

The Effects of the COVID-19 Pandemic on the Need and Demand for Mental Health Services

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ABSTRACT

The COVID-19 pandemic has had a massive impact on the world at large with over a hundred million cases and millions of deaths, the physical impact of the disease is obvious. There is another aspect of the pandemic's effect, however, that is largely left under discussed. Alongside the disease itself, the COVID-19 pandemic brings the mental health challenges that the many changes from living in such a time creates.

Throughout this paper, the impact that this pandemic has had on the mental health of the population at large will be examined. Along with this, the effect of this mental health impact on the demand for mental health services will be examined. The impact of COVID-19 will also be compared with those of previous pandemics while exploring how this increase of demand is being addressed by those in the field.

To gather all the necessary information for exploring these topics, a search of the Web of Science data base was conducted. Initial searches revealed an obvious increase in mental health problems amongst the general population during the pandemic, with grief, anxiety, and depression all showing significant increases, with increases of almost 10% in some cases. Searches into the providing of mental health care in the pandemic environment quickly revealed the trend towards telemedicine in order to meet the increased demand safely. This and other changes in the field of mental health have been taking place over the course of the pandemic allowing for their effectiveness and usage to be easily studied. With all this in mind, this paper will attempt to thoroughly explore all of these ideas and paint a clear picture of the impact that the COVID-19 pandemic has had on the mental health of the public and on the providing of mental health services.

Keywords

COVID-19, Mental health, Anxiety, Stress symptoms.

Introduction

The COVID-19 pandemic is an outbreak of a novel coronavirus disease, which has been designated as COVID-19, which is affecting 192 countries and regions globally [2]. There have been over 100,000,000 cases globally and over 3,000,000 deaths from COVID-19 as of April 26th 2021 [1]. The disease is highly infectious and has thus led to temporary quarantine or shelter in place orders across the globe. The mental health impact of this and other aspects of the COVID-19 pandemic are the subject of this paper.

Before getting into the literature on COVID's impact with regards to mental health, background on the various mental health issues at play is important. The primary issues involved in this article are anxiety and depression, grief, and stress as these are the most frequently assessed by the research and seem to be the most common psychological symptoms of the pandemic [3]. Depression brings with it a variety of symptoms including, persistent anxiousness, fatigue, difficulty sleeping, and suicidal ideation or thoughts of death [4]. Anxiety has many similar symptoms and thus, for the purposes of many of these studies, is grouped together with depression. Feelings of grief are the subject of other research on the mental health impacts of COVID-19. The grief resulting from COVID related loss showed to be greater than that from

other sources [5] and so is also included in the discussion of the pandemic's mental health impact.

There is a strong connection between mental and physical health [6]. The two are deeply intertwined resulting in a decrease in one leading to a decrease in the other. As such, people who are ill are likely to experience an impact on their mental well-being due to their lack of physical well-being. Even outside of any mental health impact from the various social changes that the COVID-19 pandemic presents, mental health is bound to be impacted just by the disease itself affecting the mental health of those afflicted by it. Due to this entanglement of mental and physical health, as the need for physical healthcare increases due to COVID, an increase in need for mental healthcare is likely to follow alongside it. The further reaching effects of the pandemic on mental health will be further explored later.

Stepping away from the disease, a focus must be given to the importance of mental health services before, during, and after the pandemic. Mental illnesses make up for roughly a third of all adult disability globally and many of these otherwise devastating mental illnesses can have their impact greatly reduced by proper mental health care [7]. Mental health services including therapy services, counseling, and mental health medication all serve vital roles in protecting and aiding the mental health of the public. This end is of the utmost importance as in a very literal sense if the mind is not healthy, the rest of the body will not be.

The importance of mental health services is especially relevant in the time both during and after the COVID-19 pandemic. As is going to be explored in this article, the COVID-19 pandemic has had a massive impact on the mental health of the public. Considering this, more people are relying on therapists, counselors, and other mental health specialists to make it through each week while staying productive and healthy. Without proper support, the impact of this pandemic will not be confined to just those killed and severely injured by the disease physically. Without proper care, a large group of people, all those mentally affected by the pandemic, will have their symptoms go untreated and their mental health damaged.

