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Mini Review

Depression among Healthcare Workers during the Pandemic: The Faultless Fundamentals

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ABSTRACT

Coronavirus disease 2019 (COVID-19) caused due to a novel coronavirus (serious acute respiratory syndrome-CoV-2) has impacted lives of millions of people around the globe in the past year. To reduce the spread of coronavirus, people were enforced to stay indoors, maintain social distancing, and wear a mask. On today's date, a huge coronavirus vaccination drive is being carried out to vaccinated maximum amount of people to keep the spread of the virus at bay. The pandemic has shown increased anxiety, distress, and mental health problems among people around the world due to fear of contracting the virus, its increasing spread, economic loss, lack of a routine, and uncertainty of the future. According to recent report, depression in India is reported to be 25% due to the pandemic which calls for an increased need of preventive and curative measures for mental health problems. The population most affected due to the COVID-19 pandemic were the frontline healthcare professionals (HCPs) trying to tackle the COVID-19 infection which do not have any specific treatment or medication. This has certainly put the HCPs under an extreme stress which has shown to have many ill effects on their mental as well as physical well-being resulting in depression, anxiety, stress, insomnia, etc. The major stressors for HCPs were increased burden of workload, exhaustion, unavailability of essential equipment, pressure out of making ethically difficult decisions, and no social life. This review provides the epidemiology of COVID-19, its impact, its psychological effect on the general population and on HCPs, and some suggestive measures.

Keywords: Coronavirus disease 2019, Depression, Health-care professionals

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Coronavirus Disease 2019 (COVID-19) Pandemic – Definition and Epidemiology

Since December, 2019, the entire world population has been battling with the outbreak of a highly infectious serious acute respiratory syndrome (SARS) caused by a novel coronavirus (SARS-CoV-2) that emerged in a small precinct in Wuhan, China.[1] There was an initial wave of panic, fear, and uncertainty that spread across the globe due to the unpredictable nature of this disease. Seeing its rapid spread, on March 11, 2020, the World Health Organization declared the spread of COVID-19 as a global pandemic.[2] Even today, there is no cure for the treatment of COVID-19 since the exact pathophysiology remains unknown. It was observed that although initially sporadic, the cases increased exponentially in a short period of time suggesting its lethality to be higher than previous epidemics. This could be due to international travel density and immune naivety of the population. This unprecedented situation also sought the need for urgent public health measures and emergency lockdowns in many countries. One of the biggest COVID-19 initial lockdowns was enforced in India where more than 1.3 billion people were strictly ordered to stay inside their homes for 21 days (March 25, 2020 to April 14, 2020).[3] The

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pandemic has been described as the worst public health crisis in a generation for the citizens, policy makers, politicians, as well as healthcare professionals (HCPs).[4]

Impact of COVID-19

The initial wave of COVID-19 was unprecedented in comparison to MERS and SARS CoV-1 epidemics that haves hook the world on a global scale previously. Within the first 6 months, in 216 countries including territories, 13,876,441 people got confirmed for infection and 593,087 lost their lives.[5] To reduce the risk of COVID-19 exposure, social distancing was suggested and enforced. It was mandatory for people from all faculties and communities to stay indoors and maintain social distancing norms and step out of the house only for essentials or if absolutely necessary.[6,7] This intervention has not only impacted all ongoing activities but has also led to a tremendous negative effect on the mental health of people. The fear of contracting the virus, lack of treatment, higher mortality associated with the virus, and uncertainty about when the virus would be controlled and when a vaccine will be made available are the major factors that have been found to be responsible in increasing psychological distress, adjustment, and propensity of serious mental health problems.[8,9]

Today, we see a ray of hope as there are now several vaccines that are in use. Due to the efforts of the entire pharma industry working tirelessly, the first mass vaccination program started in early December 2020 and as of February 15, 2021, 175.3 million vaccine doses had been administered. At least seven different vaccines (three platforms) have been administered.[10]

