

# The Impact of the COVID-19 Pandemic on Mental Health Among the General Population: A Narrative Review

CHINMAYEE ARVIND LADOLE<sup>1</sup>, KEDAR S TAKALKAR<sup>2</sup>

## ABSTRACT

The Coronavirus Disease-2019 (COVID-19) has infected millions of people worldwide, resulting in a global burden for long-term care of sufferers. The impact of COVID-19 has affected the mental health of innumerable people. Emotional, psychological, and social well-being are all parts of our mental health, influencing our thoughts, emotions, and behaviours. Additionally, it affects how people respond to stress and make good decisions. For instance, depression raises the risk of a wide range of physical health issues, especially chronic illnesses like diabetes, heart disease, and stroke. The COVID-19 pandemic has infected millions worldwide, leaving a global burden for the long-term care of COVID-19 survivors. Therefore, it is imperative to study the short-term (post-COVID) and long-term effects of COVID-19, specifically as the local and systemic pathophysiological outcomes of other coronavirus-related diseases (such as Middle East Respiratory Syndrome - MERS and Severe Acute Respiratory Syndrome Coronavirus 2 - SARS-CoV-2) have been well-documented. Mental health was evaluated using four psychological measurement scales to assess fear of COVID-19, depression, general anxiety, and post-traumatic stress. The worldwide social and economic upheaval has resulted in the worst recession since the Great Depression. The Impact of Event Scale-Revised and the Depression, Anxiety, and Stress Scale can be used to evaluate the psychological impact and mental health status. The main themes include the biology of stress and the effect of infection on the brain. Adversity can cause anatomical and functional changes in the brain. Although cortisol, for example, can alter brain architecture, tolerable stress is mitigated by protective systems and interpersonal connections that promote adaptive coping. The risk of physical and mental illness, as well as cognitive decline, may increase due to toxic stress, which is often caused by prolonged activation. From a behavioural standpoint, it is essential to understand burnout, compassion fatigue, grief, and other psychological processes and strategies in the context of the COVID-19 pandemic. COVID-19 has adversely affected the mental states of people. The COVID-19 pandemic is associated with significantly high levels of psychological distress that meet the threshold for clinical relevance. Mitigating the harmful effects of COVID-19 on mental health is an international public health priority.

**Keywords:** Anxiety, Coronavirus disease-2019, Severe acute respiratory syndrome coronavirus 2, Stress

## INTRODUCTION

The group of odd pneumonia cases detected in Wuhan, China, in December 2019 were identified by the World Health Organisation (WHO) as cases of COVID-19 on February 11, 2020 [1]. The SARS-CoV-2, a newly discovered coronavirus strain, shared 79% of its genetic makeup with the SARS-CoV-2 from the 2003 SARS outbreak [1]. The WHO classified the outbreak as a worldwide pandemic on March 11, 2020 [1]. The quickly evolving situation had a vital influence on people's lives and several facets of the community, personal, and global economies. It is expected that the uncertainties and anxieties brought on by the coronavirus, including widespread lockdowns and an economic downturn, would raise suicide rates and the rates of mental diseases linked to suicide [2].

The COVID-19 outbreak is posing considerable challenges to healthcare systems and societies worldwide. While knowledge on the acute phase of the disease has rapidly expanded, little is known about the consequences of COVID-19 following clinical remission. Global mental health is now under unprecedented threat from the COVID-19 epidemic. Due to the immature developing stage, the anxiety of infection, staying at home, postponement of school, and larger-scale threats like global financial recessions and their effects, children and youths may be more susceptible to the effects on psychological well-being [3]. Monitoring the cognitive decline in older people depends on understanding the longstanding impact of coronavirus disease. The present review aims to evaluate the mental condition and the rate of cognitive ageing in older individuals who have recovered from COVID-19. Between February 10 and

April 10, 2020, three COVID-19 designated hospitals in Wuhan, China, discharged and resettled 1,539 COVID-19 patients over 60 [4]. A total of 436 COVID-19 patients were ultimately chosen as controls. An Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) was developed to quantify longitudinal cognitive decline. A Chinese version of the Telephone Interview of Cognitive State-40 was used to assess current cognitive status. Mental evaluations were conducted six months after the patient's release [4]. Psychiatric co-morbidities, particularly genetic abnormalities and neurodevelopmental disorders like autism, have been observed in individuals due to COVID-19. Intellectual developmental issues are increasingly linked to behavioural and psychiatric characteristics [5].

