

Changes in the Levels of Physical Activity Before and During COVID-19 Lockdown, A Web Based Survey

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Abstract: Background: In March 2020 WHO declared COVID-19 as the global pandemic. Leading to nationwide lockdown as a preventive measure thus restricting the outdoor activities of the people. This ban on outdoor activities made people confined to their home impacting their daily routine and limiting their levels of physical activity. Physical activity improves body functioning and reduces the risk of certain diseases. Physical activity is classified as low intensity, moderate intensity and vigorous intensity based upon the amount of energy expenditure. WHO recommends at least 150 mins of moderate intensity or 75 mins of vigorous intensity physical activity per week in order to stay healthy. Objective: In this study we analysed the difference in the levels of physical activity of the people before and during COVID-19 lockdown along with the factors affecting their physical activity. Method: An online web-based survey was conducted. Questionnaire was circulated through social medias (WhatsApp, Facebook, Instagram) to know the difference in the physical activity level before and during lockdown. Factors affecting the levels of physical activity were also studied. Results: 206 individuals responded to the survey of age group 18-85years. Out of which 115 participated in physical activity on daily basis before lockdown whereas 53 were rarely involved and 33 had sedentary lifestyle. Moderate physical activities such as walking, gymming and swimming were decreased along with other activities like jogging, cycling and grocery shopping. Conclusion: Overall reduction in the physical activity shows unawareness of people about the WHO guidelines of 150mins of moderate or 75mins of vigorous physical activity.

Keywords: Physical activity, Covid-19, lockdown, exercise, health

1. Introduction

In December 2019 a life-threatening disease emerged in China ultimately spreading all over the globe known as COVID-19, which was declared as a global pandemic by World Health Organisation (WHO) in March 2020. COVID-19 led to lockdown all over the nation as a preventive measure thus restricting the outdoor activities of the people.¹ Social distancing is another step to control infection along with measures like personal hygiene, frequent hand washing and wearing mask.² The prohibition on outdoor activities made people confined to their home impacting their daily routine and limiting the levels of physical activity.³

According to World Health Organization (WHO) physical activity is defined as 'any bodily movement produced by skeletal muscles that requires energy expenditure' (such as activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational actions -dance, yoga).⁴ Exercise is planned, organized, repetitive movements carried out to sustain or improve health and fitness, whereas physical activity is any bodily movements done during leisure time hence exercise and physical activity are two different terms, though are often used interchangeably.^{5,6} World Health Organization (WHO) recommends at least 150 mins of moderate physical activity or 75 mins of vigorous activity per week.⁷ Physical inactivity or sedentary behaviour are the major risk factors for increased morbidity and cardiovascular diseases. The main aim of WHO is to reduce the prevalence of physical inactivity by 15% worldwide by 2030.⁸

Physical activity provides numerous health benefits by reducing the severe illness from COVID-19 and can also help managing some of the chronic conditions like non-

communicable diseases including cardiovascular disease, obesity, diabetes, and some cancers.⁸ Physical activity improves immune functioning, muscular strength, cardiovascular fitness, bone mineral density, reduces anxiety and also improve sleep pattern.

Physical activity being an important health habit can be used as a baseline to examine one's fitness level and further to set the exercise prescription according to his need. Thus, in this study we aim to analyse the difference in the levels of physical activity of the people before and during the pandemic along with the factors affecting the physical activity.

2. Methods

Study participants

This was a web-based study using online questionnaire that was created using google platform which was sent to general public through different social media platforms (WhatsApp, Facebook, Instagram). Participants were requested to forward the questionnaire link to their peers and family members. All the individuals above 18years of age were included the survey. Those who were not willing to spare time for filling survey questionnaire, who do not have an account on any social networking sites such as Facebook, WhatsApp, Gmail, individuals unable to perform physical activity due to any medical conditions, bed ridden patients and who do not have smartphone were excluded from the web-based survey.

