

## Research Article

# First the Pandemic then the Tsunami: COVID-19 and Its Impact on Mental Health

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**Introduction:** COVID-19 has undeniably and profoundly impacted everyday lives of the general public. One particular emphasis is the mental wellbeing of populations. This review serves to examine the mental health impact of the current pandemic.

**Methods:** A review of the literature on PubMed was conducted, drawing from systematic reviews and large population studies about mental health consequences of the COVID-19 pandemic. The content was synthesized with the writer's experience of daily life across different perspectives. Certain demographic sub-groups were examined, such as those under home quarantine or isolation, those who had contracted COVID-19, those with pre-existing psychiatric disorders, as well as healthcare workers and medical students.

**Results:** Psychological well-being was adversely affected by the pandemic, although there is some controversy about the magnitude of this impact which is likely in relation to the timeline of the pandemic's progression. Behavioural patterns such as spending habits during lockdowns might provide an early indication of mental health problems.

Those who had contracted COVID-19 were found to have heightened levels of posttraumatic stress symptoms and depressive symptoms. Healthcare workers and medical students have faced comparable levels of anxiety, depressed mood and insomnia. The final results of some of the systematic reviews are still pending.

**Conclusion:** The COVID-19 pandemic has profoundly impacted everyday life. If not already the case, there is likely to be an anticipated tsunami of mental health concerns. This would make a strong case for the anticipatory need of increased resource allocation to allow mental health services to meet this demand.

**Highlights:**

- Symptoms of anxiety, depression and insomnia have gone up across the world.
- Those under quarantine or isolation experienced a higher burden of mental health.
- Those who contracted COVID-19 reported more depressive and post-traumatic stress symptoms.
- Systematic reviews are under way for the mental health impact on certain subgroups.
- A pre-emptive increase in resource allocation is required to deal with surges in demand for mental health services.

**Keywords:** Mental health; Psychological wellbeing; COVID-19; Public health

**Introduction**

Following its emergence with reports made by China to World Health Organisation (WHO) on 31<sup>st</sup> December 2019, Coronavirus Disease 2019 (COVID-19) was declared by WHO's Director-General to be a Public Health Emergency of International Concern (PHEIC) on 30<sup>th</sup> January 2020. Around the time of writing, COVID-19 has

seen over 38 million people infected with over a million deaths [1]. While the number of people infected with COVID-19 are a minority of the global population, this number still remains on the exponential rise such that the pandemic has undeniably and profoundly impacted everyday lives of everyone else. The socio economic disruption experienced has been nothing short of devastating across various sectors and industries, with millions at risk of slipping into poverty

and many enterprises facing financial threats to their existence.

At the same time, research about COVID-19 has been conducted at breathtaking pace, with academic journals seeing a ceaseless flow of manuscript submissions. Editorial offices have offered fast-tracked review processes with open-access publications, which in turn has facilitated the dissemination of these findings. In the first half of 2020 alone, 23,634 unique publications were identified on Clarivate Analytics' Web of Science and Elsevier's Scopus [4]. A preliminary search on PubMed with the term "COVID-19" done on 14 October 2020 alone yielded 63,425 results.

Prior research has established consistent and significant associations between economic recessions and increased rates of common mental disorders, substance-related disorders, and suicidal behaviours [2], mediated by unemployment, income decline, and unmanageable debts. Implementation of cost-effective measures are recommended to reduce the occurrence of negative mental health outcomes during economic recessions. A previous systematic review [3] reported increased harmful drinking among men with the potential to contribute to gender-related health inequalities during economic crises. This could also aggravate and worsen the mental health of the people, with the depressant effects of alcohol already well known.

It naturally follows that the unprecedented impact of the ongoing COVID-19 pandemic should warrant a careful evaluation of the mental health and wellbeing with a public health perspective at the population level. This review serves to examine the significance that the COVID-19 pandemic has on mental health worldwide. Certain subgroup populations of interest studied more extensively would also warrant a closer look.

## Method

A review of the literature on PubMed was conducted on 1 October 2020, using the search term "public health mental covid-19 systematic review". This yielded 39 search results, of which 27 had relevance to the research question drawing from systematic reviews and large population studies about mental health consequences of the COVID-19 pandemic. Some articles cited in the systematic reviews found to have direct relevance were examined in further detail. This data was supplemented by relevant information from news and data tracking sites based on the writer's living experience from Singapore and Australia, which served to provide insights about the daily life in those countries. The content was synthesized to present an overview of the pandemic's mental health impact, across different perspectives.

