

# Need of Physical Activity for Better Mental Health During Lockdown- A Review

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## ABSTRACT

The COVID-19 was a time full of uncertainties. Governments worldwide took several measures to contain the spread of the disease, leaving the people confined to their homes and rooms. This caused a series of drastic changes in individual and family schedules, leading to a majority of the population suffering from stress, anxiety, loneliness, depression and disturbed sleep. People resorted to leading a sedentary lifestyle due to the loss of daily physical activity. Sudden decreased daily physical activities and increased screen times, causes a decrease in the overall health of individuals. Physical activity is not only needed to stay physically fit but also boost's mood. Lack of daily physical activity is linked to high stress and increased chance of developing diseases. Staying active while staying indoors not only keeps individuals fit and happy but also enhances the quality of life. Staying physically active during lockdown showed better mood and mental well being in individuals. Care should be taken to improve health promotion in people during such times of confinement, with importance given to staying physically active to combat mental symptoms and to promote overall well being of the population. Performing simple home based exercises or using app guided videos to stay active should be encouraged, not only during confinement but physical activity should be an integral part of individual schedules, as staying fit and active not only decreases chances of developing any chronic illnesses but also enhances the mental health of an individual.

**Keywords-**COVID-19, lockdown, physical activity, mental well-being.

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## I. INTRODUCTION

Corona virus 2019 or COVID-19 pandemic changed the lives of people all over the world and disrupted the global social system<sup>[1,2]</sup>. Governments globally have been implementing preventative healthcare measures such as quarantine and self isolation to combat the COVID-19 outbreak<sup>[3]</sup>. The COVID-19 lockdown has a detrimental impact on both mental and emotional well-being<sup>[4]</sup>. The lockdown impacted various aspects of life such as changes in the accessibility and structure of education delivery to students, food insecurity as a result of scarcity and price fluctuations, global economic depression, increased mental health challenges, well being and quality of life, and so on<sup>[5]</sup>.

The epidemic has far-reaching physical and mental health implications, and regardless of the number of COVID-19 cases, significant levels of stress, anxiety, sadness and poor sleep were noted globally<sup>[6]</sup>. COVID-19 is linked to a multitude of psychosocial illnesses in addition to physical health difficulties<sup>[7]</sup>. Increased psychological anguish is directly connected to negative health related side effects<sup>[8]</sup>. Fear of becoming infected with COVID-19 was present in all instances recorded of suicide in lockdown and it was a key factor in attempting/completing suicide<sup>[9]</sup>.

Studies show that being in a lockdown due to a pandemic may have significant physical and mental health repercussions and that engaging in physical exercise during lockdowns and quarantine may help to mitigate these negative mental health consequences<sup>[10]</sup>. During the COVID-19 lockdown, factors including physical activity, nutrition and sleeping patterns were linked to mental health<sup>[11]</sup>. Effective health promotion tactics that encourage people to make and maintain beneficial changes in their overall health habits are important<sup>[12]</sup>.

This review article aims to create awareness about the necessity of physical activity to curb the psychological effects of the pandemic and thereby reducing the mental strain on individuals and also improve physical well being and promotes overall health of population of all age groups.

## EFFECT OF PANDEMIC ON MENTAL HEALTH

According to country-specific study, actions adopted to curb the development of COVID-19 illness have resulted in a general decrease in mental and physical well-being<sup>[13]</sup>. While these initiatives are critical for

public health, they may have unexpected health implications, such as increased physical inactivity and sedentary behaviour. Individuals and families are lowering their exercise habits and daily physical activity, while increasing their sedentary behaviour<sup>[14]</sup>.

Mental health issues have been related to uncertainty and loneliness. The COVID-19 pandemic's uncertainty has the potential to cause mental health issues<sup>[15]</sup>. Little is known about how psychological effect, stress, anxiety and depression levels changed during the epidemic<sup>[16]</sup>. As a result, during crisis like a pandemic, monitoring and management of the population's mental health is a top responsibility<sup>[17]</sup>.

Personal liberties, financial security, social stability and individual lifestyle characteristics are all vital aspects of mental health and unfortunately many of the COVID-19 pandemic's societal and human implications impinge on these elements. More people experienced low mental well being during home confinement<sup>[18]</sup>.

