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The Trends of Physical Activity among the Young Population during the Second Wave of the Covid 19 Pandemic- An Observational Study

J. Bidve[1], R. Marbate [2*], A. Kshirsagar[2], M. Karwa[3], A. Kulkarni[3], A. Deshpande[3]

[1]Associate Professor and Guide, Cardiovascular and Respiratory Physiotherapy, MGM School of Physiotherapy, Aurangabad, a constituent unit of MGMIHS, Navi Mumbai, Maharashtra, India

[2]Assistant Professor, Cardiovascular and Respiratory Physiotherapy, MGM School of Physiotherapy, Aurangabad, a constituent unit of MGMIHS, Navi Mumbai, Maharashtra, India

[3]BPT, Student, MGM School of Physiotherapy, Aurangabad, a constituent unit of MGMIHS, Navi Mumbai, Maharashtra, India

ABSTRACT

Background: We have many researches saying Covid-19 1st wave lockdown had affected Economy and physical health of people at large. The second wave of COVID-19 appears in the year 2021and its lockdown restriction again started impairing economical and physical health of people.

Objective: To survey trends of Physical Activity among the young population during the second wave of the Covid 19 pandemic

Methods: Participants included in the study are young healthy individuals from 18 years to 35 years of age, and are at homes because of the lockdown since April 12, 2021. The survey questionnaire made to collected data regarding demographic characteristics and questions regarding the levels of physical activity like performance of activities and time spent doing the activities.

Results: Result of this study was 39.25% proportion of population has low exercise level, 19.89% has moderate exercise level and 34.41% has vigorous exercise level while 19.89% population does not indulge in any form of exercise

Conclusion: This study not only discovered reduction in physical activity levels but also established that the sedentary behavior has tremendously increased during the second wave of pandemic.

Keywords: Covid 19, second wave of pandemic, lockdown, physical activity, sedentary behavior.

Introduction

Physical activity is define as any form of bodily movement that increase basal metabolic rate and puts load on skeletal, neuro-muscular system, cardiovascular and pulmonary systems. [1]

In India, second wave of Covid-19 began in mid-February 2021produces massive health effect amongst people of all generation. Maharashtra state highly witnessed the impact of second wave because of night curfew; strict lockdown imposes closure of gym, garden and all fitness institutes. [2] As a result, Maharashtra's government declared Maharashtra as a state of emergency on April 12th to combat the COVID-19 virus's spread. People were only permitted to leave for emergencies and were expected to work from home.

Many researches showed that, physical activity and energy expenditure were lower during the first lockdown period when compared to before the lockdown period. [3]According to current physical activity guidelines produced by world health organization, young adults should try to engage in at least 150–300 minutes of moderate or 75–150 minutes of intense physical activity each week (or a combination of these), as well as muscle-strengthening activities at least twice a week. [4] Researches also supported the concept of beginner exercisers should begin with low volume (5–10 minutes, 2–3 days per week) and low intensity (regular speed), gradually increasing both volume and intensity, because Altering brief intervals of lower and higher speeds (e.g. 3 minutes) will improve health gradually and make the exercise more enjoyable. [5].

Lockdown in Maharashtra affected people's everyday activities includes outdoor and routine physical activity and workouts. [6] Staying at home for an extended period of time can lead to sedentary habits such as spending more time sitting while activity and playing video games, watching television, as well as reducing daily physical activity and workouts, increases the risk of developing chronic health problems.[7]Prolonged home stay may be a contributing factor to increased sedentary behaviors due to a decrease in the amount of daily physical activity (PA) performed.[8] Sedentary behavior is linked to the development of chronic diseases, worsening of current medical conditions and an increased death risk.[9]

In young healthy adults, recommended level of physical activity are approximately 10,000 steps per day, low level of physical activity is describes by if a healthy young adult is walking less than 2,500 steps/day for 14 days and it causes metabolic mal-adaptation, such as increased intra-abdominal and ectopic fat accumulation, and

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hyperinsulinemia.[10, 11]. In addition, the closure of sports and health clubs, as well as outdoor exercise facilities, Leisure time habits could be impacted, possibly leading to a further decrease in already low levels of physical activity among the population [12]. Physical exercise can also aid in the prevention of life-threatening situations. [13]. Untrained adults will increase the activity of both circulating IL-6 and neutrophil counts with a single bout (30–60 minutes) of moderate to high intensity physical activity. [14] As a result causing more positive effects on immune system.

The objective of this work was to investigate the physical activity levels among young population as an impact of this second wave of COVID 19 that has led to lockdown and its related factors on well-being in the general population.

