https://doi.org/10.37723/jumdc.v15i1.868

J. Univ. Med. Dent. Coll.2024;Vol.15(1):764-768
ISSN (Print) 2221-7827, ISSN (Online) 2310-5542
https://www.jumdc.com

Original Article

Open Access

Assessment of physical activities among University Students during Covid-19 Pandemic

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ABSTRACT

BACKGROUND & OBJECTIVE: The COVID-19 pandemic has affected the physical activity of people including university students. This study aimed to assess the physical activity of university students of Hyderabad and its adjoining areas during the peak time of the COVID-19 pandemic.

METHODOLOGY: This cross-sectional study was conducted during the peak period of COVID-19 among 232 university students belonging to the University of Sindh who came from Hyderabad and its adjoining areas. The samples were collected via a simple random sampling method. The physical activity of male and female university students was compared and calculated by using SPSS software version 21 and MS Office 365. The significance level among groups was determined by applying a Chi-square test whereas the pre and post-responses were calculated by applying McNemar's test. The P-Value of < 0.05 was set as statistically significant.

RESULTS: About 68.96% of females and 51.72% of male university students did not go for walking whereas 91.38% of females and 65.52% of males did not even prefer jogging activity. The results from McNemar's Test Statistics about pre- and post-COVID-19 physical activity suggested that the walkers and non-walkers' group had a significant change (x^2=60.016, P<0.001), and the jogging and non-jogging group had also a significant difference (x^2=113.009, P<0.001). The weight of university students before and after COVID-19 was significantly different (x^2=30.414, P<0.05).

CONCLUSION: The university students performed less than usual physical activity and mostly preferred a sedentary lifestyle during the period of the COVID-19 pandemic.

KEYWORDS: Physical Activity, COVID-19, Pandemic, University Students.

INTRODUCTION

COVID-19 (Coronavirus disease 2019) is a contagious disease caused by the virus SARS-COV2 (Severe Acute Respiratory Syndrome Coronavirus 2). The first case of COVID-19 appeared in Pakistan on 26th February 2020 and the WHO declared COVID-19 as a global emergency on 10th March 2020. Due to the contagious nature of COVID-19, people were advised to stay at home and maintain social distancing. The people were also advised to spend an active lifestyle inside the home by doing physical activities such as exercise, yoga, walking, etc. Physical activity on a regular basis has been proven very effective from a health point of view.

Diseases such as cardiovascular diseases, diabetes mellitus, psychological diseases, and even cancer can be managed by doing physical activity[1]. Studies have suggested that physical activity lowers the chances of morbidity and mortality[2]. Previous research has also suggested that Obesity can be easily managed with the help of Physical activity[3].

One study reported that the inflammatory conditions of patients and even COVID-19 were manageable with the help of Physical activity[4]. The situation of lockdown changed the routine, dietary habits, sleeping patterns, time for physical activity, etc. The abrupt isolation and confinement affected both the physical and mental health of individuals. An individual is said to be physically active if he or she spends about 150 minutes on activity every week.

There were several factors involved in affecting the physical activity of people during the isolation, quarantine, and lockdown situation. One study was conducted in France on

How to cite this: *Mangi AH, Khan FU, Zaman L. Assessment of physical activities among University Students during Covid-19 Pandemic. Journal of University Medical & Dental College. 2024;15(1):764-768.*

students from different French universities and the study suggested that the COVID-19 pandemic not only affected the moderate level of physical activity but it also affected even lighter types of physical activity such as brisk walking [5]. Another study was conducted among students enrolled in various Italian universities and the research work concluded that COVID-19 reduced physical activity and increased sedentary behaviour among university students [6].