During the COVID-19 pandemic, stress, anxiety and depression are extremely widespread over the world, and numerous variables can impact the incidence of these mental health illnesses<sup>[19]</sup>. Fear of being infected or infecting others, shame and guilt, economic recession and financial hardship, stress due to COVID-19 pandemic and lockdown, self isolation, inability to access alcohol, lack of educational resources, and prejudice from communities were the main concerns related to COVID-19 in case of suicide and attempted suicide<sup>[20]</sup>.

A study conducted to assess the prevalence of psychological stress in global population during the COVID-19 pandemic concluded that:

- Stress, anxiety and sadness were seen among adults aged 18 to 24, females and people in non-marital partnerships
- Individuals who were geographically separated faced tension and worry
- Anxiety was common among married couples
- People who were single or divorced suffered from depression
- Unemployed people suffered from anxiety and sadness
- Anxiety and despair were common among the students<sup>[21]</sup>

Food consumption patterns changed across the world during the COVID-19 pandemic as a result of legal limitations and/or the fear of contamination<sup>[22]</sup>. During confinement, food intake and meal habits including, the type of food consumed, eating without measure, snacking between meals, number of meals consumed in a day etc., were more unhealthy with only alcohol consumption dropping considerably<sup>[23]</sup>. Majority of people continued the same food consumption patterns as before lockdown, but many people consumed an increased amount of snack food mainly due to reduced meal take-outs and work from home conditions. The people with same food consumption reported more intake of fresh vegetables, dairy, frozen and canned foods<sup>[24]</sup>.

The imposed restrictions have a notable psychological impact on children and adolescents<sup>[25]</sup>. Female adolescents, in particular, maybe at increased risk. This impact maybe exacerbated by social isolation, loneliness, a lack of physical activity and familial stress<sup>[26]</sup>. During times of school lockdown, children are more likely to lose health-related physical fitness<sup>[27]</sup>. Children who are concerned about the coronavirus are more likely to have physical symptoms, despair and anxiety<sup>[28]</sup>. Physical exercise has been linked to psychological health and has the potential to improve psychological status and thus physical activity should be encouraged to help children and adolescents with their mental health<sup>[29]</sup>.

## **LINK BETWEEN PHYSICAL ACTIVITY AND HEALTH**

The World Health Organization defines mental health as "a condition of well-being in which an individual recognises his or her own potential, can manage with typical life challenges, can work successfully and fruitfully, and can contribute to his or her community"<sup>[30]</sup>.

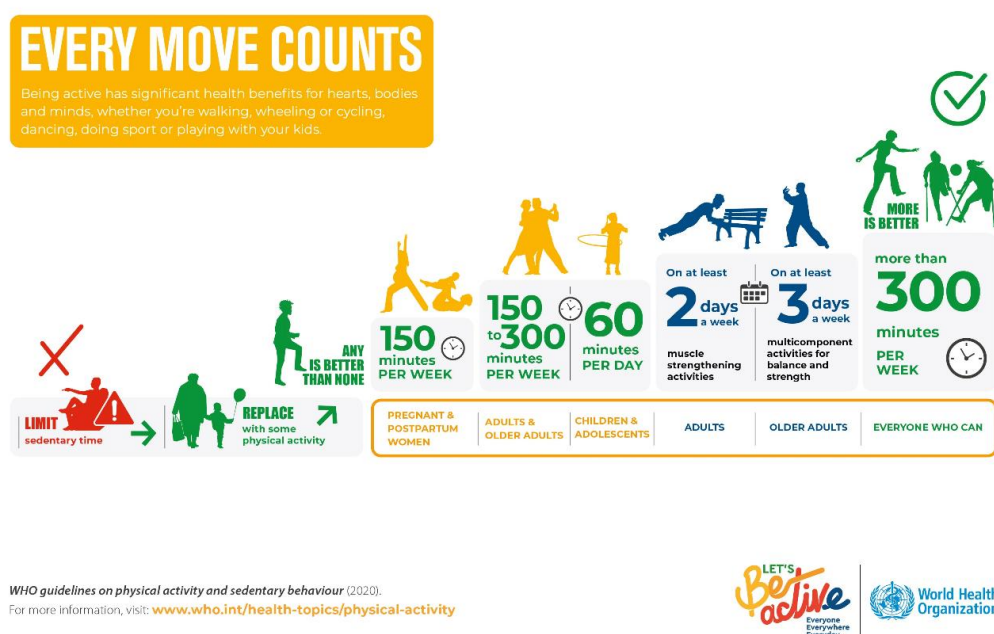


Fig 1. WHO guidelines on physical activity and sedentary behaviour(2020)

Physical activity is a critical component of improving an individual's physical and mental health<sup>[31]</sup>. Exercise aids in the prevention of common chronic diseases(primary prevention) and is frequently used to treat these disease processes(secondary prevention). Exercise has been shown to have specific benefits in the treatment of cardiovascular disease, stroke and diabetes<sup>[32]</sup>. Exercise improves mental health by reducing anxiety, depression and low mood while also increasing self-esteem and cognitive performance. Exercise has also been shown to help with low self-esteem and social disengagement<sup>[33]</sup>.

