



# Impact of COVID-19 on Mental Health

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## Abstract

The Coronavirus Disease 2019 (COVID-19) pandemic has killed over seven million people and jeopardized the lives and livelihoods of millions more. It has affected every strata of society - rich or poor, young or old, men or women - leaving no one untouched. Though much is known about the physical ailments of COVID, the mental ailments are only just starting to be deciphered. What is known, is just the 'tip of the iceberg'. Mental illness threatens the disruption of the entire social fabric, potentially affecting future generations too. The present review has merely scratched the surface of this evolving humanitarian crisis by highlighting the spectrum of psychiatric sequelae, risk factors, vulnerable populations, treatment strategies, and the long-term challenges in the future.

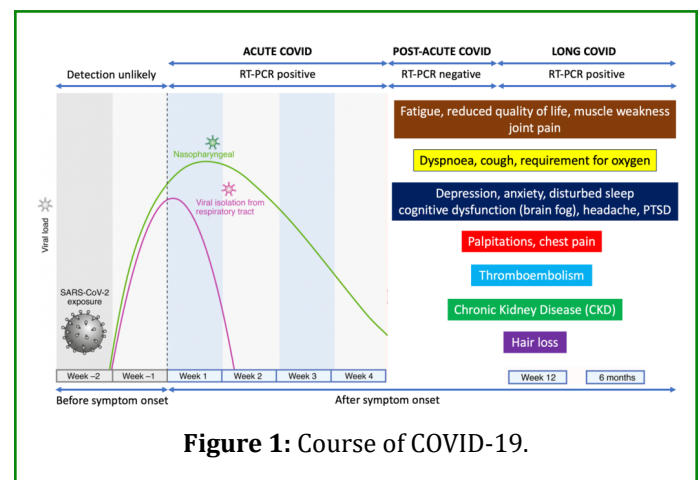
**Keywords:** Coronavirus; COVID-19; Mental Health; Pandemic; Depression; Anxiety; Psychiatry

**Abbreviations:** PACS: Post-Acute COVID Syndrome; SARS-CoV-2: Severe Acute Respiratory Syndrome Coronavirus 2; GBD: Global Burden of Disease; PTSD: Post-Traumatic Stress Disorder; ICU: Intensive Care Unit.

## Introduction

The Coronavirus Disease 2019 (COVID-19) pandemic that began in late December 2019, has wreaked havoc worldwide. Over the past three years, the pandemic has claimed seven million lives, with over 700 million cases, across 231 countries [1]. COVID-19 is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and is spread through aerosol transmission from the respiratory tract of infected individuals. In order to check the transmission, various public health measures were implemented, including masking, physical distancing, lockdowns, and quarantines. The lives of millions of people have been turned upside-down and affected them both physically and mentally. In fact, the entire social fabric has been disrupted by the pandemic. Even today, millions are still suffering the long-term effects in the aftermath of the pandemic. Post-acute COVID syndrome (PACS), commonly known as 'Long COVID', has affected 10-20% of COVID patients who had initially recovered

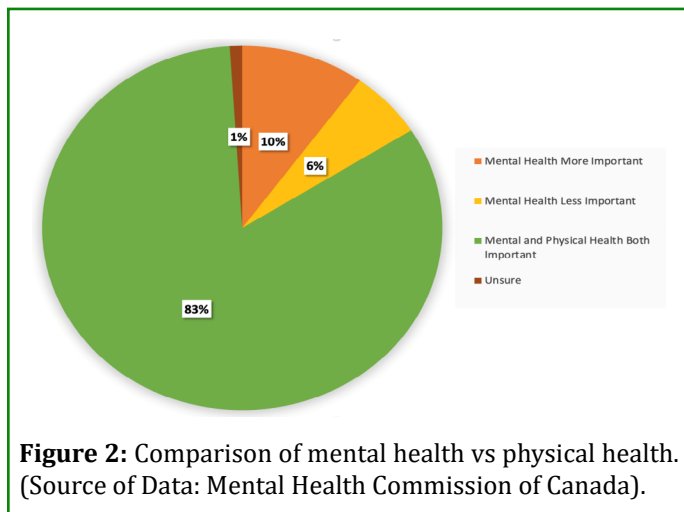
from the acute illness (Figure 1). Notably, common mental disorders that are caused by environmental stressors, have been further aggravated by disruptive and unpredictable conditions such as the pandemic. Having said this, the pandemic also has a silver lining. The lockdown conditions offered the opportunity for strengthening family ties, better work-life balance, improved family dynamics, and enhancing a sense of togetherness [2].