The coronavirus had various consequences on people's lives, including the loss of loved ones. After the coronavirus pandemic, a condition arose where people faced mental health problems. It contends that the brain is an organ of computation. As a result, a computational framework will be needed to comprehend the diseases that result from it. The post-COVID results in several depressive and anxiety disorders among people [6]. A rapidly expanding area called psychiatry aims to improve the lives of individuals with mental illnesses by applying computational neuroscience and machine learning advancements. It includes both theory- and data-driven approaches. Here is a review of current developments in theory-driven research. The brain is an organ of computation. As a result, a computational framework will be needed to comprehend the diseases that result from it. The authors have explored the field's general and unique issues and provided solutions [7].

## IMPACT OF COVID-19 PANDEMIC

Long-term consequences after SARS-CoV-2 infection are becoming an essential burden to societies and healthcare systems. Numerous persistent health issues that can continue for weeks, months, or years are considered post-COVID illnesses. As it affects COVID-19 survivors at all stages of disease severity and involves newer persons, offspring, and those not in hospitals, this sickness is poorly understood. Although there may not be a precise diagnosis of chronic COVID-19, fatigue and dyspnoea, which persist for months after acute COVID-19, are the most often reported indications. Other enduring signs may involve cognitive and mental dysfunction, joint and chest aches, palpitations, myalgia, impairment of the senses of smell and taste, cough, headache, Gastrointestinal (GIT) and heart problems [8].

The danger of neurological consequences from COVID-19 impairs patients' ability to function and their quality of life regularly. The present challenges of the pandemic are the intuition of these illnesses, the rigorous control of heart metabolic changes and risk factors, and the operative and safe treatment of these conditions. Rehabilitation is complex for these patients. Only 10.8% of all participants had no symptoms after recovering from the sickness; however, many subjects experienced several symptoms and illnesses [9]. Fatigue was the most reported symptom (72.8%); however, a small percentage of individuals also reported more severe presentations, such as cerebral infarction, kidney dysfunction, inflammation of heart muscles, and pulmonary fibrosis [9]. The severity of the condition was associated with the presence of additional comorbidities. Additionally, the intensity of post-COVID-19 symptoms was related to the severity of COVID-19 [10].

Various studies have been conducted on the connection between COVID-19 and mental health, mainly anxiety and depression in the overall population, and have been published since the development of COVID-19. Depression is a crippling condition that impairs people's level of biopsychosocial functioning across all age groups [10].

**In children:** A small but growing number of people have long-lasting physical and mental health effects from SARS-CoV-2 infection. Although the incidence and severity of these indications in children and teenagers are not yet recognised, there seem to be a variety of onset patterns involving the persistence of acute phase symptoms, postviral symptoms like Chronic Fatigue Syndrome (CFS), pulmonary and cardiovascular problems, and cognitive problems [11]. Possible symptoms include increased breathing effort, exhaustion, arthralgia, sleeplessness, decreased routine activities and mobility, and mood changes [11].

**In adolescence:** 44.8% of children and adolescents complained of extended COVID-19. Twelve people (21%) reported feeling fatigued, 7 (12%) reported having trouble breathing while exercising, 6 (10%) reported feeling weak, and 5 (9%) reported having difficulty walking [12]. Long COVID-19 was significantly correlated with being older, experiencing muscular distress upon arrival, and being admitted to the Critical Care Unit. In children and teens, Long COVID-19 is a common condition. The scientific community should research the pathophysiology of prolonged COVID-19 to ensure that these patients receive proper medical attention for their ailment [12].

**For adults aged under 50 years:** Older individuals faced various conditions as post-COVID-19 effects, such as affected pulmonary function, irregular Computed Tomography (CT) results involving pulmonary fibrosis (39-83%), an indication of myocarditis (3-4%), increased occurrence of mental diagnoses (5.8% versus 4.4%), persistent tiredness (39-73% of assessed persons), breathing difficulty (39-74%), a decline in quality of life (44-69%), and persistent fatigue [13]. After recovery, COVID-19 has intermediate and long-term impacts on several organ systems. These consequences

include persistent fatigue, reduced lung function, and inflammation of the heart. Thorough follow-up after COVID-19 is recommended to evaluate and minimise potential organ injury and preserve the quality of life [13].

**In old age:** The prevalence of extended COVID-19 varied from 4.7% to 80%, and the most common signs and symptoms were coughing and sputum production, exhaustion, and chest discomfort (89%) [14]. Three to 24 weeks following the acute phase or hospital release were utilised as the temporal criterion to identify Long COVID-19. Possible related risk factors were advanced age and acute oxygen supplementation [15]. The most common clinical symptoms associated with the illness were cough, tiredness, dyspnoea, and chest discomfort. These systematic review findings indicate a pressing need to comprehend this new, complex medical condition [15].

