



Research Article

A MULTICENTRIC COMPARATIVE STUDY ON LIFESTYLE CHANGES AMONG MEDICAL STUDENTS DURING AND BEFORE COVID-19 PANDEMIC

Mary Moses^{1.}, Surekha B.C^{2.}, Divya.P³ and Kiranmayi.K^{*4}

¹Department of Community Medicine, Government Medical College, Ongole

²Department of ENT, Saveetha Medical College and Hospital, Chennai

³Department of Anatomy, Mamata Academy of Medical Sciences, Hyderabad

⁴Department of Community Medicine, Mamata Academy of Medical Sciences, Hyderabad

ARTICLE INFO

Article History:

Received 10th May, 2021

Received in revised form 2nd June, 2021

Accepted 26th July, 2021

Published online 28th August, 2021

Key words:

Covid Pandemic, Lifestyle changes, Medical students, screen time, physical activity.

ABSTRACT

Introduction: Lock down which has been implemented during COVID-19 pandemic to limit the transmission of disease caused restrictions on various social practices. Educational institutions were initially closed and later were partially or fully resumed in virtual platform. With this, lifestyle has been significantly changed especially among students. Long term restriction on inherent practices brought about by this period of confinement may affect the health and well-being of people¹. **Objective:** To determine the life style changes among medical students during and before the COVID-19 pandemic. **Material & methods:** This web based cross-sectional study was conducted from May- June 2021 among 1208 medical students after obtaining permission from Institutional ethical committee. The non probability purposive snowball sampling was used to circulate it widely. **Results:** Out of 1208 study subjects 74.8% were females and 25.2% were males. The mean age of the participants was 20±1.76. During the pandemic the mean duration of physical activity had been reduced, where as the mean total screen time, sleep duration, sleep latency and body mass index had been increased during pandemic when compared to before pandemic. **Conclusion:** There was negative effect on life style during pandemic due to home confinement, new normal virtual mode of academic, recreational activities and decreased opportunities for physical activities.

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INTRODUCTION

Lock down which was implemented during COVID-19 pandemic to limit the transmission of disease caused restrictions on various social practices and behaviour. People were confined to their homes. School, college, and offices were initially closed and later were partially or fully resumed in virtual platform with the help of electronic devices and internet facility. Many of the daily activities and habits had undergone a noticeable transformation during this lockdown. It has been observed that long term restriction on inherent practices brought about by this period of confinement may affect the health and well-being of people¹.

Disruption in the traditional education system due to COVID-19 has lead to promotion of distance learning which has been adopted across several counties worldwide². It has been suggested that student's connection with classmates and opportunities for physical activity has been greatly reduced by the enforced isolation and school closure^{3,4}.

Furthermore, student's sedentary activities and screen time might increase owing to the social distancing³.

Moreover, as the online courses were delivered through TV broadcasts or internet, students had to learn online using digital devices, leading to overuse of media applications among children⁵.

Excessive screen time was found to be associated with an increased incidence of certain psychiatric disorders⁶. Till now, several studies have reported the challenges of COVID-19 pandemic for students; most of them highlighted the potential impact of the terrible COVID-19 outbreak on the mental health as well as its impact on education⁷⁻¹⁰.

Another impact of lockdown apart from staying at home (which includes digital-education, smart working, limitation of outdoors and in-gym physical activity) is stockpiling food, due to the restriction in grocery shopping¹¹. Limited access to daily grocery shopping may lead to reduced consumption of fresh foods, especially fruit, vegetables and fish, in favour of highly processed ones which tend to be high in fats, sugars, and salt^{12,13}. These foods have high glycemic index that is associated with the increased risk of developing obesity and

***Corresponding author: Kiranmayi.K**

Department of Community Medicine, Mamata Academy of Medical Sciences, Hyderabad

cardiovascular diseases that has been linked to increase the risk of severe COVID-19 complications^{14, 15}.

From the above background it is clear that lifestyle has been significantly changed due to the containment measures of lockdown during pandemic. Hence, this study aims to determine the life style changes among medical students during and before the COVID-19 pandemic.