The Global Action Plan 2018-2020 by the World Health Organization already recommended physical activity to decrease sedentary behaviours [7]. One research work in Thailand reported that the prolonged pandemic situation due to COVID-19 had changed the physical activity and sleeping patterns of people [8]. Scientists also mentioned that the COVID-19 pandemic affected the students belonging to higher education systems such as universities [9]. It was generally understood that the COVID-based lockdown situation had affected the physical activity of people from all countries around the world but the pattern of physical activity was different for each country and every location. Hence, this study aimed to assess the physical activity of university students of Hyderabad and its adjoining areas during the time of COVID-19 pandemic.

METHODOLOGY

This Cross-sectional study was conducted among the university students enrolled at the university of Sindh and belonged to different areas such as urban, rural, Hyderabad city, Tandojam, Jamshoro, Matiari, Hala, etc. We used a simple random method for collecting the samples. We used the Probability sampling method that involved a simple random sampling technique to collect samples. We calculated the sample size for our research work through the online sampling size calculator (https://www.surveymonkey.com/mp/sample-size-calculator/).

According to population size, the confidence level of our sample size was 95% with a 5% margin of error. Before starting our research work, we obtained ethical permission (Ref. No. IOB/244/2023) from the concerned section. The participants who were interested in our research work were asked to sign an informed consent form. This research work was performed from December 2020 to February 2021 on university students during the COVID-19 Pandemic. Pre structured questionnaire was developed with questions regarding physical activities such as walking, jogging, physical exercise or manual workout, work-out through a treadmill, etc. The questionnaire was designed under the supervision of well-trained persons and field experts, and it was used to conduct the online survey. We collected our samples by using a questionnaire which was created with the help of an online web-based internet tool known as 'Google Forms' (https://docs.google.com/forms/u/0/?tgif=d).

There were a total of 232 randomly selected male and female university students during the research work who participated in our study. The adjoining areas of Hyderabad were Jamshoro, Kotri, Matiari, Hala, and Tandojam. The physical activity of male and female university students was compared and their responses in the situations before and during COVID-19 were recorded for comparison. We calculated the p-values by applying a chi-square test to compare the level of significance among groups. We have mentioned the detailed calculations regarding different categorical variables and the results have been shown in both tabular and graphical forms in the results section..

We have applied McNemar's test to compare the responses of students in both conditions such as pre- and post-situation and the results have been mentioned in the result section in tabular form. The differences were noted in numbers, percentages (frequencies), average and standard deviation. The raw data in the form of demographic details was also organized and the calculations were made by SPSS software version 21 and by MS Office 365. The significance level among groups was determined by applying a Chi-square test and the P- value of < 0.05 was set as significant.

RESULTS

The results from our research work conducted on university students belonging to Hyderabad and adjoining areas suggested a significant difference ($p < 0.001$) among male and female university students regarding physical activities during the COVID-19 pandemic. About 80 (68.96%) of females and 60 (51.72%) of males didn't prefer to do brisk walking on a regular basis and only 56 (48.27%) of males and 36 (31.03%) of females liked to go for a walk every day (Table-I). We also noticed that only 92 (39.65%) study participants out of 232 showed their willingness towards a daily walk whereas 60% (majority) were spending a sedentary lifestyle without doing any walk for 30 to 40 minutes in a whole day. Around 56 males out of 116 reported that they spent some time walking in whole day whereas 60 out of 116 males said that they could not find time for walking throughout the day (Table-I).

It was observed from the data results that the majority of university students did not perform physical activities such as walking, jogging and daily exercise during the period of the COVID-19 pandemic. As far as the results from the data about the female preference for walking were concerned, we found that only 36 out of 116 females liked to walk regularly whereas about 80 females didn't walk every day.

Compared to males, the ratio of females performing physical activity every day in the form of walking was significantly low (Table-I). We also noticed significant differences between the walking and non-walking groups and also between the male and female walking groups (Table-I). The results also suggested that about 50 respondents preferred jogging over rest.There were 40 males and just 10 females who managed to go jogging every day (Table-I). There were about 34% of males preferred to go jogging instead of walking and on the other hand only 09% of females could go jogging (Table-1).