**Figure 1:** Course of COVID-19.

## Mental Health and Its Implications

Mental health is not merely the absence of mental illness, but an overall state of wellbeing. Sound mental health and wellness allows people to deal with and overcome the stresses of everyday life and function to the best of their abilities, thereby adding value to their lives. It is often forgotten that mental health, like physical health, is a basic human right, and is vital for development, not only at the personal level, but also at the societal level [3]. A comparison of the opinions of 1,049 individuals from Canada on mental health vs physical health is presented in Figure 2.



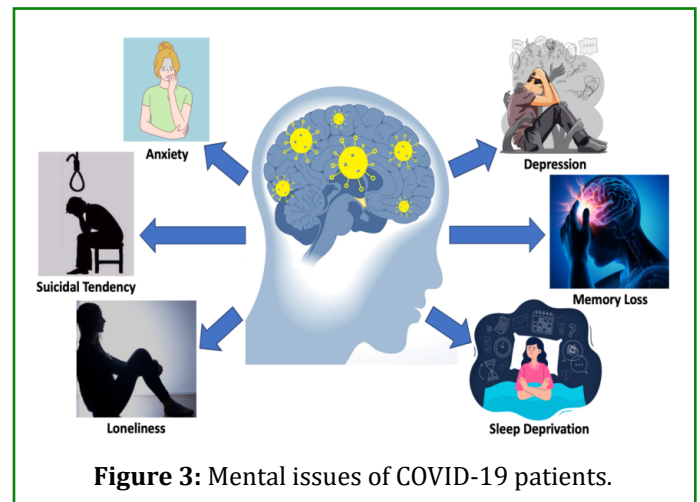
**Figure 2:** Comparison of mental health vs physical health. (Source of Data: Mental Health Commission of Canada).

Mental health conditions include various mental disorders and psychosocial disabilities that may result in severe distress, impaired functioning, and potential for self-harm. Exposure to poverty, violence, inequality, prejudice, exploitation, social deprivation, among other unfavourable conditions, can precipitate mental illnesses. When these detrimental conditions are experienced during a tender age, the risk of developing mental health problems later on in life increases manifold. Harsh parenting and physical torture during childhood are especially harmful [3].

## Mental Health in the Context of COVID-19

The genesis of mental health problems can be traced back to the beginning of the COVID-19 pandemic in 2020. Notably, the mental health of both adults and children have been affected significantly as a result of the pandemic, which prompted 90% of countries to take steps to include mental health support in their COVID-19 response strategy. From 2020 onwards, various public health interventions were implemented, which have been mentioned earlier. Of these, the ones that were most detrimental for mental health were restrictive measures, such as lockdowns, closure of schools and offices, necessitating online education and working from home. Malls were closed and shops sold only essential supplies

at specified times. Attending various events, including sporting events, visiting holy places, and even attending funerals were curbed in many countries [4]. Although these interventions helped to reduce the mortality and morbidity, it provided ripe conditions for the development of mental illnesses. Mental issues, such as anxiety, depression, cognitive dysfunction ('brain fog'), psychosis, seizures, sleep disturbances, bipolar disorder, schizophrenia, and suicidal behaviour, had skyrocketed with the advent of the pandemic (Figure 3). Notably, the Global Burden of Disease (GBD) Study reported that there was a 28% increase in depression cases and 26% increase in anxiety cases [5]. It has also been found that mentally ill patients are more likely to die if infected with SARS-CoV-2, than normal individuals. And now that the pandemic is abating, cases of post-traumatic stress disorder (PTSD) are on the rise [6].