MATERIAL & METHODS

This web based descriptive cross-sectional study was conducted From May- June 2021 among 1208 medical students who are in phase-I to phase-IV of their MBBS course. After obtaining permission from institutional ethical committee this survey was conducted by using online platform, accessible to mobile phone and computer through internet connection. The questionnaire was built using Google form and disseminated through various social media apps like what’s app and e mail. The non probability purposive snowball sampling was used to circulate it widely. The Google link opened with the question of Informed Consent and continues with subsections like demographic, anthropometric, screen time, sleep habits and physical activity components both during pandemic and before pandemic period. Body mass index was categorized according to World Health Organization classification for obesity¹⁶. After completion of data collection the questionnaire was channelled to Google platform and the resultant database was downloaded as Microsoft excel sheet. The data was analyzed using IBM SPSS statistics version 20. Data is presented in the form of numbers and percentages for categorical variables and mean, standard deviation for continuous variable, where as Chi square and paired t test were used to test the significance.

RESULTS

Out of 1208 study subjects 904(74.8%) were females and 304(25.2%) were males. The mean age of the participants was 20±1.76. Among the participants (Fig-1) 99.1% students were having mobile phone with them followed by TV (96.7%) and laptop (65.6%). (Fig-2) In the present study majority (42.4%) of the students total screen time has been significantly increased to more than 8 Hours during pandemic when compared to before pandemic period and (Table-1) higher number of study subjects used electronic media during pandemic than before pandemic both for academic and recreational purpose and this difference was statistically significant.

Table 1 Purpose of using electronic media during and before pandemic

Purpose	Duration Hours per day	During Pandemic n (%)	Before Pandemic n (%)	p-value
Academic	0-2	224(18.6)	768(63.6)	P<0.01
	2-4	276(22.9)	252(20.9)	
	4-6	468(38.7)	132(10.9)	
	6-8	172(14.2)	36(3.0)	
	>8	68(5.6)	20(1.6)	
Recreational, Social media, gaming and others	0-2	508(42.1)	712(58.9)	P<0.01
	2-4	372(30.8)	332(27.5)	
	4-6	188(15.5)	112(9.3)	
	6-8	88(7.3)	36(3.0)	
	>8	52(4.3)	16(1.3)	
Total		1208	1208	

The (Table-2) frequency of usage of mobile phone (63.9% every day) was more often among medical students during last hour before bedtime. (Table-3) There were statistically

significant changes among mean total screen time, mean sleep duration, sleep latency, duration of physical activity and mean BMI respectively during pandemic (7.2±1.7 Hours per day, 8.2±1.8 Hours per day, 50±29.9 min per day, 37±23.5 min per day, 23.1±4.3) and before pandemic (3.8±1.2 Hours per day, 7.6±1.1 Hours per day, 22±15.1 min per day, 60±37.8 min per day, 22.3±4.1). (Fig:5) There is statistically significant difference in the proportion of obesity and overweight during pandemic than before pandemic

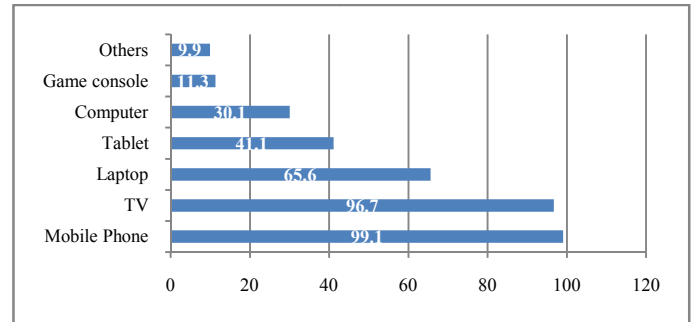


Fig 1 Distribution based on Electronic media available at your home

Table 2 Frequency of usage of electronic media during last hour before bedtime

	TV n(%)	Laptop n(%)	Mobile Phone n(%)
Never	312(25.8)	516(42.7)	32(2.6)
Rarely	348(28.8)	260(21.5)	100(8.3)
Few Times in a month	76(6.3)	84(7.0)	32(2.6)
Few Times in a Week	292(24.2)	224(18.5)	272(22.5)
Every day	180(14.9)	124(10.3)	772(63.9)
Total	1208(100)	1208(100)	1208(100)

