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The COVID-19 Pandemic and the Health Care Providers; What Does It Mean Psychologically?

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Abstract

In late 2019, the COVID-19 epidemic began in Wuhan, China, which quickly spread around the world, becoming an international concern and pandemic. As with previous SARS and Influenza H1N1 pandemics, medical staffs providing services to patients are exposed to increased levels of mental stress. This review article introduces these symptoms based on the experience of previous pandemics and the data available on COVID-19 pandemic, introducing the underlying and protective factors against mental distress. Evidence suggests that levels of stress, depression and anxiety symptoms increase in health care providers. Moreover, these symptoms are more common in women, nurses, and people who are at the frontline of providing health care services for COVID-19 patients. Given the need to pay attention to maintain and promote the mental health of medical workers to provide effective services, this review offers suggestions to the effective management of these conditions at the individual and organizational levels.

Key words: COVID-19; Health Personnel; Mental Health; Pandemics

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Introduction to COVID-19 and the Role of Health Care Providers

A Pandora's Box; COVID-19

COVID-19, a symbol of uncertainty, revolutionized every aspect of human life globally as well as medical settings. Health care workers (HCWs) at the frontiers in this ambiguous combat have a crucial responsibility to challenge an enemy whose behavior is not predictable and even the diagnosis of infected patients as well as their management is in the shadow of uncertainty [(1)]. To make matters worse, there has yet been no vaccine to prevent people from the disease. To top it all, many infected persons can be completely asymptomatic and walk in the streets, go shopping, travel around the world and spread the virus on the earth, which is the scenario now we are facing around the world originating from Wuhan the epicenter from which the insidious virus travelled easily to the most distant destinations intercontinentally. Meanwhile, the governments at the behest of the World Health Organization (WHO), Centers for Disease Control and Prevention (CDC) and experts' recommendations put everything on hold to address the outbreak by means of social distancing, quarantine, lockdowns and strict protocols for personal hygiene. Accordingly, peoples from around the world are under tremendous mental pressure, especially the HCWs as the ones most involved [(2)]. Considering the duty of medical personnel, they should provide different services for the COVID-19 patients while shouldering the burden of taking care of their beloved ones; their children, spouse and parents as a family member despite the likelihood of contamination or transmission of the coronavirus. Moreover, due to the hourly barrage of unpleasant news by the social media concerning the number of patients and death toll, new guidelines and policies make them mentally very sensitive and fragile.

Admittedly, the first responders to any diseases are health care providers who may be infected with an insidious virus, like corona sooner than any other population despite unawareness about the reality regarding the origin, ways of transmission, protective measures, clinical features, exact number of infected persons, diagnostic protocols, special confirmatory lab tests, treatment, prognosis and the like. Thus, many fatal diseases like severe acute respiratory syndrome (SARS) had many devastating consequences among medical workers causing mortality, morbidity and even the outset of the vicious cycle of pathogen transmission from community to hospital and from hospital to community.

Considering the rapid spread of the sly virus menacing overworked and under-resourced HCWs wrestling the threats of infection relying on the unreliable infrastructure of non-verified information; they have the Hobson's choice of managing their patients while having severe concerns about their personal protection equipment (PPE) supplies not to mention their family conditions. Therefore, most of them decide to isolate and quarantine themselves alleviating their worries despite their social responsibility and altruism as a member of the medical society. Moreover, HCWs in pandemics are always anxious about their contamination and its devastating results, especially in case of the loss of their colleagues victimized by the disease. Accordingly, HCWs' preoccupations during pandemics are different in comparison with those of the general public. To specify, they have a host of unanswered questions in their minds, such as: "Who would take care of my children if I become sick? What will be the prognosis of my disease? How can I make a living during my illness period?" and the so forth.

From another perspective, in some situations medical staff may be rejected by their society or even relatives regarding their potential high-risk status of being a latent carrier and the stigma of working in the epicenter of the contamination.

