Original Article

Mental Health of Hospital Staff During COVID-19: A Comparative Longitudinal Study

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Abstract

Background: Staff burnout was a major challenge for healthcare systems globally during the COVID-19 pandemic. In this regard, this study aimed to examine the mental health status of employees in two hospitals: one that admitted patients with COVID-19 (COVID-19 hospital) and another that did not admit such patients (non-COVID-19 hospital). **Materials and Methods:** This multistage case-control study was conducted on 1241 participants who were selected using the census sampling method. The participants completed the Symptom Checklist 25 and a demographic checklist, along with the assessment of other relevant variables. Data collection occurred at 3 (June 2020), 6 (September 2020), and 9 (December 2020) months following the COVID-19 outbreak. The data were analyzed in using the Kruskal–Wallis and Mann–Whitney tests for statistical analysis. **Results:** Among the 300 staff members at the COVID-19 hospital, 187 (62%), 73 (24%), and 40 (13%) members were medical, nonmedical, and administrative staff, respectively. At the non-COVID-19 hospital, out of 300 staff members, 235 (78%), 53 (18%), and 12 (4%) members were medical, nonmedical, and administrative staff, respectively. The staff at the COVID-19 hospital showed higher total SCL-25 scores, compared to those at the non-COVID-19 hospital. Despite an overall upward trend in psychiatric disorders in both groups, significant differences were observed at 6 months ($p = 0.02$) and 9 months ($p < 0.001$) following the outbreak. **Conclusions:** The staff at the COVID-19 hospital were at a higher risk of developing mental health disorders. The mental health status of employees at both hospitals evolved over time.

Keywords: *COVID-19, hospital personnel, mental health*

Introduction

In December 2019, a novel viral disease was first identified in a seafood market in Wuhan, China.[1,2] The World Health Organization officially named it Coronavirus Disease 2019 (COVID-19) in February 2020.[3] Approximately 1 month after the first confirmed case, COVID-19 was declared the pandemic of the century.[4,5] Iran was also affected by the virus and still continues to battle its impacts.[6]

The high spread and mortality rate of COVID-19 caused tremendous psychological stress in communities.[4,7] This disease poses a unique threat to the mental health status of different individuals, including patients, health personnel, families, children, students, and psychiatric patients.[8,9] Health personnel were the first to be exposed to the virus and are at a greater risk of infection and mental health problems, compared to the general population.[10-16]

Prioritization of physical health over mental health in viral outbreaks may increase the risk of developing various mental illnesses.[17,18] A study performed on healthcare staff during the Severe Acute Respiratory Syndrome (SARS) outbreak revealed that their social functioning and mental health status were at their lowest level even 3 years after the end of the epidemic.[19] Mental symptoms may have a more serious impact on the community, compared to the infection itself.[20,21] Accordingly, damage to public health and burnout of medical staff can lead to a waste of capital and reduced productivity, performance, and goal achievement.[18,22,23]

Many studies have investigated the mental health of hospital staff during the COVID-19 pandemic. However, the authors of the present study did not find any research that simultaneously examined the effects of time and the admission or

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nonadmission of COVID-19 patients on the mental health of hospital staff.

The mental and behavioral reactions of humans to new threatening conditions change with the passage of time and the activation of coping mechanisms. In this regard, the present study aimed to achieve a pattern of adaptation and change in the attitudes, emotions, behaviors, and the mental health status of a COVID-19 and non-COVID-19 hospital at 3, 6, and 9 months following the outbreak of COVID-19 in Isfahan, Iran, in 2020. The goal was to create a profile of possible changes in the psychological state of hospital staff over time after the start of a viral pandemic.

Materials and Methods

This prospective longitudinal study was conducted using a census sampling method from January 2020 to July 2021. It focused on all medical staff, excluding physicians, who worked at Khorshid (COVID-19 hospital) and Imam Hossein Hospitals (non-COVID-19 hospital) in Isfahan, Iran. Participants were examined at three intervals, namely, 3, 6, and 9 months after contracting COVID-19, in January 2020, September 2021, and July 2021. The hospital staff were categorized into medical, nonmedical, and administrative groups.

