Orginal Article

Physical Activity Pattern among Undergraduate Medical Students in a Rural Medical College in Southkerala: A Cross-Sectional Study

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Abstract

Background: Physical inactivity is the prime contributor to one –third of the world's adult population's non-communicable diseases. Doctors, in spite of their knowledge regarding the benefits, often find it hard to stick to a proper exercise regime and follow their own advice. This could be due to habits they picked up during their college years. The present study aims to estimate the proportion of physical activity among MBBS students of a rural medical college in Kerala using WHO's GPAQ questionnaire (Global Physical Activity Questionnaire) and also to determine the factors associated with their physical activity pattern.

Methodology: A descriptive cross sectional study was conducted among undergraduate medical students of a private medical college in Thiruvananthapuram, Kerala, from December 2021 to April 2022. Physical activity patterns were assessed using the WHO's Global Physical Activity Questionnaire. An online questionnaire using Kobo Toolbox was developed and shared to record their physical activity patterns .

Results: A total of 341 students participated in the study. The study showed that only 25% of students achieved above 600 METs (Metabolic equivalents) and had adequate physical activities. The mean duration of hours spent on sedentary activities on average per day by the study participants was 6.75 hours (SD 3.6). Among the 341 students, 78 (22.8%) reported that they were unable to do physical activities. The reasons for unable to do physical activities were study burden 48 (61%), engaging in other activities 35(44.8%), lack of motivation 22 (28.2%), lack of facilities 19 (24.5%), health issues 18 (23%) and environmental barriers 5 (6.5%),. Among the students with above average screen time, 71% of them were found to be physically inactive. and was found to be statistically significant.

Conclusion: Medical institutions should have an adequate environment for physical activity. It is ideal to appoint a physical education trainer and allot mandatory time for physical activities for a few hours every week. Students must be encouraged to reduce time spent glued to their mobile screens. Hostels must have properly maintained and easily accessible exercise areas with adequate equipment. Health awareness programs and marathons must be promoted.

Key words: Physical activity, GPAQ, medical students

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Introduction

India is going through a transition from communicable to non-communicable diseases. Non-communicable diseases (NCDs) now account for 61.8% of all fatalities in India, from 37.9% in 1990. The four main NCDs are diabetes, cancer, chronic respiratory diseases (CRDs), and cardiovascular diseases (CVDs), which all have four behavioral risk factors in common: a poor diet, physical inactivity, and use of cigarettes and alcohol[1]. Physical activity has its own importance in the prevention of non-communicable diseases. The World Health Organization defines physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure. It refers to all movement, including during leisure time, for transport to get to and from places, or as part of a person's work. Both moderate and vigorous physical activity improve health. Approximately 3.2 million deaths and 32.1 million DALYs (Disability Adjusted Life Years), which represent about 2.1% of global DALYs, each years are attributable to insufficient physical activity[1]. Insufficient physical activity and an unhealthy diet have emerged as important modifiable risk factors for all chronic noncommunicable diseases[2]. In India, 392 million individuals are physically inactive, according to the study ICMR –INDIAB[3].

Physical activity habits throughout college have a substantial impact on habitual physical activity over the entirety of adult life and, as a result, have important implications for both short- and long-term health outcomes[4]. Despite the well-known advantages, studies demonstrate a marked reduction in young adults' participation in physical exercise and an increase in sedentary behavior over the college years. There is a lot of research showing that activity levels fall off during youth, and this pattern persists as people become older and enter adulthood [5]

This highlights the importance of spreading awareness regarding physical activity. Most of the time, awareness regarding physical activity will be given by health professionals, including doctors. Professional college students don't have enough time for physical activity. By the time a medical student graduates and becomes a doctor, their schedule won't be flexible. As a result, it's critical to develop a good physical activity routine as a habit because it will help prevent a number of cardiovascular problems in later life. Several studies have been conducted among doctors and health professionals regarding their physical activity patterns. The present study aims to find out the proportion of physical activity among the budding doctors, MBBS students of a teaching tertiary care center in Kerala using the WHOs Global Physical activity Questionnaire. This study also aims to observe the relationship between objectively measured physical activity, sedentary behavior, and screen time.

