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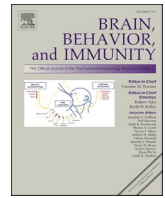
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Viewpoint

The psychological impact of COVID-19 pandemic and the role of good hygiene practices as protective factors: A commentary on the 2023 BBI impact award winner

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According to WHO, as of October 18, 2023, 771 million confirmed cases of coronavirus disease (COVID-19) and more than 6.9 million deaths had been reported (WHO, 2023). China was the first country that identified the novel COVID-19 to be the cause of the outbreak. As a consequence of this, the entire world entered an atmosphere of anxiety and uncertainty. A paper published in Brain Behavior and Immunity (BBI) conducted a longitudinal study to evaluate the temporal psychological impact and adverse mental health status, as well as protective factors, among the general population in China during the initial outbreak and peak of COVID-19 epidemic (Wang et al., 2020). The study was awarded the 2023 BBI Impact Award, as the most cited data-based paper published in BBI in 2020, based on citations in 2021 and 2022.

This longitudinal study by Wang et al. surveyed the general population twice (during the initial outbreak and at the epidemic's peak four weeks later) and focussed on demographics, symptoms, knowledge, concerns, and precautionary measures against COVID-19. The study found that although the number of confirmed cases of COVID-19 increased sharply from the first to the second survey recruitment, there were no significant changes in the levels of stress, anxiety and depression among the study participants. Similarly, while participants' scores for post-traumatic stress disorders (PTSD) symptoms were above the cut-off, the study authors observed a statistically significant temporal reduction in PTSD symptoms. Of note, the authors also showed that daily practice of hand hygiene, mask-wearing, as well as confidence in doctors, were among the main contributors to the reduced psychological impact observed in participants. This seems to suggest that the rapid measures imposed by the Chinese government were somehow effective in safeguarding mental health in the general public, while reducing the spread of the virus (Zhu et al., 2022).

On the other hand, it is important to highlight that while levels of stress, anxiety and depression among the study participants did not change across the two study surveys, physical symptoms, such as fever with cough or breathing difficulty, were significantly associated

with higher stress, anxiety or depression scores (Wang et al., 2020). Overall, the presence of both somatic and mental health symptoms, and their association, clearly provide evidence for the multitude of effects that COVID-19 disease can have. In fact, it is now well-established that COVID-19 is able to induce an over-reacting immune response (defined as “cytokine storm” syndrome) characterized by the production of several pro-inflammatory cytokines, such as interleukin (IL)-1 β and IL-6, which in turns can impact several organs, including the brain (Klein et al., 2021). We have recently demonstrated that exposing human hippocampal neuronal cells to blood samples from COVID-19 patients experiencing neurological symptoms can detrimentally affect neurogenesis and plasticity (Borsini et al., 2022). Vice versa, additional evidence demonstrates that pre-existing mental health disorders, in particular psychotic and mood disorders are associated with more severe physical and psychological symptoms in COVID-19 patients (Vai et al., 2021).

Overall, the study by Wang et al. contributed to identify important health consequences of COVID-19 disease, already at the beginning of the pandemic, and consequently it prompted scientists and society to come together to tackle these problematics. First, the psychological impact of COVID-19 outbreak, and the concomitant evidence for both physical and mental health symptoms, and their strong association, rapidly urged researchers to develop more rapid diagnostic tools (i.e., saliva test kits) as well as treatment strategies (i.e., antivirals, neutralising monoclonal antibody), with the aim to respectively, identify and treat as quickly and more effectively as possible the disease (Atieh et al., 2022; Soheili et al., 2023). Second, while during the COVID-19 pandemic, face-to-face psychological interventions were not feasible, due to strict quarantine and lockdown measures, mental health providers (i.e., psychologists, psychotherapists) were able to switch into an online service whereby providing constant psychological support to the public (Giordano et al., 2022). Third, a powerful campaign of COVID-19 prevention was also put in place with the aim to disseminate good

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hygiene practices among the population. The campaign consisted of sharing with the general population simple health education norms (i.e., washing hands, wearing masks) via the Internet and social media platforms - wearing masks turned out to be a very successful approach in reducing pathogen exposure, and in lowering levels of psychological impact caused by the pandemic (Read et al., 2022).

To conclude, it is important to remember that while the understanding of COVID-19 was limited when this study was published, and the neurological symptoms (i.e., loss of smell or taste) were discovered only lately, Wang et al. successfully managed to recognize the psychological consequences, as well as protective factors playing a role in the pandemic, and in turns, to envisage future prevention and intervention strategies aiming to safeguarding the mental health of the general population during COVID.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

No data was used for the research described in the article.

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