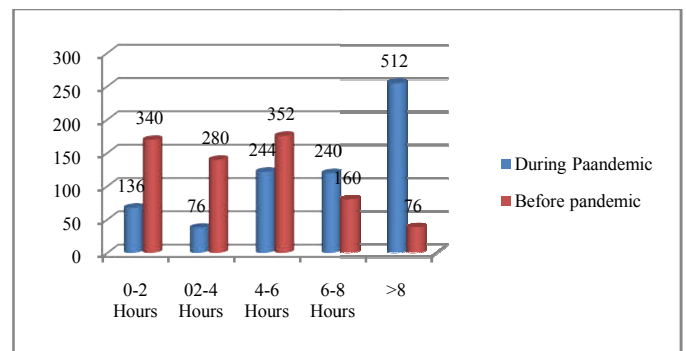


Fig 2 Total screen time during and before pandemic (Hours per day)

Table 3 Distribution of study subjects based on various life style changes during and before pandemic

	During Pandemic	Before Pandemic	P-value
Mean Total screen time (Hours per day)	7.2±1.7	3.8±1.2	P<0.01
Mean Sleep duration (Hours per day)	8.2±1.8	7.6±1.1	P<0.01
Mean Sleep latency (min per day)	50±29.9	22±15.1	P<0.01
Duration of physical activity (min per day)	37±23.5	60±37.8	P<0.01
Mean BMI	23.1±4.3	22.3±4.1	P<0.01

In the present study (Table:4) 42% of the participants reported there is improvement in eating habits during pandemic, 30% reported it has become worse and 28% said there is no change. Frequency of snacking had been increased in 51% of study subjects. It was observed that (Fig-3) day time sleeping is more (58%) among students during pandemic than before pandemic and (Fig-4) there were also changes in sleeping pattern during pandemic.

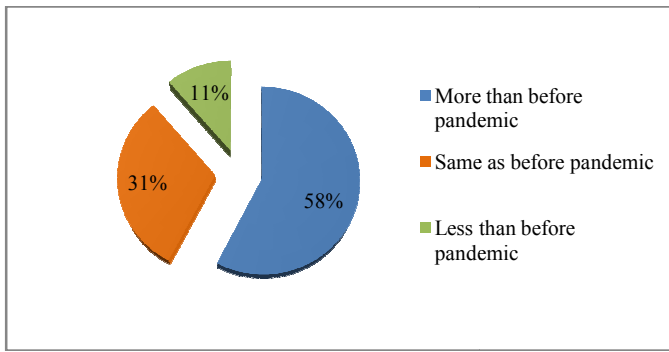


Fig 3 Day time sleeping during pandemic

Table 4 Distribution based on change in eating habits & frequency of snacking during covid-19 pandemic period

Change in Eating Habits	Number (%)
Yes ,It Improved	507(42.0)
Yes, it get worse	361(29.9)
No they didn't change	340(28.2)
Frequency of snacking	
Has been increased	616(51.0)
Same as before pandemic	376(31.1)
Has been decreased	216(17.9)
Total	1208(100)

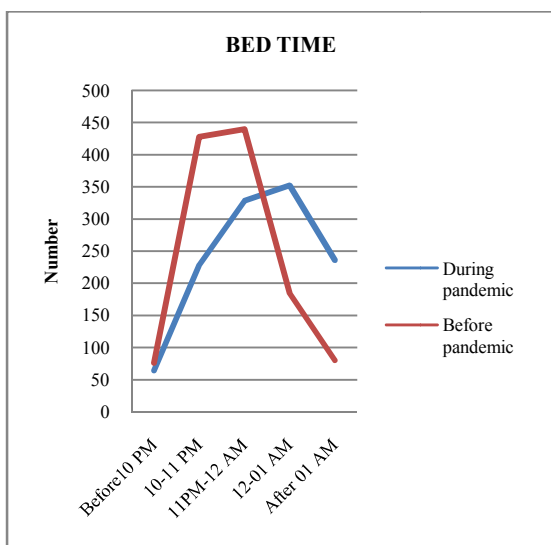
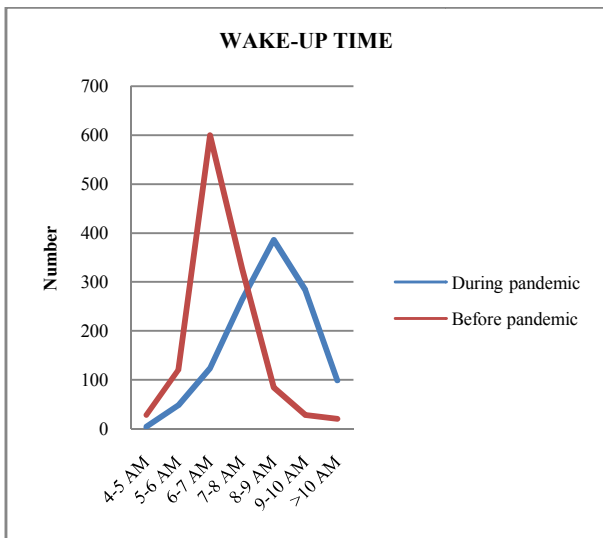