**Figure 3:** Mental issues of COVID-19 patients.

A significant proportion of infected individuals become severely ill, requiring hospitalization. One-third of hospitalized patients experience delirium, of which more than half require specialized treatment in an intensive care unit (ICU) [7]. The observable clinical symptoms in hospitalized psychiatric patients are strongly correlated with elevation of inflammatory markers [8], immune activation, development of encephalomyelitis, and cytotoxic brain lesions. In rare instances, meningitis, encephalitis, demyelination, cerebral infarction, and acute haemorrhagic necrotizing encephalopathy, may also develop [9].

## Factors Impacting Mental Health

### Age

The age of an individual has been identified as a risk factor for developing mental health problems in the context of COVID-19 [10]. It has been found that young adults exhibit higher prevalence of anxiety and depressive disorders, compared to older individuals [11]. However, there are also

some contradictory findings, which showed that older people were more susceptible to developing mental illness [12].

### Gender

Being a female is a major risk factor for developing mental health problems. Female patients are more likely to suffer from anxiety and depression, compared to their male counterparts [13]. They also feel a sense of helplessness and suffer from insomnia more than men [14].

### Marital Status

This has been associated with development of mental illness in some COVID patients. Marital status has also been linked to insomnia with married women suffering more than men [14]. Resumption of work following disruption by COVID-19, has also been associated with development of psychiatric symptoms that are significantly influenced by marital status [15].

### Education

There is no clear consensus on the role of education level in the development of mental illness in the context of COVID-19. Some studies have reported that lower education level (High School) posed a greater risk of developing mental illness [16,17], whereas higher education levels (University) had lesser risk of developing mental illness, although the academic stress was higher in this group of students [10].

### Physical and Mental Comorbidities

Individuals with physical comorbid conditions are at a higher risk of experiencing mental instability in the context of COVID-19. This includes people with conditions such as diabetes, cerebrovascular diseases, epilepsy, multiple sclerosis, cardiometabolic diseases, and other chronic conditions [18]. People with pre-existing psychiatric conditions are likely to be more depressed, anxious, and lonely. These individuals may experience exacerbation of their mental condition due to increased vulnerability from genetic or environmental factors or discontinuation of medications as a result of the disrupted healthcare system, which was already under-resourced, even before the pandemic started [19].

### Stressors

Stress has been a major factor in the precipitation of mental illnesses during the pandemic, largely arising from social isolation from loved ones, friends, and community. This has significantly elevated stress levels. Other stressors include fear of becoming infected, grief from death of near-and-dear ones, loneliness, financial trouble arising from job losses, adapting to changed circumstances, isolation during quarantine, lack of awareness about psychological coping

methods, being overwhelmed by the infodemic, among others [20,21].

### Disrupted Mental Health Services

Incidence of mental health problems shot-up due to major disruptions in mental health services, depriving those in dire need of medical attention. Notably, mental health services had been worst hit during the pandemic [22].

### Misinformation and Disinformation

Misinformation is when false information is given 'unintentionally', whereas disinformation is when this is given 'intentionally'. Hearing, reading or seeing incorrect information can have serious adverse effects on mentally weak people, leading to the development of severe mental illness. Distribution of false news was rampant on social media when the pandemic was at its peak. These went viral like wild-fire without checking the authenticity from a reliable source. It has been found that exposure to COVID-related news on social media for more than two hours a day, can lead to development of anxiety disorders and depression [23].

### Coping Skills

Mental health outcomes in the context of COVID-19 depend on coping skills of individuals. Coping skills may be positive or negative. Those who have the adequate psychological strength to tackle the negative emotions are said to possess positive coping skills, whereas those who don't are said to have negative coping skills. During the COVID-19 pandemic, it has been observed that people with negative coping skills were more likely to experience adverse mental health outcomes [17].

### Psychosocial Support

Psychological support is very important for preventing mental disorders. Mental support from family and friends significantly reduce the impact of psychological stressors. Individuals without psychosocial support become highly vulnerable to anxiety and depression [16].

