

Impact of COVID-19 Pandemic on Psychological Wellbeing and Physical Activity of the General Population

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Abstract

The outbreak of the coronavirus disease (COVID-19) in China has become a cause for alarm and apprehension amongst people of all ages and abilities. The current pandemic's impacts on the general population's psychological well-being (PWB) and level of physical activity (PA) are explored in this study because its deleterious effects can still be observed. The magnitude at which the transmission of the virus has disrupted the normalcy of daily life is extensive. As a result, this review aims to consolidate evidence on the general public's rapid psychological response during the early and present phases of the COVID-19 pandemic, as well as its impact on PA. A systematic online literature search was undertaken that offered information about the relation between COVID-

19 and PA levels, as well as the link between PWB and COVID-19 in the general population. Pandemic has negatively impacted the routine activities that promote healthy and holistic living. This has brought to light societal structural patterns that could potentially result in a considerable drop in PA, necessitating the need for innovative solutions to reverse these trends.

Keywords: COVID-19, quarantine, psychological well-being, sedentary behaviour

Introduction

During the first month of 2020, headlines regarding the global spread of the new COVID-19 disease began to appear on practically every news channel, as well as on the internet and social media. Meanwhile, the concerns associated with it weren't previously encountered. The COVID-19 outbreak was classified as a global pandemic by the World Health Organization on March 11, 2020. Within a few weeks, the tension and uncertainty associated with the disease intensified and nations imposed strict lockdown policies, impeding human pursuits and endeavours, generating significant economic instability, and jeopardising humanity's existence. As a result of this, the term 'Social distancing' gained popularity & has since become a part of the everyday lexicon. Protocols of the lockdown, enforced people to limit their movement and comply with policies of social distancing, further allowing people to head out of their houses only to perform essential activities. The spread of COVID-19 was monitored & contained with the implementation of this approach. However, it gave rise to a string of pernicious effects as a consequence of a change in social habits. It caused prolonged self-isolation, which has a psychological effect, causing post-traumatic stress disorder, despair, bewilderment, and worry. [1][2] Further affecting children, college students, and adults likewise. [3][4][5]

Physical inactivity (PI) and sedentary behaviour are two pandemics that have been plaguing the world for years, though they are of a distinct kind. [6][7] PI is also one of the most researched risk factors that could be altered by COVID-19 lockdowns. Experts & other professionals believe that lockdown during the pandemic has the potential to increase sedentariness & PI which is declared as an indispensable source of apprehension for chronic morbidity and disability of the 21st century. [8][9] Across the globe, cardiovascular illnesses are the leading cause of death, and may be exacerbated by a sedentary lifestyle. [10] The spontaneous imposition of the lockdown has expedited the rate of weight gain, this effect is termed as 'covibesity'. [11]

COVID-19 also brought forth the shutting of gyms, public parks, stadiums, fitness centres, dance studios, & playgrounds. As per studies, decline was observed in level of physical activity as a result of this, which led to an increase in screen time. [12][13] Initially controlling the spread of the virus at the earliest possible moment became a pressing health priority by many nations, which

resulted in establishing public health guidelines. Various health authorities advised the general public to remain at home and reduce travelling to limit exposure to the virus. Due to the imposition of these guidelines, it could be argued that staying at home, despite being a safety measure to limit the transmission of the virus, might have led to a reduction in PA further encouraging a sedentary lifestyle. Scientific evidence has also stated that engaging in moderate-to-vigorous PA regularly is essential for the mental, physical as well as social well-being of individuals belonging to all ages and abilities. In addition to making it challenging for participants in PA, the closure of food producers has made it difficult to engage in typical food-related behaviours. This is significant since a balanced diet is essential for overall well being and good health, especially when the immunity is compromised. It is currently unclear when the COVID-19 pandemic will end and countries will revert to their pre-pandemic states. During public health emergencies, the general populace frequently exhibits a range of psychological reactions to the epidemic scenario. If those reactions aren't addressed in a timely manner, they'll likely escalate to more irrational behaviour. The most common mental health problems among the general public globally are anxiety and mood disorders, and this paper will cover numerous studies on the subject.

Impact of COVID-19 on Physical Activity

With these public health policies in place, individuals could expect to see changes in their PA habits and other aspects of their well-being. Due to the closing of recreation centres, parks, and gyms, people have become creative in their PA habits.

Physical inactivity (PI) is currently recognized as the fourth most common cause of death worldwide (accounting for 6 percent of all deaths) and has been dubbed a 'hidden pandemic.' [7][8] This silent pandemic is essentially the foundation of numerous non-communicable and chronic diseases. A COVID-19 infection increases the risk of hospitalisation and death in those with chronic diseases. [14] Quarantines produced as a result of these two pandemics has trapped people in a vicious circle. [8][15] During home confinement, a multi-country study discovered a considerable drop in all types of physical activity.

