



CORONAVIRUS DISEASE (COVID-19) PSYCHOLOGICAL, BEHAVIOURAL AND INTERPERSONAL IMPACTS OF INFECTIOUS DISEASE OUTBREAKS: A REVIEW

MUNEESH KUMAR^{1*}, AJAZ AHMED WANI¹, SANGEETA DEVI²
AND IMTEYAZ AHMED¹

¹Department of Zoology, Government Degree College, Doda, University of Jammu, Jammu, India.

²Department of Botany, Government Degree College Bhaderwah, University of Jammu, Jammu, India.

AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration among all authors. Author MK provided the research idea, searched for previous relevant articles, prepared the paper and edited the paper and references. All authors read and approved the final manuscript.

Received: 04 May 2020

Accepted: 24 May 2020

Published: 05 June 2020

Review Article

ABSTRACT

Coronavirus COVID-19 pandemic sweeps across the world, it is causing widespread concern, fear and stress all of which are natural and normal reactions to the changing and uncertain situation that everyone finds themselves in. WHO takes the impact of the crisis on people's mental health very seriously and is monitoring the situation together with national authorities while providing information and guidance to governments and public. The current study was carried out to indicate that COVID-19 has negative psychological, behavioural and interpersonal problems other than mortality. A review of the studies performed in other parts of the world showed that COVID-19 has caused several psychological impacts, including increased anxiety, stress and depression. By an increase in the prevalence rate of COVID-19 and its resulted restrictions, the level of stress, depression and anxiety increases, as well; therefore, raising public awareness of the disease and providing positive psychological programs in the media aimed at controlling stress can reduce anxiety in society.

Keywords: Psychological; behavioural; interpersonal; infectious disease; COVID-19.

1. INTRODUCTION

A cluster of pneumonia of unknown etiology was reported in Wuhan City, Hubei Province of China on 31 December 2019. On 7 January 2020, Chinese authority identified a new type of coronavirus as a cause of pneumonia outbreak, which is different from any other human coronaviruses discovered and was temporarily named "2019-nCoV". Coronaviruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases. A novel coronavirus (nCoV) is a new strain

that has not been previously identified in humans. The new virus was subsequently named the "COVID-19 virus". Viruses like Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and Middle East Respiratory Syndrome Coronavirus (MERS Coronavirus) causing severe respiratory diseases. Coronaviruses such as SARS and MERS, are zoonotic, and can be transmitted from animals (civet cats and dromedary camels, respectively) to humans. (Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) was first reported in 2002-2003 in Guangdong, China and Middle East Respiratory

*Corresponding author: Email: drmuneesh.ju@gmail.com;

Syndrome Coronavirus (MERS Coronavirus) was first identified in Saudi Arabia in 2012). Epidemiological evidence shows that 2019-nCoV can be transmitted from one individual to another. In the previous outbreaks of other coronaviruses such as Middle-East respiratory syndrome (MERS-CoV) and the Severe Acute Respiratory Syndrome (SARS), human-to-human transmission occurred most commonly through droplets, personal contact, and contaminated objects. The modes of transmission of 2019-nCoV are likely to be similar.

According to World Health Organisation (WHO), additional investigations are needed to determine how the patients were infected, the extent of human-to-human transmission, the clinical spectrum of disease, and the geographic range of infection. On 30 January 2020, the Director-General of WHO declared the 2019-nCoV outbreak a public health emergency of international concern under the International Health Regulations (IHR) (2005). COVID-19 outbreak was declared as pandemic by WHO on 11 March 2020. According to WHO it is a controllable pandemic and urged all countries to take a

comprehensive approach considering their circumstances and with containment measures as the central pillar.

2. BACKGROUND

The World Health Organization has reported several types of viral infections, and millions of people are at risk for these diseases in various ways worldwide. The coronavirus disease 2019 (COVID-19) epidemic is known as a general health crisis that has caused challenges for mental resilience and has been the biggest outbreak since the severe acute respiratory syndrome (SARS) outbreak in 2003. COVID-19 was initially reported by China in late 2019 and had spread to 13 countries by January 24, 2020. COVID-19 as an emerging infectious disease was first identified in Wuhan. Its impacts have not yet been determined, as the observations and testing results are changing rapidly, leading to a high mortality rate. Among prevalent symptoms of this disease, cough, fever, shortness of breath, and sometimes diarrhoea can be mentioned. Bats are thought to be the natural host of the virus.