### Mental Illness

In significant public health emergencies, more than half of the interviewees experience mental health issues and urgently require psychological support [16]. COVID-19 is no exception. The abrupt onset of this illness acts as a stressor, significantly impacting the ordinary life of the public and their mental health. There are numerous potential causes for this condition, including the spread of several viral diseases, fear among the general public, stringent public health measures limiting personal freedoms, increasing economic pressure, the challenging task of healthcare professionals, delayed work and school start, and the overwhelming epidemic news on the internet. Any medical conditions (such as depression, schizophrenia, obsessive-compulsive disorder, or panic disorder) are characterised primarily by sufficient disorganisation of character, mind, or emotions to impair normal psychological functioning and lead to noticeable disability. These conditions often disrupt everyday thinking, emotions, mood, behaviour, interpersonal interactions, and routine functioning. Depression, anxiety disorders, schizophrenia, eating disorders, and compulsive behaviours are common issues that may affect individuals who have recovered from cancer [16].

**During development:** Some mental illnesses have been linked to damaged neural connections or nerve cell circuits in specific brain regions. Neurotransmitters are molecules that mediate communication between nerve cells within specific brain circuits. "Tweaking" these molecules through medication, psychotherapy, or other medical methods can help brain circuits function more efficiently. Additionally, several mental diseases have been associated with defects or harm in certain brain regions. The risk of morbidity and mortality increases in individuals with Opioid Use Disorder (OUD), where mental problems can be observed [17]. It is crucial to address these co-occurring problems to improve treatment and health outcomes. Limited recent studies exist on the frequency of co-occurring disorders, the demographic factors associated with co-occurring disorders, and the utilisation of mental health and drug use therapy among OUD patients [17]. This hinders the development of well-resourced and focused treatments and policies [17].

### Depression

The most prevalent mental condition in the world and one of the leading causes of disability, as assessed by years lived with the disease, is depression, commonly known as Major Depressive Disorder (MDD). According to the World Health Organisation (WHO), over 264 million individuals are currently battling with MDD [18]. Despite psychiatry's ongoing search for valuable biomarkers of MDD, which could enable quicker detection of the disease, implementation of treatment, and more objective monitoring of its effectiveness, the diagnosis of MDD is primarily based on clinical symptoms and scales. They recommend assessing the psychiatry of COVID-19 survivors and conducting further research

on inflammatory biomarkers to diagnose and treat emerging mental conditions. This is due to the troubling effects of COVID-19 infection on psychological health, current understanding of inflammation in psychiatry, and the recent observation that worse inflammation results in worse depression [18].

Regarding diagnostic measures, while anxious depression (comorbid anxiety and depression) is a relatively frequent illness, depression has been classified as a separate entity. It is well established that anxious depression differs neurobiologically from non-anxious depression [19].

### **Anxiety Disorder**

Due to the widespread nature of COVID-19, anxiety problems have become increasingly common among the population. The emotional reactions triggered by the disease, its severe side effects, and the implemented lockdown to protect against COVID-19 have resulted in limited social interactions. As a consequence, people have turned to increased internet use as a poor coping mechanism, leading to feelings of loneliness. Generalised Anxiety Disorder (GAD) is a prevalent and highly debilitating psychological health condition. However, there is still much to learn about relevant biomarkers and diagnosis, which becomes more challenging due to GAD's frequent overlap with affective and anxiety disorders [20]. Childhood and adolescence are critical developmental periods for anxiety symptoms and syndromes, ranging from mild to severe anxiety disorders. This article reviews epidemiological data on the prevalence, incidence, course, and risk factors [21]. In some cases, chronic schizophrenia impairs several cognitive processes such as memory, cognition, perception, and volition. The link between schizophrenia and melatonin has been established since the early 20<sup>th</sup> century [22]. The accurate diagnosis of schizophrenia and the selection of effective therapies remain challenging due to unreliable diagnostics [23].