The Statistics

Throughout the course of the COVID-19 pandemic, many studies have been conducted that survey the mental health of the public. For these to prove useful at measuring the impact that the pandemic has had on mental health, however, a baseline must be set. Each year, MHA (Mental Health America) creates a report on mental health in the US that provides data for a wide variety of mental illnesses and symptoms. This allows it to provide a clear picture of how mental health has changed in the US due to the pandemic from a very general perspective.

With the COVID-19 pandemic, MHA released a special report focusing on comparing data from during the pandemic, to the data from before it began. Detailed in this report are MHA's data

on Anxiety and Depression over the course of the first 9 months of 2020. This data shows significant increases in the percentage of people showing moderate to severe Anxiety and Depression between January and September with an increase from 71% to 80% and an increase from 78% to 84% respectively [8]. These numbers represent the portion of those taking the Anxiety or Depression screening that MHA provides that scored moderate to severe in the respective condition. Along with the increase in depression and anxiety among those screened, the number of people taking the screenings has also significantly increased. In 2019, 383,523 people took at least one of the screenings while in 2020, 1,098,339 people took at least one screening [8]. This data also shows record highs of people reporting suicidal ideation during 2020 from the month of June until the last data recorded in September with the number reaching 37% of those screened for depression indicated suicidal thoughts almost every day [8]. This amounts to 4.9% of adults countrywide experiencing frequent suicidal thoughts [9], up from 4.04% in 2019 [10] and 3.99% in 2018 [11]. This shows a significant jump in 2020 over the previous two years' numbers. In all of these areas, significant increases occurred during the pandemic when compared with the increases from previous years.

Another area where the pandemic has had significant impact on mental health is grief. The COVID-19 pandemic has resulted in millions of deaths with many people losing close family members, including over 35,000 children who have lost a parent due to the disease [25]. Because of the situation under which these deaths have occurred many people are experiencing elevated levels of grief. This elevated grief response is detailed in Sherman Lee and Robert Neimeyer's study detailing a tool they designed for screening those who have lost someone to COVID for symptoms of dysfunctional grief and determining whether they are experiencing it [5]. The study utilized a scoring system with a cutoff point of 7 points where anything equal or higher would demonstrate dysfunctional grief [5]. Among the sample that was screened for the purpose of the study 66.4% of them scored at or above this cutoff point [5] with high scores being more common among those who had been diagnosed with COVID themselves, likely due to their closer identification with the deceased due to shared experience [26]. This means that more than half of the people who had family members die due to COVID-19 have experience at least some level of dysfunctional grief. This is drastically higher than the normal percentage of grieving people who experience dysfunctional grief, which is about 7% [12]. This is a massive difference and demonstrates what might be one of the most devastating impacts that the COVID-19 pandemic has had on the mental health of the population.

The final relevant area of statistics for the purpose of this article is how many people are able to receive, and are actually receiving, mental Health care. Among youth, 63% and 61.5% of youth with major depression did not receive mental health care in 2018 and 2019 respectively [10,11]. In 2020, however, 59% of youth with major depression received mental health services [9]. With this improvement, however, comes a decrease in the number of people whose health insurance actually covers mental health care. While

in 2018 and 2019 about 7% of children did not have access to mental health services through their health insurance, in 2020 8% of children lack access to mental and emotional care through their health insurance [9-11]. With so many people having their mental health impacted by the COVID-19 pandemic, as demonstrated by the statistics earlier, access to mental health care is going to be an important factor in people's ability to recover from the impact that the pandemic has had. Cost is also a large factor in people's access to mental health care. Mental health and substance abuse disorders rank 4th in total spending with a massive \$187.8 billion being spent in 2013 [27]. Due to how expensive mental health care can be with cost sharing disproportionately affecting those with mental illnesses making it more difficult for them to receive the care they need [28]. The impact of this issue's going to be greatly increased by the number of people who have lost their jobs due to the pandemic's impact on the economy. Pew Research conducted a survey in September 2020 in which 25% of U.S. adults reported that they or someone within their household had become unemployed during the pandemic with 50% of them still being unemployed at the time of the survey [29]. With more people out of work, more people will not have the funds necessary to access the mental health care that they need in order to recover from the mental impact of the pandemic.