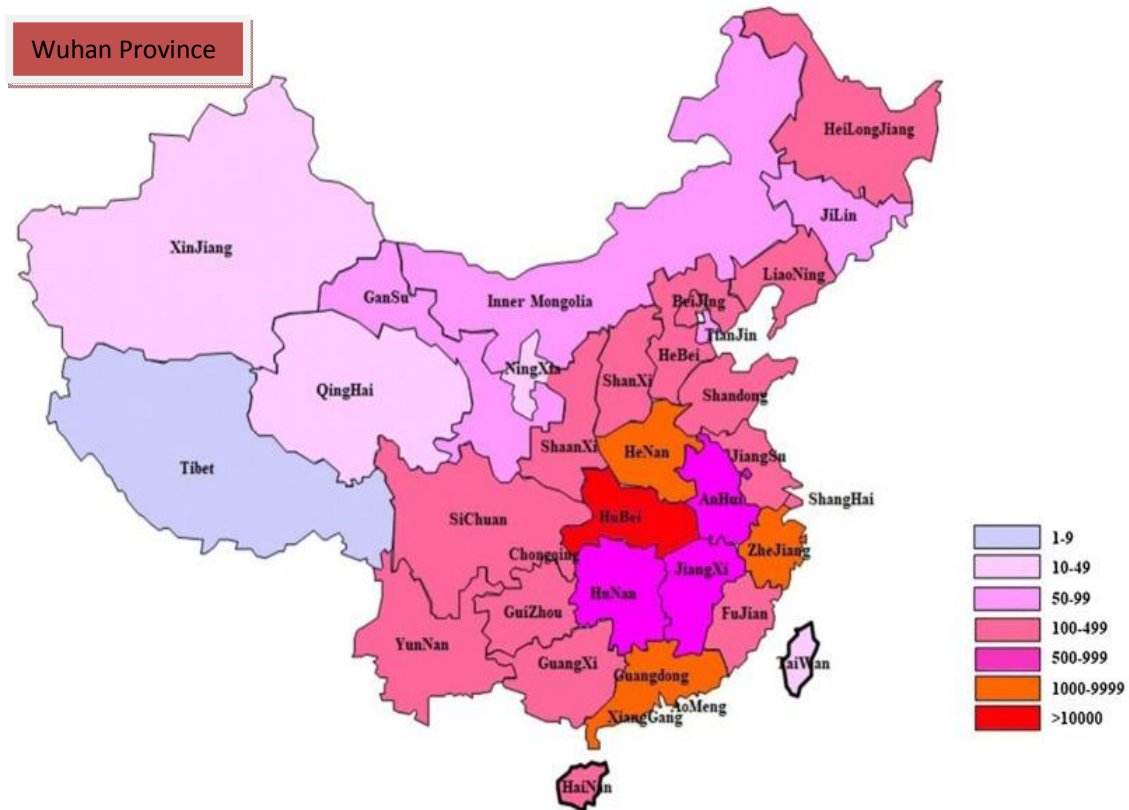


Fig. 1. Wuhan City, Hubei Province of China

In addition to endangering human health and consequently their deaths, COVID-19 imposes irreversible psychological impacts on human societies. For example, complete quarantine and commuting restrictions that prevent people from going out, fear of suffering from the disease, anxiety about losing loved ones, and more importantly, depression following losing friends and family are some of the issues people should deal with. The world has witnessed several widespread outbreaks of acute respiratory illnesses. For example, SARS as a communicable infectious disease spread in 2003; but, it was largely managed by quarantine measures. However, the effects of quarantine have never been investigated. The COVID-19 outbreak creates anxiety among people, especially in affected countries, and the media have huge impacts on increasing mental distress. For instance, some media have been using the term “end of the world” since the spread of the disease, leading to increased concern.

Some countries’ social stability has seriously been affected by COVID-19. In addition, the rate of distress among healthcare staff is higher compared with the general population, because they are more at risk for infection and transmission. The consequences of the disease outbreaks affecting all aspects of humans’ lives have continued. The current epidemic of COVID-19 is serious resulting in a pandemic. Given that no research has yet been carried out in Iran to investigate the psychological impacts of COVID-19 and the rapid spread of the virus in different countries, the present study was conducted to review the studies on psychological impacts of COVID-19 and other infectious diseases worldwide.

