

# Forget Me Not: Tracing COVID 19's Effects On Cognitive Abilities and Mental Disorders

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## Key points:

- Introduction
- Cognitive Functions And Mental Disorders
- Improving Cognitive Function and Mental Health post-infection

## Introduction

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) causes an infection commonly known as coronavirus disease 2019 (COVID-19). The viral disease impacts the human airway and alveolar epithelial cells by having a cytopathic effect.

Common symptoms of COVID-19 include fever, dry cough, upper respiratory tract symptoms, inflammation of the pharynx, fatigue and muscle pain. Spread mainly through human-to-human transmission and aerosol transmission. The widespread disease caused a global pandemic in 2020, the initial variant had a significant mortality rate.<sup>1</sup>

Studies continued to be carried out on COVID-19 and its lingering effects on the human body. It may take several more years to figure out the true extent of its damage. While it is a respiratory disease, COVID-19 can be linked to CNS and systemic inflammation. It is observed to contribute to brain structural changes and heterogeneous neurological illnesses.<sup>2</sup> Observations from patients and results from certain studies indicate that the disease may impact cognitive functions and make an individual more susceptible of mental health disorders or worsen them.

## Cognitive Functions And Mental Disorders

Certain studies carried out on groups indicated cognitive deficit in COVID-19-infected individuals

compared to uninfected individuals. The mean global cognitive scores are lower than those of the latter group. As viruses make thousands of copies of themselves, they are bound to mutate by error or resistance at a certain point. Hence, another factor to account for is the variants. The initial variant or alpha variant of the disease had a large deficit in global cognitive scores as compared to successor variants such as omicron etc. Repeated infection can increase the damage caused by the virus. As a result, persons with multiple episodes showed a disadvantage in cognitive scores as compared to those with single episodes. Results showed that patients seemed to struggle with brain fog as well as, in areas such as memory, planning and reasoning.<sup>3</sup>

Cognitive impairment can be related to other viral infections like SARS and MERS which are similar to COVID-19. With similar impacted functions like memory, attention, mental processing speeds etc.<sup>4</sup> The root of this problem might be the inflammation caused by the virus. Inflammation in the medial temporal lobe of the brain and other parts can increase the atrophy in functional parts of the brain.<sup>3</sup> As these regions control cognitive functions these damages consequently negatively impact them. Research conducted amongst 130 participants showed only 19% were within normal ranges of successfully carrying out the functions whereas, the other 81% failed in one or more functions.<sup>5</sup>

Beyond cognitive decline, COVID-19 is associated with worsening of mental disorders. Patients pose an increased risk of developing mental disorders such as depression, anxiety, post-traumatic stress disorder (PTSD), obsessive disorders, psychotic disorders etc. According to WHO the world saw a surge of 25% in anxiety and depression globally during the pandemic.<sup>6</sup> Psychiatrists used The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and evaluated that 24.3% of 226 patients in a study exhibited signs of at least one major disorder in clinical interviews. A decrease in their systematic inflammation (SII) showed a decrease in depressive symptoms.<sup>5</sup>

### **Improving Cognitive Function and Mental Health Post Infection**

Decline in cognitive functions is not easy for one to experience especially if the change can be significantly felt. A person might find the world moving one step ahead. In order to improve cognitive functions such as memory or problem-solving ability an individual can opt for stimulating exercises to strengthen them.

On the other hand, improving mental health requires strong willpower and support from family and friends. While these disorders are not under complete control of an individual opting to go to therapy or developing certain coping mechanisms can help minimize the effects. Mental health is equally as important as one's physical health.

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