Mitigating Psychological Impacts of Quarantine During Pandemics: A Mini Review

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Abstract

The novel Coronavirus (COVID-19), originating in Wuhan, China in December 2019, quickly escalated into a global health crisis, infecting individuals across all strata of society. Declared a pandemic by the World Health Organization, this unprecedented emergency prompted governments worldwide to implement strict lockdowns and quarantine measures. The sudden onset of these procedures has had significant psychological effects on individuals and communities. This paper reviews the psychological impacts of prolonged quarantine and discusses adaptive stress-coping strategies to mitigate these effects. Our goal is to highlight effective approaches to manage mental health amidst such crises, aiming to provide guidance for future public health emergencies.

1 Introduction

The SARS-CoV-2 infection, commonly referred to as COVID-19, has emerged as a significant global health crisis. Though the pandemic's impact on physical health is well-documented, with over 23 million infections and approximately 900,000 fatalities across 213 countries and territories within ten months of its outbreak, its influence on mental health is also considerable [1, 2]. This mental health impact extends beyond infected individuals to include carriers and the uninfected population [3–5]. Strategies such as quarantine and isolation have long been employed to combat communicable diseases. Quarantine involves the restriction of individuals or groups exposed to infectious diseases from others who have not been exposed. In contrast, isolation entails separating those who have contracted a communicable disease for public health purposes, either voluntarily or by state order (Figure 1) [6, 7]. These terms are often used interchangeably [8].
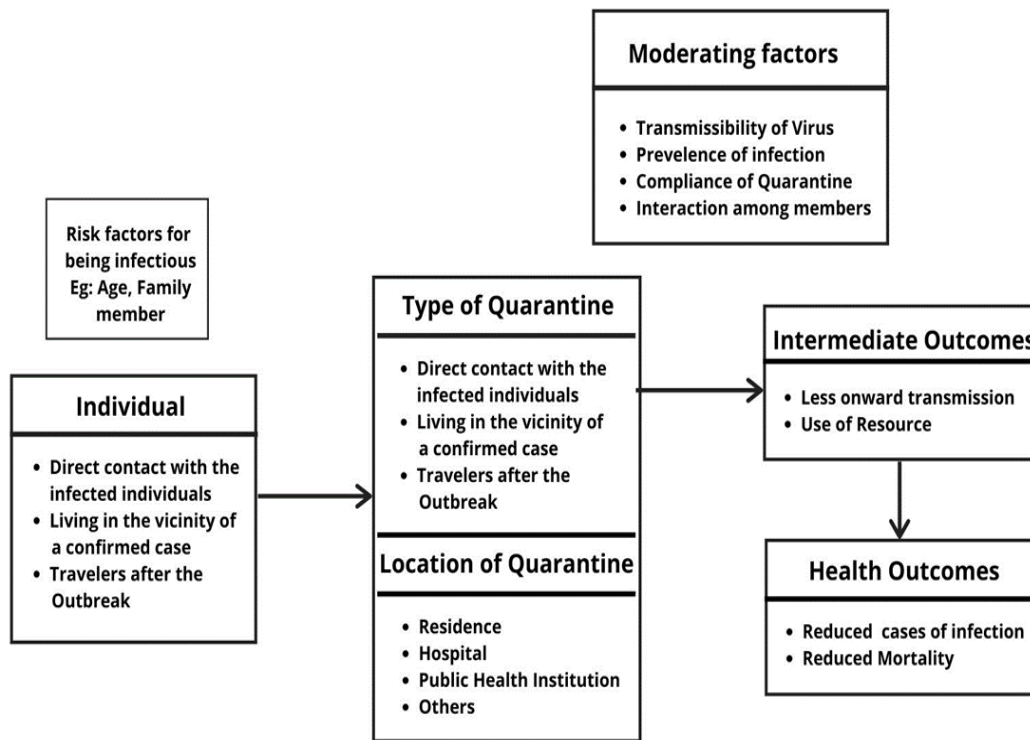
Figure 1: Isolation measures for communicable diseases.