On the whole, the summative effects of pandemics on the society impose double pressure on the medical personnel as they should manage patients, systemic shortcomings and their personal health, simultaneously. Additionally, different studies in pandemics estimate the prevalence of psychiatric morbidity as high as 50-75% among HCWs with persistent rate of almost 40% after 3 years [3-5]. Consequently, addressing psychological impacts of pandemics on the HCWs, health care administrators should be informed about the stress backgrounds, predisposing factors, presentations and side effects to plan special strategies relieving the stress of medical society. Undoubtedly, some interventions are on a personal level and others categorized as a system responsibility [6].

COVID-19 Pandemic; Psychological Impacts

Psychological effects of COVID-19 pandemic on health care workers

Following the outbreak of infection in the city of Wuhan in late 2019 and the rapid rise in COVID-19 epidemic, the WHO announced global health concern internationally [7, 8]. The total number of COVID-19 cases was several times higher than SARS, and the number of deaths was much higher [9]. Since the reports of personnel infection was obtained at first, such as 29% of hospitalized patients, and quarantine and social isolation or exposure to social stigma, emotional reactions and psychological stresses are expected to occur in medical staff [9, 10]. Similar to SARS and H1N1 studies, in COVID-19 epidemic, nurses and medical technicians experience more stress than doctors [6, 11]. The spread of COVID-19, like SARS and influenza phenomena, causes significant stress in one-third or one-half of HCWs [12-15]. This increasing stress is related to quarantine colleagues get sick, fear of spreading disease and concern for family health job stress interpersonal isolation and stigma perception [14-20].

In a study by Zhu et al. through the COVID-19 epidemic in Wuhan, China, a short term survey through an online questionnaire was conducted in February 2020 on 5062 medical staff. In this study, stress, depression, and anxiety were measured through the depression and anxiety by Impact of Event Scale-Revised (IES-R), Patient Health Questionnaire-9 (PHQ-9), and Generalized Anxiety Disorder 7-item (GAD-7) and through another questionnaire, psychological protection criteria were evaluated at Tongji Hospital. In this study, with the response ratio of 77.1%, levels of stress, depression and anxiety were reported as 29.8%, 13.5% and 24.1%, respectively. Meanwhile, the factors that played a role in development of these symptoms were female gender, long working experience, underlying chronic diseases, and a history of psychiatric disorders in the individual and family levels. While the support of hospital officials and wards and the existence of complete protective equipment were identified as protective factors against psychiatric symptoms. In contrast to depression symptoms, adjustment of logical work shifts and logistical support and comfortable hospital stay have been protective factors and history of alcohol consumption and definite or suspected diagnose of infection to COVID-19 have been a risk factor for depression. In regard of anxiety symptoms, living with family members and worrying about themselves and their family members to be infected with COVID-19 were known to be a risk factor, in addition to providing logistical support in the hospital and the convenient accommodation protects staff from anxiety and these factors were recognized as a protector like in depression [9].

A study by Lai et al. which is done after the first study, examined the mental health of 1275 health care workers in 34 hospitals between January and February 20th, 2020 using the PHQ9, GAD7, and IES22 tools. In this evaluation, the response rate

was 68.7%, and 50.4% experienced depression symptoms, 44.6% anxiety symptoms, 34% insomnia and 71.5% stress symptoms. Nurses, women, frontline medical staff, and those working in Wuhan showed more severe symptoms in terms of mental health criteria.

HCWs in the first line of diagnosis, treatment, and patient care were at greater risk for symptoms of depression, anxiety, insomnia, and stress. After careful analysis and elimination of the role of disruptive factors, being female and average work experience were strongly associated with experiencing severe symptoms of depression, anxiety, and psychological distress. On the other hand, working at the frontline of dealing with patients of COVID-19 has been an independent risk factor for experiencing all the symptoms of psychological problem [21].

It is important to note that not only people are under stress in such a pandemic, but also it has been observed that until two years later, HCWs in the hospital have symptoms of chronic stress compared to their other colleagues [22]. These symptoms include occupational burnout (19-30%), depression symptoms (20-45%), increased smoking and alcohol consumption (8-21%). However the hopeful thing is that depression disorder, post-traumatic stress disorder (PTSD), and other mental disorders have not increased [23]. Observation of subsyndromal symptoms seems to require change in clinical intervention using adaptation and resilience models. Long-term stress is seen in those who have self-blamed and use avoidance strategies [22].

