclusion criterion was being an HCW practicing in one of the 19 study centers as of September 27, 2021. We excluded HCWs who started practicing after March 11, 2020 and those who did not respond regarding the need for and utilization of mental health services.

Variables and Data Source

The data collection comprised face-to-face interviews by the researchers, who are members of the Turkish Thoracic Society's Early Career Task Force. Each of the 31 researchers in charge of the data collection interviewed approximately 50 participants.

A survey was used to collect data and consisted of four sections as follows:

Socio-demographic, health-related, and work-related factors:

This 22-item section included questions on participants' year of birth, sex, marital status, household size, status concerning any dependents, occupation, total duration of work as an HCW, duration of work in the current institution, department within the last three months, tobacco use status, chronic diseases, mental disorders, history of COVID-19 contact, history of severe acute respiratory syndrome coronavirus-2 polymerase chain reaction (PCR) test, COVID-19 history, and history of vaccination against COVID-19. Moreover, participants were asked if they needed and utilized mental health services within the last year.

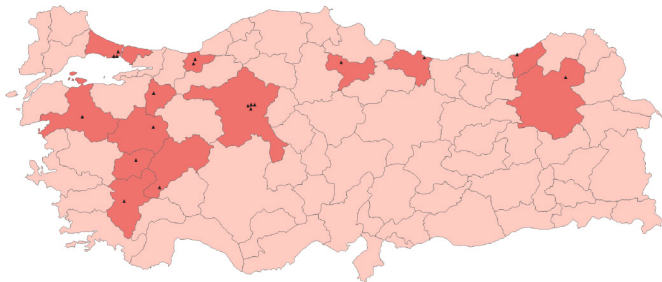


FIG. 1. The map of Turkey showing the location of study centers as triangles (The figure was generated using the Tableau Desktop software package v.2021.4.4 and OpenStreetMap geodata, <https://www.openstreetmap.org>).

General Health Questionnaire-12: The General Health Questionnaire (GHQ) is an instrument that aims to reveal mental disorders in general health settings and obtains information regarding mental symptoms over the past few weeks.¹⁵ There are several versions of the questionnaire, and in this study, the researchers used the 12-item version (GHQ-12), which was translated into Turkish and validated by Kilic et al.¹⁶ Each item has four options (i.e., 0, 1, 2, or 3), and the total score ranges between 0 and 36. The higher the score, the poorer the person's mental health. Regarding internal consistency, Cronbach's alpha coefficient from the current study was 0.889.

WHO Quality of Life-BREF Turkish Version: This scale is an abbreviated version of the original 100-item scale, both developed by the WHO Quality of Life (WHOQOL) Group for assessing the quality of life.¹⁷ Eser et al.¹⁸ validated the Turkish translation of the scale (WHOQoL-BREF), which contains 27 items with five options scored 1 to 5. Except for the initial two items, each item belongs to one of four domains, namely physical health, psychological health, social relationships, and environmental health. The national item (27th item) is evaluated in the environmental domain. The mean score for each domain is multiplied by 4 to obtain a score of 4-20. Low scores are associated with a poor quality of life. The internal consistency coefficient (Cronbach's alpha) from the current investigation was 0.912.

Fear of COVID-19 scale: This 7-item scale, developed by Ahorsu et al.,¹⁰ aims to measure the fear levels of individuals due to COVID-19. The validity and reliability of the Turkish version have been demonstrated.¹⁹ Each item includes five options ranging from "strongly disagree" to "strongly agree." The final score (range 7-35) correlates with the fear of COVID-19. In this research, Cronbach's alpha coefficient was 0.892.

Study Size

The sample size was calculated with StatCalc from Epi Info v.7.2.4.0 (Centers for Disease Control, Atlanta, GA, USA). Following the assumptions of an error margin of 3%, an expected frequency of 18.6% based on an earlier Turkish study,¹³ and a total target population of 1,142,469,¹¹ the required sample size was 646 participants. Our final sample included 1,556 HCWs.