Materials and methodology:

A multi-centric cross-sectional study was conducted in Aurangabad to evaluate the levels of physical activity among young population in this second wave of pandemic.. A pre-designed, pre-tested validated semi-structured questionnaire was administered to the study subjects wherein objectives, study procedure were well explained to the participants before filling questionnaire. The questionnaires were prepared in the format of a Google document which was sent across through social media platforms such as WhatsApp, Facebook, and various social platforms in order to follow the restrictions of lockdown and protocols of social distancing. Informed consent was taken from the respondents before the study and an option to terminate was made available anytime they desired in the form itself. The respondents' confidentiality was maintained and no personal information, such as their address, or contact information, were recorded for the purposes of the study. The study includes people from 18years to 35 years, people under the age of 18years and above 35 years will be excluded from the study. The sample size of participants was 194. Demographic details were reported by the participants, including age, gender (male, female, and other), height and weight. A multi-centric cross-sectional study was done to find out the physical activity levels in young population as an impact of COVID-19 pandemic. Participants were asked about the physical activity levels as per the questionnaire that includes vigorous activities, moderate activities, walking and also sitting time was noted.

Instruments used:

A web-based survey questionnaire prepared to collect the information of the study variables of physical activities using the (IPAQ-SF) International physical activity Questionnaire – Short Form. The IPAQ-SF scale is a self-report measure that is frequently used to assess the kind of physical activities that people do as a part of their everyday lives. It is a 7 item, Open-ended questionnaire. It is self-reported by individuals where individuals have to recall their last 7-day physical activities.

Statistical Analysis

Statistical Analysis was done using Microsoft Excel and google sheets. A confidence level of 95% was used to create the descriptive statistics.

Table 1: Represents Age variable collected from demographic data.

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Age	
Mean	22.80928
Standard Error	0.253281
Median	22
Mode	22
Standard Deviation	3.52779
Sample Variance	12.4453
Kurtosis	4.846598
Skewness	1.656371
Range	25
Minimum	16
Maximum	41
Sum	4425
Count	194
Confidence Level(95.0%)	0.499553

Table 2: Represents' Weight variable collected from demographic data

Weight	
Mean	60.32204
Standard Error	0.907899
Median	59.75
Mode	50
Standard Deviation	12.3821
Sample Variance	153.3163
Kurtosis	1.128735
Skewness	0.806223
Range	72
Minimum	40
Maximum	112
Sum	11219.9
Count	186
Confidence Level(95.0%)	1.791167

Table 3: Represents BMI variable calculated from demographic details

BMI	
Mean	0.014399
Standard Error	0.000187
Median	0.01427
Mode	0.013788
Standard Deviation	0.002549
Sample Variance	6.5E-06
Kurtosis	1.457311
Skewness	0.898078
Range	0.014197
Minimum	0.010025
Maximum	0.024221
Sum	2.678152
Count	186

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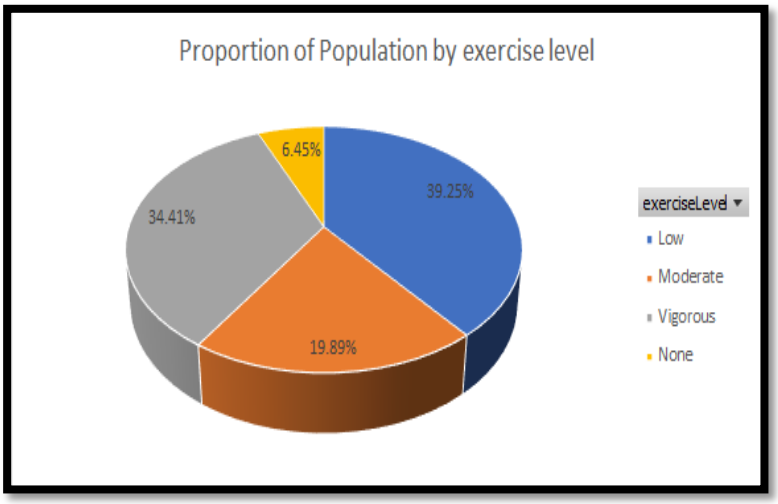
Confidence Level (95.0%)	0.000369

