

# The outbreak of COVID-19 coronavirus and its impact on global mental health

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## Abstract

**Background:** The current outbreak of COVID-19 coronavirus infection among humans in Wuhan (China) and its spreading around the globe is heavily impacting on the global health and mental health. Despite all resources employed to counteract the spreading of the virus, additional global strategies are needed to handle the related mental health issues.

**Methods:** Published articles concerning mental health related to the COVID-19 outbreak and other previous global infections have been considered and reviewed.

**Comments:** This outbreak is leading to additional health problems such as stress, anxiety, depressive symptoms, insomnia, denial, anger and fear globally. Collective concerns influence daily behaviors, economy, prevention strategies and decision-making from policy makers, health organizations and medical centers, which can weaken strategies of COVID-19 control and lead to more morbidity and mental health needs at global level.

## Keywords

Outbreak, coronavirus, mental health, COVID-19

## Introduction

In the last months, after the outbreak of a new coronavirus infection (COVID-19) on 31 December 2019 among humans in Wuhan (China), an increasing amount of information and concerns are impacting on global mental health. Global media, local and international health organizations (including World Health Organization), epidemiologists, virologists and opinion-makers put out information, recommendations and minute-by-minute updates on COVID-19 spreading and lethality. Nevertheless, the burden of this infection on the global mental health is currently neglected even if it may challenge patients, general population, as well as policy makers and health organizations and teams.

The city of Wuhan in China is in the spotlight since December 2019 because of the outbreak of a febrile respiratory syndrome due to a pneumonia caused by a new unknown coronavirus (Li et al., 2020) possibly linked to a wholesale seafood market in Huanan (Y. Chen, Liu, & Guo, 2020).

Chinese health authorities have employed rapid public health measures, including intensive surveillance, epidemiological investigation and the closure of the markets on January 1, 2020 (N. Chen, Zhou, et al., 2020). Severe acute respiratory syndrome due to coronavirus (SARS-CoV), Middle Eastern Respiratory Syndrome due to coronavirus (MERS-CoV), avian influenza and other common respiratory viruses (Centers for Disease Control and Prevention, 2020) were rapidly ruled out.

The new coronavirus (SARS-CoV-2, initially named 2019-nCoV) has been isolated from a patient in a short time on January 7, 2020, and the genome sequencing of this virus has been performed (Lu et al., 2020). The genetic sequence of SARS-CoV-2 has been officially recognized by World Health Organization (WHO) on January 12, 2020, and this has led to the development of specific polymerase chain reaction PCR-based diagnostic tests to detect the new infection in different countries (Corman et al., 2020). SARS-CoV-2, previously indicated as an unknown beta-coronavirus, is the seventh member of coronaviruses' family which infects humans, different from both MERS-CoV and SARS-CoV, SARS-CoV-2 (Zhu et al., 2020). This outbreak is possibly related to the sale of bush meat derived from wild or captive sources in the seafood market (Cui et al., 2019).

The WHO has labeled as COVID-19 this emerging respiratory disease. The first cases of this pandemic were

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men, less than half of them reporting had underlying diseases including diabetes, hypertension and cardiovascular disease. Common symptoms at the onset of illness were fever, cough and myalgia or fatigue. Less common symptoms were sputum production, headache, hemoptysis and diarrhea. Complications included acute respiratory distress syndrome, acute cardiac injury and secondary bacterial infection (Huang et al., 2020; Su et al., 2016; Weiss & Leibowitz, 2011).

The amount of information about the new coronavirus is increasing daily and more data on transmission and its route, reservoirs, incubation period, symptoms and clinical outcomes, including survival rates, are collected around the world (Corman et al., 2020).

### **COVID-19 and consequences for mental health**

Even if the impact of this epidemic on global mental health is not registered and measured, similar information may be derived by previous experiences with coronavirus infections. During the Korean MERS-CoV outbreak in 2015, patients were treated with hemodialysis in an isolated environment. Patients reported decreased values in their hematocrit, calcium and phosphorus levels after 2 weeks of isolation. Also, the levels of circulating cell-free genomic DNA (ccf-gDNA) and circulating cell-free mitochondria DNA (ccf-mtDNA), which are indicators of psychophysical stress in humans, have shown a significant delay in their normalization during the hemodialysis among patients when compared with controls' group. This implies that medical isolation during the Korean MERS outbreak has caused high level of stress in hemodialyzed patients (Kim et al., 2019). This should be considered since the Chinese government is undergoing one of the biggest lockdowns in public health history (Guerriero et al., 2014) and security measures mostly consist of isolating large segments of the population. Isolation may be protective in many circumstances such as terrorist attacks, and previous experiences with an increase of mental distress during these events have been described (Fagan et al., 2003). Also, a 3.4-fold increase in incidence of functional neurological symptom disorder has been reported after the city-wide lockdown following the Boston Marathon bombings (Guerriero et al., 2014). Care providers must be aware of functional neurological symptom disorders after stressful community events particularly in individuals with prior psychiatric diagnoses (Jeong et al., 2016).