Although physical activity is unlikely to change a person's diagnosis of severe chronic mental disorders, it maybe used as a part of rehabilitation to avoid or reduce long term hospitalisation<sup>[34]</sup>. Brisk walking for about 20 minutes everyday, which can be done even by the elderly, reduces the risk of myocardial infarction by 30% to 40%<sup>[35]</sup>. Physical exercise was connected to a variety of health and behavioural outcomes in school-aged children and teens in a systematic study<sup>[36]</sup>.

### WHO RECOMMENDATION FOR DAILY PHYSICAL ACTIVITY

"Any physiological action generated by skeletal muscles that needs energy expenditure," according to the World Health Organization.Physical exercise encompasses all forms of movement, whether it is done for fun, to travel, or as part of one's job. Physical activity of both moderate and intense intensity is beneficial to one's health.." WHO standards and recommendations outline how much physical exercise is required for optimum health in various age groups and demographic categories.

Regular physical exercise, such as walking, cycling, wheeling, participating in sports, or engaging in active recreation, has several health advantages. Regular physical activity can,

- Improve muscular and cardiorespiratory fitness
- Improve bone and functional health
- Help maintain a healthy body weight
- Reduce the risk of hypertension, stroke, diabetes, various types of cancer and depression

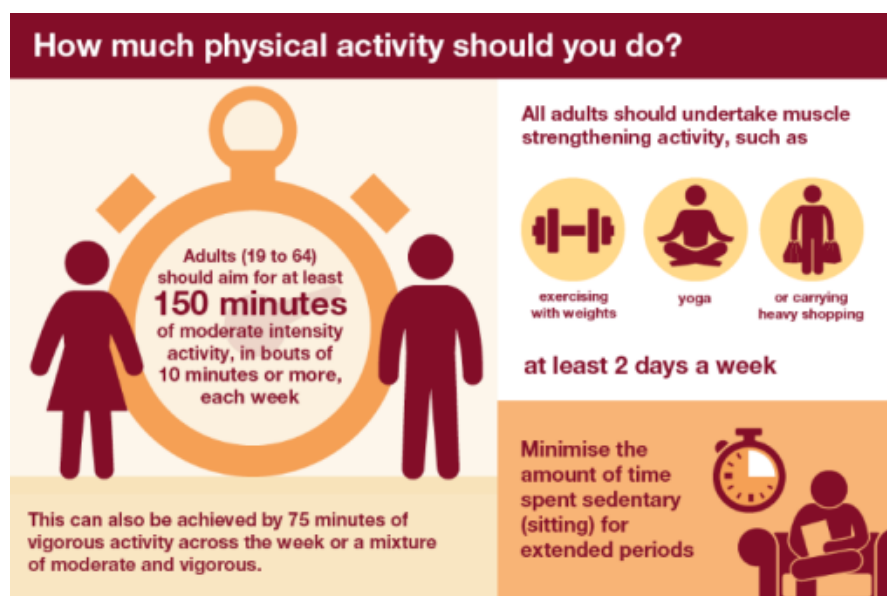


Fig 2. How much physical activity should you do-Cumbria, Northumberland, Tyne and Wear. NHS Foundation Trust.

WHO recommends:

- Infants (under one year) should be physically active multiple times a day in a variety of ways, particularly through interactive floor-based play; more is better, and to not be restricted for more than one hour at a time (e.g., in prams/strollers, high chairs, or fastened to the back of a caregiver)
- Spend at least 180 minutes in a range of forms of physical activities at any level, including moderate-to vigorous-intensity physical activity, dispersed throughout the day; more is better in a 24-hour day for toddlers 1-4 years of age. Must not be restricted for more than one hour at a time (e.g., in prams/strollers, high chairs, or strapped to a caregiver's back) or forced to sit for long amounts of time
- Over the course of the week, children and adolescents aged 5 to 17 years should engage in at least 60 minutes of moderate-to-vigorous intensity, largely aerobic, physical exercise. At least three days a week, including vigorous-intensity aerobic exercises as well as muscle- and bone-strengthening activities.
- Adults aged 18–64 years should do at least 150–300 minutes of moderate-intensity aerobic physical activity or 75–150 minutes of vigorous-intensity aerobic physical activity or an equivalent combination of moderate- and vigorous-intensity activity throughout the week. They should also do muscle-strengthening activities at moderate or greater intensity that involve all major muscle groups on 2 or more days a week, as these provide additional health benefits.
- As part of their weekly physical activity, older persons should practise diverse multicomponent physical activity that emphasises functional balance and strength training at moderate or greater intensity on 3 or more days a week to promote functional ability and avoid falls.
- Without contraindication, all pregnant and postpartum women should engage in at least 150 minutes of moderate-intensity aerobic physical exercise per week and include a range of aerobic and muscle-strengthening activities and reduce inactive time. Physical activity of any degree (including mild intensity) can replace inactive time and bring health benefits.

Lives are becoming increasingly sedentary through the use of motorized transport and increased use of screens for work, education and recreation. Evidence shows higher amounts of sedentary behaviour are associated with weight gain, reduced sleep duration and poorer health, fitness and social behaviour in children, while in adults it causes incidence of cardiovascular disease, cancer, diabetes and all cause mortality<sup>[37]</sup>.

#### **EFFECT OF LOSS OF PHYSICAL ACTIVITY ON HEALTH DURING THE PANDEMIC INDUCED LOCKDOWN**

All physical activity were negatively affected by COVID-19 home confinement, be it vigorous, moderate, walking and overall. In addition, the amount of time spent sitting everyday grew from 5 to 8 hours<sup>[38]</sup>. The lockdown caused a depletion in mood and energy<sup>[39]</sup>. The most essential factor has been demonstrated to be social isolation, since when society is isolated, it tends to move less, leading to an increase in physical inactivity and sedentary behaviour, which affects physical fitness<sup>[40]</sup>. Quarantine over a long period of time was linked to

increased stress, anxiety and depression, although these were reduced in the presence of family members and a lack of exercise was linked to higher levels of stress, anxiety and depression<sup>[41]</sup>.

Increased screen time and failure to follow physical activity requirements were linked to increased sadness, loneliness, stress and anxiety. When compared to social distance, self-isolation and quarantine was linked to more depressed and anxiety symptoms<sup>[42]</sup>. Taking account of the COVID-19 pandemic's induced psychological toll appears to be highly linked to bad lifestyle behaviour such as physical and social inactivity, worse sleep quality and an unhealthy diet<sup>[43]</sup>.

Results from the French NutriNet-Sante cohort study gave the following result- Unfavourable changes observed during the lockdown include,

- i. Reduced physical activity in 53% of the participants
- ii. Increased sedentary time in 63% of the participants
- iii. Increased snacking
- iv. Decreased consumption of fresh food mainly fruit and fish
- v. Increased consumption of sweets like cookies and cakes
- vi. Weight gain in 35% of the participants

However, the opposite results were also seen including.

- i. Increased home cooking in 40% of the participants
- ii. Increased physical exercise in 19% of the participants
- iii. Weight loss in 23% of the participants

All the above mentioned results were linked to individual traits and qualities<sup>[44]</sup>.

Stress and depression, as well as stress and anxiety, were strongly mediated by poor sleep, weaker resilience, younger age and loneliness. Younger age groups were more prone to stress and anxiety symptoms, according to age-based differences<sup>[45]</sup>.

Measures taken to address the COVID-19 pandemic may encourage a sedentary lifestyle, increasing a well known global epidemic known as physical inactivity<sup>[46]</sup>. With universities closing, sedentary behaviour increased in university students and employees who were highly physically active earlier<sup>[47]</sup>. While the negative effects of a prolonged positive energy balance as a result of a sedentary lifestyle are well known, the effects of a brief period of drastically reduced physical activity and overeating as a result of enforced confinement due to the COVID-19 epidemic will be evident shortly<sup>[48]</sup>.

