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The impact of COVID-19 pandemic on physical activity of adults on work from home: A cross-sectional survey

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Abstract

Background: COVID-19 was declared a pandemic and global health emergency by the WHO in 2019. These restrictions lead to a hindrance in outdoor activities including physical activity and exercise disrupting normal routine activities. Staying at home promoted sedentary behavior causing an increase in the time of sleep, lying down or reclining for activities like playing videogames, reading books, or using cell phones which may further worsen the physical condition. Hence, there was a need for the study to determine that did all these activities which were restricted during the pandemic actually affected the physical activity of the population as a whole or not.

Aim: To study the impact of the COVID-19 pandemic on the physical activity of adults working from home (WFH).

Objectives

1. To determine the activity levels of individuals while doing WFH.
2. To compare the physical activity of the population before and after the COVID-19 pandemic.

Methodology: Study was conducted using google forms which included demographic data and International Physical Activity Questionnaire was carried out. The sample size was 100.

Results: It was found that 68% of participants working from home showed changes in their physical activity levels, in which, 44% of participants showed decreased activity levels after lockdown, 24% showed increased activity levels while 32% of participants showed no change in their activity levels after lockdown.

Conclusion: 68% of the participants showed changes in their physical activity level after lockdown which shows that there is awareness of the importance of physical activity amongst the population but the execution is unattainable due to extended working hours.

Keywords: COVID-19 pandemic, physical activity, work from home, IPAQ, lockdown

Introduction

The Coronavirus that emerged in China in December 2019 had spread to other countries very rapidly including India and affected the Indian population to a large extent. Coronaviruses (CoVs) are positive-sense, single-stranded RNA viruses of the family *Coronaviridae* that infect a wide host range to produce symptoms ranging from the common cold, cough, and fever to severe/fatal illnesses affecting the respiratory system^[1]. Because of its extensive spread leading to fatal outcomes, it has been declared a pandemic and global health emergency by the World Health Organization (WHO).

Due to this global outbreak, governments in various countries had been forced to take swift and protective measures as a means of limiting peoples' exposure to the virus^[2]. In India, strict lockdown was imposed on all cities along with the implementation of travel bans and cancellations, closing of schools and colleges, postponing classes and Work from home for the working population. As mandated by the Indian government, all citizens had to stay at home unless required to go out for valid reasons like medical emergencies and groceries, and helping the sick or the disabled. Important sporting events, competitions, and various other outdoor activities had either been postponed or cancelled. Due to the increasing number of COVID – 19 cases, the government had imposed nationwide quarantine and had considered various forms of lockdowns in order to halt the spread of the novel Coronavirus disease 2019 (COVID-19). A major problem that emerged was the risk and harmful effects of physical

inactivity due to restrictions [2]. These restrictions lead to a hindrance in outdoor activities including physical activity and exercise and disrupt normal routine activities [2]. Staying at home is still one of the safest measures currently but may have negative impacts on the health of the people. It may promote sedentary behaviour, and cause an increase in the time of sleeping, lying down, or reclining for activities like playing video games, reading books, or using mobile phones which may further lead to worsening of the physical condition [3].

Exercise causes release of endorphins which contributes to improved mental health and reduction in depression. In addition, physical activity also causes an increase in the circulation of immunoglobulins, cytokines, macrophages, etc., which play an important role in maintaining immunity. Regular exercise has an effect on boosting immunity against viral infections especially respiratory tract infections [4]. Studies have also proven that there is a reduced risk of illness in people doing regular moderate-intensity exercise, especially, in the obese and sedentary population [5].

Hence, the purpose of this study was to gain insight on impact of COVID-19 on physical activity of the population during this pandemic doing work from home.

Materials and Methodology

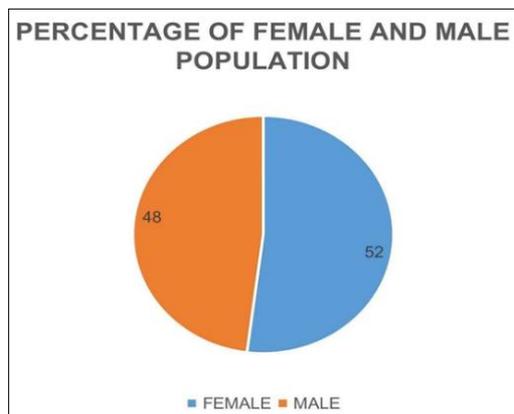
A total of 100 participants who were working from home were included, through convenient sampling method, in the study. Inclusion criteria was 1. Age group 18-50 years, 2. person working from home. Exclusion criteria was 1. participants having any pathological condition, 2. Disabled individuals.