### **Post-COVID Effects**

Recent investigations examining the long-lasting consequences of COVID-19 on patients have led to the definition of long-COVID-19. This refers to the ongoing symptom burden experienced by COVID-19 patients, particularly those who were part of the pandemic's initial wave. After being discharged from a significant teaching hospital trust, every patient with COVID-19 pneumonia received follow-up care. During the follow-up, 86% of patients reported experiencing at least one lingering symptom, while no patients had ongoing radiographic abnormalities [24]. The severity of acute COVID-19 illness did not correlate with the presence of symptoms during the follow-up period. The persistent symptoms include anxiety, fatigue, and muscle pain, which were predominantly observed in women [24]. Long-lasting symptoms are commonly found in individuals who have had COVID-19. The authors argue that the phenomenon of long-COVID may not be solely attributable to the impact of SARS-CoV-2, and that the biopsychosocial effects of COVID-19 may have a more significant role in its development [24]. Utilising neuroscience to mitigate the effects of physiological and psychological stress and prevent long-term damage would be a significant endeavor. In this context, neuroscience supports the use of evidence in policymaking. The biology of stress, as well as the impact of infection on the brain, are prominent issues to consider.

Adversity can cause anatomical and functional changes in the brain, which is the organ responsible for stress and adaptation, as well as behavioural, neuroendocrine, autonomic, and immunologic responses to adverse events. While cortisol, for example, can alter brain structure, protective systems and interpersonal connections that promote adaptive coping mask tolerable stress. Prolonged activation, leading to toxic stress, increases the risk of physical and mental illness as well as cognitive decline. From a behavioural

perspective, it is crucial to understand burnout, compassion fatigue, grief, and other psychological processes and strategies in the context of the COVID-19 pandemic, particularly among healthcare and frontline workers. The SARS-CoV-2 infection that causes COVID-19 has resulted in various challenging and difficult-to-treat health issues. One of these challenges is post-COVID-19 syndrome, which has become increasingly prevalent as the epidemic progresses [25].

Despite the remission of acute infection, COVID-19 is associated with clinically severe symptoms, known as post-COVID-19 condition. The most prevalent and debilitating symptom of post-COVID-19 condition is fatigue, followed by cognitive impairment [26]. Along with fever, loss of taste and smell, and cough, persistent fatigue, cognitive decline, dyspnoea, or discomfort are commonly observed in individuals with COVID-19. This collection of long-lasting effects is referred to as post-COVID-19 syndrome or protracted COVID-19 [27].

While COVID-19 brain involvement typically occurs during the acute phase of infection, neurological and psychological consequences are also common during the post-COVID-19 phase. Specifically, Post-COVID-19 Neurological Syndrome (PCNS) is an increasingly recognised side effect of COVID-19. Therefore, cognitive and psychiatric functions need to be closely monitored in COVID-19 patients who survive beyond the acute phase [27]. A wide range of symptoms have been reported, including muscle discomfort, vertigo, migraines, fatigue, anosmia, amnesic dysfunction, ataxia, and sleep problems. These findings have led to the emergence of post-COVID syndrome, also known as long-COVID, which is characterised by a prolonged course of various physical and neuropsychiatric symptoms lasting for more than 12 weeks without a clear explanation. However, it is acknowledged that there is minimal correlation between the severity of the acute illness and the likelihood of developing long-COVID-19 [24]. Currently, it is unknown who is at a higher risk of developing long-COVID [24].

A survey revealed that 60% of respondents reported worsened mental health due to the pandemic. Younger age, difficulty accessing mental health treatments, lower income, COVID-19-related economic impact, stress related to COVID-19, lack of sleep, and increased alcohol/drug use were all associated with increased feelings of sadness, anxiety, and decreased well-being [28]. Having social support from friends, family, and services was linked to better mental and physical health. Individuals with a history of anxiety, depression, Post-Traumatic Stress Disorder (PTSD), or an eating disorder were more likely than those without such a history to report worsened mental health during the pandemic. Feelings of confusion, panic, insecurity, and sadness were prevalent among different groups of people [28]. Evidence-based psychological therapies that aim to reduce acute stress and prevent the development of psychological disorders in this population are needed, as distress symptoms are expected to persist long-term and have a systemic impact on healthcare systems [29]. The COVID-19 pandemic has had a detrimental effect on people's mental health worldwide, leading to prevalent symptoms of PTSD, anxiety, and depression. This can result in stress, depression, headaches, and anxiety, leading to impaired brain function and, if not addressed promptly, further complications.

### **Effect of Stress**

Neurons are cells that receive sensory input and use neurotransmitters to transmit information to other cells. They are considered the fundamental units of the nervous system. Interestingly, the term 'neuron' did not exist until 1891 [30]. By the mid-nineteenth century, scientists had discovered that every living organism was composed of distinct "cells," with the nervous system being the only exception



[30]. The development of the electron microscope in the 20<sup>th</sup> century later revealed that neurons communicate with each other through electrical and chemical synapses, indicating the presence of voltage-gated ion channels on dendrites and the propagation of action potentials from the cell body, which plays a crucial role in nearly all physiological processes in living systems [30].