## Results

### Impact on general public

**(a) Specific countries (China, the US, and the UK):** An online survey of 1,210 members of the general public in China [5] conducted during 31 January to 2 February 2020 found that 75.2% were worried about their family members contracting COVID-19, with 53.8% citing the pandemic having a moderate-to-severe psychological impact. Moderate-to-severe stress levels (8.1%), depressive symptoms (16.5%) and anxiety symptoms (28.8%) were in the minority ranges.

A nationally-representative sample of 1,004 US adults were polled online during 18 to 19 March 2020 [6]. This revealed that 62% of

Americans were anxious about their family or loved ones contracting COVID-19, 48% were anxious about contracting COVID-19 themselves while 40% were concerned about being seriously ill or dying from COVID-19.

Drawing from data from the UK's Household Longitudinal Study [7], 17,452 participants were surveyed in late-April 2020. In comparison to prior data from 2018 and 2019, those reporting clinically-significant distress climbed from 18.9% to 27.3% while average scores on the 12-item General Health Questionnaire (GHQ-12) rose from 11.5 to 12.6. The greatest increases were noted in women, the young, and parents of preschool children.

**(b) Collated data:** Examination of data across China, Spain, Italy, Iran, the US, Turkey, Nepal and Denmark was done by a systematic review [8]. Significant heterogeneity was noted across studies, with variations across rates of symptoms of anxiety (6.33% to 50.9%), depression (14.6% to 48.3%), post-traumatic stress disorder (7% to 53.8%), psychological distress (34.43% to 38%), and stress (8.1% to 81.9%) reported in the general population. Risk factors associated with distress measures include female gender, younger age group ( $\leq 40$  years), presence of chronic/psychiatric illnesses, unemployment, student status, and frequent exposure to social media/news concerning COVID-19.

**(c) Living systematic review:** A Canadian team had embarked on a living systematic review [9], which sought to continually publish findings online about mental health during COVID-19. As of 13<sup>th</sup> October 2020, 26,272 titles/abstracts had been reviewed.

### Those under quarantine or isolation

An umbrella review [10] studied existing review articles from 2009 to 2020 about experiences of those under quarantine and isolation for prevention of infectious diseases. This reported a high burden of mental health problems among patients, informal caregivers, and healthcare providers who experienced quarantine or isolation. In particular, three COVID-19 studies [11-13] about children in quarantine reported restlessness, irritability, anxiety, clinginess and inattention with increased screen time. This was echoed by a study on 1,784 primary school students from China who reported depressive (22.6%) and anxiety (18.9%) symptoms during their home confinement [14].

### Those with COVID-19

The first COVID-19 study on post-traumatic stress symptoms was done on 714 clinically-stable patients from China requiring admission [15], where 96.2% endorsed having post-traumatic stress symptoms from the hospitalization. Following this, another study compared the prevalence of depressive and anxiety symptoms in 57 Chinese patients whom had experienced COVID-19 infection, compared to 50 individuals in quarantine and the 98 members of the general public [16]. Those who experienced COVID-19 reported significantly higher rates and severity of depressive symptoms, while no difference in anxiety levels was found.

### Healthcare workers

Like patients with COVID-19, levels of post-traumatic stress were raised in their healthcare workers. A systematic review and meta-analysis by Kisely et al [17] found elevated levels of post-traumatic stress (odds ratio 1.71, 95% confidence interval 1.28 to 2.29) and

psychological distress (odds ratio 1.74, 95% confidence interval 1.50 to 2.03) amongst healthcare workers.

Risk factors for psychological distress included being younger, being more junior, being the parents of dependent children, or having an infected family member. Longer quarantine, lack of practical support, and stigma also contributed. Clear communication, access to adequate personal protection, adequate rest, and both practical and psychological support were associated with reduced morbidity.

From a separate systematic review and meta-analysis by Pappa et al [18], the pooled prevalence of anxiety (23.2% across 12 studies), depression (22.8% across 10 studies) and insomnia (38.9% across 5 studies) were noted. Nurses and female healthcare professionals exhibited higher rates of affective symptoms in the subgroup analysis.