### Vulnerable Groups Likely to Develop Mental Health Problems

There are several vulnerable groups that have been impacted the most by the COVID-19 pandemic, leading to development of mental health problems. These are briefly highlighted below:

#### Children and Adolescents

How much the COVID-19 pandemic has impacted the mental health of children is still not clear. It could have affected the

cognitive, social, and emotional development of children due to the following:

- Changes in routine
- Virtual learning
- Masking
- Absence or death of parents
- Family financial problems

Adolescents have been disproportionately impacted compared to younger children and older adults [24]. This has resulted in unfavourable behaviours, such as suicidal and self-harming thoughts. Social upheaval in the form of school and college closures at a critical phase of emotional development, accompanied by lack of interaction with peers, may have impacted them most [25].

### Women

Women have been impacted more severely than men by the COVID-19 pandemic. And those with pre-existing ailments, such as asthma, cancer and heart disease, are more likely to develop mental disorders. If mentally ill women become infected with SARS-CoV-2, they are more likely to be hospitalized and experience severe illness and premature death, compared to those with sound mental health. Young women with severe mental illness, such as psychosis, are particularly at risk [22]. However, overall, men are more likely to die from COVID than women.

Women often experience higher stress levels and family-life disruptions, possibly due to greater parenting responsibilities, exposure to domestic violence, and worse economic impact from unemployment, compared to men. These exacerbate the already existing pre-pandemic gender inequalities in exposure to mental pressure [26].

### Low Socioeconomic Groups

Marginalized ethnic groups of low socioeconomic status have been negatively impacted by the pandemic. During this period, the socio-cultural disparities have widened. The mental health of Black, Hispanic and Asians worsened comparatively more than Whites. The latter were more likely to receive mental healthcare, compared to the former. Notably, Black, Hispanic, and Asians experienced higher levels of unmet mental healthcare needs during the pandemic period [27].

### Healthcare Workers

This group has been swamped with work in rapidly changing and challenging work environments. Exposure to infections, apprehension of death, and fear of infecting their families, haunted them daily. Prevalence of depression

(31%), anxiety (23%) and PTSD (22%) were also disproportionately higher in healthcare workers, especially doctors and nurses [28,29].

### Treatment of Psychiatric Conditions During the Pandemic

Treating neuropsychiatric sequelae of COVID-19 is extremely challenging. Currently, no specific evidence-based treatment strategy exists. Therefore, the 'Stepped Care' approach has been adopted. In this strategy, a stepwise increase in treatment intensity is followed that is tailored to a patient's needs. This approach has been found to be suitable for monitoring mental health and cognitive deficiencies. In case of milder conditions, a holistic approach, incorporating counselling, physiotherapy, psychotherapy, and rehabilitation may be used [30].

Teleconsultation has become a popular alternative to conventional consultation during the pandemic period. This modality is most suitable for individuals with mild or moderate mental conditions that don't require a thorough examination. Since the pandemic prevented people from visiting their doctor in person, telehealth was a convenient option. Telehealth for mental health consultations increased significantly from 2020 to 2021. This new-age technology is ideal for people who otherwise would not be able to access mental healthcare, such as those living in rural areas. However, it still hasn't been possible to implement telehealth services universally, since developing and deploying digital technologies in resource-poor countries is still very challenging [22].

### Conclusion

The impact of COVID-19 on physical health has received much attention, but this has not been the case for mental health, despite the impact being immense. There is an urgent need to expand the health infrastructure to accommodate mental healthcare, so that it reaches out to those who are particularly vulnerable. Thus, mental health should be given equal priority to physical health. However, improvement of mental healthcare services at the global level is a formidable challenge. The current ground reality is very dismal, given that most countries spend just 2% of their annual health budget on mental healthcare. Moreover, in many low-income countries, there is only one mental health worker per 100,000 population. Thus, policymakers need to prioritize mental health on the global health agenda. The pandemic has shown the historical under-investment in mental health services. Therefore, sustainable funding and long-term investment is the need of the hour. This will allow mental healthcare to be accessible to everyone everywhere, especially those who need it most!

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