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Review Article

Mental Health of Health-Care Workers during the COVID-19 Pandemic

Walaa Mogassabi[1], Waqar Mogassabi[2], Maram Saliba[3], Rana M. Emam[4], Wanis H Ibrahim[3,5]

[1]Research Student, Al-Arqam Academy, [2] College of Health Sciences, Qatar University, [3]Department of Medicine, Hamad General Hospital, [4] Department of Psychiatry, Hamad General Hospital, Weill-Cornell Medicine, [5]Department of Clinical Medicine, College of Medicine, Qatar University, Weill-Cornell Medicine, Doha, Qatar

Abstract

Besides its effects on physical health, the coronavirus disease 2019 (COVID-19) pandemic has resulted in adverse consequences on mental health of health-care workers. Several factors such as safety concerns and fear of infecting self or family members, social isolation measures, strict infection control procedures, lack of protective measures, exhaustion due to increased duration of working, and seeing patients die or colleagues infected can contribute to the development of mental health problems in health-care workers during the current COVID-19 pandemic. Some health-care staff including nurses, advanced practice providers, frontline health-care workers, and health-care workers who have children are more vulnerable to these mental health problems. Prevention of infection and staff burnout in health-care workers, provision of a timely mental health care, and social support are among the most important measures to provide a mental health care for health-care workers during the current COVID-19 pandemic.

Keywords: COVID-19, health-care workers, mental health, pandemic, SARS-CoV-2

Introduction

In December 2019, the Wuhan Municipal Health Commission in China reported a cluster of cases of pneumonia in Wuhan, Hubei Province. A novel coronavirus (severe acute respiratory syndrome coronavirus 2 [SARS-CoV-2]) was eventually identified as the etiologic agent and the disease was named coronavirus disease 2019 (COVID-19).[1] The disease was shortly characterized as a pandemic by the World Health Organization. As of October 2020, over 40 million cases and 1.1 million deaths from COVID-19 infection have been reported globally.[2]

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The disease primarily spreads by respiratory droplets, respiratory secretions, and saliva. Contact with oral, nasal, and eye mucous membranes can also transmit the virus. Epidemiological studies suggest that SARS-CoV-2 is highly transmissible in humans,

Address for correspondence: Prof. Wanis H Ibrahim, Hamad General Hospital, Doha, Qatar. Department of Clinical Medicine, College of Medicine, Qatar University, Weill-Cornell Medicine, Doha, Qatar. E-mail: wanisian@yahoo.com

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especially in the elderly and people with underlying diseases. The rapidly increasing number of cases and evidence of human-to-human transmission suggest that the virus was more contagious than SARS-associated coronavirus (SARS-CoV) and the Middle East respiratory syndrome coronavirus (MERS-CoV).[3-6] The viral pandemic has shaken different aspects of human life course with its implications for health, personal control and planning, social relationships and family, education, work and careers, and migration and mobility.[7] Besides its effects on physical health, the pandemic has resulted in adverse consequences on mental health. Various studies have identified a major mental health burden of the public and health-care workers (HCWs) during the COVID-19 outbreak.[8] Medical staff working in departments caring for COVID-19-infected patients, such as respiratory department, emergency department, intensive care unit, and infectious diseases department, are particularly vulnerable to psychological disorders, and have almost twice risk for suffering anxiety and depression, compared to the nonclinical staff with hardly possibility to contact with coronavirus pneumonia patients.[9] Unlike stress related to other disasters, there are peculiar factors prevalent in the current COVID-19 pandemic that can impose significant psychological distress among HCWs.

Materials and Methods

This is a narrative, nonsystematic review to explore the impact of COVID-19 pandemic on the mental and psychological health of HCWs and explore the optimal mental care of these workers during the pandemic. A literature search was conducted without date restrictions using the following online databases (PubMed, PMC, Google Scholar, EMBASE, and ScienceDirect) with the following search terms: "corona," "pandemic," "COVID-19," "SARS-CoV-2," "mental health," "psychology," "psychiatric," "health-care workers," "medical staff," and "mental health care" in various combinations. Retrieved records were reviewed and summarized. Articles reporting mental health effects on the general public were excluded. Only articles published in English, regardless of the type of study used, were included in the review process. WM, WI, and RE drafted . The manuscript was reviewed and further developed and approved by all authors. No statistical analysis was performed on the original data.

