

## THE POST-TRAUMATIC STRESS DISORDER IMPACT OF THE COVID-19 PANDEMIC

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### Introduction

On March 11, the World Health Organization (WHO) announced that the novel coronavirus disease 2019 (COVID-19) outbreak had become a global pandemic (Habersaat et al. 2020). The symptoms of COVID-19 are well known, and a range of treatments have been used to save lives. However, those who have recovered from COVID-19 may be struggling to mentally cope with what they have experienced physically (Brooks et al. 2020). They may even develop signs and symptoms of an acute stress response, or post-traumatic stress disorder (PTSD) (Burke et al. 2020). A question we face in the coming months is how to help survivors of severe COVID-19 recover. Although patients with confirmed or suspected cases of COVID-19, health care workers, and other people are showing signs of psychological problems related to the disease, survivors of previous diseases, health care workers, and front-line employees face a higher risk of infection and are more likely to be depressed, anxious, or even diagnosed with PTSD (Rogers et al. 2020).

Exposure, fear, isolation, loss of income, reduced autonomy, and the inability of health care professionals to cure coronavirus infections contribute to this increased stress (Gautam et al. 2020). As everyone is vulnerable to COVID-19, providing mental health support will help people maintain their mental health and return to a healthy life more quickly. The objective of this paper is to explore the research progress of post-traumatic stress disorder (PTSD) related to COVID-19.

### An overview of post-traumatic stress syndrome. The definition of PTSD

Posttraumatic stress disorder (PTSD) is a severe public health problem that is often caused by traumatic events. PTSD is a persistent disorder that occurs when an individual experiences the death of others, is threatened with death him or herself, is severely injured, or has the integrity of his or her body threatened (Dutheil et al. 2020). The incidence rate of PTSD varies widely, with women being more likely to develop the disorder than men (Huang et al. 2020). Out of 8,434 people studied across seven studies in four countries, 11.0% (928) had experienced PTSD (Table 1).

### What causes PTSD?

COVID-19 may cause psychosis for a number of reasons, including possible direct effects on the central nervous system, physical damage (e.g., hypoxemia), immune response, and medical intervention (Kleber 2019); it may also be related to broader social influences, such as social isolation, fear and stigma from infecting others. The isolation effect due to increasing unemployment and social distancing may lead to an increase in mental health problems (Hong & Efferth 2016).

### Causes of mental illness and manifestations of physical health complications during COVID-19

Severe COVID-19 cases may lead to mental illness in several ways, including viral infection - which may produce a direct effect - physical damage, immune response and medical intervention, and may also be associated with a broader range of social impacts, such as social isolation, fear and shame related to infection (Berlin et al. 2020).

COVID-19 is a severe disease, especially for people over 60 years of age, those living in long-term care facilities, and those with chronic conditions such as diabetes or cardiovascular disease (Bornstein et al. 2020). Impaired lung function caused by a coronavirus infection can negatively affect other organs, such as the heart, kidneys, and brain, and significant health effects may persist after the disease is overcome.

### The relationship between sociodemographic and psychosocial variables and PTSD symptoms COVID-19 patients

COVID-19 may expose survivors in intensive care units to specific health problems. One reason is that COVID-19 can cause unusually severe lung damage, which can leave many patients on ventilators in intensive care units (ICUs) for an extended period of time (Kotfis et al. 2020). Some COVID-19 patients need more than two weeks on ventilators. Some patients may need to recover from pneumonia or acute respiratory distress syndrome (ARDS), and many need oxygen (Li et al. 2020). Moreover, as the disease continues, many patients feel weak and helpless and require aggressive treatment.

**Table 1.** Studies related to the impact of COVID-19 on PTSD rates

References	Study location	Sample	Age Range/ Mean age	Study design
Chew et al. 2020	Singapore, India	Participants (N=906) with PTSD: 67 (7.4%)	25-35	Quantitative Analysis
Liang et al. 2020	China	Participants (N=584) with PTSD: 84 (14.4%)	14-35	Cross-sectional Study
González-Sanguino et al. 2020	Spain	Participants (N=3480) with PTSD: 550 (15.8%)	18-80	Quantitative Analysis
Hao et al. 2020	China	Participants (N=76) with PTSD: 24 (31.6%)	32.8	Case-control Study
Tan et al. 2020	China	Participants (N=673) with PTSD: 73 (10.8%)	30.8	Quantitative Analysis
Tang et al. 2020	China	Participants (N=2485) with PTSD: 67 (2.7%)	16-27	Quantitative Analysis
Huang et al. 2020	China	Participants (N=230) with PTSD: 63 (27.4%)	20-59	Quantitative Analysis

While placing critically ill patients in the ICU can save lives, these patients may also face serious mental health risks, such as PTSD, as a result (Jakovljevic et al. 2020).