Study design

This study was executed by sending the online link of the questionnaire through different social medias. Participants were provided with all the necessary information regarding the survey and return of the completed questionnaire was considered as consent for participation in survey. The survey

contained two sections with total of 15 questions which would approximately take 3-5mins to complete it. Two sections included were: 1. Demographic data and 2. Information regarding the physical activity and factors affecting the physical activity. Demographic related questions included name (optional), age, gender, height, weight, any known medical conditions and information regarding COVID-19 infection like whether they were infected with COVID-19, if yes, then were they hospitalized or in home isolation. Second section contained data regarding physical activities which included whether people think physical activity is important for their health and how many were involved in it before lockdown. List of different physical activities included walking, pranayama, yoga, gardening, household chores, grocery shopping, cycling, dancing and gymming. Government restrictions, lack of motivation, family issues, depression and no time could be the possible reasons for not engaging in physical activity which were provided as the options for the difficulties faced during pandemic for performing physical activity.

Data analysis

All the responses to the google questionnaire were imported to excel sheet and were analysed. BMI was calculated by using formula $BMI = \text{weight(kg)} / \text{height}^2(\text{m})$.

3. Results

206 people voluntarily participated in the survey of age group ranging from 18-85 years among which 42.3% (90) were male and 57.3% (116) were female. The average BMI calculated was 24. Characteristics of the participants regarding their BMI, known medical conditions, medications taken per day and people infected with COVID-19 is tabulated below according to their age group (table 1). This shows that most young age group participants of age 18-25 years were most infected with COVID-19. Out of 206 participants 28 were infected with COVID-19 in which 23 were in home isolation and 5 were admitted in wards for the treatment. When we analyzed about the physical activity involvement of the people it showed that 95.6% participants were physically active by some or the other physical activity. 115 participants were involved in physical activity on daily basis, 54 practiced physical activity rarely and 33 participants lived sedentary lifestyle. Finally analyzing about the different physical activities showed that there was a significant increase of indoor activities during the lockdown like yoga, pranayama, household chores and dancing whereas reduction in the outdoor activities such as walking, grocery shopping, cycling, swimming and gymming was noticed. The most common reason reported for not being physically active during lockdown was government restrictions followed by lack of

motivation. Other factors were no time, depression, family and health related issues.

Table 1: Details of the participants regarding their BMI, medical conditions, no. of medicines taken and individuals infected with COVID-19 according to the age group

Age group	BMI	Known medical conditions	No. of medicines taken	Infected with COVID-19
18-25	23	1.85	0.48	18
26-55	25	1.46	0.58	6
56-85	25	1.66	1.51	4

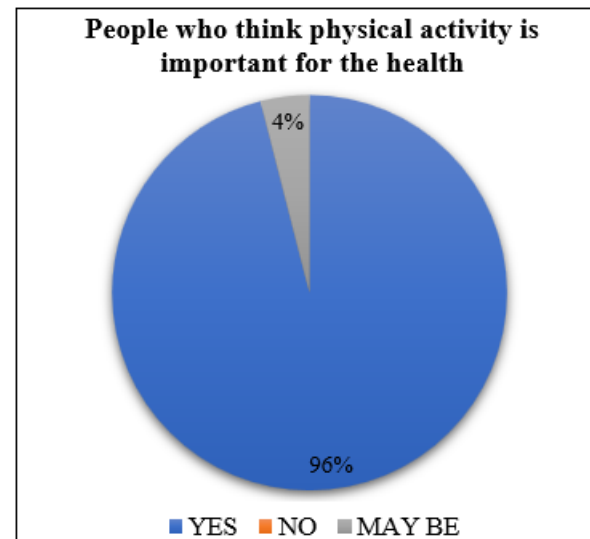


Figure 1: Percentage of people thinking that physical activity is an important factor for healthy lifestyle.