Results

Factors contributing to psychological distress among during the COVID-19 pandemic

Studies from affected countries have reported a number of factors that contributed to the development of psychological distress and mental health problems among HCWs during the COVID-19 pandemic. Furthermore, some HCWs seem more vulnerable to psychological stressors than others. Fear of infecting self or family members, social isolation measures including the necessity for interpersonal distancing, strict infection control procedures, diminished collegial social interaction, and assignment to work in unfamiliar environments/ with unfamiliar colleagues are among the important stressors that can affect HCWs.[10] In a large cross-sectional survey from China involving 4357 HCWs, the main stressors among HCWs were as follows: infection of colleagues (72.5%), infection of family members (63.9%), lack of protective measures (52.3%), and medical violence (48.5%). About 35% of HCWs and 40% of frontline HCWs expressed being very worried about the risk of self-infection. Nurses were more worried about their own infection at work than doctors, technicians, and support personnel. Those who had children were more worried about family members' infection. Confidence and high confidence in the current grassroots prevention and control strategy were reported in 46.3% and 9.1% of participants, respectively.[11] Another survey of 534 doctors, nurses, and other health-care staff from Hunan Province in China found that concerns for personal safety, seeing patients die, lack of protective clothing, exhaustion due to increased duration of working, stress from other colleagues who were affected, and the lack of treatment for COVID-19 to be important factors that induced mental stress in all medical staff.[12] Safety from infection was the main concern among the participants because of fear to infect their families, particularly their young children and living parents.[12] Among New York

HCWs , three of every four HCWs were highly distressed by fears about transmitting COVID-19 to family or friends, and most were highly distressed by having to maintain "social distance" from family.[13] In the clinical environment, perceived lack of control/uncertainty, treating other HCWs for COVID-19, and uncertainty about colleagues' COVID-19 status were the most common sources of high distress.[13] Nevertheless, these stressors seem to be common during pandemics and epidemics. During the epidemic of the MERS-CoV in Saudi Arabia, safety was the main psychological concern for health-care staff. It was extremely stressful for HCWs to see their colleagues getting intubated, patients dying in front of them from MERS-CoV, as well as the fear that they could transmit the disease to their families or friends.[14] Quarantine associated with the pandemics has also been shown in some studies to be important stressor among HCWs . Bai *et al*.[15] showed that quarantined staff members are at a high risk of developing an acute stress disorder. In addition, almost a quarter of the respondents who were quarantined were reluctant to work or had considered resignation.[15] A recent systematic review that assessed the psychological effects of the COVID-19 pandemic on HCWs globally concluded that fear of working with infected people in the absence of proper personal protective equipment (PPE) and subsequent spread of infection to families were the most important stressors among HCWs during the pandemic and strongly associated with anxiety.[16] Social media is one of the main channels updating the COVID-19 information. A higher frequency of social media exposure during the COVID-19 pandemic has also been shown to be associated with high odds of depression and anxiety.[17] Disinformation, false reports, and negative feeling about the COVID-19 that appeared on the social media play an important role in harming people's mental health and spread of fear, worry, nervous, and anxiety.[17]

Types of mental health problems and their prevalence among health-care workers during the COVID-19 pandemic