Statistical Analysis

Descriptive statistics are shown as numbers and percentages for categorical variables. The normality of the distribution of the continuous variables was analyzed using the Kolmogorov-Smirnov test, and medians with interquartile range values were given accordingly. The internal consistency of the GHQ-12, WHOQoL-BREF, and FCV-19S scores was assessed by Cronbach's alpha coefficient. Comparisons were performed according to the perceived need for mental health services within the study population and the utilization of mental health services among those who reported that they required them. The Mann-Whitney U test was used for continuous variables, and the chi-square test and Fisher's exact test were used for categorical variables. The associations between the participants' characteristics and perceived need for mental health

services were further evaluated by unadjusted and multiple logistic regression models. Lastly, the relationship between survey scores and the perceived need for mental health services was analyzed using logistic regression models with adjustment for participants' characteristics that remained significant after multiple regression analysis. The odds ratio (OR) and 95% confidence interval (CI) values were calculated. For all comparisons, the level of statistical significance was set at $p < 0.05$. The statistical analyses were performed using SPSS for Windows v.22.0 (IBM Corp., Armonk, NY, USA).

Ethics

The present research was conducted in accordance with the principles of the Declaration of Helsinki. The study protocol was approved by the Non-interventional Clinical Research Ethics Committee of the Recep Tayyip Erdoğan University (decision date: August 19, 2021; decision number: 2021/148).

RESULTS

The study included 1,556 HCWs (Figure 2); 522 (33.5%) HCWs reported needing mental health services in the previous year, but only 133 (8.5%) reported that they received these services. Table 1 compares participants' characteristics according to their perceived need for mental health services. Age, sex, smoking status, presence of chronic disease, presence of mental disorder, COVID-19 contact within the last three months in locations other than home or work, history of COVID-19 PCR test, history of vaccination against COVID-19, occupation, history of working in inpatient clinics within the last three months, and COVID-19 contact within last three months at work were significantly related to the perceived need for mental health services. However, having a mental disorder and a history of COVID-19 were the only significant characteristics regarding the utilization of mental health services among HCWs who reported needing mental health services (Appendix 2).

The GHQ-12, WHOQoL-BREF domain, and FCV-19S scores were compared according to the perceived need for mental health services (Table 2). A statistically significant difference was observed for all survey scores ($p < 0.001$). The median GHQ-12 and FCV-19S scores were higher in HCWs who reported needing mental health services (indicating poorer mental health and a higher level of COVID-19 fear, respectively), but lower scores were calculated for

the WHOQoL-BREF domains (indicating poorer quality of life). The comparison of survey scores according to the utilization of mental health services among participants who needed these services, also shown in Appendix 2, revealed a significant difference in GHQ-12 ($p = 0.046$) and the environmental health domain of WHOQoL-BREF ($p = 0.003$). HCWs who utilized mental health services showed a lower median GHQ-12 score but a higher median score for the environmental health domain of WHOQoL-BREF.

Table 3 shows univariate and multiple logistic regression analyses for the perceived need for mental health services. The multiple logistic regression model revealed a statistically significant relationship with age (OR: 0.98, 95% CI 0.97-0.99, $p = 0.010$), female sex (OR: 2.21, 95% CI: 1.68-2.92, $p < 0.001$), being a current smoker (OR: 1.77, 95% CI: 1.35-2.32, $p < 0.001$), chronic disease (OR: 1.58, 95% CI: 1.13-2.20, $p = 0.007$), mental disorder (OR: 9.98, 95% CI: 5.07-19.63, $p < 0.001$), COVID-19 contact within the last three months in locations other than home or work (OR: 1.80, 95% CI: 1.08-3.00, $p = 0.025$), history of vaccination against COVID-19 (OR: 2.03, 95% CI: 1.10-3.74, $p = 0.023$), being a non-physician healthcare professional (OR: 1.60, 95% CI: 1.17-2.19, $p = 0.006$), being a physician (OR: 1.82, 95% CI: 1.26-2.62, $p = 0.001$), and COVID-19 contact within the last three months at work (OR 1.63, 95% CI 1.27-2.10, $p < 0.001$).