3. METHODOLOGY

3.1 Search Methodology and Article Selection

The current article is a narrative review of the existing literature on mental health symptoms and interventions relevant to the COVID-19 pandemic. A search of the PubMed electronic database was undertaken using the search terms “novel coronavirus”, “COVID-19”, “nCoV”, “mental health”, “psychiatry”, “psychology”, “anxiety”, “depression” and “stress” in various permutations and combinations. A total of 47 citations were retrieved using this method. On reviewing the above citations, 19 articles were excluded: 3 because they were available only in the Chinese language and 16 because they dealt with other aspects of the COVID-19 outbreak, such as drug therapy, animal models, public health and preventive measures, and organization of health care systems. A careful review of these 16 articles revealed no material relevant to mental health.

3.2 Methodological and Thematic Analysis of Selected Articles

The remaining 28 articles were included in this review. Of these 28 articles, only a minority (n = 4) could be genuinely labelled as “original research”. All these four studies were cross-sectional and observational in design. The remaining 24 articles consisted of letters to the editor (n = 16) and editorials or commentary related to mental health and COVID-19 (n = 8).

As it was not possible to conduct a formal systematic review or meta-analysis given the nature of the above publications, it was instead decided to conduct a narrative review, giving priority to the few observational studies available and briefly summarizing the salient themes from the other publication types. Five broad themes were identified across the 26 publications, and were used to organize the review: (a) observational studies reporting on mental health symptoms in particular populations, (b) commentary and correspondence broadly addressing the psychological impact of COVID-19 on the population, (c) commentary and correspondence addressing the impact of COVID-19 on healthcare workers, (d) commentary and correspondence specifically related to high-risk or vulnerable populations, and (e) commentary and correspondence related to methods of delivering mental health care during the COVID-19 outbreak.

The majority of published articles (18/28 of all articles; 64.3%) and all the observational studies (4/4; 100%) were from Chinese centres. There were two publications each from Iran and Canada; one each from Brazil, Singapore, India and Japan; and two publications with no specified country of origin.

3.3 Facts and Observations

The COVID-19 pandemic is a major health crisis affecting several nations, with over 5, 372,826 cases, 342,634 confirmed deaths and 2,225,468 are recovered as reported by WHO on 23 May 2020. Such widespread outbreaks are associated with adverse mental health consequences. Keeping this in mind, existing literature on the COVID-19 outbreak pertinent to mental health was retrieved via a literature search of the PubMed database. Published articles were classified according to their overall themes and summarized. Preliminary evidence suggests that symptoms of anxiety and depression (16–28%) and self-reported stress (8%) are common psychological reactions to the COVID-19 pandemic, and may be associated with disturbed sleep. A number

of individual and structural variables moderate this risk. In planning services for such populations, both the needs of the concerned people and the necessary preventive guidelines must be taken into account. The available literature has emerged from only a few of the affected countries, and may not reflect the experience of persons living in other parts of the world. In conclusion, subsyndromal mental health problems are a common response to the COVID-19 pandemic. There is a need for more representative research from other affected countries, particularly in vulnerable populations.

4. RESULTS AND DISCUSSION

In a cross-sectional study, Wang et al. [1] evaluated psychological impacts, depression, stress and anxiety at the beginning of the COVID-19 outbreak. In this study, 1210 participants from 194 cities in China answered an online questionnaire. The author showed that 53.8% of these people experienced severe psychological impacts of the outbreak. Moreover, 16.5%, 28.8% and 8.1% of the respondents reported moderate to severe levels of depression, anxiety, and stress, respectively.

Al-Rabiaah et al [2]. explored the impacts of the Middle East respiratory syndrome coronavirus (MERS-CoV) epidemic by examining medical students and found that all of these students experienced stress; however, female students were found with higher levels of stress.

Xu et al. [3] figured out that anxiety and fear were very prevalent among patients with COVID-19. Hence, they conducted accurate assessments and provided warnings to deal with this psychological crisis by providing rehabilitation programs using traditional Chinese medicine.

In a study that examined the psychological impacts of quarantine during the SARS outbreak conducted on 129 people in Canada, Hawryluck et al. [4] indicated a high prevalence of psychological distress, post-traumatic stress disorder (PTSD) rate of 28.9% and a depression prevalence of 31.2%. Furthermore, there was a significant correlation between the duration of quarantine and the prevalence of PTSD symptoms; therefore, direct contact with a person with SARS exacerbated the symptoms of depression and PTSD. Lee et al. [5] evaluated the psychological impacts of the MERS outbreak and found that PTSD symptoms were very high among hospital staff even many years after the outbreak. Al Najjar et al. [6] in a study that investigated the psycho behavioural responses of adults to the MERS-CoV epidemic in Jeddah shopping centres in western Saudi Arabia, found that

anxiety levels were significantly associated with increased perception of susceptibility to infection and social avoidance behaviours related to travel and being in public places.