A census sampling method was utilized, with all personnel invited to participate, and those who agreed were provided with a questionnaire. In total, 231, 193, and 203 staff of Imam Hossein Hospital and 186, 196, and 232 staff of Khorshid Hospital participated in this study at the first, second, and third times, respectively. The total number of participants in this study was 1241.

Data were collected using the Symptom Checklist 25 (SCL-25) questionnaire and a demographic characteristics checklist, which included age, gender, medical specialty, education, marital status, number of children, and job type. The SCL-25 is a short form of SCL-90 that contains the eight main dimensions of Mental Health Status, including somatization, obsession-compulsion, interpersonal sensitivity, and phobia (three statements for each of them), depression (two statements), anxiety (six statements), paranoid thought (one statement), and neuroticism (four statements) with one statement of Additional Items without hostility dimension. The SCL-25 items were rated on a five-point Likert scale ranging from 1 to 5, indicating the severity of symptoms.[24] Previous studies performed by Strand *et al*.[24] and Najarian and Davoudi (2001) highlighted the validity and reliability of the SCL-25 questionnaire.[25]

The inclusion criteria for the present study were working in a hospital in various roles, including nurses, administrative personnel, laboratory staff, and other related positions. However, the exclusion criteria were being a physician (due to their daily contact with patients suffering from COVID-19 beyond the hospital wards in the office and outpatient clinics, as their workplace is not limited to hospital wards) and submitting incomplete questionnaires. Data analysis was conducted in SPSS software (Version 19) using Mann–Whitney and Kruskal–Wallis tests for comparisons between hospitals and demographic variables.

Ethical considerations

Study participants gave their consent to participate in the study in person and verbally. This study was approved by the Research Ethics Committee of Isfahan University of Medical Sciences, Isfahan, Iran (IR.MUI.MED.REC.1399.261).

Results

In total, 1241 hospital staff consented to participate in this study and completed the questionnaire. It should be mentioned that none of the participants were excluded from the study. During the first 3 months, using the Mann–Whitney test, a significant difference was found between the two groups in terms of obsession-compulsion ($p = 0.02$), anxiety ($p = 0.01$), paranoid ($p < 0.001$), psychosis ($p < 0.001$), and additional items subscales ($p = 0.02$). Healthcare workers with direct contact with COVID-19 patients had higher scores in these subscales.

Six months after the COVID-19 outbreak, no significant differences were observed between the healthcare workers in contact with COVID-19 patients and those with little or no contact in any of the subscales.

However, 9 months after the outbreak, there was a significant difference between the two staff groups across all SCL-25 subscales, except for obsession-compulsion ($p = 0.06$) and paranoia ($p = 0.06$). At this point, healthcare workers with indirect contact with patients scored higher across all subscales. Table 1 summarizes the distribution of demographic variables and the distribution of participants in medical, nonmedical, and administrative wards in both hospitals.

The mean scores of the SCL-25 questionnaire are tabulated in Table 2. According to the studied demographic variables, the results are presented without considering the time interval. Moreover, Table 3 shows the mean scores on the SCL-25 subscales between groups at 3, 6, and 9 months following the onset of COVID-19. In addition, Table 4 summarizes the mean scores of different subscales of the SCL-25 questionnaire in the COVID-19 hospital, which were compared between two groups: those with direct and those with indirect exposure to COVID-19 patients, over the three time intervals.

Discussion

This study compared the mental health status of the staff working at Khorshid Hospital (COVID-19 hospital) with that of the staff working at Imam Hossein Hospital (non-COVID-19 hospital) at 3, 6, and 9 months after the outbreak of COVID-19 in Isfahan, Iran.

