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EFFECTS OF CONFINEMENT AND INCREASED ONLINE LEARNING ON LIFESTYLE OF COLLEGE STUDENTS OF VADODARA REGION DUE TO COVID-19 PANDEMIC

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ABSTRACT

The world is experiencing a life-threatening situation due to the COVID-19 pandemic. Physical inactivity is considered as another pandemic by itself. Social distancing and confinements have largely altered the lifestyle of university students. Despite existing recommendations, suggesting several potential tactics (i.e. home-based exercise, dance, yoga) to keep active during the lockdown that are available to young populations, we hypothesized that total PA levels would be reduced due to the confinement. This study aimed to analyze the PA levels of college students of Vadodara region during and after the confinement and the health issues faced by them since then due to increased sedentary periods using an online based questionnaire.

1 . INTRODUCTION

The COVID-19 pandemic led to the population being confined to their homes. During this period, elements of the built environment and other factors related to individuals' environments were restricted due to the state of alarm. One of the global services significantly affected by the corona virus disease (COVID-19) pandemic is the education sector. [1]

While the spread of the virus has had far-reaching consequences, the closure of universities has led to the emergence of innovative methods of providing education that ensure the continued education of students. The implications of these changes on the development of students and their mental health remain to be determined. This created a valuable opportunity to assess physical activity without taking these factors into account. Experts' recommendations to prevent sedentary behavior during lockdown included taking active breaks, getting up and walking around the house, and doing online workouts. [2]

However, during the pandemic, an overall negative effect on physical activity intensity was observed, as well as a rise in the consumption of less healthy food and a 28.6% increase in sedentary behavior. [3] A reduction in physical activity was also observed in university students along with increased levels of anxiety among 18- to 34-year-olds. [3] Meanwhile, sedentary behavior is a health problem in the child and youth population, which is aggravated with age. In university students, sitting time can exceed 9 hours a day. [3]

Hence, the need of the study was to present some important implications for college and universities as well as institutions responsible for promoting active lifestyle. Spending leisure time actively is a value in itself, as it contributes to the personal development of a person not only physically, but also has an impact on health in the psychosocial dimension. [4] The COVID-19 confinement period led to important modifications in individual movement behaviors at all ages, particularly favoring decreased physical activity and increased sedentary periods.

2 . MATERIALS AND METHODS

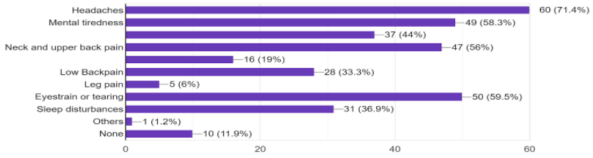
This is a observational cross-sectional study aiming to find out the prevalence of pain in various regions of the body and assess the levels of PA due to increased online learning among college students of Vadodara region. Online Questionnaires in form of Google Forms were sent to students of various colleges of Vadodara region. Informed consent was taken from all respondents prior to study.

The questionnaire consisted of demographic details, physical characteristics (like height & weight), proportion of time spent on screen, the current health problems faced by them. If they had any problems, they had to rate their pain on NPRS It was also asked if they had taken any consultation or remedies to reduce the pain & discomfort. All the respondents were also to fill IPAQ-sf (International Physical Activity Questionnaire-short form) which assesses the types of intensity of Physical activity & sitting time. The participants included in the study were college students who are currently learning by online means for more than 3 months. Students with existing pain and congenital deformities were excluded from the study.

3 . RESULTS

A Questionnaire was sent to college students from Vadodara region. Out of 500 students who responded, 390 fulfilled the inclusion criteria.

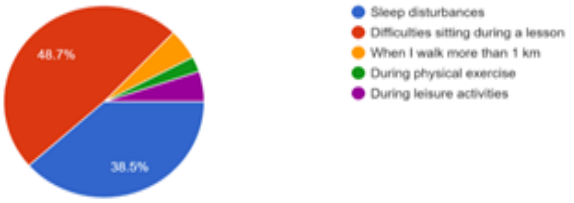
Most of them had attended online classes for six days a week. About 80% of the students were in front of the screen for 6-8 hours a day. The GRAPH 1 shows the various problems faced by the students currently. Majority of them complained of more than one problem and that they did not face them before the commencement of online learning.



Graph 1 : Health problems faced by college students

Table 1 shows the PA levels per day in college respondents.

Type of PA	No. of hours/day	% of respondents
Vigorous	0	46.2%
	30 -60 mins	33.3%
	>60 mins	17.9%
Moderate	0	28.2%
	30-60mins	46.2%
	>60 mins	25.6%
Walking	0	17.9%
	<30 mins	43.6%
	Upto 60 mins	33.3%
	> 60 mins	5.1%
Sitting	1-3 hrs	2.6%
	4-7 hrs	10.3%
	8-11 hrs	48.7%
	12-15 hrs	10.3%



Graph 2 - Activity limitations due to pain

4. DISCUSSION

The principle finding of this study is that increased online learning has impacted general health of the college students as majority of them did not complained of problems earlier. Neck and upper back pain are the most common regions of aches and pains. Ariens et al. stated that neck flexion posture and sitting posture while using a computer are related with neck pain. [5] Spending 95% of working time sitting and spending more than 70% of a working hour with the neck in 20° flexion increase the risk of neck pain and

increase the strain on upper limb musculature and hence lead to pain. [5]

Further studies have found that sitting in a flexed position also reduces the activity of abdominal muscles which play a key role in stabilizing the back .A study found that people who sat in a flexed, more relaxed position for long periods of time did experience more back pain than those who did not[6]. It is also proven that in order to maintain an upright posture, computer users should keep muscle contractions in the body to a minimum level and this may result in lower back pain.