The long-term consequences for survivors of severe illness since the emergence of the novel coronavirus in China are still unclear [31]. Researchers have theorised that COVID-19 may lead to post-viral sequelae, which can be permanent and debilitating, as the global pandemic continues to spread and result in numerous fatalities and morbidities [31]. One well-known side effect of several viruses is Chronic Fatigue Syndrome (CFS), which presents as prolonged relapses of fatigue, cognitive impairment, depression, and other symptoms following even mild exertion. Previous studies have shown that many survivors of the SARS-CoV-2 pandemic experienced symptoms similar to CFS. However, since there is no widely accepted diagnostic procedure for CFS, it is necessary to first rule out any conditions with comparable symptoms [31].

Many professionals in the mental health and psychology fields believe that the effects of the coronavirus pandemic may not be as apparent now as they will be once the pandemic phase has passed [32]. This is influenced by the current tendency of many individuals to normalise and adapt to their surroundings. According to a study, numerous academics, the full extent and impact of societal trauma will not be fully understood until the epidemic is over. Many also propose the existence of post-pandemic stress disorder [32]. Since the beginning of the 21<sup>st</sup> century, pandemics have increased in frequency and complexity. PTSD is a significant public health concern following pandemics. Through a comprehensive study and meta-analysis, the authors aimed to accurately estimate the global prevalence of PTSD following major pandemics, as well as any associated risk factors [33].

### Anxiety

Some people have intense tension and worry about passing away or getting sick. They report considerable anxiety, annoyance, uncertainty, sleeplessness, and stress due to the social isolation and confinement they have experienced. Other risk factors for mental health illnesses include excessive social media usage, low socioeconomic position, poor resilience, and a lack of social support [34]. Even though many lockdowns and restrictions have been lifted, and up to 62% of Americans have received all recommended vaccinations, many people say they continue to experience tremendous terror in the months after recovering from COVID-19 sickness [34]. Anxiety is one of the more persistent indications of post-COVID condition, also called long-COVID-19. This is a recently diagnosed condition. According to research, mainly women experience mental health issues (such as anxiety) after beating the illness [34]. According to other research, that number is higher, hovering around the 50% range. Other mental health problems, such as GAD, Obsessive-Compulsive Disorder (OCD), and PTSD, share symptoms with post-COVID-19 anxiety. Severe depression and health anxiety can also occur [34]. Anxiety is a state of worry that frequently manifests as an emotional response to instinctively perceived dangerous circumstances. This sensation typically goes hand in hand with fatigue, irritability, tiredness, and attention deficit. Long-term anxiety affects the brain's chemistry and causes a spike in stress hormones, making dizziness, headaches, and depression symptoms worse or more frequent [34].

### Social Determinants and Society

The reality is that structural inequities restrict the range of options disadvantaged individuals have for realising their full potential in health, notwithstanding ongoing arguments concerning the extent

to which individual actions contribute to health inequalities. For instance, according to an estimation from the US Centre for Disease Control and Prevention (CDC), Black people have died from COVID-19 at a rate more than double that of white people. Racial differences in COVID-19 cases and deaths have been attributed to several pathways, including genetic susceptibility, medical discrimination in testing and treatments, and health disparities. Black populations predominantly experience cardiovascular disease and asthma, two major risk factors for COVID-19 [35]. The average time after diagnosis was 8.1 (3.2) months, with 83.0% of the 230 responders (6.3% response rate) having a history of COVID-19 hospitalisation [35]. On average, the age was 43.1 (14.3) years. Anxiety was the domain with the lowest Health-Related Quality of Life (HRQoL) scores across the board, with an average Patient-Reported Outcomes Measurement Information System (PROMIS)-Preference score (PROPr) health utility of 0.36 (0.25). All domain scores were identical across racial groups except for cognitive function skills, which had lower scores among Latinos [35]. Interpersonal conflict was connected to lower health utility and worse outcomes in six of the eight PROMIS domains. In contrast, financial worries were linked to lower health utility and worse results in all eight domains (anxiety, depression, fatigue, sleep trouble, social function, and pain interference). After controlling for other factors, Latino ethnicity was only linked to lower scores in one PROMIS domain [35].