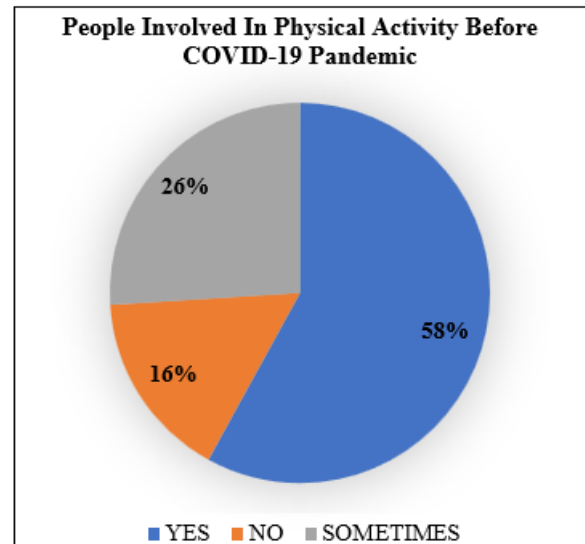
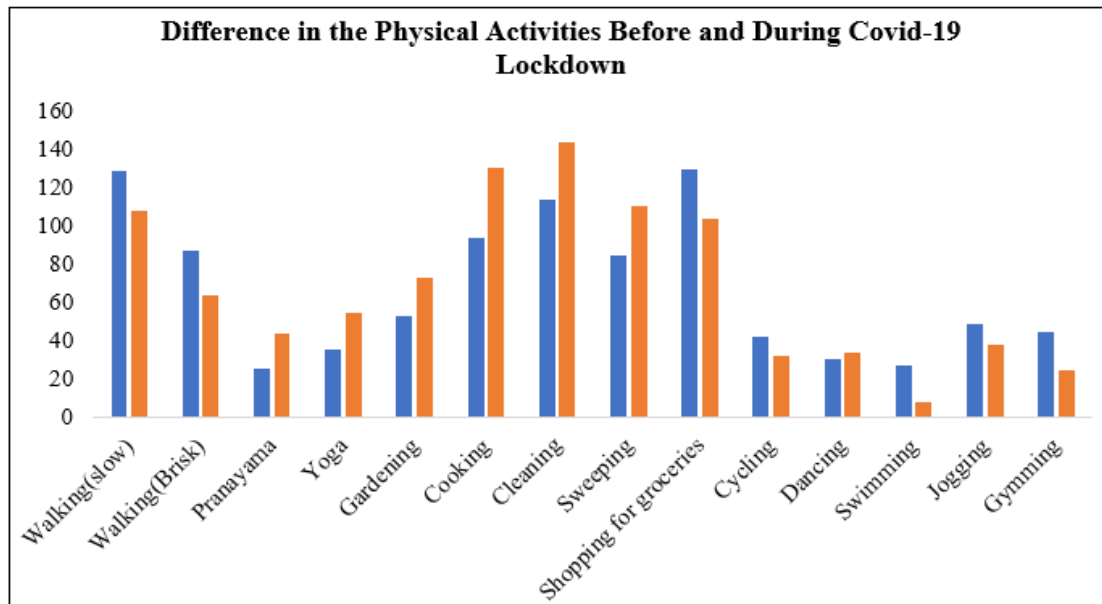
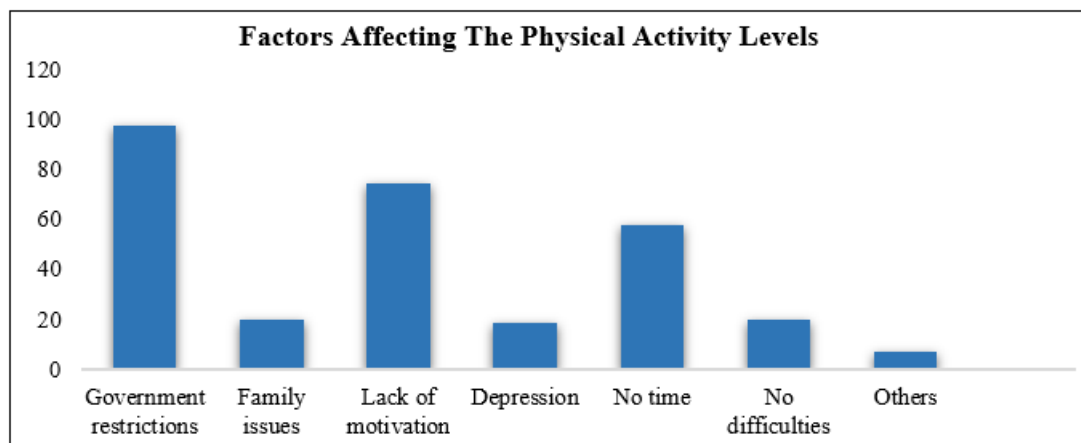


Figure 2: percentage of people involved in the physical activity before pandemic.