In India, the COVID vaccine was launched on January 16, 2021. The first group included healthcare and frontline workers while the second group was persons over 60 years of age as of January 1, 2022, and persons between 45 and 59 years with comorbid conditions. This group became eligible for vaccinations from March 1, 2021.[11] Although relief was in sight, the danger and after effects could not be completely disregarded. The crisis became an unmanageable stressor. Economic loss, interrupted daily routine, the inability of engaging in social events, and constant news exposure are additional factors that affect mental health. Certain incidences were also reported of people who could not handle the mental pressure, and as an escape from traumatizing reality, committed suicide.[8,9]

Psychological Effects of COVID-19 Pandemic on the General Population

Researchers have time and again reported evidences of mental health issues that have been brought about by the pandemic but the challenges posed during COVID-19 are much different and wider than the challenges faced by individuals in non-pandemic periods; therefore, it is difficult to compare the findings. The COVID-19 outbreak has had a moderate to severe impact on mental health, including increasing depressive symptomatology,[12] which is concerning in particular since the mental impact of an epidemic may outlast the disease itself.[13] In line with this, a review comprising 16 research studies from China, India, Spain, Italy, and Iran showed that there was a high rate of depression up to 20%, anxiety 35%, and stress 53% in the study population of 113,285 individuals indicating the high need for preventive and curative care for mental health concerns.[14] The prevalence of depression ranged from 8.3 to 48.3% in the respondents from China.[12,15-20]

In India, depression was reported in 25%, Italy 15.4 to 17%, and in Spain 1.7% extreme depression to 8.7% mild depression.[21-23]

Studies of the SARS outbreaks that occurred in Canada, Taiwan, and Hong Kong previously have found that the enormous emotional burden carried by those healthcare workers who were on the front lines of the battle against the disease led to psychologic morbidity for many of them.[24-26]

The mental disorder that is most commonly linked, in the literature, to disaster-related experiences is post-traumatic stress disorder (PTSD), but studies have also found that, among those with PTSD after a disaster, comorbid depression is common.[27,28]

Other factors that may contribute to increasing tendency of depression are lack of sleep and worrying thoughts. Both insomnia and worry about stressful events have been associated with poor mental health, including depressive symptomology.[29-32] There are data indicating that the relationship between stressful events and mental health is stronger for individuals with poor sleep health as compared to individuals with better sleep quality.[33,34] Insomnia may disrupt appropriate emotion reactivity and emotion regulation increasing the risk for depression.[34]

Worry has also been associated with depression. Hence, it can be said that the association between worry and depression by sleep health may be particularly exaggerated during the COVID-19 outbreak because of worries relating to the pandemic itself. Studies reported that greater levels of worry about the disease led to difficulty in sleeping, which, in turn, led to greater levels of depressive symptoms. Indeed, sleep problems may also cause a detrimental impact on neurotransmitter receptor function, alter regulation of the hypothalamic-pituitary-adrenal axis, and elevate the levels of stress hormones (cortisol and adrenaline), which may result in impaired thinking, emotional dysregulation, and stress related disorders such as depression.[35-39]

Effect of COVID-19 Pandemic on HCPs

Reports on anxiety, depression, and insomnia

From the previous studies of SARS, influenza A, MERS, and now COVID-19 epidemics, the onset of a sudden and

immediately life-threatening illness can lead to extraordinary amounts of pressure on healthcare workers (HCWs).[40] The increased workload, physical exhaustion, inadequate personal equipment, nosocomial transmission, and the need to make ethically difficult decisions on the rationing of care may have dramatic effects on their physical and mental well-being. Their resilience can be further compromised by isolation and loss of social support, risk or infections of friends and relatives as well as drastic, often unsettling changes in the ways of working. HCWs are, therefore, especially vulnerable to mental health problems, including fear, anxiety, depression, and insomnia.[41,42]

Several reviews previously have focused on highlighting the factors responsible for the physiological as well as psychological effects an epidemic or outbreak has on the general diaspora but a collected focus with respect to depressive symptoms or suicidal tendencies has not been established. The aim of the current review is to collate the evidences suggesting a prevalence of depression among healthcare workers during the pandemic, that is, COVID-19. Studies over the years have shown that psychiatric symptoms such as PTSD, depression, and anxiety have been observed among healthcare workers during[43] and 2 months;[44] 2;[45] and 3 years[46] after the SARS epidemic as well as among the general public during[47] and after the epidemic.[47,48]