Historically, 'quarantine' was first used in 1127 for leprosy cases in Italy and later in relation to the Black Death [9]. The COVID-19 outbreak has popularized a new term, 'social distancing,' which encourages maintaining physical distance and avoiding touching surfaces in public spaces to reduce virus exposure [10]. The highly infectious nature of COVID-19 led to an upsurge of acute infectious pneumonia cases across approximately 200 countries. The virus, originating from China, spread globally within a few months from December 2019. As of October 10, 2020, the pandemic has infected 37,135,041 individuals and caused 1,073,055 deaths across 217 countries, with these numbers still rapidly increasing [11]. To date, 27,910,257 individuals have recovered from COVID-19, and 8,151,729 active cases are undergoing treatment. The pandemic has induced substantial fear and widespread panic worldwide. The World Health Organization (WHO) has issued guidelines on preparedness, rapid case detection, and prevention of community transmission. These measures encompass providing supplies, technical expertise, and training. Worldwide lockdown policies advocating "work-from-home," "stay-at-home," and "social distancing" have been implemented. Many countries have suspended business activities, established individual quarantine facilities, equipped chronic ventilators, and halted all travel channels. They have also established local, provincial, and national health surveillance and response systems (Figure 2). While these measures are crucial in reducing COVID-19 infection rates, they present considerable challenges and contribute to increased psychological stress on individuals and communities. The ongoing pandemic, threatening countless lives and livelihoods, has created immense psychological pressure. Its incessant spread has resulted in prolonged closure of educational institutions, affecting the mental health of students [12]. Additional stressors, such as job insecurity, uncertainty over health status, separation from loved ones, and reduced social interactions, significantly impact mental health. COVID-19 has engendered a stigma, fostering suspicion and fear, even among close contacts. The spread of misinformation through social media exacerbates stress, leading to increased reports of depression, anxiety, and suicidal ideation. Therefore, it is crucial to conduct a cost-benefit analysis before implementing strict lockdown measures to minimize adverse effects [13].