60 minutes of moderate to vigorous physical activity (MVPA) are necessary of children and adolescents (5 to 17 years old) per day, across the entire week, in order to meet the WHO's requirements for PA. [16] Adults (18–64 years) must perform 150–300 minutes of moderate–intensity PA, 75–150 minutes of vigorous–intensity PA, or a well–balanced combination of moderate–vigorous intensity PA each week to experience significant health benefits. [17] However, data from WHO has revealed that 31 percent of people aged 15 and over are PI, and this harmful lifestyle pattern is responsible for 3.2 million deaths per year. [18] During COVID-19, the PI level

was significantly higher, and people were more sedentary. In addition, as concluded by a study (2016) undertaken to determine the prevalence of physical inactivity of the general population in India, it appeared that most Indians failed to achieve the suggested level of PA and spent the majority of their time being sedentary. [19] A descriptive study investigated the global shifts in step count before and after COVID-19 was labelled as a pandemic & it was observed that step count plummeted after this proclamation. [20]

COVID-19, Physical Health & Immunological Health

There is a significant relation between physical and immunological health. The risk of infection is found to be reduced by leading an active lifestyle. [21] Following the recent coronavirus outbreak, concerns over PA's possible role as an immune response activator to lower the risk of infectious disease have significantly increased.[22][23] Moderate-intensity exercise improves immunity and may reduce the severity and frequency of respiratory virus infections. [24][25] These exercises, done either during infection or after, have been shown in animal experiments to reduce flu and herpes simplex virus 1 (HSV-1) related morbidity and mortality in the respiratory system. [26][27]

Physical activity has also been reported to aid with the symptomatology most typically associated with severe COVID-19 infection. PA reduces both systolic and diastolic blood pressure, aids in the reversal of left ventricular hypertrophy, and decreases the risk of stroke and heart diseases in general. [28] The benefits of PA on metabolic syndrome and insulin sensitivity are also widely documented. [29] Therefore, compared to sedentary people, active people should have greater control over high-risk factors that increase vulnerability to COVID-19.

Impact of COVID-19 on Psychological Well Being

Many pandemics have been recorded throughout human history, and the crises brought on by these pandemics and epidemics have had a devastating impact on individuals' physical and mental health, as well as their livelihoods and the world economy. The Hong Kong flu, Severe Acute Respiratory Syndrome (SARS), Spanish flu, H7N9, Zika and Ebola are among the notable epidemics.[30] Transmission and isolation have psychological effects that go beyond the fear of contracting the illness, [31] as studies have found that pandemic and epidemic breakouts have a substantial impact on mental health and cognitive well-being. [32] [33] Quarantine's effect on mental health has been explored before, such as during the epidemics of SARS in 2003 and Ebola in 2014, demonstrating that the impact can be broad, vast, and long-lasting. [1]

Some aspects of the pandemic have a greater impact on the public, which results from separation from loved ones, mobility restrictions, delima associated with the progression of the disease, and lack of control over things generating a sense of vulnerability. [34][35] The practice of quarantine itself has resulted in decline in mental health.

Citizen's of China and the rest of the world have faced not just the threat of death from a viral infection, but also the trauma from the ongoing pandemic's psychological effects. PA has a strong link to mental health and well-being. Physically active people are less likely to be stressed, depressed, or anxious. [36] Regular involvement in PA also has a variety of health benefits that go beyond physical fitness. Recently, there has been a lot of discussion about the potential use of PA as a kind of treatment for depression and anxiety, either in addition to or instead of medicine.[37] On the other hand, reduced PA during the COVID-19 pandemic has been linked to an increase in levels of depression and anxiety. [38]

In order to draw conclusions about the general population's high stress, anxiety, and depression rates during the pandemic, Nader Salari et al. (2020) undertook a thorough review of prior research. According to the study's results, the general public experienced stress, depression, and anxiety at rates of 29.6%, 31.9%, and 33.7%, respectively, due to the pandemic. [39] In comparison to men, women were more vulnerable to higher stress levels. [40][41] There has been an upsurge in negative psychological adverse effects such as post-traumatic stress syndrome, disorientation, and hostility as a consequence of the pandemic and subsequent quarantine. [1][42][43] In a different study, it was found that when compared to responders who were not required to quarantine, the prevalence of anxiety and depression was nearly two times higher. [44]