Fig 4 wake-up time & bed time during and before pandemic

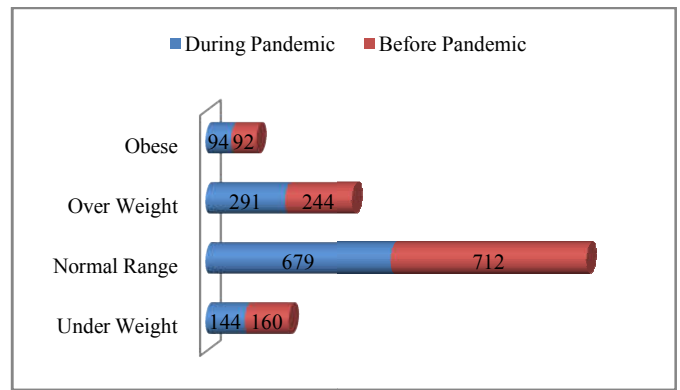


Fig 5 Distribution of study subjects based on Body Mass Index ((Kg/m2)

DISCUSSION

This web-based cross-sectional study was conducted among medical students with the objective to assess the change in lifestyle during pandemic because of restricted movement. Similar findings were observed by a comparative study done by Medrano M *et al*¹⁹, in Spanish children which had reported increase in screen time from 4.3±2.4 to 6.1 ±2.4. According to the study done by K Dutta *et al*¹⁷, Screen time had been increased among children especially in week days during pandemic because of the fact that all days are seemingly free days during lockdown, discrepancies between weekdays and weekends are lowered. Chandran *et al*¹⁸, study revealed mean total screen duration was statistically significant, with 177 minutes (SD=100 minutes) amongst the urban group, compared to 93 minutes (SD=53 minutes) in the rural group. During the pandemic the mean duration of physical activity has been reduced, where as the mean total screen time, sleep duration, sleep latency and BMI has been increased compared to before pandemic and similar results were revealed by Medrano M *et al*¹⁹, study where total physical activity was reduced by 91 ± 55 min/day and screen time increased 1.9 ± 2.6 h/d compared to baseline situation. Moore, S. A. *et al*.²⁰ study done in Canada also reported sedentary and screen-based activities are more and longer sleeping time among children and adolescents compared with before the pandemic. In a cross-sectional study by Guo, Yf *et al.*,²² found out significant decrease in time spent on physical activity, longer screen time, and abnormal sleeping duration among primary, secondary and high school students during or compared with three months before the outbreak of COVID-19 and they noticed that these unhealthy lifestyles occurred more frequently among students in higher grades and those from urban area. During the pandemic of COVID-19, the confinement at home with reduced opportunities for physical activity, thus the levels of physical activity significantly decreased among students. An observational study done in different countries by Ruiz-Roso MB *et al.*,²¹ observed a fairly high percentage of physical inactivity in the population before and during the Covid-19 pandemic, which was worsened during the lockdown measures. The change in physical activity status was greater in Latin American countries. There is statistically significant difference in the proportion of obesity and overweight during pandemic than before pandemic. Similarly Drywień ME *et al.*,²³ survey in Poland, revealed 34% of women gained weight, while 18% of women reduced weight during pandemic and the study also reported the COVID-19 lockdown period changed the lifestyles of Polish women.

The limitation of the study was the convenient sampling of respondents used in the survey may bias the findings and they cannot be generalized for the total population. Additionally, questionnaires that are spread through social media could be subject to bias.

CONCLUSION

The present study had reported that there is negative effect on life style during pandemic due to home confinement, new normal virtual mode of academic, recreational activities and decreased opportunities for physical activities. As a part of pandemic response for preserving children's health all these factors together should be addressed for the promotion of healthy lifestyle strategies during this pandemic time at individual, family and community level by parents, teachers and Government.

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