2   Psychological Impact of Quarantine: Students and Healthcare Professionals

Quarantine and isolation are recognized as effective methods for restricting the spread of unknown diseases. However, authoritarian regulations isolating people from friends, family, and society can have detrimental effects [13]. With the alarming increase in Coronavirus cases, it is crucial that policymakers provide guidance to the public to mitigate panic [13, 14]. Several studies conducted during the Ebola, SARS, and swine flu outbreaks have extensively investigated the effects of quarantine on mental health, wellbeing, contributing factors, and the mitigation of psychological impacts. Most of these studies identified a pattern of increasing psychological disorders such as anxiety, depression, and confusion during pandemic outbreaks [15]. Strong evidence suggests that lack of contact with loved ones escalates anxiety levels within the population [16]. A study conducted in 194 different cities in China involving 1210 respondents indicated that 54% were experiencing mental health issues, with 29% exhibiting mild to severe anxiety symptoms and 17% demonstrating serious depressive symptoms, clearly illustrating that COVID-19 is causing specific mental health problems [17]. Therefore, attention should be given to community mental health to prevent fear, anxiety, and other concerning conditions [18]. All communities, including undergraduate students, working professionals, and healthcare workers, have reported negative responses like fear, anxiety, sadness, and guilt, according to previous studies' outcomes.
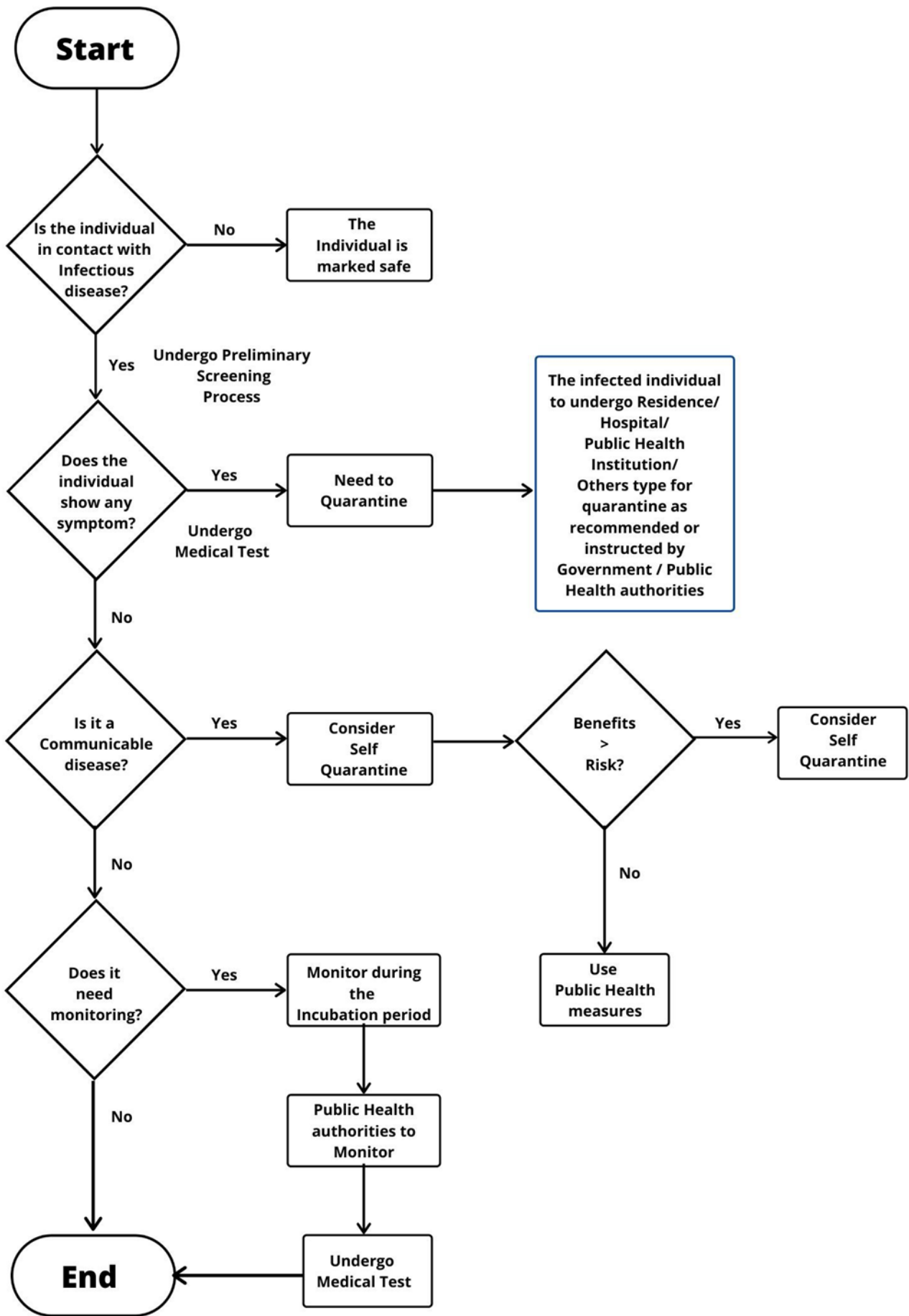
Figure 2: Flowchart for Managing Symptomatic Travelers During Pandemic: A Step-by-Step Guide to Preventing the Spread of Infectious Diseases.