Table 1: Distribution of demographic variables and the distribution of participants in medical, nonmedical, and administrative wards in both hospitals

Variable	Study time	Non-COVID-19 hospital			COVID-19 hospital		
		Third month	Sixth month	Ninth month	Third month	Sixth month	Ninth month
Gender	Female	148	143	161	77	71	112
	Male	55	50	70	119	115	120
Age	<30	63	56	69	50	42	78
	30–39	111	98	109	89	74	108
	40–49	28	35	48	42	48	38
	>50	1	4	5	15	22	8
Education	Below high school	0	3	1	9	9	2
	High school or undergraduate	189	177	187	171	157	206
	Graduate or higher	10	12	14	9	20	21
Marital status	Single	123	130	149	151	145	152
	Married	80	63	82	45	41	80
Number of children	No child	104	85	114	90	74	128
	One or two children	94	99	106	93	85	95
	Three or more children	5	9	11	13	27	9
Hospital department	Medical	162	153	184	128	105	145
	Non-medical	29	28	38	38	47	64
	Administrative	12	12	9	30	34	23

Table 2: Comparison of the mean total Symptom Checklist 25 (SCL-25) scores across the entire study population, based on various demographic factors

	Domain	*SCL-25 total score Mean (SD)	*p*
Male	Gender	14.28 (15.77)	0.215
Female		13.85 (13.60)	
Age <30	Age	14.88 (14.55)	0.056
30–39		13.19 (13.77)	
40–49		13.15 (14.39)	
Age >50		21.36 (20.45)	
Below high school	Education	7.00 (13.20)	0.001
High school or undergraduate		14.24 (14.82)	
Graduate or higher		14.23 (13.03)	
Married	Marital status	13.43 (14.56)	0.003
Single		15.33 (14.49)	
Yes	History of mental disorder	23.77 (18.82)	0.000
No		13.64 (14.23)	
Yes	History of COVID-19 infection	17.95 (15.99)	0.000
No		12.80 (13.86)	
Yes	History of relatives or colleagues with COVID-19 infection	14.87 (14.83)	0.000
No		11.56 (13.43)	
Yes	Death of relatives or colleagues due to COVID-19	22.98 (17.74)	0.000

*Symptom Checklist 25

The healthcare staff working at the hospital where the COVID-19 patients were admitted obtained higher total scores in SCL-25 at 6 and 9 months after the COVID-19 outbreak compared to others. In general, the presence of COVID-19 patients in the hospital was a risk factor for increasing the incidence of psychiatric symptoms in the hospital staff.

The staff who had direct exposure to patients afflicted with COVID-19 (such as nurses) had significantly higher total scores of SCL-25 in the third month, compared to those without direct exposure (such as administrative personnel). However, the difference was not significant in the sixth month. In the ninth month after the COVID-19 outbreak, the staff without direct exposure had significantly higher total scores of SCL-25, compared to those with direct exposure. A high level of education, being single, a history of psychiatric disorders, a history of COVID-19 infection in the staff or their colleagues, and the loss of relatives or

Table 3: Mean scores of the groups in the Symptom Checklist 25 (SCL-25) subscales at 3, 6, and 9 months after the onset of COVID-19

SCL-25 subscales		*Som	**O-C	***IP	****Dep	*****Anx	$Pho	$$Par	$$$Psy	$$$$Add	Total
Time	Hospital	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Third month	COVID-19 hospital	3.13 (10.97)	1.6 (0.84)	1.41 (1.28)	0.97 (0.53)	1.48 (1.55)	1.25 (1.84)	0.23 (1.37)	0.75 (1.78)	0.41 (1.93)	11.27 (3.12)
	Non-COVID-19 hospital	2.64 (3.25)	1.39 (2.0)1	1.55 (1.98)	1.22 (1.69)	1.42 (1.95)	1.54 (1.89)	0.32 (0.82)	0.56 (1.16)	0.36 (0.79)	11.04 (11.08)
	Sig.	0.029	0.106	0.581	0.146	0.379	0.223	0.978	0.038	0.491	0.780
Sixth month	COVID-19 hospital	5.28 (5.19)	2.8 (2.88)	2.88 (2.78)	1.87 (2.01)	2.74 (2.9)	2.62 (2.69)	0.85 (1.17)	1.99 (2.60)	0.66 (1.04)	21.57 (19.92)
	Non-COVID-19 hospital	3.4 (3.63)	1.96 (2.3)	2.01 (2.16)	1.37 (1.49)	1.94 (2.11)	2.16 (2.26)	0.48 (0.87)	0.83 (1.51)	0.29 (0.71)	14.49 (13.11)
	Sig.	0.004	0.014	0.010	0.05	0.05	0.223	0.002	0.000	0.000	0.019
Ninth month	COVID-19 hospital	4.33 (4.76)	2.31 (2.6)	2.07 (2.47)	1.35 (1.63)	2.09 (2.51)	1.62.35	0.53 (1)	1.25 (1.92)	0.64 (1.05)	16.21 (16.85)
	Non-COVID-19 hospital	2.74 (3.19)	1.8 (2.17)	1.51 (1.86)	0.99 (1.29)	1.2 (1.72)	1.03 (1.55)	0.26 (0.70)	0.51 (1.07)	0.32 (0.59)	10.39 (10.38)
	Sig.	0.003	0.068	0.061	0.035	0.000	0.062	0.001	0.000	0.006	0.003