COVID-19's rapid spread has generated concern in millions of people around the world, adding to mental health issues. In this challenging, disruptive, and unprecedented period, studying and comprehending people's mental states is essential. Individuals may exhibit symptoms of anxiety, psychosis, suicidal ideation, trauma, and panic attacks, based on the literature. [45][46] One study found that people with higher levels of psychoticism were those who stayed unaccompanied during lockdown [47] & another study found that entire or partial isolation led to psychoticism in participants, even those who were members of two to four-person families. [48]

COVID-19's behavioural impact on people with the disease has been studied in some studies. An exploratory study conducted by Eisa Yazeed Ghazwani et. al. (2021) took COVID-19 positive patients as the participants. The majority of participants in the study demonstrated significantly high degrees of despair, anxiety, and bothersome behaviours. [49] As the pandemic advances, the mental health burden is more likely to increase as the attempts to halt the spread of

the virus include the closure of businesses, which leads to financial distress, and social distancing, which leads to social isolation. [50]

COVID-19, Sleep & Mental Health

During Covid 19, sleep was also disrupted, which directly affects mental health. This new environment, in which individuals were required to work and study at home, with all of the attendant concerns about health hazards and social isolation, had a significant impact on nighttime sleep and functional capacity. [51] Numerous studies have established a bidirectional association between sleep and stress, with stressors having an effect on sleep efficiency. [52][53] According to a study of the Italian population, the COVID-19 lockdown containment measures, people had poor sleep quality and sleep patterns. [54] Another study investigated the relation between sleep quality and COVID-19 related stress and psychological health symptoms, where the findings backed up the importance of sleep in psychological health. [55] An multinational study was carried out to determine whether the circadian type might explain sleep and psychological health during the COVID-19 outbreak. Investigation revealed that sleep–wake cycles were pushed back, especially on workdays, and individuals with evening-type personalities reported sleeping longer. [56] Ultimately, better sleep behaviours are obviously linked to mental and physical health, but they may be hampered by social isolation and disruptions in daily routine brought on by the COVID-19 pandemic.

Impact of COVID-19 on Physical Activity & Psychological Well-Being of Youth

Youth is an exceptionally valuable segment of the population of any country. Accumulated knowledge and skills that make a workforce extremely productive come to a head during this period. This critical phase of life establishes the groundwork for healthy & constructive adulthood, whilst providing a window of opportunity to reduce the health issues in forthcoming years. As stated by the National Youth Policy of India (2003) youth population falls under the age range of 15-34 years, comprising 34.5 percent (as of 2020) of the total Indian population, which is set to decline by 2.2 percent in the coming decade. [57] However, the revised National Youth Policy (2014) confines the youth to 15-29 years of age range. [58] Therefore, adolescents & adults falling under this age range are required to follow the guidelines for PA established by WHO. The youth have been most affected by the pandemic. 1.6 million young people were included in 298 population-based surveys that were analysed (aged 11–17) between 2001 and 2016 revealed that 81% of adolescents globally engage in insufficient amounts of physical activity. [59] Youth online gaming has most definitely increased because of the ongoing pandemic. [60] Sedentariness and PI

have increased, particularly among young people living in small, densely crowded households and in nations where it is illegal to leave the house during lockdowns. Snacking and childhood obesity are both linked to screen time, [61] obesity in later adulthood is predicted by the latter. [62] According to research, the pandemic has also caused young people to experience greater levels of depression and anxiety. [63] There has also been an increase in abuse, which may lead to even less physical exercise. [64] [65] Youths PI and WB may be affected by social distancing norms in the future. Students are urged to stay away from team sports, exchanging sporting goods, and interacting with their peers in nations that reopened schools following lockdowns. Organised sports are prohibited, and physical education instructors are instructed to employ exercises that need social distance instead. If youth are not closely supervised, it is unclear whether they will adapt to the new social distancing circumstances. Preliminary studies suggest that social obligation, in combination with government and family constraints, may assist in maintaining social distance in youth. [66] Notwithstanding that adolescents and young people appear to be shielded against COVID-19 infection to a large extent, their health is undoubtedly impacted by extended confinement, which may, in turn, catalyse instability to their health and well-being. Certain research findings have reported that pandemic has escalated the level of anxiety, and instances of depression for young adults. [63]