Qualitative studies on quarantined students identified a range of psychological effects of quarantine, such as confusion, fear, anger, grief, numbness, and anxiety-induced insomnia [19–25]. If a person is already suffering from depression, emotional exhaustion, and lack of control, forced quarantine can exacerbate these conditions. With educational institutions closed for months, confinement to a small space is inducing anxiety among students. Students with suicidal ideation or tendencies can be particularly at risk under these circumstances. Research comparing anxiety symptoms in quarantined parents and students with non-quarantined individuals found that post-traumatic stress cases were significantly higher in quarantined students [25, 26]. Meanwhile, quarantined healthcare professionals reported fatigue, detachment, distress, irritability, sleeplessness, impaired concentration and indecisiveness, worsening work conditions, and reluctance to work or consideration of resignation. Symptoms of PTSD and acute depression, often triggered by close contact with infected individuals, were prevalent among healthcare professionals [27]. During the SARS outbreak, a survey conducted on hospital staff infected with the virus and quarantined for nine days found that prolonged quarantine exacerbated stress disorders [28].

3   Mitigation of Psychological Effects

During the pandemic, there are definitive strategies to enhance emotional wellbeing and to shield oneself and loved ones from psychological distress. Different individuals manage stress in diverse ways. Governments worldwide are actively running campaigns and counseling on nCOVID-19 to control community transmission. However, there has been insufficient reflection on the psychological impacts of quarantine, job stability, and reducing fear among quarantined individuals. Table 1 provides detailed characteristics of studies conducted during the SARS pandemic, focusing on stress associations. Social media can only partially alleviate the impact of quarantine; it can't replace the lack of physical interaction. Here are some methods to mitigate the psychological effects[29, 30]:

- Keep the quarantine period short and scientifically justified.

- Provide up-to-date information. This transparency ensures that those quarantined understand the severity of the situation and the purpose of quarantine.

- Ensure adequate supplies are provided, and additional resources are available for emergencies.

- Decrease boredom and improve communication through virtual engagement programs.

- Offer clear instructions on stress management and provide continuous assurance that better days are ahead. Public health officials should be clear about actions taken for symptomatic individuals.

- The elderly need to support their children during this traumatic period, reassuring them and encouraging calmness and composure.

- With schools closed, children may feel isolated, bored, and develop certain fears. Parents should engage them in activities and discussions about the virus and encourage reading or storytelling.

The COVID-19 pandemic is having a profound psychological impact on society's mental health as people grapple with isolated living, unprecedented uncertainty, and drastic lifestyle changes. Emotions such as sadness, frustration, disappointment, restlessness, indecisiveness, and lethargy can affect a range of psychological functions. Depression can result from prolonged isolation and the confined environment of lockdown, impacting self-esteem and confidence [31]. Various thoughts based on perceptions, perspectives, and beliefs can lead to mixed feelings. Preventative measures include enhancing self-esteem and confidence by highlighting the positive aspects of the situation and resources available to overcome current difficulties. Verbal assurance can provide hope to those feeling hopeless, practical help can combat feelings of helplessness, and self-worth can be nurtured to prevent feelings of worthlessness. Treatment options include counseling, antidepressant medication, psychotherapy, and electroconvulsive therapy (ECT). Early identification of psychological disorders, treatment by specialized doctors, follow-up care by trained health workers, and community support are essential. Motivational speakers can offer lectures on emotional skills involving self-awareness, self-regulation, motivation, empathy, happiness, and social skills. In cooperation with police and NGOs, it's crucial to establish well-publicized helplines offering a range of services from counseling to shelter and medical support. Access to transportation, specialized psychological support, and other essential services can help resolve psychosocial and mental health issues. The sudden unavailability of alcohol after the lockdown has led to severe withdrawal symptoms and an increase in domestic violence incidents and self-harm attempts globally. According to the International Labour Organization (ILO), the current crisis may result in the loss of over 200 million full-time jobs worldwide in various sectors within the next three months. The power of positive thinking techniques can cultivate better emotional health, happiness, and productivity. Concerns about future security, job retention, financial constraints, and strained interpersonal relationships exist. nCOVID-19 could change the world of work, allowing more remote work options in the future. A lasting solution to the unemployment epidemic must be sought by examining its various aspects. One must remain optimistic and hopeful while behaving responsibly. High-speed scientific research and large-scale studies on the long-term mental health consequences of the economic impact of the epidemic are essential and should be coordinated, comprehensive, and targeted to yield meaningful results.