The study was approved by the ethical committee of Terna Physiotherapy College. Consent of the participants was taken, and in detail procedure and purpose of the study was explained to the participants in the online google form. Demographic data and IPAQ (International Physical Activity Questionnaire) responses were collected through google forms and their activity levels were assessed according to the MET's calculated. The data was collected and descriptive statistics was done to understand any change in activity levels after COVID-19 pandemic.

Data presentation, analysis and interpretation

Table 1: Gender Distribution

Gender	Mean	Standard deviation
Male	34.7	7.929358
Female	32.4	8.659643



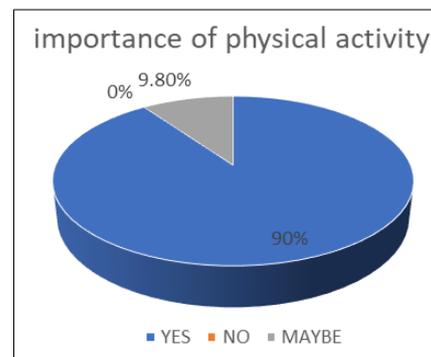
Graph 1: Gender Distribution

Inference

- 1). Percentage of female population included in study- 52%.
- 2). Percentage of Male Population included in study- 48%.

Table 2: Percentage of population who is aware of the importance of physical activity

	Percentage
Yes	90.20%
No	0%
Maybe	9.80%



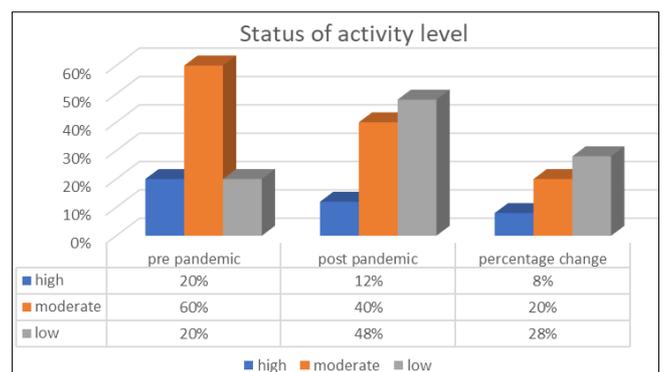
Graph 2: Percentage of population who is aware of the importance of physical activity.

Inference: According to the survey,

1. 90.20% of people agree that physical activity is important.
2. 9.80% are not sure.

Table 3: Physical activity of the population before and after pandemic

Status of activity level	Pre pandemic	Post pandemic	Percentage change
High	20%	12%	8%
Moderate	60%	40%	20%
Low	20%	48%	28%



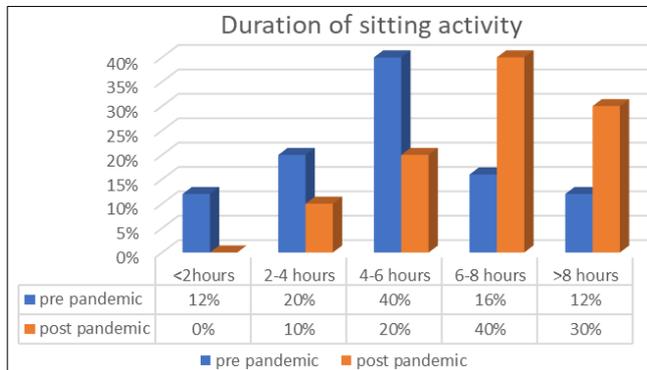
Graph 3: Physical activity of the population before and after pandemic

Inference

1. 8% of the population with high physical activity levels could not maintain it during the pandemic.
2. 20% of the population with moderate physical activity levels could not maintain it during the pandemic.
3. There was an increase in the population performing low physical activity by 28%.