*somatization, **obsession-compulsion, ***interpersonal sensitivity, ****depression, *****anxiety, $ phobia, $$paranoia, $$$psychosis, $$$$additional items

Table 4: Comparison of the mean scores of different subscales of the Symptom Checklist 25 in the COVID-19 hospital between the two groups with direct and indirect exposure to COVID-19 patients over time

Domain		*Som	**O-C	***IP	****Dep	*****Anx	$Pho	$$Par	$$$Psy	$$$$Add	Total
Time	Direct exposure	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
3		11.88 (11.41)	0.46 (0.87)	0.84 (1.36)	0.28 (0.56)	1.28 (1.56)	1.60 (1.87)	1.00±1.39	1.45 (1.84)	1.74 (1.98)	3.21 (3.15)
	Indirect exposure	7.90 (7.31)	0.16 (0.59)	0.23 (0.50)	0.06 (0.25)	1.06 (1.48)	0.83 (1.48)	0.80 (1.32)	1.20±1.42	0.86 (1.50)	2.66 (2.95)
	p	0.01	0.02	0.00	0.00	0.48	0.01	0.45	0.46	0.02	0.37
6	Direct exposure	21.34 (19.63)	0.69 (1.07)	1.98 (2.60)	0.89 (1.21)	2.44 (2.52)	2.75 (2.89)	1.82 (2.00)	2.93 (2.84)	2.77 (2.93)	5.24 (5.09)
	Indirect exposure	22.61 (21.43)	0.52 (0.89)	2.02 (2.63)	0.70 (1.00)	3.44 (3.27)	2.70 (2.98)	2.11 (2.02)	2.67 (2.50)	2.94 (2.71)	5.47 (5.68)
	p	0.73	0.41	0.93	0.40	0.10	0.93	0.44	0.62	0.75	0.81
9	Direct exposure	14.89 (15.96)	0.57 (0.99)	1.13 (1.77)	0.49 (0.96)	1.46 (2.22)	1.96 (2.40)	1.23 (1.50)	1.89 (2.31)	2.18 (2.51)	3.93 (4.54)
	Indirect exposure	28.30 (20.07)	1.26 (1.38)	2.39 (2.74)	0.91 (1.27)	2.82 (3.06)	3.30 (3.13)	2.43 (2.29)	3.78 (3.26)	3.47 (3.13)	7.91 (5.29)
	p	0.00	0.03	0.04	0.06	0.05	0.05	0.02	0.01	0.06	0.00

*somatization, **obsession-compulsion, ***interpersonal sensitivity, ****depression, *****anxiety, $ phobia, $$ paranoia, $$$psychosis, $$$$additional items, Tot: total

colleagues of the participants were among the risk factors for experiencing more psychiatric symptoms.

In a study carried out by Rehman *et al*.[26] during the second week of quarantine of COVID-19 in India using the Depression Anxiety Stress Scale (DASS), no significant difference was found between male and female participants in terms of anxiety, depression, and stress. However, significant differences were found among different groups of participants in such a way that students, researchers, teachers, physicians, and nurses reported mild levels of stress, while mental health professionals and administrative employees experienced normal levels of stress. Furthermore, teachers and administrative employees reported mild anxiety levels, while researchers, physicians, and nurses reported moderate anxiety levels, and mental health professionals reported normal levels of anxiety. Regarding depression, students reported moderate levels of depression, while physicians and researchers experienced mild depression. In addition, teachers, mental health professionals, and administrative employees had normal levels of depression.