Medical students were found to be more willing to be involved in the pandemic than not across 91.7% of articles reviewed [19], although an estimated prevalence of anxiety in this group from 8 studies was cited as 28% [20].

### The psychologically vulnerable

Those with high levels of health anxiety were identified as being more prone to misidentify benign bodily sensations as dangerous [21]. As of the time of writing, a systematic review aiming to examine the effect of pandemics and epidemics, including COVID-19 and other infectious diseases, on those with premorbid mental disorders was still ongoing [22].

### The young

Comparing two similar samples of over 2,000 undergraduate students [23,24], prevalence of anxiety was much higher in the US (38.5%) sample compared to the Chinese (12.5%). Undergraduates from the US mostly reported increased stress levels (71.3%), with only 43.3% subjectively able to cope. Moderate-to-severe depression (48.1%) and suicidal thoughts (18.0%) were also prominent. The Chinese undergraduates reported an insomnia prevalence of 16.9%. As of the time of writing, a systematic review to examine the impact of the COVID-19 pandemic on mental health of young people and adults was still under way [25].

## Discussion

It is not possible to examine the results without consideration about the context. The point in time along the course of the pandemic when the respondents are studied would have a substantial influence on the results. The Chinese survey on the general public [5] was conducted just a day after WHO had declared COVID-19 to be a PHEIC. The US survey [6] happened when there had been a fivefold increase in number of COVID-19 cases from a week ago, while the data from UK [7] was around a month into the country's lockdown.

The Chinese patients [15] had to be hospitalized for COVID-19 in 'fang cang' hospitals, (gymnasiums, exhibition centres and sports centres converted to temporary hospital quarantine facilities). Even though their doctors had identified their health condition to be clinically stable, they would have felt uneasy about their surrounding environment and experienced heightened levels of anxiety from uncertainty, which could account for the alarming rate of post-traumatic stress symptoms. Most of this distress would be expected to abate with discharge back to their familiar home environment

although the authors pointed out the need for urgent initiation of appropriate crisis psychological interventions and long-term follow-up assessments.

At some point or another, most people would have labelled the innocuous sneeze or snuffle, whether in themselves or others, to be a definite sign of COVID-19 until proven otherwise. This provides an insight into the state of mind which a person suffering from health anxiety disorder (previously known as hypochondriacal disorder). It is also possible to appreciate how the distress ensuing from conditions during lockdown might give rise to psychopathology. Being in a prolonged state of loneliness, stigmatization and social exclusion, loss of self-control might lead to depressive symptoms. Constantly living in fear about the health of oneself and others around would be highly anxiety provoking, while increased handwashing with recurring thoughts about one's hands containing germs is no difference from obsessive-compulsive disorder with a theme of contamination.

A warning sign about things to come can be gleaned from emerging behavioral patterns. Real-time economic tracking data in Australia [26] has identified changes in consumer spending trends compared to the pre-COVID-19 "normal week". Spending more on online gambling (95%) is worrying, and while the increase to alcohol and tobacco expenditure (29%) might not look like much, these become even more significant on the backdrop of the economic downturn. The economic impact of COVID-19 has already been identified by the World Bank [27] to be the worst global recession since the Second World War. Given that the full extent of the economic impact has yet to be felt, the demand for mental health services cannot be underestimated.

While data from a report by the Coroners Court in Victoria [28] revealed no substantial increase in the number of people dying by suicide during the COVID-19 pandemic when compared to the same calendar period from 2018 and 2019, hotlines for those in emotional distress to help with suicide prevention saw increased call volumes of around 30% in both Singapore [29] and the Australian state of Victoria [30].

As with COVID-19, the anticipatory fear would be for existing health services to be overwhelmed and unable to cope with the increased demands. While considerations in COVID19 about immediate lifesaving treatment from ventilators and respiratory support, the ensuing mental health needs should not be overlooked. Now is as good a time as any to examine current mental health services in place, which are known to vary widely across different parts of the world, in order to ramp up both capabilities and headcounts to prepare for the tsunami of mental health demands following the pandemic.

## Conclusion

The COVID-19 pandemic has profoundly impacted everyday life across various domains. If not already the case, there is likely to be an anticipated tsunami of mental health concerns. This would make a strong case for the anticipatory need of increased resource allocation to allow mental health services to meet this demand.

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