Grief and the COVID-19 Pandemic

As the data makes apparent, one of the most devastating effects of the COVID-19 pandemic is the massive increase in the number of people experiencing dysfunctional grief. With the millions of deaths that the COVID pandemic has caused, many people are having to deal with the death of various loved ones. On top of the direct grief that such a loss can cause, due to the environment that the pandemic has created many people are unable to access the same support systems that they would normally have outside of these times. This can have a significant impact on one's ability to get through the grieving process in a healthy way. This section looks to discuss all these factors and the ways that the pandemic in general has affected grief.

To begin with it is important to discuss what classifies something as dysfunctional grief. The study on the pandemic's impact on grief uses a variety of factors to determine if the subject is experiencing dysfunctional grief. These include suicidal ideations, substance abuse, and sense of meaninglessness [5]. How frequently the subject experienced all these symptoms was used to determine whether they were experiencing dysfunctional grief. Those who scored high on all these areas would receive higher scores overall and if the overall score for a subject was greater than or equal to 7, they were categorized as having dysfunctional grief [5]. This set of parameters is based on the persistent complex bereavement inventory which represent the diagnostic symptoms of the DSM-5's classification of persistent complex bereavement disorder [5,30].

Over 500,000 people have died in the US due to COVID, but how many people have been impacted by a COVID death? An article by Ashton Verdery, Emily Smith-Greenway, Rachel Margolis, and

Jonathon Daw seeks to answer that question. This article develops the model for predicting the reach that any given death would have, that is how many people would be impacted by any given COVID death. By their model the estimated number of people impacted by any given death is about 9 [14]. With this, it can be extrapolated that there have likely been over 4.5 million people impacted by a family member dying to COVID. Taking the 66.4% statistic from the study on number of people affected by dysfunctional grief after the loss of a loved one from COVID [14], almost 3 million people would be experiencing dysfunctional grief due to the death of a loved one from COVID in the U.S. That makes for almost a full 1% percent of the entire United States population based on the numbers from the May 2021 census [31].

On top of the initial impact of the grief due to the death there is also to increase in impact due to other factors of the coronavirus. The most obvious being the lack of access to support systems due to quarantine and isolation. The isolation caused by quarantine already causes increased irritability, fear, loneliness, and anxiety among other things [15], which in tandem with the death of a loved one could do severe damage to one's mental health. This is worsened by the lack of social interaction which has been shown to be in a strong relationship with overall health and stress management [16,17]. This lack of support system means a lot of people are going to be facing their grief on their own without being able to healthily go through the process of grieving which can further worsen the impact of the death [32]. Due to the need of individuals experiencing dysfunctional grief to receive support in order to recover [18], the potential impact of grief on the population due to COVID-19 is much greater than it initially seems with millions of people being affected and many of them left without access to support they need. As Sherman Lee and Robert Neymeyer's article pointed out. There is a "specter of a second pandemic in the shadow of the first" [5] but rather than being characterized by some physical ailment. This one consists of widespread grief that could result in long term struggles among those mourning who are already struggling with the many other stressors created by the COVID-19 pandemic [5,32].

Depression, Anxiety, and the Pandemic

Easily the most prevalent of the many psychological impacts of the COVID-19 pandemic are depression and anxiety. Countless studies have shown links between pandemic and people experiencing increased amounts of stress, anxiety, and depression. Data from china has shown that around 25% of the population there has experienced stress and anxiety symptoms due to the pandemic [33,34], while a study from the UK found that 27% of those surveyed exhibited significant levels of mental distress over the 18% from the previous year [35]. The reach of this impact is obvious, but what is less obvious is the various elements that have contributed to this massive rise in anxiety and depression among the population. The complexities of COVID's impact on anxiety and depression will be explored in this section along with ways to ease the overall impact of the pandemic in the area of mental health.

While there have been multiple pandemics in the past, COVID is the largest pandemic since the dawn of the 21st century and with it, widespread internet use. Due to COVID occurring in the information age, many people who are active on social media are seeing far more information about the pandemic and its impact than one would normally be exposed to. The low barrier of entry to spreading information thanks to sites like Twitter or Facebook means that many people have been exposed to sensationalized information, fearmongering, and misinformation about the pandemic [36]. All of these factors have been shown to have significant impact on anxiety among the population showing a direct correlation between exposure to social media and news related to the pandemic and anxiety and stress symptoms [19].