The present study was conducted at three time intervals, at 3, 6, and 9 months after the COVID-19 outbreak. Besides, more diverse participants were assessed in the study performed by Rehman *et al*., and only three mental health criteria were evaluated. Consistent with the results found by Rehman *et al*., there was no significant difference between male and female participants of the present study in terms of psychiatric symptoms. Nevertheless, findings of Banitalebi *et al*.[27] regarding gender and education were inconsistent with those of the present study.

Kisley *et al*.[28] used the meta-analysis method and investigated 38 studies about the mental health of health personnel who were in direct exposure to patients with viral diseases, including SARS, COVID-19, and the Middle East respiratory syndrome. Based on their results, 25 of these studies divided healthcare personnel into two groups: those with direct exposure and those with indirect exposure to viral disease. In those studies, staff who had direct contact with the patients experienced higher levels of acute stress disorder, posttraumatic stress disorder, and psychological distress.

The present study demonstrated that the staff who had direct contact with patients had higher scores in terms of the subscales of anxiety, obsessive-compulsive, psychosis, and other mental disorders in the first 3 months. However, there was no significant difference between the two groups after 6 months. It is noteworthy that the staff who had no direct contact with the patients obtained higher scores in most subscales of SCL-25 at the ninth month.

Findings of a study performed by Hines *et al*.[29] regarding the reduction of psychiatric disorders in medical staff over time were consistent with those of the present study. However, their results regarding the overall rate of psychiatric disorders over time were inconsistent with those of the current study.

According to a study conducted by Rehman *et al*.[30] in India on nonhospital staff using DASS-21, a decrease was observed in the reaction of participants to psychological stress over time. In the present study, the total score of SCL-25 decreased over time in the staff of the non-COVID-19 hospital but increased in the staff of the COVID-19 hospital. Both groups with direct and indirect exposure to COVID-19 experienced more mental disorders over time. However, after 9 months since the outbreak of COVID-19, the staff who had no contact with patients experienced more mental symptoms.

Nguyen *et al*.[31] published a cross-sectional study examining the risk factors of psychological stress in healthcare personnel. They found that being single, age under 34 years, female gender, a chronic disease prior to the COVID-19 outbreak, personal or familial history of COVID-19 infection, and lower education levels were significant risk factors associated with increased stress levels during the pandemic.

A cross-sectional study was carried out on 4391 students from various grades during the COVID-19 outbreak using the online DASS. The findings suggested that participants with higher academic levels experienced more psychopathology, compared to those with lower educational levels.[32] Although there has been limited research on this topic, the present study found a direct correlation between the level of education and the occurrence of psychiatric symptoms.

Banitalebi *et al*. found a significant association between mental health and marital status; accordingly, being married and female were protective factors against mental health problems. Additionally, they identified a significant association between mental health and age, but no significant association was observed between mental health and level of education.[29] In contrast, the present study did not find psychiatric disorders to have a significant association with age and gender; nevertheless, a higher incidence of psychiatric disorders was found in participants above the age of 50. It is noteworthy that in the present research, a significant positive association was observed between the level of education and psychiatric disorders, which contradicts the findings of a study performed by Banitalebi *et al*. However, both studies established a significant relationship between marital status and mental health status.

Hines *et al*. examined the trend of psychiatric disorders among medical staff during the COVID-19 pandemic and the factors impacting their resilience. They assessed 838 physicians and medical staff using the Impact of Event Scale-Revised and Moral Injury Events Scale at the beginning of the pandemic, as well as 1 and 3 months afterward. Their results indicated a reduction in psychiatric distress over time,[28] which is consistent with those of the present study. Accordingly, in this study, the subscale scores of the SCL-25 decreased in the group that had direct exposure to COVID-19 patients, compared to the other group, after 9 months. Although limited studies have explored this subject, several hypotheses can be drawn.