Table 1: A Summary of studies investigating the psychological impacts and outcomes of quarantine.

Author & Year	Country	Design	Participants	Quarantine Period	Measures & Outcomes
Bai et al. (2004) [16]	Taiwan	Cross-sectional	338 Hospital staff	9 days	Investigation into acute stress disorder and emotional changes during the SARS survey. Reports of stigma and workforce attrition.
Blendon et al. (2004) [18]	Canada	Cross-sectional	501 Canadian residents	Unclear	Research indicates substantial psychological and economic effects of the SARS epidemic despite low population spread. Successful attempts to inform the public about SARS.
Cava et al. (2005) [19]	Canada	Qualitative	21 Toronto residents	5 to 10 days	Interviews reveal dual role of public health in compliance monitoring and care for quarantined patients. Implications for future public health crises planning.
DiGiovanni et al. (2004) [20]	Canada	Mixed methods	1509 Toronto residents	Variable	Compliance tracking and reputation found to be impactful. Significance of clear policies and processes across jurisdictions noted.
Hawryluck et al. (2004) [26]	Canada	Cross-sectional	129 Toronto residents	10 days	High prevalence of psychological distress among quarantined individuals reported.
Lee et al. (2005) [32]	Hong Kong, China	Mixed methods	903 individuals, 856 undiagnosed	Unclear	Stigmatization observed in various aspects of life such as labor, interpersonal relations, and services.
Liu et al. (2012) [33]	China	Cross-sectional	549 hospital employees, 104 quarantined	Unclear	Risk increase of depressive symptoms observed after 3 years. Altruistic risk acceptance found to minimize post-outbreak depressive symptoms.
Marjanovic et al. (2007) [34]	Canada	Cross-sectional	333 nurses	Unclear	Significant relationships found between psychosocial and working conditions and burnout/stress. Model for lower avoidance behaviors, emotional exhaustion developed.
Maunder et al. (2003) [35]	Canada	Observational	Health care professionals	10 days	Effects of quarantine and contagion on families and friends reported. Anxiety, frustration, and insomnia prevalent.
Mihashi et al. (2009) [36]	China	Retrospective cross-sectional	187 workers, faculty, students	Unclear	Predictive factors for onset of mental disorders observed. Mass isolation risk control variables showed a low association with manifestation of psychological illness.
Pan et al. (2005) [23]	Taiwan	Observational	12 college students	Unclear	Alienation and isolation issues common among quarantined students.
Reynolds et al. (2008) [37]	Canada	Cross-sectional	1057 cases	2 to 30 days	Increased psychological distress, including PTSD symptoms among healthcare workers reported.
Sprang and Silman (2013) [27]	USA and Canada	Cross-sectional	398 parents	Unclear	Trauma observed in children and parents due to interventions like quarantine and isolation.
Wu et al. (2009) [28]	China	Cross-sectional	549 hospital employees	Unclear	About 10% exhibited elevated levels of post-traumatic stress symptoms (PTS) post-SARS outbreak. Public's views of such incidents can mediate the psychological effect of traumatic changes.

4 Methods to Strengthen Mental Health During the Quarantine

4.1 Establishing routines

Cultivating the discipline harkening back to pre-quarantine days is essential. The laid-back, work-from-home lifestyle can trigger negative thinking due to a stagnant environment. Make a point to eat meals timely, ensure a balanced sleep routine without over-sleeping, and create an exercise schedule. Approach it one day at a time. Implementing these strategies can facilitate adjustment to the outside world and acclimation to the new lifestyle.

4.2 Limit screen time

Undeniably, work, study, and remote learning have increased screen time, which isn't beneficial for the body as it can affect vision and memory. Hence, it's important to take regular breaks when using screens, and moderate overall screen time [38].