In a study conducted in 2006 in a hospital in Beijing, nearly 550 employees selected randomly were surveyed concerning their exposures to the 2003 SARS outbreak in the city and the ways in which the outbreak had affected their mental health. Subjects were assessed on socio-demographic factors, on types of exposure to the outbreak, and on symptoms of PTSD and depression. It was observed that those who had been quarantined and perceived SARS-related risk levels during the outbreak were found to have high levels of depressive symptoms after 3 years. Altruistic acceptance of risk during the outbreak was found to decrease the odds of high post-outbreak depressive symptom levels.[40]

In India as well, in a cross-sectional, observational study conducted among frontline doctors of tertiary care hospitals in India (Kolkata, West Bengal; New Delhi; Nagpur, Maharashtra; and Thiruvananthapuram, Kerala) from May 23, 2020, to June 6, 2020 to assess depression and perceived stress levels it was found that 63.5% and 45% of symptoms of depression and stress, respectively, prevailed among frontline COVID-19 doctors. Majority (45.5%) of the respondents were postgraduate trainees. Moderately severe and severe depression was noted in 14.2% and 3.8% of the doctors, respectively, while moderate and severe stress was noted in 37.4% and 7.6% of participants, respectively. The pandemic has taken a serious toll on the physical and mental health of doctors hence regular screening of medical personnel involved in the diagnosis and treatment of patients with COVID-19 should be conducted to evaluate for stress, anxiety, and depression.[49]

A literature search of 14 studies on HCWs in different departments (infectiology, internal medicine, etc.) with a sample size ranging from 37 to 1257 participants reported an extensive strain on the COVID-19 patients experiencing stress along with symptoms of anxiety and depression. The reports published between January and March, 2020 on PubMed were shortlisted. The COVID-19-associated activities varied from 7.5% to 100%. Severe degrees of those symptoms were found in 2.2% to 14.5% of all participants. The severity of mental symptoms was influenced by age, gender, occupation, specialization, type of activities performed, and proximity to COVID-19 patients. Therefore, preventive measures and mental health awareness programs need to be conducted.[50]

Another comprehensive survey in India using snowball sampling was conducted online in May, 2020. The study demonstrated a high prevalence of symptoms of depression and anxiety and low quality of life (QoL) among Indian HCPs during the COVID-19 pandemic. A Patient Health Questionnaire-9 that has been used for measuring depression both in clinical and general population settings was employed in most studies.[51] 12 major stressors contributing to moderate-to-severe depression and anxiety were scored to assess for severity. 197 HCPs from 30 cities across 12 states responded to the survey with highest representation from Maharashtra (157, 80%); 66 (34%) were physicians; 47 (24%) nurses, 58 (29%) residents/interns; and 26 (13%) were other types.[52]

In an online survey assessing depression among neurosurgeons using a self-reporting questionnaire, a total of 375 responses were received from 52 countries. The odds of depression were significantly higher among neurosurgeons who did not feel safe with the provided personal protective equipment (OR, 2.43) and who were exposed to a COVID-19–positive colleague (OR, 2.54) whereas participants who had moderate concerns for their families had lesser odds of anxiety/depression than did those with significant concerns (OR, 0.28).[53]

A study in Vietnam also showed that people with suspected COVID-19 symptoms are more likely to be depressed and have a low QoL.[54] Evaluation of QoL in HCPs treating Ebola patients reported their feelings of social isolation and low QoL.[55] Moreover, COVID-related coverage in social media can be emotionally disturbing and HCPs may be experiencing social isolation, stigma, and anxiety, contributing to reduced QoL.[52]

Further, in a longitudinal study of three Dutch psychiatry case–control cohorts, a graded dose-response relationship was noted between the number and chronicity of depressive, anxiety, or obsessive-compulsive disorders and perceived mental health impact of COVID-19, fear of the virus, and a poorer ability to cope, during the 1st few weeks after the national lockdown in the Netherlands. The perceived mental health impact and fear of COVID-19 were more substantial among participants with lifetime mental health disorders, and these individuals struggled more to cope with the COVID-19 pandemic.[56]