Sirois and Owens[33] proposed several possible explanations for the gradual reduction in psychiatric distress over time from four perspectives. First, the reduction of the psychological burden of disease stigma could alleviate the negative impact of the pandemic on mental health. Second, the improvement of coping methods and the utilization of psychological resources could enhance the resilience of people against stress. Third, an increase in awareness about the nature of the disease and prevention methods could reduce anxiety levels. Finally, empowerment of the health system to provide adequate protective equipment against the disease could help alleviate the fear of contracting the virus. These four perspectives could be potential reasons that explain the reduction in psychiatric distress in the present study, as well as the study conducted by Hines *et al*.

Authors of the present study suggest that increased support provided to medical staff who had direct exposure to COVID-19 patients over time, along with promising news about vaccine production in August 2020 and the priority of vaccination for medical staff with direct exposure to patients, may explain the difference in the mental health status of those with direct and indirect exposure to the virus over time. These factors could have increased the perception of control over the pandemic and influenced the reduction in psychiatric distress among medical staff, particularly those with direct exposure to the virus. However, further research is needed to confirm these hypotheses.

Indeed, the diverse and sometimes contradictory findings regarding the factors affecting the mental health of the general public and healthcare employees during the COVID-19 outbreak may be influenced by various factors. These factors may vary based on the rate and recurrence of disease waves in different societies, the approach of different governments in informing about the disease, the amount of economic support for people and healthcare employees, vaccination status, economic factors affected by the outbreak, different cultural reactions to quarantine and restrictions on communication, and other unknown factors. Therefore, more comprehensive studies that take these contextual factors into account are needed in the future to better understand the impact of the pandemic on mental health status and develop effective interventions to support the affected individuals and groups.

The main limitations of the current study were the following: 1) transfer of medical personnel between the hospitals being studied during the pandemic, 2) lack of examination of doctors, 3) limited participation due to the heavy workload of medical personnel, 4) concerns about transmitting the virus through paper questionnaires, and 5) limitation of measuring the mental health status with a specific tool.

Conclusion

Working at a hospital with COVID-19 patient admissions, being single, having a history of psychiatric disorders, being infected with COVID-19, and mourning the deaths of relatives or colleagues due to COVID-19 were the main risk factors for experiencing psychiatric symptoms. Moreover, the most at-risk people were found to be medical staff, particularly those with direct exposure to COVID-19 patients.

The initial reaction of staff exposed to the stress of facing patients with COVID-19 was more in the form of physical complaints, which changed over time, but did not follow a specific pattern. The authors of this article emphasize the need to prepare healthcare systems to better support healthcare personnel in potential future pandemics based on the lessons learned from the COVID-19 pandemic.

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Conflicts of interest

Nothing to declare.

References

1. Nishiura H, Jung S, Linton NM, Kinoshita R, Yang Y, Hayashi K, *et al*. The extent of transmission of novel coronavirus in Wuhan, China, 2020. J Clin Med 2020;9:330-1.
2. Zhu H, Wei L, Niu P. The novel coronavirus outbreak in Wuhan, China. Glob Health Res Policy 2020;5:6.
3. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, *et al*. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: A descriptive study. Lancet 2020;395:507-13.
4. Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, *et al*. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. Lancet Psychiatry 2020;7:228-9.
5. WHO Director-General's opening remarks at the media briefing on COVID-19–March 11. World Health Organization. Available from: www.who.org.
6. Liu X, Na RS, Bi ZQ. Challenges to Prevent and Control the Outbreak of Covid-19. Zhonghua liu xing bing xue za zhi=Zhonghua liuxingbingxue zazhi 2020;41:994-97.
7. Anderson RM, Heesterbeek H, Klinkenberg D, Hollingsworth TD. How will country-based mitigation measures influence the course of the COVID-19 epidemic? Lancet 2020;395:931-4.
8. Bao Y, Sun Y, Meng S, Shi J, Lu L. 2019-nCoV epidemic: Address mental health care to empower society. Lancet 2020;395:e37-8.
9. Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, *et al*. Mental health care for medical staff in China during the COVID-19 outbreak. Lancet Psychiatry 2020;7:e15-6.
10. Shanafelt T, Ripp J, Trockel M. Understanding and addressing sources of anxiety among health care professionals during the COVID-19 pandemic. JAMA 2020;323:2133-4.
11. Ma R, Nguyen R, Oakman JM. Dissemination strategies and usage of psychological assistance hotlines during the COVID-19 outbreak in China. Frontiers in Communication. 2020;5:60.
12. Lee AM, Wong JG, McAlonan GM, Cheung V, Cheung C, Sham PC, *et al*. Stress and psychological distress among SARS Survivors 1 year after the outbreak. Can J Psychiatry 2007;52:233-40.
13. 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.
14. Liu X, Kakade M, Fuller CJ, Fan B, Fang Y, Kong J, *et al*. Depression after exposure to stressful events: Lessons learned from the severe acute respiratory syndrome epidemic. Compr Psychiatry 2012;53:15-23.
15. Greenberg N, Docherty M, Gnanapragasam S, Wessely S. Managing mental health challenges faced by healthcare workers during COVID-19 pandemic. BMJ 2020;368:m1211.
16. Liu C-Y, Yang Y-Z, Zhang X-M, Xu X, Dou QL, Zhang W-W.