Psychologically, the HCWs at the frontiers in the medical literature in different pandemics such as avian flu, SARS and the recently emerging COVID-19, have suffered various stress disorders, like PTSD, panic, anxiety, depression and the like that may prolong for a long time or even stigmatize their lifelong mentality. The emotional impacts of pandemics are a spectrum of mild symptoms to the mental disorders which have negative effects on the quality of life. The psychological presentations of stress in HCWs can be listed as:

- PTSD
- Depression
- Anxiety
- Panic disorders
- Behavioral disorders
- Burnout
- Complex emotional reactions and psychological distress
- Attention, cognitive and clinical decision-making impairment causing medical errors and incidents
- Increased smoking, drinking or problem behavior
- Missing work shift due to stress or illness
- Unwillingness to work or thinking about resignation

There are also some predisposing factors in this regard [2-4, 6, 9, 14, 16, 20, 21, 24-27]:

- Quarantine causing loneliness and being away from family and beloved ones
- Misinformation based on the social media and rumors
- Financial insecurity and severe losses due to industries and businesses shutdown
- Hourly updates on death tolls and case numbers
- Social discrimination and feeling stigmatized by the community for carrying an infection
- The matter of uncertainty: about the severity of infection and doubt in the treatment effectiveness
- Workload and a sense of being overwhelmed: increasing number of patients despite new guidelines and policies
- PPE and claustrophobia
- Inaccessibility to medications
- Women
- Work experience: more than 10 years of working
- Concomitant chronic diseases
- History of mental disorders or recent psychological trauma
- Family members or relatives confirmed or suspected of infection
- Overcrowding
- Poverty: inadequate housing, malnutrition, immune suppression, and poor health status
- Cultural background and personal daily life circumstances
- Traditions regarding health practices
- Reasoning strategies and past experiences
- Trust in government and public health systems
- Chronic economic deprivation accounting for lowered self-efficacy and decreased sense of control over life events
- Working in the frontline
- Perceived risk of self-infection and loved ones especially children
- More experience results in less stress
- Skilled and well trained workers result in less stress
- Coping mechanism: avoidance and self-blame coping more psychological insult

- Nature of disaster and pandemic: scale and severity, transmission way (airborne or droplet), morbidity, mortality and the so forth
- Opportunity for being ready for pandemic
- Weak system support and being under-resourced
- Being much publicized in the mass media
- Altruistic acceptance of work-related risks accounts for less stress
- Age: under 50 years and higher stress levels
- Marital status: being single more stress
- Educational level: high education causing higher fear
- Greater family responsibilities increase a person's level of fear; married hospital employees reported elevated fear
- Nurses
- Hospital level: tertiary hospital workers less mental side effects
- Intermediate professional title

MENTAL HEALTH PROMOTION INTERVENTIONS

Individual interventions

Due to the prevalence of anxiety, depression, and stress symptoms and the lack of a significant increase in major psychiatric disorders, it seems necessary to provide mental health services for health care workers in the COVID-19 pandemic. But it may be necessary to use individual psychological reinforcement models, such as resilience enhancement, instead of disorder-oriented clinical models [25, 28]. HCWs who work specifically in quarantine with COVID-19 patients need adequate social support to be able to maintain their mental health and provide psychological support to patients [29].

In order to maintain effective functioning, their mental state needs to be monitored and continuous interventions should be available timely to support them. The Anticipate, Plan and Deter (APD) responder risk and resilience model is an effective way to understand and manage psychological effects in medical personnel, which manages well the stress associated with the perceived risk [30]. In this model, medical personnel are taught about stress by focusing on stressful events, and in this training, they have the opportunity to design a specialized resilience program and then learn to use it in real situations.

In the experience of Wuhan China, two-stage intervention has been used during and after the epidemic. This experience has shown that these interventions are advantageous. After the onset of stressful conditions, following the outbreak of the coronavirus, psychological first aid assistance was provided, as well as rapid adaptation counseling, and after the epidemic, psychological support, APD training and improvement of the mental health system were planned [29].

Apart from systemic interventions, considering resilience plays an important role in improving mental health of health care workers. Resilience is the ability to limit the impact of stressful occasions through anticipation and preparation or bounce back once a disruptive event occurs [25].