The results of the logistic regression analyses of the GHQ-12, WHOQoL-BREF domain, and FCV-19S scores for the need for mental health support are presented in Table 4. The significant relationship in the crude analysis persisted after adjusting for participants' characteristics ($p < 0.001$) that were statistically significant in the multiple regression analysis. The adjusted ORs for every 1-point increase on the survey score were: 1.15 (95% CI 1.12-1.17) for GHQ-12; 0.83 (95% CI 0.79-0.87) for physical health; 0.81 (95% CI 0.77-0.85) for psychological health; 0.89 (95% CI 0.85-0.93) for social relationships; 0.86 (95% CI 0.82-0.90) for the environmental health domain of WHOQoL-BREF; and 1.04 (95% CI 1.02-1.06) for FCV-19S.

DISCUSSION

This study evaluated the perceived need for mental health services and related factors in Turkish HCWs practicing in pandemic hospitals. To our knowledge, this is the first multicenter cross-sectional study conducted during the second year of the pandemic in Turkey on this topic, with data acquired via face-to-face interviews with HCWs. We observed that over one-third of the 1,556 participants reported needing mental health services in the previous year, but only 8.5% reported utilizing these services. However, the actual number of HCWs needing mental health support may be much higher due to the hesitancy caused by other immediate concerns, including physical rest or obtaining required personal protectors.²⁰ Thus, the perceived need for mental health services may be a marker for prioritizing a comprehensive surveillance plan for the mental well-being of HCWs. HCWs who declare their need for such services may be willing to participate in future mental health and well-being interventions.

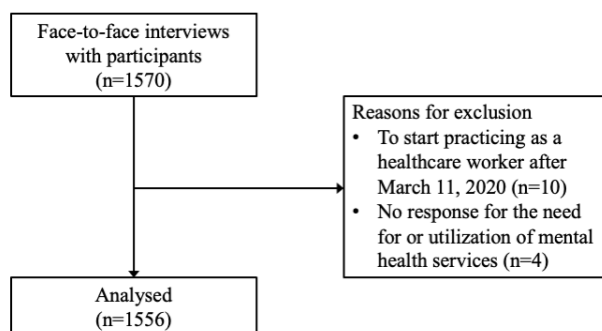


FIG. 2. Flowchart of the study.

TABLE 1. Comparison of Characteristics According to the Perceived Need for Mental Health Services

Variable	Total (N = 1,556)	Not needed (N = 1,034)	Needed (N = 522)	<i>p</i> -value
Age, y				0.016 †
Median	32.0	33.0	31.0	
IQR	27.0-40.0	27.0-40.0	27.0-39.0	
Sex, n (%)				< 0.001 ‡
Male	462 (29.7)	352 (34.0)	110 (21.1)	
Female	1094 (70.3)	682 (66.0)	412 (78.9)	
Civil status, n (%)				0.096‡
Single/divorced/separated	549 (35.3)	350 (33.8)	199 (38.1)	
Married/partnered	1007 (64.7)	684 (66.2)	323 (61.9)	
Household size, n (%)				0.190‡
1	282 (18.1)	178 (17.2)	104 (19.9)	
≥2	1274 (81.9)	856 (82.8)	418 (80.1)	
Having dependent family member(s), n (%)	711 (45.7)	475 (45.9)	236 (45.2)	0.786‡
Smoking status, n (%)				0.021 ‡
Never smoker	1001 (64.3)	688 (66.5)	313 (60.0)	
Ex-smoker	166 (10.7)	109 (10.5)	57 (10.9)	
Current smoker	389 (25.0)	237 (22.9)	152 (29.1)	
Any chronic disease, n (%)	209 (13.4)	120 (11.6)	89 (17.0)	0.003 ‡
Any mental disorder, n (%)	64 (4.1)	11 (1.1)	53 (10.2)	< 0.001 ‡
COVID-19 contact within the last three months at home, n (%)	131 (8.4)	80 (7.7)	51 (9.8)	0.173‡
COVID-19 contact within the last three months in locations other than home or work, n (%)	71 (4.6)	39 (3.8)	32 (6.1)	0.035 ‡
Any history of COVID-19 PCR test, n (%)	1393 (89.5)	913 (88.3)	486 (93.1)	0.003 ‡
Any history of COVID-19, n (%)	542 (34.8)	352 (34.0)	190 (36.4)	0.357‡
Any vaccination history against COVID-19, n (%)	1481 (95.2)	976 (94.4)	505 (96.7)	0.041 ‡
Total work duration as an HCW, y				0.315†
Median	8.0	8.0	7.0	
IQR	3.0-15.0	3.0-15.0	3.0-14.0	
Occupation, n (%)				< 0.001 ‡
Office worker	385 (24.7)	297 (28.7)	88 (16.9)	
Non-physician healthcare professional	733 (47.1)	466 (45.1)	267 (51.1)	
Physician	438 (28.1)	271 (26.2)	167 (32.0)	
History of working within the last three months in the related department, n (%)				
Emergency room	273 (17.5)	171 (16.5)	102 (19.5)	0.141‡
Outpatient clinic	582 (37.4)	390 (37.7)	192 (36.8)	0.719‡
Inpatient clinic	855 (54.9)	533 (51.5)	322 (61.7)	< 0.001 ‡
Intensive care unit	251 (16.1)	155 (15.0)	96 (18.4)	0.085‡
Surgery room	94 (6.0)	62 (6.0)	32 (6.1)	0.916‡
COVID-19 contact within the last three months at work, n (%)	922 (59.3)	562 (54.4)	360 (69.0)	< 0.001 ‡