The prevalence and influencing factors for anxiety in medical workers fighting COVID-19 in China: A cross-sectional survey. Can J Psychiatry 2020;54:302-11.
17. Zarocostas J. How to fight an infodemic. Lancet 2020;395:676-82.
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;3:203976-83.
19. Chen NH, Wang PC, Hsieh MJ, Huang C, Kao KC, Chen YH, *et al.* Impact of severe acute respiratory syndrome care on the general health status of health personnels in Taiwan. Health Personnels 2007;28:75-9.
20. Robertson E, Hershenfield K, Grace SL, Stewart DE. The psychosocial effects of being quarantined following exposure to SARS: A qualitative study of Toronto health care workers. Can J Psychiatry 2004;49:403-7.
21. Wu KK, Chan SK, Ma TM. Posttraumatic Stress after SARS. Emerg Infect Dis 2005;11:1297-300.
22. Kanter J, Manbeck K. Covid-19 can lead to an epidemic of clinical depression. Lancet 2020;395:912-20.
23. deVries MW, Wilkerson B. Stress, work and mental health: A global perspective. Acta Neuropsychiatr 2003;15:44-53.
24. Strand BH, Dalgard OS, Tambs K, Rognerud M. Measuring the mental health status of the Norwegian population: A comparison of the instruments SCL-25, SCL-10, SCL-5 and MHI-5 (SF-36). Nordic J Psychiatry 2003;57:113-8.
25. Najarian B, Davodi I. [Development and reliability of SCL-25; short form of SCL-90]. Journal of psychology 2001;18:136-49.
26. Rehman U, Shahnawaz MG, Khan NH. Depression, anxiety and stress among Indians in Times of COVID-19 lockdown. Community Ment Health J 2021;57:42-8.
27. Banitalebi S, Mohammadi K, Marjanian Z, Rabiei L, Masoudi R. The effect of COVID-19 epidemic on the mental health of nurses' family members. J Educ Health Promot 2021;10:368.
28. Kisely S, Warren N, McMahon L, Dalais C, Henry I, Siskind D. Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: Rapid review and meta-analysis. BMJ 2020;369:m1642.
29. Hines SE, Chin KH, Glick DR, Wickwire EM. Trends in moral injury, distress, and resilience factors among health personnels at the beginning of the COVID-19 pandemic. Int J Environ Res Public Health 2021;18:488.
30. Rehman U, Yıldırım M, Shahnawaz MG. A longitudinal study of depression, anxiety, and stress among Indians during COVID-19 pandemic. Psychol Health Med 2023;28:60-8.
31. Nguyen PT, Nguyen TB, Pham AG, Duong KN, Gloria MA, Vo TV, *et al*. Psychological stress risk factors, concerns and mental health support among health care workers in Vietnam during the coronavirus disease 2019 (COVID-19) outbreak. Front Public Health 2021;9:628341.
32. Tang S, Xiang M, Cheung T, Xiang YT. Mental health and its correlates among children and adolescents during COVID-19 school closure: The importance of parent-child discussion. J Affect Disord 2021;279:353-60.
33. Sirois FM, Owens J. Factors associated with psychological distress in health-care workers during an infectious disease outbreak: A rapid systematic review of the evidence. Front Psychiatry 2021;11:589545.