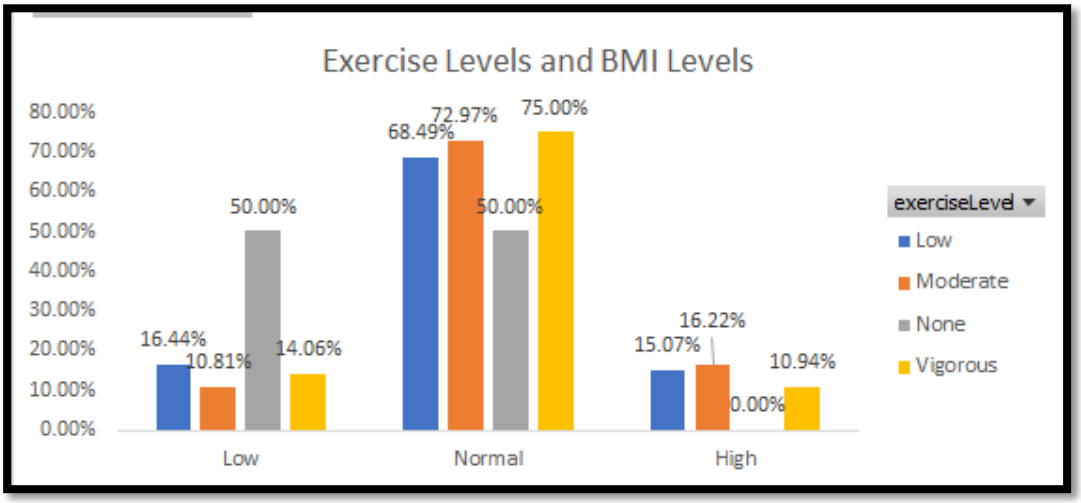
Results

Fig1: Graphical presentation of proportion of population out of 194 participants by their exercise level



Pie diagram shows that , 39.25% proportion of population has low exercise level, 19.89% has moderate exercise level and 34.41% has vigorous exercise level while 19.89% population does not indulge in any form of exercise.

Fig 2: Relation of Exercise level with BMI values in low, moderate, vigorous and no exercise proportion of people amongst 194.



- As seen from the above chart, vigorous exercises have most normal and low BMI proportions.
- Moderate exercise levels lead to the second best BMI levels followed by low and none exercise levels.

Discussion

A web based study was designed as a survey report to check trends of physical activity amongst healthy youngsters. The findings from present research could be useful in predicting lifestyle modifications in the event of fast outbreaks of highly infectious Coronavirus diseases that needs the imposition of restrictive confinement. Because of the second wave of the COVID-19 pandemic lockdown imposes to reduce the spread of Coronavirus disease amongst people of Maharashtra state. Present research study could be helpful to describe the influence of COVID19 on young people's physical activity during second wave of pandemic. These methods for obtaining data are simple to adopt and very

helpful to conduct research by also following all the recommendation of lockdown guidelines.
Present study result showed that, amongst 194 healthy young adults 39.25% , 34.41% , 19.89% were preferred to perform low level of physical activity, moderate level of physical activity and vigorous level of physical activity respectively. It also shows that, 6.45% of healthy young adult doesn't prefer to perform physical activity. This results report helps to conclude that majority of healthy youngster doesn't follow the recommended level of physical activity as described by World Health Organization (WHO). Similar research conducted by Stephanie Stockwell et al (2020) reported that, Physical activity was declined and sedentary behaviour was increased during the COVID-19 pandemic lockdown when compared to before lockdown. There are three components that are required in avoid sedentary behavioural: capability (psychological and physical), opportunity (physical and social) and motivation and all these are lacking in current situation of COVID -19 pandemic because of imposed restriction and lockdown. A reduction in Physical activity was expected as lockdowns restricts sport and leisure facilities, group activities, and time spent outdoors. [15]
Present study also revealed that, the young population who are engaged in moderate to vigorous physical activity are having more portion of youngster carrying normal BMI range than those who are doing low level of physical activity or no physical activity. Physical activity helps in improving metabolic capacities of exercising people by improving the function of musculoskeletal, pulmonary and cardiovascular system.[14, 15]
In another study, an international survey of 14 countries found that Physical Activity had reduced significantly as a result of the COVID-19 pandemic's public-life limitations.[16] A total of 13,503 people, overall self-reported physical activity declined by 41%.
They compared the levels of physical activity in adolescents from urban to rural settings in a research. First, the PALs of the adolescents tested reduced dramatically, but this was primarily due to a considerable fall in PALS among urban adolescents. [17]

Conclusion

During the second wave of COVID-19 lockdown, Physical activity levels have significantly reduced and sedentary behavior have increased. Considering the evidence of favorable outcomes of higher levels of PA and the emerging evidence that exercise can yield favorable COVID-19 outcomes, it is recommended that young population should increase Physical activity and reduce sedentary behavior.

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