Van Bortel et al. [7] assessed the psychological impacts of the Ebola outbreak on people, society, and the world. This disease infected nearly 28,000 people from 2013 to 2016 and led to 11,000 deaths. The results demonstrated that people experienced severe psychological trauma due to observing other people's death and having a fear of death.

Rubin et al. [8] conducted a study to examine the impacts of communication and media at the time of the influenza A (H1N1; swine flu) outbreak on the general population in the UK and concluded that being exposed to media and publicity related to the disease increased the purchase of disinfectant gels and boosted concerns about and avoidance of public transport vehicles. Mc Alonan et al. [9] examined the immediate effects of emerging infectious diseases on healthcare staff and found that people who were directly at the risk for SARS reported high rates of depression and anxiety in addition to chronic stress. Tucci et al. [10] explored the impacts of emerging infectious diseases and found that different infectious diseases have significant associations with obsessive-compulsive disorders and mental illness.

5. CONCLUSIONS

Many evidences from the past studies of the impact of SARS, MERS, influenza, and Ebola epidemics on the at-risk population, the suffering individuals and healthcare providers showed neuropsychiatric linkage. The results are relative to the current COVID-19 pandemic; they infiltrate fear, anxiety, emotional distress, and post-trauma stress symptoms as the affected individuals are viewed as minority and secluded from the rest of the population. The intervention measures that are employed by various health authorities and government bodies in combating the infection may help in eliminating the threat during the time of uncertainty; however, the multivariate studies done on the previous outbreaks show that they have long-term cognitive and mental health effects on the population. It is vital to emphasize the mental health well-being of the population and take proactive steps to minimize its detrimental effects during the COVID-19 pandemic. Therefore, designing psychological interventions to improve mental health during epidemics is essential. Raising people's awareness about the measures taken by the government to counter the spread of rumours, applying optional to mandatory restrictions, and raising public awareness by providing information on

the patients' recovery process can reduce anxiety in society.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) Epidemic among the general population in China. *Int J Environ Res Public Health*. 2020; 17(5).
2. Al-Rabiaah A, Tamsah MH, Al-Eyadhy AA, Hasan GM, Al-Zamil F, Al-Subaie S, et al. Middle East respiratory syndrome-corona virus (MERS-CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia. *J Infect Public Health*; 2020.
3. Xu K, Cai H, Shen Y, Ni Q, Chen Y, Hu S, et al. Management of corona virus disease-19 (COVID-19): The Zhejiang experience. *Zhejiang Da XueXueBao Yi Xue Ban*. 2020; 49(1).
4. Hawryluck L, Gold WL, Robinson S, Pogorski S, Galea S, Styra R. SARS control and psychological effects of quarantine, Toronto, Canada. *Emerg Infect Dis*. 2004;10(7): 1206-12.
5. Lee SM, Kang WS, Cho AR, Kim T, Park JK. Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. *Compr Psychiatry*. 2018;87:123-7.
6. Al Najjar NS, Attar LM, Farahat FM, Al Thaqafi A. Psycho behavioural responses to the 2014 Middle East respiratory syndrome-novel corona virus (MERS CoV) among adults in two shopping malls in Jeddah, western Saudi Arabia. *East Mediterr Health J*. 2017;22(11): 817-23.
7. Van Bortel T, Basnayake A, Wurie F, Jambai M, Koroma AS, Muana AT, et al. Psychosocial effects of an Ebola outbreak at individual, community and international levels. *Bull World Health Organ*. 2016;94(3):210-4.
8. Rubin GJ, Potts HW, Michie S. The impact of communications about swine flu (influenza A H1N1v) on public responses to the outbreak: Results from 36 national telephone surveys in the UK. *Health Technol Assess*. 2010;14(34): 183-266.
9. Mc Alonan GM, Lee AM, Cheung V, Cheung C, Tsang KW, Sham PC, et al. Immediate and sustained psychological impact of an emerging infectious disease outbreak on health care workers. *Can J Psychiatry*. 2007;52(4):241-7.
10. Tucci V, Moukaddam N, Meadows J, Shah S, Galwankar SC, Kapur GB. The forgotten plague: Psychiatric manifestations of Ebola, Zika, and emerging infectious diseases. *J Glob Infect Dis*. 2017;9(4):151-6.