The present study indicates that most of the college students fall in Category I (inactive) of IPAQ and very few of them belonged to Category II (minimally active). None of the students had reached the Category III (HEPA active), which is the most active category. This means that PA levels of students may not meet the recommended levels, which is evident from other researches too. It is worth emphasizing that one in five people in the world is completely physically inactive. Inactivity is more common among women than men and this tendency increases with age. Up to one third of adults and four fifths of the youth do not achieve the recommended level of physical activity [7]. Researchers emphasize that the amount of time spent in front of computer screen or TV goes up systematically, and this has a negative impact on quality of life related to health, combined with lack of physical activity. Additionally, the lack of physical activity is the fourth leading cause of deaths in the world [7].

With this study, we also found that nearly 50% of the students faced difficulties in continuing their online lessons due to pain in the body regions shown in Graph I. One-third of them also reported sleep disturbance due to persistent pain.

Studies show that humans blink half the usual amount of time when using computers. Blinking leaves a thin layer of tear film over the front of the eye, helping the eye to focus properly. Not blinking can cause images to look blurry and lead to dry eye. This may lead to computer-related eye fatigue. Patients may complain of blurred vision, difficulty focusing after leaving the computer, dry and irritated eyes, eyestrain and headache. [8]

We also found that about 71% of students reported headaches and nearly 58.3% participants showed mental tiredness, which they did not feel earlier. Thus, it is evident that the problems like headaches, mental tiredness, persistent pain, improper posture & inability to cope up with the ongoing academic curriculum may be the possible reasons for developing tension headaches.

V . CONCLUSION

As per the WHO Guidelines on Physical Activity 2020, a normal adult aged 18 years and above should do at least 150–300 minutes of moderate-intensity aerobic physical activity; or at least 75–150 minutes of vigorous-intensity aerobic physical activity; or an equivalent combination of moderate- and vigorous-intensity activity throughout the week .They should also do muscle-strengthening activities at moderate or greater intensity that involve all major muscle groups on 2 or more days a week, as these provide additional health benefits. The guidelines also says that one should limit the amount of time spent being sedentary. [9] Replacing sedentary time with physical activity of any intensity (including light intensity) provides health benefits, and to help reduce the detrimental effects of high levels of sedentary behavior on health, all adults and older adults should aim to do more than the recommended levels of moderate- to vigorous-intensity physical activity. These findings suggest that the authorities need incorporate some guidelines which focus on physical and mental health of the students also with the simultaneous aim of completing the academic curriculum. The guidelines should emphasize on small intermittent breaks incorporating some form of physical activity, breathing exercises, meditation and put stress on proper sitting positions and screen height and distance and likewise. Results suggest that the combination of no physical activity and high screen-time demonstrated the greatest negative impact on health related quality of life.

DECLARATION OF INTEREST

We declare that we have no potential competing interests with respect to the research, authorship and/or publication of this article. This research was conducted without any funding.

REFERENCES

1. Aidos K. Bolatov, Telman Z. Seisembekov. Online-Learning due to COVID-19 Improved Mental Health Among Medical Students. Medical Science Educator. 2020 Nov 18 : 1–10.
2. Matthew A. Stults-Kolehmainen and Rajita Sinha. The Effects of Stress on Physical Activity and Exercise. Sports Med. 2014 Jan; 44(1) : 81–121.
3. Cristina Romero, Julian Rodriguez Almagro. Physical Activity and Sedentary Lifestyle in University Students: Changes during Confinement Due to the COVID-19 Pandemic. International Journal of Environmental Research and Public Health. 2020 Sept 9; 17(18) : 65-67.
4. Sarah D. Pressman, Karen A. Matthews. Association of Enjoyable Leisure Activities With Psychological and Physical Well-Being. Psychosom Med. 2009 Sept; 71(7) :725–732.
5. GA Ariëns Paulien Bongers. Are neck flexion, neck rotation, and sitting at work risk factors for neck pain?. Results of a prospective cohort study. Occupational and Environmental Medicine. 2001; 58(3) : 200-207.
6. Wong AY, Chan TP, Chau AW, Cheung HT, Kwan KC, Lam AK, Wong PY, De Carvalho D. Do different sitting postures affect spinal biomechanics of asymptomatic individuals?. Gait & posture. 2019 Jan; 67(1):230-235.
7. Pawe F. Nowak, Agnieszka Bo ek. Physical Activity, Sedentary Behavior, and Quality of Life among University Students. Biomedical Research International. 2019; 2019(2): 1-10.
8. KY Loh and SC Redd. Understanding and Preventing Computer Vision Syndrome. Malays Fam Physician 2008; 3(3):128–130.
9. Fiona C Bull, Salih S Al-Ansari. World Health Organization 2020 guidelines on physical activity & sedentary behavior. British Journal of Sports Medicine, 2020; 54(24).