Material and Methods

A descriptive cross sectional study was conducted among undergraduate medical students of a private medical college in Thiruvananthapuram, Kerala, from December 2021 to April 2022. The sample size was calculated to be 339, using the formula, for a cross sectional study with an anticipated population proportion of low physical activity 15.2%[5], confidence level of 95% at 5% significance level an allowable absolute error of 4 and a nonresponse rate of 10%. Non probability sampling technique based on convenience was used to select the participants. Physical activity patterns were assessed by WHOs Global Physical Activity Questionnaire (GPAQ). The factors associated with physical activity, such as age, sex, height, weight, day scholar or hosteller, family type, exercise pattern, diet pattern, socio-demographic details, and reasons for not doing physical activity, were assessed by a semi structured questionnaire. This questionnaire, which included the consent form, was shared via an online platform using Kobotool Box for humanitarian response to the undergraduate medical students after obtaining Institutional Ethical Committee clearance. Apart from those who had any physical disabilities, 341 students in total gave their permission and took part in the study. The collected data was downloaded in MS Excel sheet and analyzed using SPSS soft- ware.

The Global Physical Activity Questionnaire (GPAQ) was developed by WHO for physical activity surveillance in countries[6]. It collects information on physical activity participation in three settings (or domains) as well as sedentary behavior, comprising 16 questions. The domains are activity at work, travel to and from places, and recreational activities. METs (metabolic equivalents) are used to express the intensity of physical activities. MET is the ratio of a person's working metabolic rate relative to their resting metabolic rate. One MET is defined as the energy cost of sitting quietly, and is equivalent to a caloric consumption of 1 kcal/kg/hour. GPAQ was analyzed using the existing guidelines.

The quantitative variables such as age, hours spent on screen time, and sedentary activities were expressed as mean and standard deviation. The qualitative variables such as gender, type of diet, type of physical activity, distribution of people who met WHO criteria for MET minutes per week, and barriers to doing physical activity were expressed as proportions. The factors influencing physical activity were assessed by the chi-square test.

Results

A total of 341 students participated in the study. The mean age of the study participants was 21.78(SD 1.62) years and males were 123(36.1%) and 218 (63.9%) were females (Fig No.1). A total of 226 (66%) students were hostellers and 115(34%) were day scholars.

The students who have not attained the WHO recommended minimum requirement of 600 MET minutes per week were classified as inadequately physically inactive. In this study, the proportion of adequately physically active students were only 85 (25%) and the students involved in physical activities but not attained the WHO requirement of 600 MET minutes per week were 117(34%) and involved in no physical activities were 141(41%)(Fig No.2). The mean duration of hours spent in sedentary activities on average per day by the study participants was 6.75 hours (SD 3.6). The students engaged in vigorous physical activity in the past one week were 89 (26%), moderate activity were 66 (19.5%) and walking or using a bicycle was 186(54.5%). Among the 341 students 78 (22.8%) reported that they were unable to do physical activities. The reasons for unable to do physical activities were study burden 48(61%), engaging in other activities 35(44.8%), lack of motivation 22 (28.2%). lack of facilities 19 (24.5%), health issues 18 (23%), environmental barriers 5(6.5%).

The various factors associated with physical activity status was shown. The proportion of students (71%) on above average screen time was found to be physically inactive and was found to be statistically significant.

