News & Views

Addressing mental health issues amid the COVID-19 pandemic: a wake-up call

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The coronavirus disease-2019 (COVID-19) pandemic has imposed a huge burden on global public health. Even before the pandemic, mental health disorders were among the leading reasons for the global health-related burden, and COVID-19 intensified this global crisis for mental health. Stressors such as fear of infection, persistent social distancing measures, and associated secondary economic and social burdens all contribute to mental health problems, especially among vulnerable populations such as patients with COVID-19, survivors of infection, the bereaved, healthcare workers, pregnant women, older adults, university students, children, and adolescents [1,2]. Although effective in controlling virus transmission, measures such as lockdowns and restrictions may have negative psychological effects [3]. The World Health Organization (WHO) estimated that the COVID-19 pandemic triggered a 25% increase in the worldwide prevalence of anxiety and depression in 2020 [4]. In addition to anxiety and depression, the prevalence of other mental health disorders, such as posttraumatic stress disorders (PTSD), sleep disturbances, drug abuse, and internet addiction, also increased during and after the pandemic [5,6]. Based on 283 studies with 948,882 individuals from multiple populations, a recently published meta-analysis comprehensively estimated the pooled prevalence of various COVID-19-induced mental health problems [6]. The pooled prevalence of depressive symptoms ranged from 23.1% in survivors to 43.3% in university students; of anxious symptoms, from 25.0% in older adults to 43.3% in pregnant women; and of insomnia, from 29.7% in the general public to 58.4% in university students (Fig. S1 online) [6]. These results indicate that the mental health burdens of COVID-19 have affected all population groups.

During the COVID-19 pandemic, infected individuals suffered from substantial psychological stress because of the fear of transmission to families or other people around them, in addition to the direct effect of the severe acute respiratory syndrome coronavirus 2 on the brain. A meta-analysis showed that 37.2% of the infected patients had depressive symptoms, 34.4% had symptoms of anxiety, and 40.1% reported insomnia during several modern-era epidemics, mainly COVID-19 [6]. Similarly, frontline healthcare workers are very vulnerable to high exposure to demoralization, self-blame, and other mental health problems after witnessing infections and COVID-19-induced deaths daily. Healthcare workers more commonly presented symptoms of depression (37.7%), anxiety (35.9%), insomnia (39.3%), and PTSD (26.9%) [6]. Studies have also suggested that the high burden of PTSD experienced by healthcare workers contributed to their high risk for suicidal ideation during a pandemic [5,7].

The mental health well-being of the younger generation is worrisome because of the long-term school closures and consequent social isolation from peers. A large-sample, cross-sectional online survey of 11,325 students from 30 universities in mid-2020 showed that 52.7% of the participants reported at least one symptom of depression, anxiety, insomnia, PTSD, or suicidal behavior. Specifically, 41.5% of the university students showed depressive symptoms; 32.6%, anxious symptoms; 35.0%, insomnia; 8.5%, PTSD symptoms; and 2.0%, suicidal behaviors [7]. A meta-analysis found even higher pooled incidence rates of depression (43.3%) and insomnia (58.4%) among university students than among other subgroups (Fig. S1 online) [6]. The high prevalence of mental health symptoms in university students can be explained as follows: first, adolescents and university students, who are in a sensitive period of rapid change in physical and mental health development, are vulnerable to external and internal stimuli and pressures in school and daily life. Second, during the COVID-19 outbreak, the mental health risk of the young generation has increased because of the sudden changes in the pace of life and the huge burden of school closure or delay, changes in learning styles, academic and job pressure, disorganized life rhythm during quarantine, frequent parent–child conflict, etc. During the COVID-19 pandemic, internet addiction, which has been recognized as pathological or problematic internet use, is another major problem among the younger generation. The Internet Addiction Test, which is often used to investigate the prevalence and severity of internet addiction, suggested that more time was spent on recreational internet use and that the severity of internet addiction increased

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among students (odds ratio [OR] = 1.19 and 1.20, respectively) [8]. Moreover, internet addiction is often correlated with depression, anxiety, attention-deficit hyperactivity disorder, and social isolation, which are manifestations of poor mental health [8].