Table 4: Hours of sitting activity before and after pandemic

duration of sitting activity	pre pandemic	post pandemic
<2hours	12%	0%
2-4 hours	20%	10%
4-6 hours	40%	20%
6-8 hours	16%	40%
>8 hours	12%	30%



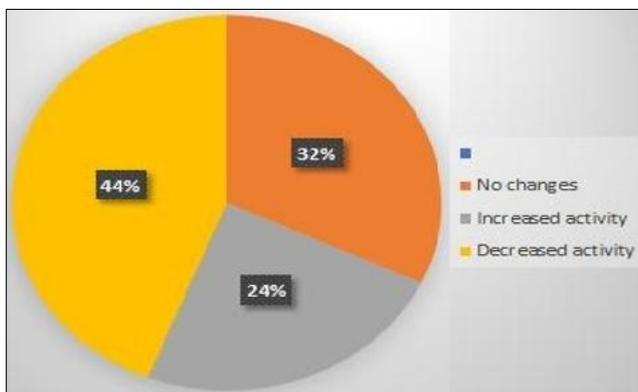
Graph 4: Hours of sitting activity before and after pandemic

Inference

1. Percentage of Population Performing Sitting activities more than 8 Hours increased by 18%.
2. Percentage of Population Performing Sitting activities less than 2 Hours became nil.

Table 5: Percentage change in activity levels after lockdown

	Percentage
No changes	32%
Increased activity	24%
Decreased activity	44%



Graph 5: Percentage change in activity levels after lockdown.

Inference: After comparing the activity level of the population by IPAQ before and after pandemic 32% of the population showed no change in their physical activity levels whereas 24% of the population showed increased physical activity level and 44% of the population showed decreased activity level.

Result

The study results suggest that 68% of participants on work from home showed changes in their physical activity levels. Whereas 44% of participants showed decreased activity levels after lockdown. And 24% of participants showed increased activity levels after lockdown. Whereas 32% of

participants showed no change in their physical activity levels before and after pandemic.

Discussion

The study suggests that a significant percentage of population (44%) demonstrated reduced physical activity levels due to the global pandemic which imposed significant movement restrictions on general population. Physical activity was defined, by WHO, as any bodily movement produced by skeletal muscles that requires energy. Physical activity refers to all movement including during leisure time, for transport to get to and from places, or as part of a person’s work. [4] To curb the spread of virus, various government guidelines were introduced which reduced the movement of people from one place to another, social gatherings, group sport activities to a large extent. These factors are bound to reduce the activity levels in the population. Also, the adult population indulging in group sports activity, attending sports club, people holding gym memberships were largely affected. Apart from that the physical activity of general population which includes commute to work, buying groceries, walking, cycling, active recreation and play was greatly reduced affecting their physical activity.

On the other hand, 24% percent of population showed increased activity levels. During the pandemic, assistance for household was also not available which made performing household work mandatory. Also, many individuals started with home bound work out sessions which could have contributed to increased activity levels as the pandemic changed people’s perception of self-health and need to indulge in healthy and active lifestyle routines. Research has proven that, there is incontrovertible evidence that regular physical activity contributes to the primary and secondary prevention of several chronic diseases and is associated with a reduced risk of premature death. There appears to be a graded linear relation between the volume of physical activity and health status, such that the most physically active people are at the lowest risk. [5]

32% of the population showed decreased level of activity contributing towards more sedentary lifestyle as doing work from home had many hours of sitting which already led to major health and lifestyle issues. As per the results majority of the population used to indulge in sitting activity for 6-8 hours after the pandemic situation which can again be a provoking factor for lifestyle modifications for the participants.

So, this study demonstrated that the lockdown restriction had a negative impact on the physical activity of majority of the population. Therefore, there is an increased need to educate the population that physical inactivity is a modifiable risk factor for cardiovascular diseases, including diabetes mellitus, cancer (colon and breast), obesity, hypertension, bone and joint diseases (osteoporosis and osteoarthritis). Hence, doing some basic activities at home and taking short breaks in between the working hours can be helpful to reduce the risk of such problems that can arise in future and to maintain a healthy and active lifestyle.

Conclusion

This study suggests that 68% of the participants showed changes in their physical activity level after lockdown with majority of the participants decreasing their activity levels

which in turn could be detrimental to their future health and wellbeing.

The study concludes that there is awareness of importance of physical activity amongst the population, but execution is questionable perhaps due to extended working hours.

Study Limitation

1. Limited sample size.
2. Participants were asked to fill the forms on their own without the researcher confirming the answers by observing them in real life.
3. Study did not focus on the profession of the participants, the results may vary according to the profession of the participant.

Future Scope

1. The study can be carried out on a larger sample size.
2. Future studies can create awareness on the importance of physical activity and ways to implement active lifestyle changes.
3. Study can be carried out on different musculoskeletal ergonomic stress which occurs due to long sitting hours during this pandemic.

Clinical Implication

Educating the General Population that though it is important to reduce social participation to reduce spread of virus but adopting a sedentary lifestyle is equally deleterious to health which may increase the risk of various lifestyle diseases like diabetes, high blood pressure etc.

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