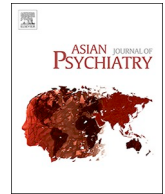




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## Mental health problems faced by healthcare workers due to the COVID-19 pandemic—A review



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### ABSTRACT

**Introduction:** The spread of novel corona virus (COVID-19) across the globe and the associated morbidity and mortality challenged the nations by several means. One such underrecognized and unaddressed area is the mental health issues medical staff develop during the pandemic.

**Materials and methods:** This review aimed to review the literature about mental health problems faced by health care workers (HCW) during the COVID-19 pandemic. Literature search was conducted in the following databases: PubMed, Google Scholar, Cochrane Library, Embase. All types of articles published in the last 4 months (January 2020–April 2020) which were relevant to the subject of the review were searched. A total of 23 articles were selected by initial screening and 6 articles were included in the final review.

**Results:** Review of all the 6 articles showed that current research focused on assessing several aspects of mental health affected in HCW due to COVID-19. Several sociodemographic variables like gender, profession, age, place of work, department of work and psychological variables like poor social support, self-efficacy were associated with increased stress, anxiety, depressive symptoms, insomnia in HCW. There is increasing evidence that suggests that COVID-19 can be an independent risk factor for stress in HCW.

**Conclusion:** Regular screening of medical personnel involved in treating, diagnosing patients with COVID-19 should be done for evaluating stress, depression and anxiety by using multidisciplinary Psychiatry teams.

### 1. Introduction

Since its inception in December 2019 in the Hubei province of China, the novel coronavirus disease (COVID-19) is spreading rapidly both locally and internationally (Li et al., 2020; Zhu et al., 2020). In only a span of a month, the disease caused by the virus was considered a public health emergency by the World Health Organization and was declared a pandemic by March 2020 (WHO, 2020). Amidst the development of this infectious disease in 206 countries throughout the world, health care workers remain the main persons involved in the screening and treatment of this condition throughout.

Despite remaining the crisis management personnel, the HCW are not themselves immune to the psychological consequences due to COVID-19. Among the healthcare workers also, the front-line workers involved directly in handling these patients are at greater risk than others. The reasons for such adverse psychological outcomes in them range from excessive workload/work hours, inadequate personal protective equipment, over-enthusiastic media news, feeling inadequately supported (Cai et al., 2020; Tam et al., 2004; Lee et al., 2018; Styra et al., 2008). Another important reason for such psychological impact is the infection rate among medical staff.

The sudden reversal of role from HCW to a patient might lead to frustration, helplessness, adjustment issues, stigma, fear of discrimination in the medical staff (Rana et al., 2020). Despite the low mortality rate of 2 %, the COVID-19 virus has a high transmission rate and the mortality is higher than that caused by severe acute respiratory syndrome (SARS) and middle east respiratory syndrome (MERS) combined (Mahase, 2020).

The literature published during the outbreak of SARS almost more than a decade ago suggested that HCW are at higher risk of developing anxiety, depression, stress during these periods (Wu et al., 2005a,b). A

similar school of thought exists about the effect of COVID-19 pandemic, some studies were carried out in the past 3 months to assess the psychological impact of this disease on healthcare workers. But there is a lack of systematic appraisal and critique on the existing studies.

### 2. Materials and methods

#### 2.1. Aim and objectives

This review aims to provide an overview of the research findings on mental health issues faced by HCW due to COVID-19. The objectives of the current review were to identify the relationship between socio-demographic, psychological and COVID-19 related variables and mental health issues faced by HCW.

#### 2.2. Literature search

The literature search was conducted in the following databases: PubMed, Google Scholar, Cochrane Library, Embase. Search terms used for retrieving the articles were: psychological, or stress, or mental health, or psychiatric issues, and COVID-19, corona, novel corona virus and HCW, or doctors, or medical staff, or health care professionals. All types of articles published in the last 4 months (January 2020–April 2020) like reviews, commentary, correspondence, letter to the editor, original research article relevant to the subject of the review were searched. Where-ever applicable reports were also extracted using cross-references.