### **IMPORTANCE OF PHYSICAL ACTIVITY FOR MENTAL WELL BEING DURING COVID-19- WHO RECOMMENDATION DURING COVID-19**

Even if we must confine ourselves to the inside of our homes and rooms, we must ensure that we spend more time engaging in indoor physical activity and less time sitting<sup>[49]</sup>. Inactivity has been linked to a greater mortality rate as well as a decline in overall health and fitness<sup>[50]</sup>. It is critical for the entire population's health that people's lifestyles are not completely disrupted or changed during quarantine, and that they continue an active lifestyle<sup>[51]</sup>. A lack of exercise was linked to higher levels of stress, anxiety and sadness<sup>[52]</sup>. Maintaining an active lifestyle during home quarantine is critical to prevent health repercussions, and this strategy may also assist to alleviate the psychological effects of confinement, particularly among the elderly. Glycemic control was disrupted, inflammation was elevated and muscle protein synthesis was decreased as a result of acute physical inactivity. Inactivity can cause fat free mass to decrease as fat mass increases. Furthermore, restoring normal levels of exercise in the elderly maybe more difficult in younger people<sup>[53]</sup>.

Keeping active during quarantine is an excellent way to avoid health problems. It boosts people's moods and helps them maintain busy lifestyles<sup>[54]</sup>. An active lifestyle, which includes both physical and social exercise, is a key modifiable factor for mental health throughout life<sup>[55]</sup>. Physical exercise during lockdown was linked to less despair, less anger, more energy and a better mood, according to regression analysis<sup>[56]</sup>. Fortunately, a variety of workouts, such as equipment-free aerobics or strength training led by video or app maybe done at home and should be encouraged<sup>[57]</sup>. Personalized and supervised physical activity programmes, as well as group-play physical exercise programmes, are desperately needed<sup>[58]</sup>. Digital technology based solutions can help,

- i. Facilitate user's adherence to an active and healthy confinement lifestyle
- ii. In the case of depression, achieve a speedy psychosocial recovery.
- iii. Improve preparedness for future pandemics by delivering personalized multi-dimension crisis-oriented health recommendations<sup>[59]</sup>

A study conducted in Arab adults based on healthy lifestyle behaviour during confinement concluded that, mental well being scores are higher in people engaging in moderate to high physical activities, additionally the well being scores showed higher scores with better diet and better sleeping quality. They concluded that out of all factors, physical activity is the major contributor to better health scores<sup>[60]</sup>. Maintaining and increasing

physical activity involvement while limiting screen time increases may help to offset the mental health impacts of sudden societal changes<sup>[61]</sup>. To lessen stress levels, relaxation practices should be included into regular routines<sup>[62]</sup>.



Fig 3. Healthy at home-physical activity(WHO)

Thus recommended the creation of policies and standards aimed at boosting physical activity through public awareness messaging on the significance of regular physical exercise to enhance health-related factors and avoid mood and energy drops when people are under lockdown or quarantine<sup>[63]</sup>. The WHO recommended guidelines for health and psychological considerations during the pandemic and it highlights the following points,

1. Limiting your exposure to COVID-19 news that may make you feel nervous or upset by viewing, reading, or listening to it.
2. Check for updates at certain periods throughout the day, perhaps once or twice.
3. To take real actions for developing plans to safeguard yourself and loved ones, only seek information from reputable sources.
4. Keep familiar daily life patterns as much as possible or establish new ones, especially for youngsters who are restricted to their homes and need to complete their education.
5. When children are stressed, they may desire greater attachment and become more demanding of their parents; addressing their worries may help to alleviate their worry.
6. To retain mobility and prevent boredom, learn regular activities to practise at home or in quarantine.
7. Establish new habits such as regular exercise, cleaning, daily chores, singing, drawing, and other activities.
8. Keep in touch with loved ones on a frequent basis by phone, e-mail, social media, or video conference.
9. Pay attention to your wants and feelings, and engage in healthy, calming activities that you like.
10. Exercise regularly, keep regular sleep routines and eat healthy food<sup>[64]</sup>.

## II. CONCLUSION

The times of COVID19 were difficult and trying for all people everywhere. With the precautionary lockdown being activated worldwide, quarantine and isolation became a daily part of our lives. This self precautionary measures impacted the mental and physical well being of the population. Thus COVID19 was a time of widespread pandemic and a number of psychological illness which were directly connected to negative health related side effects. Exercise and daily physical activity are not only good for the body but also improve mental health by reducing the negative mental side effects of lockdown including reducing anxiety, depression

and low mood. Even if we are confined to the borders of our home we can be physically active by engaging in indoor exercises to stay active and thus also maintain our mood and psychological health. Physical exercise during lockdown was linked less despair, less anger, more energy and better mood. Thus, this review article was to create awareness about the importance of physical activity during confined times and its daily need and importance in our lives for not only our physical health but also our mental health.

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