Various mental health problems have been reported among HCWs during the current COVID-19 pandemic including sleep disturbances, depression, anxiety disorders, loneliness, and posttraumatic stress disorder. The prevalence of these disorders varies according to the type and place of practice, staff gender, availability of adequate resources, and the social and governmental support. Earlier reports from Wuhan (China) during the current pandemic[18] revealed a prevalence of subthreshold, mild, moderate, and severe mental health disturbances of 36.9%, 34.4%, 22.4%, and 6.2%, respectively, among doctors and nurses caring for COVID-19-infected patients in the immediate wake of the viral epidemic. The noted burden fell particularly heavily on young women. Of all participants, 36.3% had accessed psychological materials (such as books on mental health), 50.4% had accessed psychological resources available through media (such as online push messages on mental health self-help coping methods), and 17.5% had participated in counseling or psychotherapy.[18] Another cross-sectional study[19] that assessed the magnitude of mental health outcomes among 1257 HCWs from 34 hospitals that treat patients with COVID-19 in China reported a 50.4% prevalence of depression, 44.6% prevalence of anxiety, 34.0% prevalence of insomnia, and 71.5% prevalence of distress. Nurses, women, frontline HCWs , and those working in Wuhan, China, reported more severe degrees of all measurements of mental health symptoms than other HCWs .[19] In another multinational survey from China, Chew *et al*.[20] reported that out of the 906 HCWs who participated in the survey, 5.3% screened positive for moderate-to-very severe depression, 8.7% for moderate-to-extremely severe anxiety, 2.2% for moderate-to-extremely severe stress, and 3.8% for moderate-to-severe levels of psychological distress. The most common reported symptom was headache (32.3%), with a large number of participants (33.4%) reporting more than four symptoms. Participants who had experienced symptoms in the preceding month were more likely to be older and have preexisting comorbidities and a positive screen for depression, anxiety, stress, and posttraumatic stress disorder.[20] To investigate the mental health of clinical first-line medical staff from a tertiary infectious disease hospital for COVID-19 in

China, Huang *et al*.[21] reported that the incidence of anxiety in medical staff was 23.04%. The incidence of severe anxiety, moderate anxiety, and mild anxiety was 2.17%, 4.78%, and 16.09%, respectively. The incidence of anxiety in female medical staff was higher than that in males (25.67% vs. 11.63%), and the incidence of anxiety in nurses was higher than that in doctors (26.88% vs. 14.29%). The incidence of stress disorder in medical staff was 27.39%, and the score for posttraumatic stress disorder in female medical staff was higher than that in males.[21] Studies from the USA revealed that HCWs , especially nurses and advanced practice providers, are experiencing COVID-19-related psychological distress. Shechter *et al*.[13] characterized the psychological distress, coping, and preferences for support among New York HCWs during the COVID-19 pandemic. Positive screens for psychological symptoms were common: 57% for acute stress, 48% for depressive, and 33% for anxiety symptoms. For each, a higher percentage of nurses/advanced practice providers screened positive compared to attending physicians. Sixty-one percent of participants reported an increased sense of meaning/purpose since the COVID-19 outbreak. Physical activity/exercise was the most common coping behavior (59%). Interestingly, medical students are also mentally affected by the COVID-19 pandemic. Cao *et al*.[22] studied the psychological impact of the COVID-19 epidemic on 7143 students from Changzhi Medical College in China. Results indicated that 0.9% of the respondents were experiencing severe anxiety, 2.7% moderate anxiety, and 21.3% mild anxiety. Living in urban areas, family income stability, and living with parents were protective factors against anxiety. Moreover, having relatives or acquaintances infected with COVID-19 was a risk factor for increasing the anxiety of college students.[22] Sleep disturbances during the COVID-19 pandemic seem to be a very prevalent problem among HCWs . In a study of New York HCWs, Shechter *et al*.[13] found that sleep disturbances were common, with 26% reporting severe or very severe sleep problems and an additional 45% reporting moderate sleep problems. Severity of sleep disturbances differed by group, with nurses/advanced practice providers reporting the worst sleep problems. In a cross-sectional study of sleep quality for frontline HCWs, Jahrami *et al*.[23] reported that about 75% of HCWs had poor sleep quality, 85% had moderate-severe stress, and 60% had both poor sleep quality and moderate-severe stress.