#### 2.3. Selection of articles

From all the articles that were relevant to the topic of the review,

**Table 1**  
Summary of the studies included in the review.

Authors	The Sample included (n)-Place conducted	Study design	Instruments used	Main findings
Kang et al. (2020)	994 medical and nursing staff <b>Wuhan</b>	Cross-sectional study	Patient health questionnaire-9, Generalized Anxiety Disorder, Insomnia Severity Index and the Impact of Event Scale-Revised	36.9 % had subthreshold mental health disturbances, 34.4 % had mild disturbances, 22.4 % had moderate disturbances, and 6.2 % had severe disturbances Medical staff experienced emotional stress during the COVID-19 outbreak
Cai et al. (2020)	Doctors, nurses, and other hospital staff (n=534) <b>Hubei</b>	Cross-sectional study	Questionnaire by Lee et al. (2018)	Several staff were experiencing clinically significant depressive symptoms
Liang et al. (2020)	59 doctors and nurses from COVID-19 associated departments and others <b>Guangdong Province</b>	Cross-sectional study	Zung's self-rating depression scale (SDS), Zung's self-rating anxiety scale (SAS).	Levels of social support were significantly associated with self-efficacy and sleep quality and negatively associated with the degree of anxiety and stress.
Xiao et al. (2020)	180 medical staff (Doctors or nurses) <b>Wuhan</b>	Cross-sectional observational study	Acute Stress Reaction Questionnaire, the Pittsburgh Sleep Quality Index, and the Social Support Rate Scale	50.4 % reported symptoms of depression, 44.6 % anxiety, 34.0 % insomnia, and 71.5 % reported distress
Lai et al. (2020)	1257 HCW <b>20 hospitals in Wuhan, 7 hospitals in other regions of Hubei province, 7 hospitals from 7 other provinces</b>	Cross-sectional region stratified study	Patient Health Questionnaire-9, Generalized Anxiety Disorder scale, Insomnia Severity Index, and the Impact of Event Scale-Revised	
Mohindra et al. (2020)	Frontline health care providers (HP) involved in the care of patients with COVID-19 or suspected COVID-19 Sample size- Not specified <b>Tertiary hospital in North India</b>	Qualitative analysis	Interviews with HP	Following are the main themes identified for mental health promotion of HP: 1 Positive Motivational factors a Intellectual b Emotional 2 Negatives, frustrations associated with patient care 3 Personal fears and annoyances experienced by doctors

only original research articles (including those that are published as letter to the editors/commentaries) that assessed the mental health issues faced by HCW were included in the narrative review. A total of 23 articles were selected by initial screening. Out of these 5 were original research articles, 3 were editorials, 4 were review articles, 5 were correspondence articles/commentaries, 4 were letters to the editor, 2 were ideas/viewpoints.

The final number of articles included was 6, one article was from India and five of them are from the research conducted in China.

### 3. Results

**Table 1** summarizes the articles included in the review. It shows the type of study design, sample size, instruments, main findings of the 6 studies included in the review.

#### 3.1. Socio-demographic variables

Among the studies included in the review, the mean age of the medical staff ranged between 26–40 years, and the predominant participants in 4 studies were females (68.7 %–85.5 %). Lai J, 2020 showed that being a woman and possessing an intermediate professional title was associated with higher anxiety, depression, and distress (Lai et al., 2020). The study done by Liang et al. (2020) tried to see the relation between age and depressive symptoms. Though medical staff at younger age (< 30 years) had higher self-rated depression scores than those with older age (30 years), the difference wasn't statistically significant.

Cai et al. (2020) also suggested that age-group studied can variedly influence the subject matter of worry. Medical staff aged 31–40 years were more worried about infecting their families whereas in staff > 50 years of age patient's death caused more stress. In staff aged 41–50 years, factors like worry regarding their safety were also important. Older staff reported increased stress due to exhaustion due to prolonged work hours and lack of personal protective equipment. Irrespective of the age, the safety of colleagues and the lack of treatment for COVID19 were perceived as factors that induced stress in all medical staff (Cai et al., 2020).