Another major category of factors in the pandemics mental health influence are economic ones. Due to the extreme contagiousness of the corona virus disease, stay at home orders have been put in place at some point in many countries and states. With this, many people working jobs that required going out to a workplace and being around other people have been facing unemployment [29]. This has led to a decrease in quality of life and an increase in overall financial hardship for many people, putting them at a greater risk for developing adverse psychological symptoms as a connection between financial struggles and lower mental health has been observed [37]. People already facing poor economic status, lower education level, or unemployment pre-pandemic have been shown to be at massively increased risk of developing symptoms of mental disorders, especially depressive symptoms [18].

Other factors that have contributed to depression are more miscellaneous:

- Living in an urban area, and
- Experiencing high levels of loneliness (which has already been shown to be a frequent symptom of COVID-19 quarantines [38,39])
- Having an acquaintance who has been infected, and
- Being a part of a more vulnerable population such as those with chronic diseases.

All these factors can lead to increased stress, anxiety, and depressive symptoms due to COVID [18]. There is a wealth of studies showing these correlations between aspects of people's conditions and increased risk of negative mental health impact from the pandemic. Those with chronic diseases and histories of illnesses especially showed increased levels of stress and anxiety across the majority of mental health surveys conducted during the pandemic [40-42].

There is a clear and strong link between the pandemic and increased levels of stress and anxiety among the general population. The number of people who are going to be in need of care for these conditions is going to be much higher than it was before the pandemic. While the impact of something like grief might be more intense among the individual cases, the sheer vastness of the crisis of anxiety and depression that the pandemic is bringing about is going to greatly increase the strain on our mental health care

system. This effect is already visible in how the pandemic has been affecting those working in the healthcare field where many are suffering from stress, depression, and anxiety themselves making it more difficult to care for others experiencing those same things [43].

The COVID Pandemic and Disasters of the Past

While the mental health impact of the COVID pandemic is certainly very significant, it is not unique in its mental health consequences. Similar increases in anxiety and depression have been observed following other major disasters [19]. From earthquakes, to wildfires, to tsunamis, any major event resulting in increased danger and death brings with it the secondary effect of lasting mental health damage [19]. In order to better illustrate this correlation between any major disaster and mental health this section will be going into how previous disasters have impacted the mental health of the relevant populations.

One of the most commonly discussed impacts of the COVID pandemic has been unemployment. As was explained in previous sections, economic distress was an indicator for people to be more likely to experience anxiety and depression [18]. This holds consistent through a study done on the impact of massive unemployment during recessions on mental health. A study published in 2008 details the impact of layoffs among men showing increased levels of depression [44]. This study also found that women exhibited higher levels of depression due to the closing of plants that they worked at, similar to the many people experiencing job loss due to businesses closing during COVID [44]. This is also reflected in how downsizing generally affects the mental health of employees. A 2007 study found that the employees remaining in employment after a downsizing had occurred were at a higher risk of being prescribed psychotropic medications for conditions like depression [45]. This increased risk was also present among those who lost their job due to the downsizing and was, in fact, slightly higher [45].

Quarantine is another aspect of the pandemic that is frequently discussed in relation to mental health. This pandemic is not the first time that quarantine has been a tactic used to prevent the spread of a disease. Previous notable quarantines include those during the 2003 SARS epidemic and the 2014 ebola outbreak. During both of these instances, similar psychological effects to those seen during the COVID-19 pandemic's quarantine were observed [20]. During the 2003 SARS epidemic, a study was conducted with 129 quarantined persons who all took a survey reporting various symptoms of psychological distress [21]. This study found that symptoms of PTSD and depression were present among 28.9% and 31.2% of the respondents respectively [21]. This study also found that increase durations of quarantine were associated with increased symptoms of PTSD as well as acquaintance with or direct exposure to someone who had contracted the disease being associated with PTSD and depressive symptoms, very similar to the effects of the COVID-19 pandemic [19,21]. These numbers for PTSD and depression are already very high even given the short length of these quarantines in comparison to those associated

with COVID-19 with the median quarantine experienced by those surveyed being only 10 days [21]. Even ignoring the larger quarantines that have occurred as a result of stay at home orders, the CDC's recommended duration of quarantine after any sort of travel or exposure to someone who has the disease is 14 days, 4 days longer than the average quarantine among those quarantining due to SARS [21,46]].