In the months and years after discharge from the hospital, SARS and MERS survivors may develop mental illnesses such as depression, anxiety, fatigue and PTSD, according to a report published in *Lancet Psychiatry* (Rogers et al. 2020). Since data on COVID-19 are scarce, the medical community should be concerned about the possibility of a high incidence of these common psychiatric problems in the aftermath of the current pandemic. High-quality peer-reviewed studies of psychiatric symptoms in patients with COVID-19 infection are therefore needed. Monitoring the development of symptoms should be a regular part of the care provided (Liu et al. 2020).

### The general population, vulnerable groups

The threat of an unanticipated COVID-19 outbreak can lead to stress-related psychological problems characterized by fear. During this pandemic, the incidence of post-traumatic stress disorder has been higher among women. Members of the public in middle and late adulthood have had more psychological problems, severe post-traumatic stress disorder and anxiety symptoms than the young population has (Rogers et al. 2020). The reason for this may be that people in middle and late adulthood are relatively more aware of the threat of death than younger people are.

PTSD is a delayed and persistent mental disorder caused by events such as disasters. Reducing the incidence of PTSD from COVID-19 is also an important battle to win. While it is difficult to predict whether the COVID-19 pandemic will have an impact on suicide rates, it is essential to call on policymakers across multiple fields, including public health, psychiatry and psychology, to consider a range of issues, make preparations and take steps to minimize the risk of increased suicide rates.

There is no denying that the mental health effects of COVID-19 extend beyond persons who are infected in many ways. Factors such as travel bans and directives to isolate travellers and citizens may cause people to feel unsafe everywhere, amplifying public anxiety (Mindoljević Drakulić & Radman 2020). This can lead to more severe consequences (Odriozola-González et al. 2020). Travel restrictions mean that bereaved family and friends

cannot hold funerals to provide comfort and support to each other. Cancellations of weddings, graduations and other events have added pressure on the already limited time spent with friends and family. Those who already suffer from anxiety, depression or other mental disorders are most likely to suffer negative mental health effects from the pandemic (King et al. 2020).

Therefore, it is vital to emphasize the importance of obtaining reliable COVID-19 information, maintaining one's social network, continuing one's daily activities, overcoming common psychological barriers, and eliminating feelings of isolation and vulnerability. Most people feel normal again or even better after a period of trauma and stress ends. Therefore, post-traumatic growth is a positive change that takes place after experiencing adversity (Odriozola-González et al. 2020).

### Medical professionals who treat patients with COVID-19

Although the COVID-19 pandemic has affected people around the world, little is known about its potential impact on mental health. One study has found that depression and suicide are now several times more common among health care workers than in the general population (Wu & Wei 2020). A study by Matthew Walton noted that the novel coronavirus has several effects that could increase a nurse's risk of developing PTSD. For example, the frequency of the nurse's exposure to the coronavirus and workplace frustration may increase. Nurses' responsibilities in hospitals and their level of occupational exposure can lead to PTSD. In addition, especially when patients are suffering or dying, nurses will feel powerless to save them, adding to the psychological burden felt by nurses.

Psychological counselling is a widespread social problem, and it is urgent that the populations most in need of psychological intervention are identified and provided with professional treatment.

### Conclusions

The severity of the outbreak in different areas and the varying level of economic development in such places are likely to affect the public's mental health and coping styles. One study argued that we should increase the

range of assessment tools for mental health status and conduct a multicountry survey all over the world to explore the impact of public COVID-19 events on mental health, coping styles and related issues across the world.