Bold *p*-values indicate statistical significance.

†Mann-Whitney U test

‡Chi-square

COVID-19, Coronavirus disease 2019; IQR, interquartile range; HCW, healthcare worker; PCR, polymerase chain reaction.

TABLE 2. Comparison of Scale Scores According to the Need for Mental Health Services

Variable	Total (N = 1,556)	Not needed (N = 1,034)	Needed (N = 522)	p-value
GHQ-12				< 0.001†
Median	11.0	10.0	15.0	
IQR	7.0-16.0	6.0-13.0	11.0-20.0	
DOM1				< 0.001†
Median	14.3	14.9	13.1	
IQR	12.1-16.0	12.6-16.6	11.4-14.9	
DOM2				< 0.001†
Median	14.0	14.7	12.7	
IQR	12.0-15.3	12.7-16.0	11.3-14.7	
DOM3				< 0.001†
Median	14.7	14.7	13.3	
IQR	12.0-16.0	12.0-16.0	12.0-14.7	
DOM4				< 0.001†
Median	13.0	13.5	12.5	
IQR	12.0-15.0	12.0-15.0	11.0-14.0	
FCV-19S				< 0.001†
Median	16.0	16.0	17.5	
IQR	13.0-21.0	12.0-20.0	13.0-22.0	

Bold p-values indicate statistical significance.

†Mann-Whitney U test

COVID-19, coronavirus disease 2019; FCV-19S, Fear of COVID-19 scale, GHQ-12, General Health Questionnaire-12; IQR, interquartile range. Domain scores of the World Health Organization Quality of Life (WHOQoL)-BREF instrument were abbreviated as DOM1 for physical health, DOM2 for psychological health, DOM3 for social relationships, and DOM4 for environmental health.

TABLE 3. Unadjusted and Multiple Logistic Regression Analyses for the Perceived Need for Mental Health Support

Variable	Unadjusted		Multiple	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Age (1-year increase)	0.98 (0.97-0.99)	0.012	0.98 (0.97-0.99)	0.010
Female sex	1.93 (1.51-2.47)	< 0.001	2.21 (1.68-2.92)	< 0.001
Smoking status†				
Ex-smoker	1.15 (0.81-1.63)	0.432	1.41 (0.96-2.07)	0.097
Current smoker	1.41 (1.11-1.80)	0.006	1.77 (1.35-2.32)	< 0.001
Any chronic disease	1.57 (1.16-2.11)	0.003	1.58 (1.13-2.20)	0.007
Any mental disorder	10.51 (5.44-20.30)	< 0.001	9.98 (5.07-19.63)	< 0.001
COVID-19 contact within the last three months in locations other than home or work	1.67 (1.03-2.69)	0.037	1.80 (1.08-3.00)	0.025
Any history of PCR test	1.79 (1.21-2.64)	0.003	1.39 (0.92-2.09)	0.114
COVID-19 vaccination history	1.77 (1.02-3.06)	0.043	2.03 (1.10-3.74)	0.023
Occupation‡				
Non-physician healthcare professional	1.93 (1.46-2.56)	< 0.001	1.60 (1.17-2.19)	0.006
Physician	2.08 (1.53-2.83)	< 0.001	1.82 (1.26-2.62)	0.001
Working in the inpatient department within the last three months	1.51 (1.22-1.88)	< 0.001	1.16 (0.91-1.47)	0.236
COVID-19 contact within the last three months at work	1.87 (1.50-2.33)	< 0.001	1.63 (1.27-2.10)	< 0.001