Contrasting findings were shown by Liang et al. (2020) and Lai et al. (2020) concerning front line workers and the degree of anxiety and depressive symptoms. Liang Y et al., 2020 showed that there was no significant difference in self-rated anxiety and depression scores among staff in the COVID-19 associated department and other departments. Front line health workers and those who work in Wuhan reported more severe anxiety, depressive symptoms, insomnia and higher scores on the impact of event scale as per the study done by Lai et al. (2020). Also, the same study showed that nurses compared to doctors had more anxiety, depression, and anxiety. Cai et al. (2020) also reported that nurses felt more anxious and nervous compared to other professionals.

#### 3.2. Psychological variables

Xiao et al. (2020) have studied the role of social support in medical staff and looked for its association with self-efficacy, sleep quality, degrees of anxiety and stress. Results suggested that the social support given to medical staff caused a reduction in anxiety and stress levels and increased their self-efficacy. However, no relation was found between social support and sleep quality (Xiao et al., 2020). As per Cai et al. (2020) concerns for personal safety, concerns for their families, and concerns for patient mortality were the important stress-triggering factors in the medical staff. This study also looked into the reasons for continuing work during the outbreak like social and moral responsibility, recognition from hospital authorities, and anticipated additional financial compensation. Lai et al. (2020) have done a study from 34 hospitals in China, their results suggested that 3/4<sup>ths</sup> of the 1257 health workers were in distress, half of the participants reported symptoms of

depression and a third of them reported insomnia, 2/5th of them reported anxiety symptoms.

In the study conducted in India, the HP reported certain personal fears and worries regarding several factors. They are the possibility of being sources of infection, being isolated/quarantined, putting family members and other staff at risk, fear of improper use of personal protective equipment, fear of household problems due to lockdown and medical insurance. The possible solutions proposed are an increase of manpower and better community awareness to reduce stigma (Mohindra et al., 2020).

### 3.3. COVID-19 related stress

One study from the 6 included tried to assess the factors responsible for the reduction of stress due to COVID-19 (Cai et al., 2020). Safety of family had the highest role in reducing stress along with corrective guidance, effective safeguards for the prevention of disease and positive attitude from their colleagues (more in female staff). Kang et al. (2020) reported that the degree of contact with confirmed or suspected cases and access to psychological materials/resources is related to the extent of mental health disturbances. The degree of contact was directly related whereas the access to psychological help inversely related to the proportion of mental health disturbances. The subject's self-perceived physical health was poor in participants with higher mental health problems (Kang et al., 2020). The only study from India included in the current review showed that certain positive motivational factors like supportive and proud family and colleagues, positive role models, validation and appreciation by peers/patients, positive caretaking experience, a sense of validation of existence, knowledge and acceptance of the possible inevitability of infection need to be strengthened to boost the morale of HP. As per this study, the negatives associated with patient care include multiple needs of the patients, stigma, need for clear management plans. One solution proposed by the HP interviewed to overcome the negatives include setting up of multidisciplinary teams and screening questionnaires (Mohindra et al., 2020).

### 3.4. Coping and psychological care needs

The coping measures used by medical staff were strict protective measures, knowledge of virus prevention and transmission, social isolation measures, positive self-attitude and social support (Cai et al., 2020).

Medical and nursing staff with higher levels of mental health problems were more interested in skills for self-rescue and showed more urgent desires to seek help from psychotherapists and psychiatrists. Those with subthreshold and mild disturbances preferred to obtain such services from media sources, while staff with heavier burdens wanted to seek services directly from professionals (Kang et al., 2020).

## 4. Discussion

The current review suggests that HCW are encountering a considerable degree of stress, anxiety, depression, insomnia due to the COVID-19 pandemic.

Features specific to COVID-19 which are responsible for the mental health problems include the speculations about its mode of transmission, rapidity of spread and lack of definitive treatment protocols or vaccine. Compared to the outbreak of SARS, widespread global connectivity and extensive media coverage are leading to the catastrophic reactions secondary to the outbreak (Tang et al., 2018; Ho et al., 2020).