Mental health support and follow-up should be provided even 6 months after the release from isolation for those individuals with prior vulnerable mental health status. Support should include accurate information as well as appropriate supplies for the subjects, including food, clothes and accommodation, if needed (Lin et al., 2007).

Also health care providers may develop psychiatric disorders after coping with stressful community events. In 2003, during the SARS-CoV outbreak in Singapore, 27% of health care workers reported psychiatric symptoms (Lee et al., 2018). Medical staff that performed MERS-related tasks showed post-traumatic stress disorder symptoms after the Korean outbreak of 2015. As described, the rate of symptoms increased even after the isolation (home quarantine). Early and continuous psychiatric interventions were delivered by the mental health team coping with the outbreak, as suggested in the occurrence of high mortality infectious disease outbreaks (Shantanu & Kearsley, 2020). Similarly, during the Ebola outbreaks in Sierra Leone in 2014 and in the Democratic Republic of the Congo in 2018, medical staff reported high levels of anxiety and the impact of stigma among those who were in direct contact with infected patients (Park et al., 2018).

During the 2003 SARS-CoV outbreak in Taiwan, most of the staff in the emergency department and in the psychiatric ward developed post-traumatic stress disorder (PTSD). Also, emergency department staff have shown more severe PTSD symptoms than staff in the psychiatric ward (Lee et al., 2018). Emergency professional, in fact, reported the feeling of interpersonal isolation and the fear that they would transmit the virus to their relatives. Medical staff also stated that the use of heavy protective suits and N95 masks made communication between staff members very difficult with related psychological distress (Lee et al., 2018). Psychological adaptation was described among health personnel who had access to well-equipped and structured environment. During the 2015 Korean MERS-CoV outbreak, the influences of stigma and hardness had a direct impact on mental health of health personnel working on public hospitals (Shigemura et al., 2020).

In the COVID-19 emergency, medical workers in Wuhan have been dealing with high risk of infection and inadequate protection against contamination, overwork, frustration, discrimination, isolation, patients with negative emotions, a lack of contact with their families and exhaustion (Kang et al., 2020). The current situation is causing mental health problems such as stress, anxiety, depressive symptoms, insomnia, denial, anger and fear (Jones et al., 2017). These mental health problems not only affect attention, understanding and decision-making capacity of medical workers, which could hinder the fight against COVID-19, but they could also have a lasting effect on their overall well-being (Kang et al., 2020).

The prevalence in the general population of PTSD has been ranging from 4% to 41%; the prevalence of major depression increased by 7% after the outbreak. There are some factors that may increase the risk of developing such conditions as described: female sex, lower socioeconomic status, interpersonal conflicts, frequent social media use and lower resilience and social support (Heather Mowbray, 2020).

During each community crisis, people often seek out event-related information to stay informed on what is happening. However, when information from official channels is lacking or is irregularly disseminated, people may be exposed to some social and media misleading information. In a study conducted on a University lockdown after a shooter incident in the United States, those subjects receiving conflicting information about the lockdown reported much higher levels of acute stress (Purgato et al., 2018). Those subjects who had direct contact via phone text messages and used social media for critical updates during the lockdown were exposed to more conflicting information and stress. Also, higher acute stress was reported by heavy social media users in the study. This report highlights the importance of releasing substantive official updates at regular intervals during a crisis event and monitoring social media to reduce exposure to misleading information and distress (Purgato et al., 2018). In fact, fear of the unknown leads to higher anxiety level in both healthy people and those with pre-existing mental health problems; unjustified public fear may lead to discrimination, stigmatization and scapegoats (Mowbray, 2020). First, people's emotional responses are likely to include extreme fear and uncertainty, and negative social behaviors will often be driven by fear and distorted perceptions of risk. Second, special efforts should be directed to vulnerable populations, including (1) infected and sick patients, their families and colleagues, (2) individuals and their relationships with the community, (3) individuals with preexisting medical conditions (both physical and/or mental), (4) health care providers, especially nurses and doctors who work directly with sick or quarantined people. Finally, the degree of psychological stress that health professionals and others might face and the risks of vulnerable populations should be considered in the decision-making of the crisis.

Although studies related to mental health in patients with COVID-19 are scarce, several authors highlight that it is possible to predict more or less the expected consequences in mental and physical health of the most vulnerable parts of the population (Kang et al., 2020).

Community psychological interventions and support might have some effects in reducing PTSD symptoms, depressive and anxiety symptoms in adults during these stressful events. More evidence-base research is needed, particularly on the impact of these interventions in children and adolescents over longer periods of follow-up (Purgato et al., 2018).

## Conclusion

The current focus on the transmission of COVID-19 infection all over the world may probably distract public attention from psychosocial consequences of the outbreak in the affected individuals and in the general population. The

emerging mental health issues related to this global event may evolve into long-lasting health problems, isolation and stigma. Global health measures should be employed to address psychosocial stressors, particularly related to the use of isolation/quarantine, fear and vulnerability among the general population.

A worldwide inclusive response should include a focus on mental health impact of patients and general population. The information from media and social network should be closely controlled and community supportive psychological interventions globally promoted.

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