Mental health problems in the general population are a major issue worldwide. In early 2020, a large-sample, cross-sectional, population-based study investigated mental health issues among 56,679 participants in China, of which 27.9%, 31.6%, 29.2%, and 24.4% experienced symptoms of depression, anxiety, insomnia, and acute stress, respectively [9]. That is, approximately one-quarter to one-third of the public experienced mental health problems during the COVID-19 pandemic. Moreover, these adverse mental health symptoms can bring heavy social burdens and increase suicidal rates. The same Chinese study reported that the overall incidence of suicidal ideation was 16.4% during the COVID-19 pandemic, of which 10.9% reported seldom, 4.1% reported often, and 1.4% reported always having suicidal ideation [10]. Quarantine, unemployment, and increased psychological stress were all contributing factors to suicidal ideation.

With the ongoing pandemic, long-term mental health issues are major concerns. COVID-19 has long-lasting mental health effects on the vulnerable population and the public. For COVID-19 survivors discharged from the hospital, the mental health sequelae were the third most reported sequelae, followed by respiratory and generalized problems. Twelve months after recovery, COVID-19 survivors still experienced depression (18.3%), PTSD (17.9%), anxiety (16.2%), and sleep disturbances (13.5%) [11]. COVID-19 survivors had a lower but persistent burden of mental health symptoms than patients with COVID-19 at the clinical stage. COVID-19 might have long-term mental health effects on the general public. A cohort study of the general public in China followed 10,492 adults from the COVID-19 peak and showed that the rates of symptoms of depression, anxiety, and insomnia were consistently high. Work-related factors such as quarantine, increase in work burden after resuming work, occupational exposure risk to COVID-19, and living in places severely affected by the initial COVID-19 peak or by a COVID-19 resurgence were also risk factors for persistent mental health problems in the post-pandemic era [12]. The meta-analysis showed that the prevalence of depression, anxiety, and insomnia kept rising during the late stage of the COVID-19 epidemic among the general public, healthcare workers, and university students; however, the trend pattern of these symptoms decreased among the infected patients [6]. The possible explanation is as follows: an increasing number of patients with COVID-19 believe that the disease is treatable and preventable; thus, compared with the early stage of the pandemic, fear and worry about unknown and uncontrolled diseases among these patients, especially those who are discharged, are reduced. On the contrary, with persistent progress, the general public and healthcare workers faced more long-term quarantine, more economic burden, and more concerns about infection, which exacerbated the mental health problems among these populations. However, the pooled evidence from the *meta*-analysis should be considered cautiously because of the huge heterogeneity caused by the differences in the countries, investigation period, and methodology of the original studies [6].

Thus, the COVID-19 pandemic has increased the mental health burden globally [4]. Considering the heavy social burden and mental health problems induced by COVID-19, comprehensive actions should be called for, as shown below.

First, long-term cohort studies on the prevention and treatment of COVID-19-related mental health problems should be actively conducted. Colleges, universities, scientific research institutions, medical institutions, and other relevant departments should actively participate in scientific research on the consequences of the pandemic and pay attention to the urgent need for pandemic prevention and control. Scientific research directions include clinical monitoring, prognosis determination, treatment, and rehabilitation of mental health problems during and after the pandemic. An important issue is the influence of new virus variants and their responses to current vaccination programs. Moreover, it is essential to predict the susceptible populations and identify the predictive markers of mental health problems. Female sex, older age, a high economic burden, a history of mental health difficulties, and insufficient social support are all potential contributors to mental health problems related to COVID-19 [4,6]. Further research is needed to verify the accuracy of these predictive markers and promote the precise and timely prevention of mental health problems. International collaborations, including sharing and exchanging prevention strategies against COVID-19 and identifying culture-based mental health manifestations across different nations, are also crucial.

Second, the governments and departments responsible for mental health at all levels should collaborate to ensure that mental health and well-being become public priorities. The WHO has launched a series of e-training programs, web-based platforms, mobile apps, and a campaign that mainly focuses on mental health. Many countries have established mental health response systems for COVID-19-related mental health problems to reduce the burdens of mental health sufferers. Relevant organizations and institutions in various countries should follow these updates and design comprehensive mental health programs that consider the mental health status of their communities. A meta-analysis systematically reviewed the benefits of mental health interventions in reducing the psychological distress of COVID-19 [13]. The review suggested that group-based cognitive behavioral therapy, psychological first aid, community-based psychosocial arts programs, and other culturally adapted interventions were effective in preventing long-term adverse mental health symptoms. To reduce mental health burdens that might be induced by any kind of COVID-19 restriction, psychological counseling, mental health hotlines, and online chatting programs for quarantined individuals should be offered [13]. Furthermore, financial investment in the prevention, diagnosis, and intervention of COVID-19-related mental health manifestations should be increased. Moreover, it is necessary to fully allocate medical and health resources, increase support for mental health services in low-income countries, and promote the coordinated development of mental health services in all countries.

