

# Neurological manifestations of long COVID: a single-center one-year experience [Letter]

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## Dear editor

We read with great interest a recently published study by Lisa Taruff et al in *Neuropsychiatric Disease and Treatment*.<sup>1</sup> This study found that for patients who developed a previous mild form of COVID-19, the majority of them would present persistent neurological and neuropsychological symptoms.<sup>1</sup> Specifically, various neuropsychological disorders have been frequently reported in patients with long COVID, such as anxiety, depression, and sleep disorders. Thus, this paper discusses the potential value of acupuncture and moxibustion as adjunctive therapy for alleviating neuropsychological disorders associated with long COVID in the post-epidemic era.

As an important component of traditional Chinese medicine (TCM), acupuncture and moxibustion have been frequently used as complementary treatments for COVID-19 and related complications. To note, several published TCM guidelines and consensuses for COVID-19 in the past three years have specifically focused on the adjunctive use of acupuncture for COVID-19 treatment. Moreover, a recently published scoping review<sup>2</sup> demonstrated that evidence from case reports, clinical trials, and randomized controlled trials (RCTs) supporting the use of acupuncture and moxibustion in COVID-19-associated neuropsychological disorders is growing. For instance, RCTs have shown that, compared with controls, acupuncture and moxibustion can significantly improve anxiety and depressive symptoms in long-COVID patients.<sup>2</sup> In a RCT by Yang et al,<sup>3</sup> auricular acupuncture combined with Baduanjin was found to have a better effect on improving sleep quality, anxiety, and depression conditions in COVID-19 patients with insomnia than pharmacotherapy (ie, oral administration of estazolam). Another encouraging study<sup>4</sup> revealed that adopting a mobile internet-based moxibustion technique for COVID-19 treatment is feasible. Through a mobile internet platform, patients were instructed to perform self-administered moxibustion for COVID-19-related symptoms at home. This internet-based mode of self-administered moxibustion can not only relieve respiratory symptoms such as cough and fatigue and improve neuropsychological state but also potentially protect front-line medical professionals against COVID-19. Additionally, several ongoing systematic reviews and meta-analyses are investigating the efficacy and safety of acupuncture and/or moxibustion for treating COVID-19-related neuropsychological disorders,<sup>2</sup> and their results are eagerly anticipated.

Apart from the aforementioned clinical trials, experimental studies are emerging to explore the possible mechanisms underlying acupuncture and moxibustion for alleviating COVID-19-associated symptoms. Notably, a study<sup>5</sup> based on bioinformatics and topology systematically revealed the multi-target mechanisms of acupuncture therapy for COVID-19. In this study,<sup>5</sup> 180 protein targets and two active compounds produced were identified, in which the results suggested that the effect of acupuncture for COVID-19 was associated with suppression of inflammatory stress, improvement of immunity, and regulation of nervous system function, including activation of neuroactive ligand–receptor interaction, calcium signaling pathway, cancer pathway, viral carcinogenesis, and *Staphylococcus aureus* infection.

Taken together, it is feasible and valuable to apply acupuncture and moxibustion as adjunctive therapy for long-COVID-19-associated neuropsychological disorders. Especially, in the post-epidemic era, acupuncture and moxibustion are likely to play an important role and deserve further application in clinical practice.

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## Disclosure

The authors declare that they have no competing interests in this communication.

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