Bold p-values indicate statistical significance.

†Never smoker was designated as the reference

‡Office worker was designated as the reference

CI, confidence interval; COVID-19, coronavirus disease 2019; OR, odds ratio; PCR, polymerase chain reaction

TABLE 4. Unadjusted and Adjusted Logistic Regression Analyses of the GHQ-12, WHOQoL-BREF Domains, and FCV-19S Scores Regarding the Need for Mental Health Support

Variable	Unadjusted		Adjusted	
	OR (95% CI)	p-value	OR (95% CI)	p-value
GHQ-12	1.16 (1.14-1.19)	< 0.001	1.15 (1.12-1.17)	< 0.001
DOM1	0.80 (0.76-0.83)	< 0.001	0.83 (0.79-0.87)	< 0.001
DOM2	0.77 (0.74-0.81)	< 0.001	0.81 (0.77-0.85)	< 0.001
DOM3	0.87 (0.84-0.90)	< 0.001	0.89 (0.85-0.93)	< 0.001
DOM4	0.84 (0.80-0.88)	< 0.001	0.86 (0.82-0.90)	< 0.001
FCV-19S	1.04 (1.02-1.06)	< 0.001	1.04 (1.02-1.06)	< 0.001

CI, confidence interval; COVID-19, coronavirus disease 2019; FCV-19S, Fear of COVID-19 scale; GHQ-12, General Health Questionnaire-12; OR, odds ratio. Domain scores of the World Health Organization Quality of Life (WHOQoL)-BREF instrument were abbreviated as DOM1 for physical health, DOM2 for psychological health, DOM3 for social relationships, and DOM4 for environmental health.

The ORs were calculated for every 1-point increase in the survey score. Adjustments were performed for age, sex, smoking status, presence of any chronic disease, presence of any mental disorder, COVID-19 contact within the last three months outside of home or work, COVID-19 vaccination history, occupation, and COVID-19 contact within the last three months at the workplace.

The effects of the COVID-19 pandemic on the need for and utilization of mental health services have been a research topic for distinct populations. The prevalence of the perceived need for mental health services among U.S. adults was 21%, and the need was related to a history of pre-pandemic mental disorder.⁷ However, a higher percentage of HCWs declared their need for mental health services in investigations, including the current study.^{3-5,13} This may result from a higher pre-pandemic need for mental health services and occupational risks, including COVID-19 contact history shown in our study, which HCWs have faced since the beginning of the pandemic.

Our results demonstrated that sociodemographic and health-related characteristics were related to the perceived need for mental health services in HCWs. Although the present study showed an inverse relationship with advancing age, conflicting results indicate a higher²¹ or lower²² needs for mental health services in the elderly. As in our study, women were more likely to have a perceived need for mental health services.²³ The relationship between smoking and mental disorders is considered mutually detrimental due to the higher prevalence of these disorders among smokers and the difficulty of smoking cessation in patients with mental health problems.²⁴ Similar to our results, a study showed that patients with chronic diseases or mental disorders had a higher need for mental health services.²⁵

In our study, several work-related characteristics were related to the perceived need for mental health services, including being a non-physician healthcare professional, physician, or worker in the inpatient department within the last three months. As already noted, an online survey from the U.S. showed a higher unmet need for mental health services in the nurse subgroup.⁴ A meta-review of HCWs' mental health during the COVID-19 pandemic demonstrated that nurses and doctors had the highest risk of mental health problems.²⁶ The department where an HCW worked was also related to mental health results.²⁷ Together with sociodemographic and health-related characteristics, analysis of work-related factors may reveal the groups needing a specific approach to their mental health and provide data for developing support programs.