Care of health-care workers during the pandemic

Prevention of infection in health-care workers

HCWs are at a particular risk of COVID-19 infection. In addition, infected HCWs may further transmit COVID-19 to patients if PPE is not worn correctly or adherence to hand hygiene is low.[24] The rates of infection among HCWs vary from one country to another. While studies from Wuhan reported an infection rate of 3.8% among HCWs,[25] other reports from Hong Kong described an infection rate of up to 29% of HCWs .[26] In the United States, the rate varies from 3% to 11%.[24,27] Health-care facilities should implement strategies to reduce the chances of infection among HCWs . HCWs should be provided with the necessary PPE such as face masks, face shields, gowns, gloves, and goggles. Hand hygiene with alcohol-based sanitizers should be made continuously available. Education and training on the use of PPE should also be provided.[28]

Prevention of staff burnout

Pandemics are associated with emotionally intense work demands and inadequate resources that can result in medical staff burnout. Burnout is associated with negative consequences on HCWs and patient care. Prevention of burnout during pandemics will require coordinated efforts at national and international levels. Among the important strategies to prevent burnout among medical staff during the pandemic are the restrictions on duty hours, minimizing shift hours among emergency and intensive care staff, providing a backup force via activation of retired HCWs who are able to help or medical students who are about to graduate during times of emergency or high volume. The use of military resources including workers and hospitals should be incorporated as needed.[29,30]

Provision of a timely mental health care for medical staff during the pandemic

The Chinese model of psychological support of HCWs during the COVID-19 pandemic is a good

example to follow in providing a timely mental health care across the country.[31] Important strategies have been developed and implemented nationwide. Mental health and psychological centers across countries affected by the pandemic should respond quickly and work tirelessly to offer psychological counseling and support to health-care staff. Development of psychology measurement systems and providing strategies and counseling services for health-care professionals to deal with psychological stress during the pandemic should be priorities. Among the important timely strategies are setting up psychological serving platforms/programs to provide telephone counseling, online counseling, and cam-consulting services for frontline medical staff. A psychic hotline available 24 h a day and all days of the week and run by professional psychiatrists may be initiated for screening of psychological problems and timely psychological support for staff. Systematic psychological training for the frontline medical staff and backup can be provided through instructor-led online training, on-site training, and group training. Short videos, mental health handbooks, and online games can also be utilized to support the mental health of staff. Specific attention could be given to motivational therapy, mindfulness, deep breathing and relaxation techniques, and supportive therapy. Education on coping and gauging useful coping skills could be employed.[32] On-site psychological assistance via experienced psychologists can be provided to areas of COVID-19 outbreak.[31,33]

Social support for health-care workers

Frontline staff working in hospitals that provide care for COVID-19-infected patients should be provided with a place for rest where staff could temporarily isolate themselves from their families. Food and daily living supplies should be provided. Video chatting and share with families can be used to alleviate family members' concerns.[33] Allowing HCWs to spend more time with their families through limiting working hours is important for their psychological support. Other important measures for social support that can boost staff morale include enhancing team spirit at work, recognizing staff efforts in fighting the pandemic both locally and nationally, and rewarding staff with words, certificates as well as finances.[34-36]

Conclusions

Several factors such as safety concerns and fear of infecting self or family members, social isolation measures, strict infection control procedures, lack of protective measures, exhaustion due to increased working hours and seeing patients die or colleagues infected can contribute to the development of mental health problems in HCWs during the COVID-19 pandemic. Some health-care staff including nurses, advanced practice providers, frontline HCWs , and HCWs who have children are more vulnerable to these mental health problems. Prevention of infection and staff burnout in among HCWs, provision of a timely mental health care for medical staff during the pandemic, and social support are among the most important measures to provide a mental health care for HCWs during the current COVID-19 pandemic.

Authors' contributions

WM, WM, and WHI conceived the idea of the review. All authors participated in the literature review, WM, WI, and RE wrote the initial draft. All authors critically revised the manuscript for intellectual content, language, and presentation and approved the final version.

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Conflicts of interest

There are no conflicts of interest.

Compliance with ethical principles

No ethical approval is required.

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Editors:

Elmahdi A Elkhammas (Columbus OH, USA)
Salem A Beshyah (Abu Dhabi, UAE).