Many of the psychological impacts caused by the COVID pandemic have been observed in the past following different disasters. What separates COVID from these other events is the scale. While the SARS epidemic was terrible and resulted in many deaths, it affected a miniscule portion of the population in comparison to COVID-19. While SARS was only contracted by a total of 8,000 people worldwide, there have been over 156,000,000 cases of COVID-19 worldwide [1,22]. This massive difference in scope means that the increase in the need for psychological care is going to be far greater than that of any comparable situation that has occurred in the past. Given the strong connection between mental and physical health that has already been explored [6], to truly fully recover from the health impact of this pandemic, mental health care will need to be given much attention, just as the physiological health care for those affected has been.

Demand for Mental Health Services

Along with the drastic increase in mental health conditions, as well as psychological distress due to the COVID pandemic, comes a mirrored increase in the need for services of that nature. Information on the demand and availability of mental health services is challenging to access. However, due to the unique situation that the COVID pandemic has created, the World Health Organization put together a large quantity of information regarding mental health care in their "The impact of COVID-19 on mental, neurological and substance use services: results of a rapid assessment" publication [23]. Using this, the impact that COVID has had on the mental health care system will be explored and detailed.

Based on the data that WHO gathered, the vast majority, almost 90%, of countries are implementing MHPSS (mental health and psychological support) into their response plans for COVID-19 [23]. This comes along with a trend towards providing additional funding to these services in order to meet the increased need [23]. This additional funding and planning is largely directed away from the services most needed during this time. Among lower income countries, the per capita spending on mental health is still incredibly low at less than 1 USD and even among higher income countries, where spending reaches more than 80 USD per capita, much of the funding goes to mental hospitals, "which serve a small portion of those who need care" [23].

Due to a variety of factors stemming from the COVID pandemic, many countries suffered significant blows to their mental health services despite any response plans. Almost 33% of the countries that responded to WHO survey, found at least 75% of their services disrupted, whether that be completely or only partially

[23]. Less than 30% of countries showed no disruption at all to the mental health services for children and adolescents while 70% of countries experienced disruptions in services for adults with 14% being completely disrupted [23]. One of the most important services given the sort of impact that COVID has had mentally, counseling and psychotherapy, critical services for those experiencing extreme anxiety and depression [24], experienced disruptions in almost 60% of countries [23]. The disruptions to these critical services are frequent and significant when looking at the global scale. As such, knowing why these disruptions occurred is critical in understanding how to best deal with them moving forward.

By far the most common reason for these disruptions was a decrease in outpatient volume due to patients not presenting, being the leading cause of the disruptions in 62% of countries [23]. This is followed closely by travel restrictions limiting access to health facilities, which was a major factor for 54% of countries [23]. Being a major factor for 47% of countries, a decrease in inpatient volume due to the cancellation of elective care was the third most common cause [23]. From this information it is clear that despite the increase in need for these services, many places are actually experiencing a decrease in demand due to either accessibility of the services or reluctance of people to make the efforts necessary to receive them. Due to fear of infection being a common response to pandemic conditions [15], it stands as a likely candidate for the cause of the decrease in people going out to receive care. Clearly there are multiple challenges to be solved going forward if this increase in need for mental health care is to be met effectively and the return to a truly healthy population expedited.

The Response to COVID's Impact

WHO's publication also details some of the common responses to the issues countries encountered and provides a collection of various methods that are worth exploring. The list provides the 11 most common approaches for overcoming the disruptions with the most widely used one, utilized in 70% of countries, being the introduction of tele-medicine/tele-therapy in order to replace the need for in person consultations [23]. Another commonly used approach was the introduction of mental health and psychosocial support hotlines, used by 67.7% of countries [23]. The last two that will be looked at in this section are the creation of self-help or digital psychological interventions, 53.8%, and training COVID-19 health providers to have basic psychosocial skills, 44.6% [23].

Telemedicine and tele therapy have become increasingly common in our post pandemic world. Many services are now being provided entirely remotely thanks to the use of video call technology [47]. This has proven to be an effective solution for many purposes and has seen widespread use especially in wealthier countries. The effectiveness of telemedicine and tele therapy has been validated by many studies, even before the pandemic, with evidence pointing towards tele therapy potentially being even better than in-person care for children and adolescents [48,49]. With how effective telemedicine and tele therapy can be, it comes as little surprise that this solution has been so widely adopted during the pandemic.