The results showed that higher GHQ-12 and FCV-19S scores, representing poor mental health and high level of COVID-19 fear, respectively, and lower WHOQoL-BREF domain scores, indicating poor quality of life regarding physical health, psychological health, social relationships, and environmental health, were related to the perceived need for mental health services. Mert et al. evaluated the relationship between work conditions related to COVID-19 and the quality of life in Turkish HCWs using WHOQoL-BREF.²⁸ The findings showed a negative correlation between working hours and environmental health scores and between fatigue and physical, psychological, and environmental health scores. Moreover, there was a significant difference in WHOQoL-BREF scores according to the adequacy of protective measures, as significantly lower scores were observed for all domains in binary comparisons. Our findings similarly address a vulnerable group of HCWs with deterioration in their quality of life, which is also related to a need for mental health services.

Mental health problems and poor quality of life are also predictors of mental health service use in the general population.²⁹ Although the current study's findings highlight the need for mental health services in these groups, HCWs who utilized mental health services had lower GHQ-12 scores but higher scores for the environmental health domain of the WHOQoL-BREF. This conflicting result may be related to the wide gap between the need for and use of mental health services, as a majority of HCWs requiring mental health services did not utilize these services. Thus, our findings reveal the need for a systematic evaluation of mental health service use among HCWs during the pandemic in future studies regarding predisposing factors, enabling factors, and needs.³⁰

The present research's strength includes the enrollment of HCWs from centers in a broad range of provinces, data collection via face-to-face interviews, evaluation of various occupational and non-occupational characteristics, and the use of several validated scales and subscale scores related to mental health and quality of life in HCWs. However, our investigation has some limitations. First, the study was conducted in hospitals and provinces where the researchers practiced. Moreover, participants were approached based on ease of contact rather than randomly, although the pre-

calculated sample size was achieved. Neither stratification nor comparison according to occupation was applied, although the analysis of characteristics using multiple regressions may have overcome this limitation. In addition to the intrinsic limitations of studies collecting participant data via surveys, the need for and utilization of mental health services was solely evaluated according to the participant's responses. Thus, our results should be evaluated by considering these issues.

To conclude, the current study demonstrated a perceived need for mental health services in more than one-third of Turkish HCWs practicing in pandemic hospitals, although only 8.5% of participants utilized such services. Our findings highlight the urgency of implementing support programs for HCWs' mental health and well-being, as well as associated surveillance. Future research may focus on identifying high-risk groups and their characteristics, developing interventions to control psychosocial risks in the workplace, and evaluating the efficiency of those interventions.

Ethics Committee Approval: The study protocol was approved by the Non-interventional Clinical Research Ethics Committee of the Recep Tayyip Erdoğan University (decision date: August 19, 2021; decision number: 2021/148).

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request

Author Contributions: Concept- A.S.; Design- A.S., D.K., T.G.T., A.K., E.B.K., M.Y.Ş., D.K.G., K.H., B.Y., P.A., T.R.G., T.Ş.E., F.G.K., N.K., K.K., S.Ç., C.İ., A.Y., N.M.G.Z., İ.S., P.Y.G., M.E., A.C.Ç., N.Ç., İ.K., S.K., F.M., Ü.Ö.S., K.U.E., N.Ö., Ö.A., Ö.G., A.B.E.; Data Collection or Processing- A.S., D.K., T.G.T., A.K., E.B.K., M.Y.Ş., D.K.G., K.H., B.Y., P.A., T.R.G., T.Ş.E., F.G.K., N.K., K.K., S.Ç., C.İ., A.Y., N.M.G.Z., İ.S., P.Y.G., M.E., A.C.Ç., N.Ç., İ.K., S.K., F.M., Ü.Ö.S., K.U.E., N.Ö., Ö.A., Ö.G., A.B.E.; Analysis or Interpretation- A.S., D.K., T.G.T., A.K., E.B.K., M.Y.Ş., D.K.G., K.H., B.Y., P.A., T.R.G., T.Ş.E., F.G.K., N.K., K.K., S.Ç., C.İ., A.Y., N.M.G.Z., İ.S., P.Y.G., M.E., A.C.Ç., N.Ç., İ.K., S.K., F.M., Ü.Ö.S., K.U.E., N.Ö., Ö.A., Ö.G., A.B.E.; Literature Search- M.A.; Critical Review- A.S., D.K., T.G.T., A.K., E.B.K., M.Y.Ş., D.K.G., K.H., B.Y., P.A., T.R.G., T.Ş.E., F.G.K., N.K., K.K., S.Ç., C.İ., A.Y., N.M.G.Z., İ.S., P.Y.G., M.E., A.C.Ç., N.Ç., İ.K., S.K., F.M., Ü.Ö.S., K.U.E., N.Ö., Ö.A., Ö.G., A.B.E.