Third, a national COVID-19 vaccination policy should be implemented to ensure full coverage of vaccination. COVID-19 vaccination is one of the most effective methods to prevent infection, especially severe infection [14,15], which is important in taking precautions against COVID-19-induced mental health problems. Inappropriate and invalid vaccination publicity can increase stress levels related to COVID-19 vaccination. Of the 81.3% of the participants who experienced any vaccination-related psychological stress, the most frequent cause for concern was the adverse effects after vaccination, followed by the news and media reporting the severity of adverse effects of vaccination and some misinformation from vaccine-related research [16]. Thus, building public confidence in vaccine programs is urgent. In addition, institutions at all levels should strengthen accurate publicity about COVID-19 vaccination, improve the level of health literacy and awareness rates among residents, and guide residents to correctly understand the importance of getting vaccinated.

Finally, we must maintain a rational social media environment that can minimize the stigma of COVID-19 survivors, family members of survivors, healthcare workers, and those experiencing pandemic-related mental health problems. According to a meta-analysis, the overall pooled incidence of stigma across all populations related to infectious diseases was 34%, including 36% enacted stigma (i.e., taking actual negative actions against someone due to
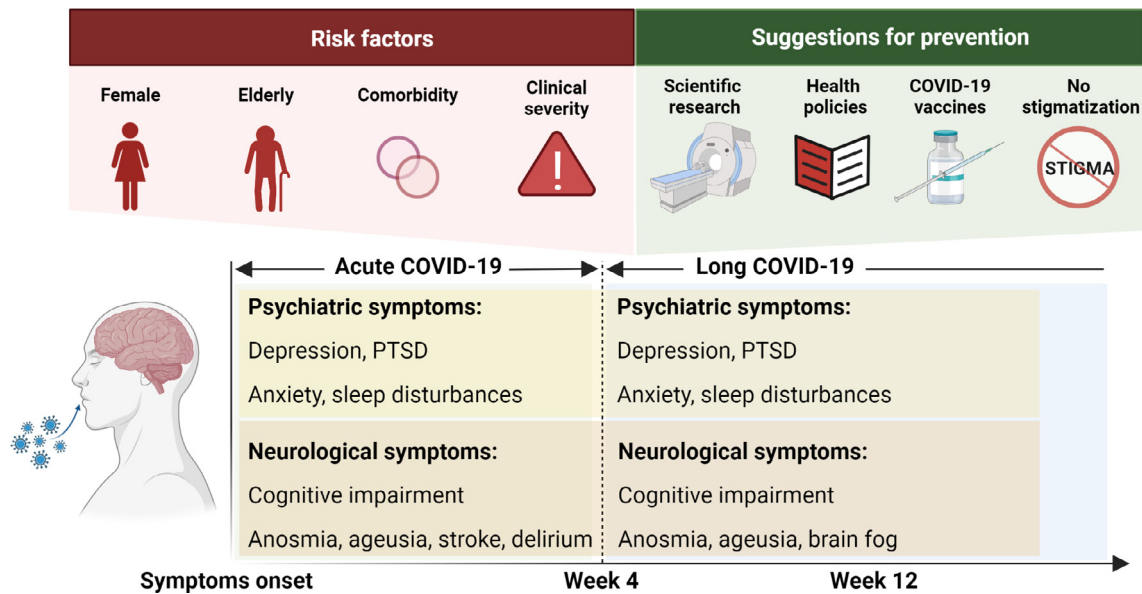
Fig. 1. Conceptual graph of mental health problems associated with the COVID-19 pandemic and a plan of action (created with BioRender.com).

their infection status) and 31% perceived stigma (i.e., the perception of being stigmatized and anticipation of being discriminated against). Moreover, the stigmatization of infected patients was even higher (38%) [17]. In view of this phenomenon, the media platform should guide the public to actively and accurately understand the pandemic situation through real-time reports of the local pandemic situation, the latest prevention and control measures, official rumor refutation information, etc. In addition, relevant network platforms should actively call on users to strictly abide by laws and platform management regulations and speak in a friendly and civilized manner. Relevant departments should continue to rectify stigma and discrimination.