Research in the past had shown that epidemics can cause severe and variable psychological effects on people. In the general population, this can lead to the development of new psychiatric symptoms, worsening of pre-existing illnesses. Irrespective of getting exposed or being infected people can develop a fear of falling ill or dying, excessive worry/anxiety, helplessness, tendency to blame other people who are ill. The

psychiatric illnesses that people develop include depression, anxiety, panic attacks, somatic symptoms, and posttraumatic stress disorder symptoms, to delirium, psychosis and even suicidality (Hall et al., 2008; Müller, 2014; Sim et al., 2010).

As already pointed out, studies done in the past reported that HCW especially those working in emergency units, intensive care units, and infectious disease wards are at higher risk of developing adverse psychiatric impact (Naushad et al., 2019). The current review also showed similar results that HCWs are at higher risk of developing adverse psychiatric outcomes. Findings were contradictory for front-line health workers with one study suggesting that they are at higher risk than peers and other study finding no significant difference in stress with respect to the department.

Studies conducted at the time of the SARS outbreak had also shown that emergency department staff are at higher risk of developing post-traumatic stress disorder (PTSD). Compared to the staff in psychiatric ward HCW in the emergency were at higher risk for developing post-traumatic stress disorder (Lee et al., 2018). None of the studies included in the current reviewed assessed for PTSD in the HCW.

The effect of social support and coping was shown by a systematic review conducted on the impact of a disaster on the mental health of HCW. As per the report, the common risk factors for developing psychiatric morbidities were lack of social support, communication, maladaptive coping and lack of training (Naushad et al., 2019). In the current review, the effect of social support on self-efficacy, insomnia, anxiety, and depression was shown by the study done by Xiao et al. (2020). The current review showed that nurses have higher anxiety and depressive symptoms compared to doctors. However, a study from Singapore found that single doctors are at higher risk than married nurses for developing psychiatric symptoms (Chan and Huak, 2004).

During the epidemics the focus of authorities continues to remain in the biological and physical domains of the population, neglecting the unmet psychological needs. Certain initiatives were taken by the Chinese government for handling the psychological issues. It has issued emergency psychological crisis intervention guidelines for people infected with COVID-19 (National Health Commission of the People's Republic of China, 2020). The Chinese government also implemented certain strategies to reduce the psychological burden on health workers. These include setting up of psychological intervention teams, use of shift duties, online platforms with medical advice. The psychological intervention teams consisted of 4 different teams including: the psychosocial response team, psychological intervention technical support team, psychological intervention medical team, psychological assistance hotline teams (Kang et al., 2020). Similar suggestion to devise a psychological crisis intervention plan and development of psychological crisis intervention team was put forth by Rana et al. (2020).

The studies included in the review have certain limitations altogether. All of them are cross-sectional studies that were carried out from days-months. Except for 1 study which included 3 different geographical areas and 37 hospitals, all the other studies were conducted in only one province limiting the generalizability of the results within the country. 5 studies included in the review are from only one country (China), so the results may not be the same in many developing countries with a shortage of HCW. The sample size range varied between 78–1257, with 3 studies having sample size < 550, larger sample size would better identify the extent of mental health problems.

## 5. Conclusion

Health authorities should consider setting up multidisciplinary mental health teams at regional and national levels for dealing with mental health issues and providing psychological support to both patients and HCW. Evaluation can be done by using electronic media through web applications like We Chat. Regular screening of medical personnel involved in treating, diagnosing patients with COVID-19 should be done for evaluating stress, depression, and anxiety in them.

The timely address of mental health issues in HCW preferably by psychotherapeutic means based on the stress adaptation model is important (Folkman and Greer, 2000; Xiang et al., 2020).

### Contributors

All the contributors equally participated in the selection, assessment and analysis of the patient's data. And all the authors have approved the final article.

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### Declaration of Competing Interest

Nil.

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