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

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

REFERENCES

- Javed B, Sarwer A, Soto EB, Mashwani ZU. The coronavirus (COVID-19) pandemic's impact on mental health. *Int J Health Plann Manage*. 2020;35:993-996. [\[CrossRef\]](#)
- Yang X, Chen D, Chen Y, et al. Geographical distribution and prevalence of mental disorders among healthcare workers in China: A cross-sectional country-wide survey: A cross-sectional study to assess mental disorders of healthcare workers in China. *Int J Health Plann Manage*. 2021;36:1561-1574. [\[CrossRef\]](#)
- Kirzinger A, Kearney A, Hamel L, Brodie M. Report of KFF/The Washington Post Frontline Health Care Workers Survey. KFF, 2021 March (cited 2022 November 20). [\[CrossRef\]](#)
- Kuehn BM. New Plans Focus on Health Care Workers' Mental Health. *JAMA*. 2021;326:2465. [\[CrossRef\]](#)
- Hayat K, Arshed M, Fiaz I, et al. Impact of COVID-19 on the Mental Health of Healthcare Workers: A Cross-Sectional Study From Pakistan. *Front Public Health*. 2021;9:603602. [\[CrossRef\]](#)
- Tambling RR, Russell BS, Fendrich M, Park CL. Predictors of Mental Health Help-Seeking During COVID-19: Social Support, Emotion Regulation, and Mental Health Symptoms. *J Behav Health Serv Res*. 2023;50:68-79. [\[CrossRef\]](#)
- Breslau J, North CS, Finucane ML, Roth E, Collins RL. Perceived Need for Mental Health Treatment and the Mental Health Response to the COVID-19 Pandemic in the United States. *Psychiatry*. 2022;85:1-12. [\[CrossRef\]](#)
- McBain RK, Cantor J, Pera MF, Breslau J, Bravata DM, Whaley CM. Mental Health Service Utilization Rates Among Commercially Insured Adults in the US During the First Year of the COVID-19 Pandemic. *JAMA Health Forum*. 2023;4:e224936. [\[CrossRef\]](#)
- Kandula UR, Wake AD. Assessment of Quality of Life Among Health Professionals During COVID-19: Review. *J Multidiscip Healthc*. 2021;14:3571-3585. [\[CrossRef\]](#)
- Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The Fear of COVID-19 Scale: Development and Initial Validation. *Int J Ment Health Addict*. 2022;20:1537-1545. [\[CrossRef\]](#)
- Bora Basara B, Soyutun Çaçlar İ, Aygün A, et al. Health Statistics Yearbook 2020. Republic of Turkey Ministry of Health General Directorate of Health Information Systems. Republic of Turkey Ministry of Health, 2022 (cited 2022 November 20). Available from: <https://sbsgm.saglik.gov.tr/Eklenti/43400/0/siy2020-eng-26052022pdf.pdf>[\[CrossRef\]](#)
- Republic of Turkey Ministry of Culture and Tourism Türkiye Tourism Promotion and Development Agency. COVID-19 Situation Report 2021. Republic of Turkey Ministry of Culture and Tourism, 2021. (cited 2023 February 25). Available from: <https://tga.gov.tr/wp-content/uploads/2021/02/COVID-Situation-Report-EN-1.pdf>[\[CrossRef\]](#)
- Çölkesen F, Çölkesen F. The Effects of COVID-19 Pandemic on the Mental Health of Healthcare Workers and Recommendations for the Prevention of Loss of Work Efficiency. *Erciyes Med J*. 2021;43:560-565. [\[CrossRef\]](#)
- von Elm E, Altman DG, Egger M, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *Lancet*. 2007;370:1453-1457. [\[CrossRef\]](#)
- Goldberg DP, Hillier VF. A scaled version of the General Health Questionnaire. *Psychol Med*. 1979;9:139-145. [\[CrossRef\]](#)
- Kilic C, Rezaki M, Rezaki B, et al. General Health Questionnaire (GHQ12 & GHQ28): psychometric properties and factor structure of the scales in a Turkish primary care sample. *Soc Psychiatry Psychiatr Epidemiol*. 1997;32:327-331. [\[CrossRef\]](#)
- Development of the World Health Organization WHOQOL-BREF quality of life assessment. The WHOQOL Group. *Psychol Med*. 1998;28:551-558. [\[CrossRef\]](#)
- Eser E, Fidaner H, Fidaner C, Eser SY, Elbi H, Göker E. Psychometric features of WHOQOL-100 and WHOQOL-BREF. *Psikiyatri Psikoloji Psikofarmakoloji (3P) Dergisi*. 1999;7:23-40. [\[CrossRef\]](#)
- Satici B, Gocet-Tekin E, Deniz ME, Satici SA. Adaptation of the Fear of COVID-19 Scale: Its Association with Psychological Distress and Life Satisfaction in Turkey. *Int J Ment Health Addict*. 2021;19:1980-1988. [\[CrossRef\]](#)
- Tomlin J, Dalgleish-Warburton B, Lamph G. Psychosocial Support for Healthcare Workers During the COVID-19 Pandemic. *Front Psychol*. 2020;11:1960. [\[CrossRef\]](#)
- Codony M, Alonso J, Almansa J, et al. Perceived need for mental health care and service use among adults in Western Europe: results of the ESEMeD project. *Psychiatr Serv*. 2009;60:1051-1058. [\[CrossRef\]](#)
- Forbes MK, Crome E, Sunderland M, Wuthrich VM. Perceived needs for mental health care and barriers to treatment across age groups. *Aging Ment Health*. 2017;21:1072-1078. [\[CrossRef\]](#)
- Villatoro AP, Mays VM, Ponce NA, Aneshensel CS. Perceived Need for Mental Health Care: The Intersection of Race, Ethnicity, Gender, and Socioeconomic Status. *Soc Ment Health*. 2018;8:1-24. [\[CrossRef\]](#)