COVID-19, Sedentariness, Screen Time and Dietary Habits Among Youth

Taking the current COVID-19 situation into account, it is noted that the involvement of youth in online gaming has indubitably increased, further leading to a surge in sedentary behaviour (SB) and PI. [67] SB is frequently linked to dietary habits that contribute to increased energy intake. To demonstrate this point, a study (2002) analysed the change in SB about change in energy intake and/or PA. It was determined that an increase in sedentary time results in a higher energy intake (+350 kcal), which corresponds to a decrease in energy expenditure (-100 kcal). [68][69] Results of another study (2022) conducted on Indian youth revealed that spending more time in front of a screen was linked to more unhealthy eating habits, lower PA levels, and sleep disruptions. Therefore, excessive screen usage and its effects on children's lifestyle patterns need to be properly addressed. A further benefit may come from proactive parental support in promoting a stricter control over screen time, setting good examples for appropriate screen time and PA participation, ensuring strict monitoring of adolescents' dietary and sleeping habits, and prioritising an early diagnosis of anxiety and depression symptoms in children.

An **ishikawa diagram** is used to illustrate how COVID-19 has affected various aspects of physical and mental health.

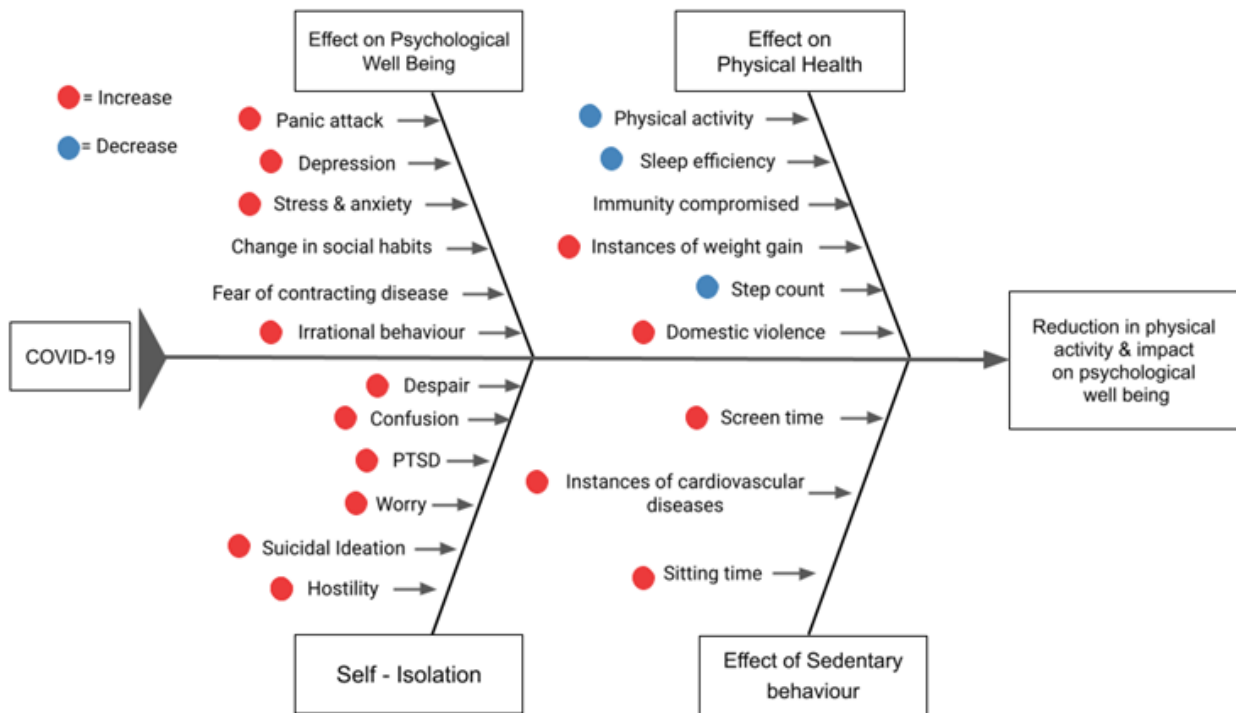


Fig. 1 Ishikawa diagram depicting the impact of COVID-19

Conclusion

COVID-19 has resulted in worldwide lockdowns, disrupting people's daily lives. People's immunological responses have been altered, and their risk of obesity has grown, as a result of their increased sedentary behaviour and diminished physical activity. Moreover, this manner of living is negatively impacting the psychological health of individuals of all ages. COVID-19 induced PI and sedentariness may have an impact on both cardiovascular and total health, thus people should keep exercising at home. Additionally, exercise should be advocated as fiercely as social isolation itself, as it may be able to help offset the negative impacts of COVID-19 isolation on mental health and physical health. The pandemic has brought to light structural trends in society which may lead to great reductions in physical activity, necessitating the requirement for creative measures to reduce such trends.

Conflict of Interest

The authors declare no conflict of interest

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