Participants' health, social well-being, and food security were all affected differently by the COVID-19 pandemic and response efforts. The COVID-19 pandemic had a limited impact on about 40% of the participants [36]. On the other hand, individuals who were significantly affected experienced the emergence of new mental health issues such as anxiety and stress, as well as the worsening of pre-existing psychological conditions including depression, posttraumatic stress disorder, and OCD [36]. Along with limited access to free activities and restricted food supplies, they also struggled with feelings of isolation and loneliness. The pandemic also resulted in disparities in access to healthcare services and continuity of treatment for unrelated health concerns. Overall, participants who had access to phones, the internet, and media devices found it easier to follow COVID-19 public health measures and obtain reliable information about preventive measures [36]. In conclusion, individuals experiencing homelessness and mental illnesses, who require social and housing services, were impacted in various ways by the widespread COVID-19 and associated response measures, in terms of their health, social well-being, free time, and food security [36].

Government-imposed controls during the COVID-19 pandemic likely contributed to its prevention, but they may have also led to prolonged periods of sedentary behaviour across all societal groups. This study analysed the sedentary behaviour of Thai individuals before and during the COVID-19 epidemic to investigate this phenomenon [37]. The analysis utilised the Surveillance on Physical Activity (SPA) datasets for 2019 and 2020, comprising a total of 5,379 individuals (SPA2019) and 6,531 individuals (SPA2020) aged 18-64 years who were connected to the internet [37].

There is a genuine risk of developing an "after the pandemic double burden of illness," which would add the stress of managing severe COVID-19-related effects on the healthcare system to the existing burden of long-term ailments or chronic non-communicable diseases already present in industrialised nations. Neglecting pre-existing medical issues may lead to a post-pandemic health crisis. The potential negative effects of short-term health crises on long-term community health are highlighted by an expanding body of research from previous epidemics and health emergencies. If the severe disruptions to standard healthcare systems and society are not well managed, they may result in higher morbidity and

mortality in the long run. This argument outlines the data supporting the care of long-term conditions during and after health crises to mitigate the short-term and long-term impact of COVID-19 on public health [38].

## Treatment

There are currently few treatment options available since the mechanisms of extended COVID-19 are not well understood. However, there are some simple methods that can help reduce stress on mental health. If you experience stress or depression, it is important to consult a physician. Follow the medication prescribed by the physician. Additionally, remember to drink enough water and inhale steam. If these symptoms persist, speak with your doctor. If you have trouble falling asleep, consider sleeping on your right or left side rather than your back, as it may facilitate restful sleep [39].

Psychotherapeutic treatments include psychotherapy and behaviour therapy techniques such as relaxation training or exposure therapy, as well as hypnotherapy. The most commonly used drugs are antidepressants like selective serotonin reuptake inhibitors and serotonin-norepinephrine reuptake inhibitors. It is important to maintain your exercise routine, which can include exercises for your chest and breathing like pranayama, self-awake pruning, yoga, and meditation. Maintaining a healthy diet is essential, including meals that provide energy such as cereals, foods that build muscle such as pulses, dairy products, and animal foods, as well as foods that strengthen your immune system such as those high in vitamins and minerals [19].

## CONCLUSION(S)

During the pandemic, many lives were lost, and thousands of people lost their loved ones. Such a situation has led to increased stress and anxiety, making life more threatening for people. The widespread of COVID-19, a significant virus epidemic in the 21<sup>st</sup> century, has posed unprecedented risks to mental health worldwide. It is important that, at this moment, no one should perpetuate stigma. Similar to other chronic medical illnesses, severe mental illness can have fatal consequences and lead to other emergencies in the future if regular treatment is not provided. This risk can be reduced through the use of telepsychiatry, psychosocial therapy delivered through technology, changes to regulations to ensure continuity of care for acute treatments, and the protection of treatments for vulnerable groups. By maintaining physical distance and connections, clinicians and patients can navigate through challenging times. To avoid stress and anxiety, it is important to consult a physician, maintain a healthy diet, and follow proper yoga and medication practices to prevent further consequences.