There were also 65.52% of males who did not like to go for jogging. From these results, we noticed that the majority (91%) of females were not willing to go jogging during the period of COVID-19 pandemic (Table-I). Out of 232 participants, only 21.55% said that they went jogging during the days of the COVID-19 peak whereas the majority (78.45%) could not spend their time usually jogging to live a healthy life (Table-I).

Table-I: Physical activities done by university students during the COVID-19 pandemic.

variables	Categories	Male n(%)	Females n(%)	Total n(%)	P-value
Walking	Walk	56(48.27)	36(31.03)	92(39.65)	<0.001
	No Walk	60(51.72)	80(68.96)	140(60.34)	
Jogging	Jogging	40(34.48)	10(8.62)	50(21.55)	0.07
	No Jogging	76(65.52)	106(91.38)	182(78.45)	
Daily Exercise	Exercise	45(38.79)	35(30.17)	80(34.48)	0.167
	No Exercise	71(61.21)	81(69.83)	152(65.52)	
Total		116(100)	116(100)	232(100)	

***p-value significant at <0.05**

The results from McNemar's Test Statistics about pre- and post-COVID-19 physical activity among male and female university students suggested that the walker and non-walkers' group had a significant change (x^2=60.016, P<0.001) in their walking trend before and after the emergence of COVID-19 pandemic. As far as the jogging and non-jogging students' group was concerned, we noticed again a significant difference (x^2=113.009, P<0.001) between their pre- and post-pandemic situation. The weight of university students before and after the emergence of COVID-19 was significantly different (x^2=30.414, P<0.05).

Our results suggested that around 39% of male students were doing exercise regularly and a small percentage of students were using the treadmill for exercise purposes. About 39% of males did exercise without using any instrument whereas 30% of females also did a physical workout or manual exercise at home (Table-I). A similar trend of physical activity was also observed when we interpreted the data results about the exercise performance of university students.

The majority of males (61.21%) and females (69.83%) answered that they were unable to perform any type of physical activity related to exercise at home or outdoors during the peak period of the COVID-19 pandemic in Hyderabad and adjoining areas. However, our results showed a p-value of (P=0.167) between the group of students who used to exercise daily and the group of students who skipped exercise every day (Table-I). Out of 232 participants, 65.52% were unable to do a regular exercise for a whole day however, 34.48% of students managed to do a workout on a daily basis (Table-I).

The university students were also asked about their previous physical routine before the onset of the COVID-19 pandemic and the majority of them answered that their previous physical routine was much better in which they performed more physical activity compared to the later period. We gathered the responses about pre- and post-COVID-19 physical activity of students and converted them into two groups to check the level of significance by applying the standard McNemar's test with Chi-square distribution. The first two groups (walkers and non-walkers) had a significant change (x^2=60.016, P<0.001), and the second group (jogging and non-jogging students) had a significant difference of (x^2=113.009, P<0.001).

Table-II: Pre- and post-response of university students regarding physical activity (n=232).

Variables	Pre-COVID-19 Responses n (%)	Post-COVID-19 Responses n (%)	McNemar's Test Statistics	P-Value
Weight gain	35 (15.09)	50 (21.55)	30.414	<0.05
Treadmill use	08 (3.45)	24 (10.34)	2.051	0.152
Walk	154 (66.38)	92 (39.66)	60.016	<0.001
Jogging	165 (71.12)	50 (21.55)	113.009	<0.001

***p-value significant at <0.05**

The use of treadmills among university students was very low and there was no connection noticed between the use of treadmills and weight gain. The group of treadmill users could not show any significant statistical difference (x^2=2.051, P=0.152) however, a marginal percent difference from 3.45-10.34% was observed among groups. Our results also confirmed that the body weight in terms of kgs was gained by 21.55% of individuals who participated in our study.