Mental health hotlines are another popular option though many of them have existed prior to the pandemic. The effectiveness of these hotlines is still a fairly under researched area, but what data exists seems to support these sorts of services [50]. In particular, a study involving a suicide prevention hotline in Hong Kong showed moderate effectiveness, though the researchers [51] noted room for improvement in the service. A study into the U.S. National Suicide Prevention lifeline showed that roughly 50% of callers went on to utilize the mental health care referrals that were provided by the service [52]. These hotlines provide a effective solution to providing mental health interventions in a way that can still function as effectively during a global pandemic, making them very attractive options.

Guided self-help care is an enticing option due to it being both very cost-effective and easy to provide. These sorts of services can be extremely useful in disseminating information and skills that can aid those suffering from moderate mental health problems to better manage them [53]. Evidence for self-help's effectiveness at dealing with significant mental health issues, however, is limited and inconclusive [54]. Given this information, self-help care seems to be able to provide some noticeable benefit for many people, but lacks the effectiveness that getting direct help from a professional has. While it can server as a great means of distributing knowledge and some skills related to dealing with mental health in a pandemic, self-help cannot serve as the primary source of mental health care for the millions of people whose mental health has been impacted by the COVID-19 pandemic.

Finally, the option of training health professionals that would already be working with the people mentally affected by the pandemic to be able to care for those psychological needs as well as the physical needs seems like a no brainer option. Despite this, this option has largely gone un-implemented with most health care professionals having received little to no training in providing mental health care in the unique environment that the COVID-19 pandemic has created [55]. Providing mental health training to medical workers during a pandemic has proven very effective in the instances where it has been implemented. During the Ebola crisis, staff at an Ebola clinic were trained in caring for mental well-being through a three-phase process [55]. During each phase of this process, notable improvements in the mental health of those at the clinic occurred with significant decreases in anxiety and depression as well as improvements to sleep and general sense of well-being being seen during the final phase [55]. While additional training is a more expensive and involved option than many of the ones presented here, it has shown to be highly effective and prepares more people to deal with the unique care climate that the COVID-19 pandemic has created.

Conclusions

The impact that the COVID-19 pandemic has had worldwide on mental health, even just going off of the relatively short-term data that has been collected so far, is already clearly vast. The shock that the pandemic has given to the infrastructure of care across the globe has caused disruptions in the ability to deliver care at a

time when the need for that care is greater than ever. With millions more people suffering from anxiety and depression compared to previous years, providing quality, accessible, and efficient mental health care is going to become a major hurdle in the process of returning to a healthy population.

This pandemic has revealed just how devastating these sorts of widespread disasters can be for the world population at large and has proven to be a uniquely challenging environment for taking care of that population. Certain conditions such as dysfunctional grief are affecting astronomically larger portions of the population than ever before and many people are left jobless, lacking in social support, and without access to care. The solution to the COVID-19 pandemic does not end with the vaccine but rather begins there. Beyond immunization, the mental health of all those affected by the disease must be addressed before the pandemic can truly be over.

Thankfully, there been many people taking this as an opportunity to develop new and innovative solutions to the problems in mental health that existed before the pandemic, and the new problems that it has brought to light. With wide-spread implementation of services like tele health/tele therapy and hotlines helping to meet much of the need and methods such as specialized training for healthcare professionals with regards to mental health during a pandemic beginning to see some popularity, these needs might just be able to be met.

Future Trends

Going forward, research into effective care for stress, anxiety, depression, grief, and a myriad of other mental health problems that have become prevalent during the pandemic must be continued and prioritized. Mental healthcare frequently falls by the wayside in discussions of medical needs and must begin to become a prominent topic if this increased need is to be met. Furthermore, as solutions to these issues are developed, they must be given the chance to work by being tested, and, if effective, implemented into the recovery efforts of countries across the globe. Without proper attention to this second wave of the pandemic, the world might still be feeling its direct effects years into the future.

The social needs of people must also be addressed with avenues for individuals to access support networks and communities being made available in ways that can meet all of the safety requirements of socializing during a pandemic.

Issues of misinformation and fearmongering regarding the pandemic must also be addressed as these lead to not only worsened mental health harm, but can also lead to widespread malpractice in terms of protecting oneself and others from COVID-19. With this plethora of issues that need to be tackled, the full scope of COVID-19's impact might still not be fully realized. Thus, further research into the long-term effects of this pandemic must continue so that future problems can be tackled with ease, and urgency to make the transition back to a healthy planet, both mentally and physically, possible.

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