24. Yuan S, Yao H, Larsson SC. Associations of cigarette smoking with psychiatric disorders: evidence from a two-sample Mendelian randomization study. *Sci Rep.* 2020;10:13807. [\[CrossRef\]](#)
25. Garrido MM, Kane RL, Kaas M, Kane RA. Perceived need for mental health care among community-dwelling older adults. *J Gerontol B Psychol Sci Soc Sci.* 2009;64:704-712. [\[CrossRef\]](#)
26. Chutiyami M, Cheong AMY, Salihu D, et al. COVID-19 Pandemic and Overall Mental Health of Healthcare Professionals Globally: A Meta-Review of Systematic Reviews. *Front Psychiatry.* 2022;12:804525. [\[CrossRef\]](#)
27. 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. [\[CrossRef\]](#)
28. Mert S, Peker Karatoprak A, Demirhan Y, et al. COVID-19, Anxiety, and Hopelessness: Quality of Life Among Healthcare Workers in Turkey. *Eval Health Prof.* 2022;45:97-107. [\[CrossRef\]](#)
29. Fleury MJ, Ngui AN, Bamvita JM, Grenier G, Caron J. Predictors of healthcare service utilization for mental health reasons. *Int J Environ Res Public Health.* 2014;11:10559-10586. [\[CrossRef\]](#)
30. Lederle M, Tempes J, Bitzer EM. Application of Andersen's behavioural model of health services use: a scoping review with a focus on qualitative health services research. *BMJ Open.* 2021;11:e045018. [\[CrossRef\]](#)