4.3 Self-care & limited media

Invest time in self-care activities: shift your perspective from "I am stuck inside" to "I can finally focus on my home and myself". Home workouts, meditation, and yoga can provide stress relief during quarantine. Cultivating a positive attitude through conscious engagement in productive activities is crucial for stress management. Utilize this period to tackle previously sidelined goals, create a quarantine routine, and indulge in hobbies [34]. Perceiving quarantine as a trap intensifies stress. Instead, try slowing down and focusing on personal needs. Stay informed but not overwhelmed: In times of uncertainty, it's essential to stay informed without succumbing to anxiety. Avoid overexposure to news, particularly negative reports, which can create a sense of panic. Always seek information from reliable sources to evade the panic triggered by fake news. Trustworthy sources include the Centers for Disease Control and Prevention (CDC), World Health Organization (WHO), state and local health departments, and your doctor [39].

4.4 Stock nonperishable supplies

Consider purchasing extra canned food and daily provisions to reduce store visits. The National Alliance on Mental Illness recommends asking doctors for extended prescriptions to cover long-term supplies, thereby minimizing the frequency of leaving home (https://www.nami.org/Blogs/NAMI-Blog/March-2020/Coronavirus-Mental-Health-Coping-Strategies).

4.5 Take it day-by-day

A sense of purpose stems from setting and achieving goals. Aiming for a few activities each day and checking them off the list can bolster confidence. Remember, you are not alone in this situation and you can still reach your full potential even amidst a pandemic. Life in quarantine can be particularly challenging for individuals with pre-existing conditions. Balancing restrictions and allowances should be an ongoing process, with strategies updated to consider the psychological effects of long-term quarantine. Stringent measures such as social distancing, controlled public movement, and regulating long-distance public transportation are vital public health strategies in controlling the COVID-19 outbreak and preventing community spread. The global economy is under significant strain, and efforts to restore it must be enacted swiftly as poverty rates soar. With over 37 million confirmed cases globally, the COVID-19 outbreak is reaching record numbers. Countries worldwide are united in their fight to find a cure or at least reduce community spread and contain the disease. Several damage control measures have been undertaken, but based on current knowledge about the virus, testing, contact tracing, quarantine, and isolation remain the most effective methods for reducing the virus's spread. As of now, most countries have lifted lockdowns and people have resumed their regular lives. To avoid quarantine and isolation, safety measures at workplaces must be implemented by authorities, and individuals should adhere to precautions such as wearing face masks and frequent hand washing [40].

5 Conclusion

The COVID-19 pandemic has induced an unprecedented level of anxiety and stress that is poorly recorded due to current limitations. It's imperative to sharply focus on the mental health issues arising from prolonged periods of isolation, lockdown, and quarantine. Implementing measures such as offering round-the-clock counseling services, destigmatizing mental health issues, and facilitating effective communication from political and scientific leaders can help mitigate the adverse effects of such societal seclusion. Early implementation of quarantine measures, alongside other recommendations from the World Health Organization, is critical to ensuring their effectiveness. However, quarantining, which essentially deprives people of their liberty for the greater public good, is often contentious and has its limitations. If quarantine is deemed necessary, our findings suggest that officials should make every effort to ensure this experience is as tolerable as possible for those who must endure extended periods of quarantine. This will mitigate the psychological toll and foster greater compliance with public health directives.

Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Author Contribution

BM Zeeshan Hameed: Conceptualization, Investigation, Methodology, Writing - review and editing; **Mohammad Mirahmadi Eraghi**: Data curation, Formal analysis, Investigation, Methodology, Writing - original draft, Writing - review and editing; **Mohammed Kamal Filli**: Data curation, Formal analysis, Investigation, Methodology, Writing - review and editing; **Sambit Dash**: Investigation, Methodology, Validation, Writing - review and editing; **Sufyan Ibrahim**: Conceptualization, Investigation, Methodology, Writing - original draft, Writing - review and editing.; **Mrudula Chandrika**: Investigation, Methodology, Validation, Writing - review and editing; **Sharmila Jajodia**: Data curation, Formal analysis, Investigation, Methodology, Writing - review and editing.

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