Graph 1: Difference in the physical activities before and during covid-19 lockdown



Graph 2: Different factors responsible for changes in the physical activity levels.

4. Conclusion

Based on the results we can conclude that there was an overall reduction in the physical activity levels during lockdown. When comparing the activities pre lockdown and during lockdown it was seen that outdoor activities like walking, cycling, swimming, jogging, gym and shopping for groceries were ultimately reduced due to the imposed restrictions by the government. Looking at the results we can say that people paid more attention towards their family, by helping their family members in carrying out household chores like cleaning, sweeping and cooking. It was also seen that due to the lockdown, people were confined to their homes hence were able to give time for themselves by performing yoga, pranayama and spending time on activities like gardening and dancing.

WHO recommends 150mins of moderate or 75mins of vigorous physical activity in order to have a healthy lifestyle. By this study we came to know that this recommended guidelines for physical activity were not completely fulfilled by the population. Continued efforts are needed to encourage people to increase their physical activity levels by motivating and removing the certain possible barriers.

5. Discussion

According to this study there was seen a significant reduction in the overall physical activity levels. People were confined to their homes, which decreased their levels of energy expenditure on outdoor activities. The main reason reported for this was government restrictions along with other factors such as lack of interest in performing physical activity or the health issues. A multinational survey conducted in 14 countries measured the self-reported physical activity pre and during lockdown which was assessed through the Nordic Physical Activity Questionnaire. Data obtained from the study showed that there was decrease in 41% of moderate physical activity and 42.2% of vigorous physical activity during restrictions.⁹ Similar study was carried out amongst US adults which studied the changes in the physical activity behavior during COVID-19 pandemic through the survey method concluding that 30% of the population reported reduction of physical activity, 50% reported no change and 20% reported increase in the physical activities performed.¹⁰ Our study also showed similar results that moderate physical activities were reduced.

Another study conducted in United States to find out the early effects of COVID-19 pandemic on physical activity locations

and behaviors in adults through self-reported IPAQ questionnaire. The results showed that there was an overall decline in the physical activity.¹¹ In our study moderate physical activities showed a remarkable reduction in brisk walking (26%), gymming (44%), and swimming (70%). The most preferred choice of activity in our study was shopping for groceries which was ultimately reduced by 20% during the lockdown along with other outdoor activities like slow walking by 16%, brisk walking 26%, cycling 24%, swimming 70%, jogging 22% and gymming 44%. Overall, there was reduction in physical activity levels in our study.

Though a study conducted in France and Switzerland reported that there was increased time spent in walking and carrying out moderate physical activity.¹² Unlike our study showed that some people took the advantage of the lockdown and started with their physical activities at home by either helping the family members in carrying out household chores or by focusing on their interests through the activities such as gardening, dancing or performing yoga.

Through our study we came to know that people are less aware regarding the physical activity levels of 150mins of moderate or 75mins of vigorous physical activity recommended by WHO. Hence focus should be on educating people and making them aware regarding the different moderate and vigorous physical activities and its importance of inclusion in daily living. Physical activity should be incorporated in the hospital settings and has to be recommended by doctors. Reducing sedentary behavior and enhancing the quality of life has to be promoted through different possible ways such as social medias, posters, banners and pamphlets. Lockdown led to work from home which increased the sitting hours of people, hence adaption of certain daily activities should be taken into consideration like taking short breaks in between the work, standing and stretching can be carried out frequently. Efforts should be made to participate in physical activity by one or the way by making use of technology for attending various online sessions for workout, zumba or physiotherapy sessions. Elderly population can attend classes for free exercises, bed and chair mobility exercises, breathing exercises and meditation. These day-to-day activities should be made a routine and can be considered into the exercise prescription of an individual, making further changes as needed. This might be helpful if any future lockdown is implemented.

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