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### References

1. Burke MJ, Lizano P, Jacobs C & Stern TA: Post-traumatic Stress Disorder Symptom Substitution as a Cause of Functional Neurological Disorder. *Psychosomatics* 2020; 61:81-85
2. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N et al.: The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet*, 2020, 395:912-920
3. Bornstein SR, Rubino F, Khunti K, Mingrone G, Hopkins D, Birkenfeld AL et al.: Practical recommendations for the management of diabetes in patients with COVID-19. *Lancet Diabetes Endocrinol*, 2020, 8:546-550
4. Berlin DA, Gulick RM & Martinez FJ: Severe Covid-19. *N Engl J Med* 2020
5. Chew NWS, Lee GKH, Tan BYQ, Jing M, Goh Y, Ngiam NJH et al.: A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain Behav Immun* 2020; 88:559-565
6. Duthel F, Mondillon L & Navel V: PTSD as the second tsunami of the SARS-Cov-2 pandemic. *Psychol Med* 2020; 1-2
7. Gautam M, Kaur M & Mahr G: COVID-19-Associated Psychiatric Symptoms in Health Care Workers: Viewpoint From Internal Medicine and Psychiatry Residents. *Psychosomatics* 2020; 61:579-581
8. González-Sanguino C, Ausín B, Castellanos MÁ, Saiz J, López-Gómez A, Ugidos C et al.: Mental health consequences during the initial stage of the 2020 Coronavirus pandemic (COVID-19) in Spain. *Brain Behav Immun* 2020; 87:172-176
9. Hong C & Efferth T: Efferth Thomas, Systematic Review on Post-Traumatic Stress Disorder Among Survivors of the Wenchuan Earthquake. *Trauma Violence Abuse* 2016; 17:542-561
10. Hao F, Tan W, Jiang L, Zhang L, Zhao X, Zou Y et al.: Do psychiatric patients experience more psychiatric symptoms during COVID-19 pandemic and lockdown? A case-control study with service and research implications for immunopsychiatry. *Brain Behav Immun* 2020, 87:100-106
11. Huang JZ, Han MF, Luo TD, Ren AK & Zhou XP: Mental health survey of medical staff in a tertiary infectious disease hospital for COVID-19. *Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi* 2020; 38:192-195
12. Habersaat KB, Betsch C, Danchin M, Sunstein CR, Böhm R, Falk A et al.: Ten considerations for effectively managing the COVID-19 transition. *Nat Hum Behav* 2020; 4:677-687
13. Jakovljevic M, Bjedov S, Jaksic N & Jakovljevic I: COVID-19 Pandemia and Public and Global Mental Health from the Perspective of Global Health Securit. *Psychiatr Danub* 2020; 32:6-14
14. Kleber RJ: Trauma and Public Mental Health: A Focused Review. *Front Psychiatry* 2019; 10:451
15. Kotfis K, Williams Roberson S, Wilson JE, Dabrowski W, Pun BT & Ely EW: COVID-19: ICU delirium management during SARS-CoV-2 pandemic. *Crit Care* 2020; 24:176
16. King JA, Cabarkapa S, Leow FH & Ng CH: Addressing international student mental health during COVID-19: an imperative overdue. *Australas Psychiatry*, 2020
17. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y et al.: Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia. *N Engl J Med* 2020; 382:1199-1207
18. Liu N, Zhang F, Wei C, Jia Y, Shang Z, Sun L et al.: Prevalence and predictors of PTSS during COVID-19 outbreak in China hardest-hit areas: Gender differences matter. *Psychiatry Res* 2020; 287:112921
19. Liang L, Ren H, Cao R, Hu Y, Qin Z, Li C et al.: The Effect of COVID-19 on Youth Mental Health. *Psychiatr Q*, 2020; 91:841-852
20. Mindoljević Drakulić A & Radman V: Crisis Psychodrama in the Era of COVID-19. *Psychiatr Danub* 2020; 32:22-24
21. Odriozola-González P, Planchuelo-Gómez Á, Irurtia MJ & de Luis-García R: Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university. *Psychiatry Res* 2020; 290:113108
22. Rogers JP, Chesney E, Oliver D, Pollak TA, McGuire P, Fusar-Poli P et al.: Psychiatric and neuropsychiatric presentations associated with severe coronavirus infections: a systematic review and meta-analysis with comparison to the COVID-19 pandemic. *Lancet Psychiatry* 2020; 7:611-627
23. Tan W, Hao F, McIntyre RS, Jiang L, Jiang X, Zhang L et al.: Is returning to work during the COVID-19 pandemic stressful? A study on immediate mental health status and psychoneuroimmunity prevention measures of Chinese workforce. *Brain Behav Immun* 2020; 87:84-92
24. Tang W, Hu T, Hu B, Jin C, Wang G, Xie C et al.: Prevalence and correlates of PTSD and depressive symptoms one month after the outbreak of the COVID-19 epidemic in a sample of home-quarantined Chinese university students. *J Affect Disord* 2020; 274:1-7
25. Wu K & Wei X: Analysis of Psychological and Sleep Status and Exercise Rehabilitation of Front-Line Clinical Staff in the Fight Against COVID-19 in China. *Med Sci Monit Basic Res* 2020; 26:e924085

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