## REFERENCES

- Anand KB, Karade S, Sen S, Gupta RM. SARS-CoV-2: Camazotz's Curse. *Med J Armed Forces India*. 2020;76(2):136-41.
- Xiong J, Lipsitz O, Nasri F, Lui LMW, Gill H, Phan L, et al. Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *J Affect Disord*. 2020;277:55-64.
- Samji H, Wu J, Ladak A, Vossen C, Stewart E, Dove N, et al. Review: Mental health impacts of the COVID-19 pandemic on children and youth—a systematic review. *Child Adolesc Ment Health*. 2022;27(2):173-89.
- Liu YH, Chen Y, Wang QH, Wang LR, Jiang L, Yang Y, et al. One-year trajectory of cognitive changes in older survivors of COVID-19 in Wuhan, China: A longitudinal cohort study. *JAMA Neurol*. 2022;79(5):509-17.
- King BH. Psychiatric comorbidities in neurodevelopmental disorders. *Curr Opin Neurol*. 2016;29(2):113-17.
- Huys QJM, Browning M, Paulus MP, Frank MJ. Advances in the computational understanding of mental illness. *Neuropsychopharmacology*. 2021;46(1):03-19.
- Calvey T, Howells FM. An introduction to psychedelic neuroscience. *Prog Brain Res*. 2018;242:01-23.
- Yong SJ. Long COVID or post-COVID-19 syndrome: Putative pathophysiology, risk factors, and treatments. *Infect Dis (Lond)*. 2021;53(10):737-54.
- Kamal M, Abo Omirah M, Hussein A, Saeed H. Assessment and characterisation of post-COVID-19 manifestations. *Int J Clin Pract*. 2021;75(3):e13746.
- Cheung T, Ho YS, Yeung JWF, Leung SF, Fong KNK, Fong T, et al. Effects of Transcranial Pulse Stimulation (TPS) on young adults with symptom of depression: A pilot randomised controlled trial protocol. *Front Neurol*. 2022;13:861214.
- Swartz MK. Post-COVID conditions in children. *J Pediatr Health Care*. 2021;35(5):457-58.
- Asadi-Pooya AA, Nemati H, Shahisavandi M, Akbari A, Emami A, Lotfi M, et al. Long COVID in children and adolescents. *World J Pediatr*. 2021;17(5):495-99.
- Willi S, Lüthold R, Hunt A, Hänggi NV, Sejdin D, Scaff C, et al. COVID-19 sequelae in adults aged less than 50 years: A systematic review. *Travel Med Infect Dis*. 2021;40:101995.
- Greenhalgh T, Knight M, A'Court C, Buxton M, Husain L. Management of post-acute covid-19 in primary care. *BMJ*. 2020;370:m3026. Doi: <https://doi.org/10.1136/bmj.m3026>.
- Cabrera Martimbianco AL, Pacheco RL, Bagattini ÂM, Riera R. Frequency, signs and symptoms, and criteria adopted for long COVID-19: A systematic review. *Int J Clin Pract*. 2021;75(10):e14357.
- Rotman Y. Moral psychopathology and mental health: Modern and Ancient. *Hist Psychol*. 2021;24(1):22-33.
- Jones CM, McCance-Katz EF. Co-occurring substance use and mental disorders among adults with opioid use disorder. *Drug Alcohol Depend*. 2019;197:78-82.
- Mazza MG, De Lorenzo R, Conte C, Poletti S, Vai B, Bollettini I, et al. Anxiety and depression in COVID-19 survivors: Role of inflammatory and clinical predictors. *Brain Behav Immun*. 2020;89:594-600.
- Choi KW, Kim YK, Jeon HJ. Comorbid anxiety and depression: Clinical and conceptual consideration and transdiagnostic treatment. *Adv Exp Med Biol*. 2020;1191:219-35.
- Maron E, Nutt D. Biological markers of generalized anxiety disorder. *Dialogues Clin Neurosci*. 2017;19(2):147-58.
- Beesdo K, Knappe S, Pine DS. Anxiety and anxiety disorders in children and adolescents: Developmental issues and implications for DSM-V. *Psychiatr Clin North Am*. 2009;32(3):483-524.
- Morera-Fumero AL, Abreu-Gonzalez P. Role of melatonin in schizophrenia. *Int J Mol Sci*. 2013;14(5):9037-50.
- Tomasik J, Rahmoune H, Guest PC, Bahn S. Neuroimmune biomarkers in schizophrenia. *Schizophr Res*. 2016;176(1):03-13.
- Sykes DL, Holdsworth L, Jawad N, Gunasekera P, Morice AH, Crooks MG. Post-COVID-19 symptom burden: What is long-COVID and how should we manage it? *Lung*. 2021;199(2):113-19.
- Jimeno-Almazán A, Pallarés JG, Buendía-Romero Á, Martínez-Cava A, Franco-López F, Sánchez-Alcaraz Martínez BJ, et al. Post-COVID-19 syndrome and the potential benefits of exercise. *Int J Environ Res Public Health*. 2021;18(10):5329.
- Ceban F, Ling S, Lui LMW, Lee Y, Gill H, Teopiz KM, et al. Fatigue and cognitive impairment in post-COVID-19 syndrome: A systematic review and meta-analysis. *Brain Behav Immun*. 2022;101:93-135.
- Song WJ, Hui CKM, Hull JH, Birring SS, McGarvey L, Mazzone SB, et al. Confronting COVID-19-associated cough and the post-COVID syndrome: Role of viral neurotropism, neuroinflammation, and neuroimmune responses. *Lancet Respir Med*. 2021;9(5):533-44.
- Lewis KJS, Lewis C, Roberts A, Richards NA, Evison C, Pearce HA, et al. The effect of the COVID-19 pandemic on mental health in individuals with pre-existing mental illness. *BJPsych Open*. 2022;8(2):e59.
- Weiner L, Berna F, Noury N, Severac F, Vidailhet P, Mengin AC. Efficacy of an online cognitive behavioral therapy program developed for healthcare workers during the COVID-19 pandemic: The REduction of STress (REST) study protocol for a randomized controlled trial. *Trials*. 2020;21(1):870.
- Johnson S. In times of adversity: A neuroscience perspective on stress, health, and implications for society post-pandemic. *Yale J Biol Med*. 2022;95(1):165-70.
- Simani L, Ramezani M, Darazam IA, Sagarich M, Aalipour MA, Ghorbani F, et al. Prevalence and correlates of chronic fatigue syndrome and post-traumatic stress disorder after the outbreak of the COVID-19. *J Neurovirol*. 2021;27(1):154-59.
- Łaskawiec D, Grajek M, Szlacheta P, Korzonek-Szlacheta I. Post-pandemic stress disorder as an effect of the epidemiological situation related to the COVID-19 pandemic. *Healthcare (Basel)*. 2022;10(6):975.
- Yuan K, Gong YM, Liu L, Sun YK, Tian SS, Wang YJ, 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(9):4982-98.
- Pashazadeh Kan F, Raofi S, Rafiei S, Khani S, Hosseinfard H, Tajik F, et al. A systematic review of the prevalence of anxiety among the general population during the COVID-19 pandemic. *J Affect Disord*. 2021;293:391-98.
- Case KR, Wang CP, Hosek MG, Lill SF, Howell AB, Taylor BS, et al. Health-related quality of life and social determinants of health following COVID-19 infection in a predominantly Latino population. *J Patient Rep Outcomes*. 2022;6(1):72.
- Mejia-Lancheros C, Alfayumi-Zeada S, Lachaud J, O'Campo P, Gogosis E, Da Silva G, et al. Differential impacts of COVID-19 and associated responses on the health, social well-being and food security of users of supportive social and health programs during the COVID-19 pandemic: A qualitative study. *Health Soc Care Community*. 2022;30(6):e4332-e4344. Doi: [10.1111/hsc.13826](https://doi.org/10.1111/hsc.13826).
- Katewongsa P, Potharin D, Rasri N, Palakai R, Widyastari DA. The effect of containment measures during the covid-19 pandemic to sedentary behavior of thai adults: Evidence from Thailand's surveillance on physical activity 2019-2020. *Int J Environ Res Public Health*. 2021;18(9):4467.