Two evidence-based methods can be used in this regard. The Folkman and Greer model is mostly used to maintain psychological well-being in chronic diseases through the understanding, and process of adaptation in order to facilitate regaining positive feelings and effective adaptation. In other words, problem solving obtains by self-control, increasing support and reducing isolation and meaning-based adaptation. This method strengthens the person's flexibility, stress recognition and full adaptability [31].

The second model encourages the utilization of psychological first aid, which promotes tolerance immediately after trauma, and these aids can be learned. Interestingly, learning to support others increases tolerance [32]. It is assumed that these people are not sick and they know if they need help. This method reduces stress during the crisis by increasing the feeling of security and comfort, helping the survivors of trauma, and providing information to facilitate social communication [32].

On the other hand, it is appropriate to develop and use electronic mental health assessments due to the restrictions of close personal contacts and the risk of spreading virus in individual communications. It is also necessary to provide appropriate training for service recipients and service providers [33].

In addition to application of individual and social psychological interventions, various methods of controlling and reducing infection and protecting staff can be effective in decreasing the anxiety of health care workers and improving their mental health [29].

Organizational interventions

Obviously, the main purpose of research studies in this field is to alarm health administrators to have proactive plans in three different stages of each disaster since any stress-related disorder can cause suffering for HCWs attention, cognition not to mention clinical decision-making, which would have devastating results. The three stages are namely: pre-pandemic phase, throughout the pandemic, and finally after the event.

The main recommended systematic interventions regarding the psychological health of medical staff in different pandemics, such as COVID-19 can be summarized as below [2, 6, 9, 10, 24, 25, 28, 29, 33, 34]:

- Having an action plan for recovery
- Designing specific support models addressing coronavirus dilemmas and misinformation
- Using telemedicine and distant counseling; helping patients and personnel
- Facilitating the use of the Media and video chats considering loneliness during social and physical distancing period
- Conducting researches to assess psychological impacts of disasters on HCWs to determine the risks and predisposing factors to have a clear roadmap mitigating its negative effects
- Considering measures for full coverage of frontier departments and hospitals regarding protection against nosocomial infection, reasonable shift schedule, establishing backup, reserves and logistic supports like PPEs, acceptable places for staff to rest, mental support by deployment of psychologists and so forth
- Arranging 1) psychosocial response teams: including administrators and public relations officer to bridge the gap between hospital and the general public, 2) Psychological intervention technical support team: to plan rules, guidelines, protocols and executive governance from a psychological perspective, 3) Psychological intervention medical team: psychologists participating in clinical psychology and emotional support for health workers and patients, 4) Psychological hotline teams working as volunteer assistants on the phone to address psychological emergencies.
- Having protocols to steer social supports and charity activities during pandemic period.
- Planning to monitor medical staff's mental condition in a timely manner to assess their risks, resilience and wellbeing.
- Being honest with the staff about the real situation and shortcomings as well as discussing with HCWs bilaterally, clearly and openly to address their preoccupations
- Promoting Health campaigns among frontiers to share their emotions, experiences, ideas and the like
- Preparing resilience action plans as a bumper facing workplace stressors
- Leadership strategies such as backup plans, flexibility, personnel adaptation skill training, founding relational reserves by setting interdisciplinary and collaborative meetings, sharing the workload and responsibilities fairly, giving trustees the opportunity of decentralization (magnet hospital) in decision-making regarding different tasks like work scheduling, effort-reward equality and the so forth.
- Institutionalizing a mixture of care models like virtual and electronic emotional/mental support clinics

Conclusions

As anxiety, depression and stress symptoms increase during and after a pandemic, although persistent psychiatric disorders may not increase, maintaining the well-being of health care providers and their effective performance, requires monitoring and providing services in terms of mental health before, during and after the pandemic. Preparing for a COVID pandemic requires attention to individual and organizational processes. Apart from social and organizational support, enhancing individual abilities and resilience can make tolerance of conditions easier and reduce its side effects. Interventions to improve mental health appear to be essential for health care workers facing COVID-19, especially for women, nurses, and frontline personnel.

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Conflict of interest

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