The results from our research indicated that about 35% of male students had gained more weight due to the pandemic situation and also 9% of female students gained more body weight during the COVID-19 situation, thus more males gained weight compared to female university students. The

weight of university students before and after the emergence of COVID-19 was significantly different (P<0.05) with McNemar's test statistics of (x^2=30.414). The overall results reflected that the physical activity of university students was remarkably suppressed during the COVID-19 pandemic and the before and after pandemic situation had a significant impact (P≤0.05) on the physical activities of university students (Table-II).

DISCUSSION

In our research work, we found that the majority of university students were not doing enough physical activity during the COVID-19 pandemic. We observed that 69% of females and 58% of males didn't prefer to do brisk walking on a regular basis which indicated that most of the university students seemed to be unaware of the positive outcomes of regular work. Previous research works have also suggested that the students performed fewer physical activities [10] compared to other groups.

The ratio of males who did walking was slightly higher than females. The results from one previous study were consistent with our results where it was mentioned that the physical activity performed by females was less than males [11]. The reason for less interest taken in the walk by university students could be the change in their routine and mode of study as most of the universities shifted their learning method from physical to online. The reason for more walking done by male university students compared to females could be due to their outdoor activity [11] as we know that the abundance of males in Hyderabad and Jamshoro were found more in number even during the lockdown period.

We also observed through our data results that the number of male students who were jogging regularly was also higher as compared to the number of females. The reason for more preference given by males regarding their jogging could be their easy access to the public parks near their homes. We came to know about many male university students who managed to use public parks, walking tracks, traffic-free roads, and streets in the morning for their workout and such practice was very difficult for females in Hyderabad and adjoining areas. In Pakistan, females usually go to gyms in the afternoon and evening because it is a suitable time for their workout. After the announcement of the lockdown, most of the gyms and exercise clubs were asked for a complete closure so it became difficult for females to perform daily workouts [12].

We came to know that the use of a treadmill was more common in males compared to females because a walking or jogging type of activity done on a treadmill takes time inside the home and during the lockdown majority of females were busy with house-related work [13]. As far as the males were concerned, the majority of males were free from the work inside home so they could spare more time for exercise inside the home [14]. An interesting finding of our research work was about the weight gain in males as we found that despite more focus and time spent on physical activities, males could not resist their increasing weight. The reason for weight gain in males could be attributed to their food intake and sleeping patterns [15].

Some studies suggested that people consumed more foods during the COVID isolation period which became the reason for their weight gain [16]. Another reason for weight gain in males could be their easy access to fast and junk foods [17]. A systematic review and meta-analysis investigated thirty-two studies revealing the reduction in physical activities due to COVID-19 [18]. The findings from a one-year longitudinal study conducted on Spanish university students were also consistent with our findings which revealed that home confinement during COVID-19 decreased the physical activity in university students [19]. Another study conducted in southern America suggested that COVID-19 not only decreased physical activity but also increased body weight and BMI [20].

Thus, the relevant references from the previous research supported the objectives of our research study and overall research findings suggested that physical activities including walking, jogging, exercise, treadmill use, etc. were taken for granted by the university students and the overall interest of university students towards physical activity was lower than usually required. The physical activity done during the lockdown period could not be proven enough to maintain good health during the COVID-19 pandemic.

CONCLUSION

Our research work came to the conclusion that the university students performed less than usual physical activity and mostly preferred a sedentary lifestyle during the period of the COVID-19 pandemic.

The university Students were not doing brisk walks even on a regular basis and most of the university students were also not doing any exercise at home or working out on the treadmill. Physical activities like walking and jogging were significantly reduced whereas the body weight was substantially gained by university students owing to the COVID-19 pandemic.

ACKNOWLEDGEMENT: None
CONFLICT OF INTEREST: None
GRANT SUPPORT AND FINANCIAL DISCLOSURE: None.

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Authors Contributions:

Autif Hussain Mangi: Substantial contributions to the conception and desgin of the work.
Fahim Ullah Khan: The acquisition, analysis, and interpretation of data for the work.
Laiq Zaman: Drafting the work and reviewing it critically for important intellectual content.

Submitted for publication: 14-06-2023
Accepted after revision: 23-02-2024