In a study conducted by Pappa *et al*. (2020) involving a total of 33,062 participants evaluating the prevalence rates of depression, anxiety, and/or insomnia using validated assessment methods it was found that the prevalence rates of anxiety and depression (23.2% and 22.8%, respectively) of HCWs during COVID-19 are broadly comparable to the respective rates, ranging between 22.6–36.3% for anxiety and 16.5–48.3% for depression that had been reported for the general population in Chinaduring the same period. This rapid systematic review and meta-analyses of 13 cross-sectional studies highlighted the considerable effect of the crisis on the entire population.[12,16,20] It also was interesting to note that a subgroup analysis revealed gender and occupational differences with female HCPs and nurses exhibiting higher rates of affective symptoms compared to male and medical staff, respectively.[57]

In another study comparing the general population, a group of 1104 respondents (30 in Hubei province and 1074 in other regions of China) with 899 frontline medical workers (138 in Hubei Province and 761 in other regions of China) revealed that both frontline medical workers in Hubei Province and those in other regions reported a considerable prevalence of psychiatric symptoms. Overall, 30.43%, 20.29%, and 14.49% of frontline medical workers in Hubei Province reported symptoms of depression, anxiety, and insomnia, and 23.13%, 13.14%, and 10.64% of frontline medical workers in other regions reported symptoms of depression, anxiety, and insomnia, respectively.[58]

In general, the levels of depression, anxiety, and insomnia were highest among medical workers in Hubei Province, followed by medical workers in other regions, and they were lowest in the general population in other regions. The resilience of frontline medical workers in other regions was significantly higher than that of the general population in other regions.[58]

The previous studies showed that not all individuals exposed to stressful situations or even to traumatic events develop mental disorders.[59,60] Resilience, which is defined as the capacity to cope with and positively adapt to adversity, is an important protective factor and is of particular concern to researchers in the field of adversity.[61,62] Individuals with high resilience are better able to maximize internal resources (e.g., perseverance and self-efficacy) and external resources (e.g., social support) to mitigate the negative impact of adversity.[63] It has been demonstrated during the COVID-19 epidemic that resilience can help reduce worry, anxiety, and depression.[64,65] Moreover, medical staff has more knowledge about the epidemic and more professional work experience than the general public does; as a result, they may have more psychological endurance and confidence regarding COVID-19.[66] Thus, the resilience of medical workers may be higher than that of the general public.

Suggestive Actions to be Taken and Future Scope

This review attempts to emphasize the need for early detection, diagnosis, and examination of the affected people by effective targeting and sampling of the population. It is also crucial to detect in a timely manner the milder clinical symptoms before they exacerbate or manifest into a disease of unknown origin and unidentified pathology. Further, the physiological symptoms must be addressed at the sub-threshold level before they evolve to more complex and enduring psychological responses.

Mental health problems do not always need medical and therapeutic intervention as some of the problems can be healed at community levels.[67] Does an increase in depression, anxiety, stress, insomnia, and phobia need more musicalized and therapeutic attention during this crisis when mental health experts have the same level of COVID-19-related information, or should mental health experts analyze the situation more carefully, identify protective factors available in the community, and offer more information to the public to adjust in this crisis? This is a question that needs to be pondered upon and can be an area of future research. The human psyche is impressionable and constantly evolving. Creating awareness and knowing are better than living in the fear of the unknown.

Conclusion

Every study has its limitations and the aim of this review is to compile the existing literature and identify the lacunae that persist to design an effective experimental framework that covers all the relevant parameters. This puts a subjective bias in reporting and cannot be fully considered without addressing other factors. More importantly, it needs to be considered that the pandemic is still very much in existence and the grave psychological effects due to the disease, the incubation period, the lockdown or its aftermath will continue to exist for a prolonged period. Although most studies suggest an increase in the mental health issues following a pandemic, the situation might not become better soon until a permanent solution to combat the disease can be discovered.

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