COVID-19 has created a global mental health crisis in the general public, healthcare workers, students who are in early adulthood, and survivors in the long run. The government and departments at all levels should try their best to put forward scientific research on COVID-19-related mental health problems, implement effective intervention programs, make financial allocations to address mental health priorities, promote COVID-19 vaccinations, and break the barrier of stigma and discrimination (Fig. 1). These comprehensive actions will protect and improve mental health well-being amid this global health crisis and COVID-19 pandemic.

Conflict of interest

The authors declare that they have no conflict of interest.

Acknowledgments

Appendix A. Supplementary materials

Supplementary materials to this news & views can be found online at https://doi.org/10.1016/j.scib.2022.10.022.

References

[1] Bao YP, Sun YK, Meng SQ, et al. 2019-nCoV epidemic: address mental health care to empower society. Lancet 2020;395:e37–8.
[2] Gong YM, Liu XX, Zheng YB, et al. COVID-19 induced economic slowdown and mental health issues. Front Psychol 2022;13:777350.
[3] Wang YH, Shi L, Que JY, et al. The impact of quarantine on mental health status among general population in China during the COVID-19 pandemic. Mol Psychiatry 2021;26:4813–22.
[4] Collaborators. C-MD. Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. Lancet 2021; 398: 1700-12.
[5] Yuan K, Gong YM, Liu L, et al. Prevalence of posttraumatic stress disorder after infectious disease pandemics in the twenty-first century, including COVID-19: a meta-analysis and systematic review. Mol Psychiatry 2021;26:4982–98.
[6] Yuan K, Zheng YB, Wang YJ, et al. A systematic review and meta-analysis on prevalence of and risk factors associated with depression, anxiety and insomnia in infectious diseases, including COVID-19: a call to action. Mol Psychiatry 2022;1–9.
[7] Xu YY, Su SZ, Jiang ZD, et al. Prevalence and risk factors of mental health symptoms and suicidal behavior among university students in Wuhan, China during the COVID-19 pandemic. Front Psychiatry 2021;12:695017.
[8] Li YY, Sun Y, Meng SQ, et al. Internet addiction increases in the general population during COVID-19: evidence from China. Am J Addict 2021;30:389–97.
[9] Shi L, Lu ZA, Que JY, et al. Prevalence of and risk factors associated with mental health symptoms among the general population in China during the coronavirus disease 2019 pandemic. JAMA Netw Open 2020;3:e2014053.
[10] Shi L, Que JY, Lu ZA, et al. Prevalence and correlates of suicidal ideation among the general population in China during the COVID-19 pandemic. Eur Psychiatry 2021;64:e18.
[11] Zeng N, Zhao YM, Yan W, et al. A systematic review and meta-analysis of long term physical and mental sequelae of COVID-19 pandemic: call for research priority and action. Mol Psychiatry 2022;1–11.
[12] Shi L, Lu ZA, Que JY, et al. Long-term impact of COVID-19 on mental health among the general public: a nationwide longitudinal study in China. Int J Environ Res Public Health 2021;18:8790.
[13] Yue JL, Yan W, Sun YK, et al. Mental health services for infectious disease outbreaks including COVID-19: a rapid systematic review. Psychol Med 2020;50:2498–513.
[14] Huang Q, Zeng J, Lang Q, et al. Impact of various vaccine boosters on neutralization against omicron following prime vaccinations with inactivated or adenovirus-vectored vaccine. Sci Bull 2022;67:1326–30.
[15] Chen J, Wang P, Yuan L, et al. A live attenuated virus-based intranasal COVID-19 vaccine provides rapid, prolonged, and broad protection against SARS-CoV-2. Sci Bull 2022;67:1372–87.
[16] Zheng YB, Sun J, Liu L, et al. COVID-19 vaccine-related psychological stress among general public in China. Front Psychiatry 2021;12:774504.
[17] Yuan K, Huang XL, Yan W, et al. A systematic review and meta-analysis on the prevalence of stigma in infectious diseases, including COVID-19: a call to action. Mol Psychiatry 2022;27:19–33.

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