[38] Chan AHY, Horne R. Preventing a post-pandemic double burden of disease in the COVID-19 pandemic. *Glob Adv Health Med.* 2021;10:21649561211010137. Doi: 10.1177/21649561211010137.

[39] Mairs R, Nicholls D. Assessment and treatment of eating disorders in children and adolescents. *Arch Dis Child.* 2016;101(12):1168-75.

**PARTICULARS OF CONTRIBUTORS:**

1. Undergraduate Student, Department of Neurology, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi (Meghe), Wardha, Maharashtra, India.

2. Associate Professor, Department of Neurology, Datta Meghe Institute of Medical Science, Wardha, Maharashtra, India.

**NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:**

Chinmayee Arvind Ladole,  
Undergraduate Student, Department of Neurology, Jawaharlal Nehru Medical College,  
Datta Meghe Institute of Medical Sciences, Sawangi (Meghe),  
Wardha-442004, Maharashtra, India.  
E-mail: ladolechinmayee17@gmail.com

**PLAGIARISM CHECKING METHODS:** [\[Jain H et al.\]](#)

- Plagiarism X-checker: Sep 27, 2023
- Manual Googling: Nov 15, 2023
- iThenticate Software: Apr 14, 2023 (12%)

**ETYMOLOGY:** Author Origin**EMENDATIONS:** 6**AUTHOR DECLARATION:**

- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? NA
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Sep 24, 2022**Date of Peer Review: **Nov 10, 2022**Date of Acceptance: **Apr 19, 2023**Date of Publishing: **Sep 01, 2023**