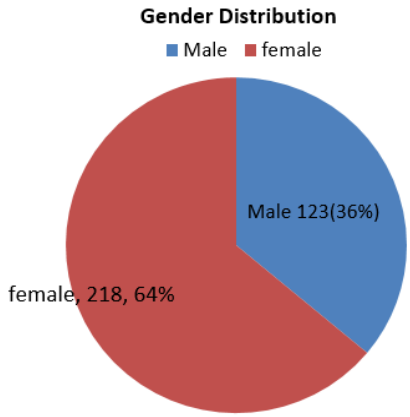

Fig No 1: Gender Distribution

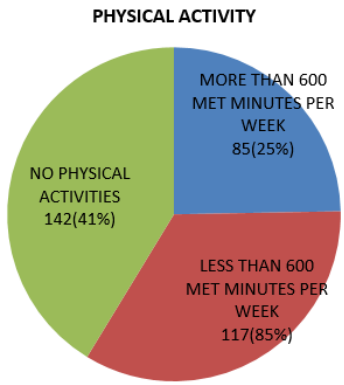

Fig No. 2: Distribution of students based on their level of physical activity based on WHO MET minutes/week.

Table No 1: The factors influencing physical activity

		PHYSICALLY ACTIVE (N= 85)	PHYSICALLY INACTIVE (N=256)	χ2	P VALUE
GENDER	MALE	29(23.6%)	94(76.4%)	0.187	0.665
	FEMALE	56(25.7%)	218(74.3%)		
RESIDENCE	HOSTELLERS	56 (24.8%)	170 (75.2%)	0.08	0.929
	NON-HOSTELLERS	29 (25.2%)	86 (74.8%)		
DIET	VEGETARIAN	5 (23.8%)	16 (76.2%)	0.015	0.903
	NON-VEGETARIAN	80 (25.0%)	240(75.0%)		
BMI	BMI <23 Kg/m^2	47 (24.2%)	147 (75.8%)	0.094	0.759
	BMI >23Kg/m2	38(25.7%)	110 (74.3%)		
SCREEN TIME (MEAN =4.4 HRS)	BELOW MEAN SCREEN TIME	64 (28.7%)	159 (71.3%)	5.07	**0.024***
	ABOVE MEAN SCREEN TIME	21 (17.6%)	98 (82.4%)		

*p value less than 0.05, statistically significant.

In table No:1, various factors influencing physical activity was studied only those medical students had screen above mean average time was found to be statistically significant.

Discussion

Many studies have been conducted on physical exercise, which is crucial in the prevention of many non-communicable diseases. Globally, physical inactivity is one of the leading causes of mortality.

In the present study, the prevalence of physical activity among the study population of 341 was 85 (25%).The prevalence of physical activity in the present study was found to be very low compared to other studies, ranging from 30%-43.2% [5]. The medical students, being the future doctors, are well aware of the importance and benefits of physical activity, but the present study shows a gap in knowledge and practice. A study done by *Anjana et al.* among doctors in Kerala shows a higher prevalence of obesity and overweight. The physical activity of males is 29 (23.6%), and that of females is 56 (25.7%). A similar finding was observed in a study conducted in Telagana[7]. The difference in the proportion of physical activity among males and females in the present study was not statistically significant. The gender difference in physical activity was found to be significant in many other studies conducted in India and Kerala[8].

The physical activity (25.7%) and physical inactivity levels (74.3%) among overweight individuals were not statistically significant. This was comparable to the study conducted in Telangana[7].

The participants in the current study had an average screen time of 4.4 hours. The amount of screen time may have increased due to online classes. It was found that the difference in physical activity levels among individuals who had above average screen time was statistically significant. Prolonged screen time and low levels of physical activity are suggested as unhealthy behaviors that may persist into adulthood. Previous studies have reported significant associations between more screen time and lower levels of physical activity, indicating that sedentary screen time is likely spent at the expense of other healthy activities[9-11]

Lack of time and motivation were the main reasons for inactivity as reported by the students, which have also been identified by other studies[12-13].

Another study found comparable results to ours and depicted that being a medical student posed a risk of physical inactivity.[14]

Research demonstrates that medical students' and doctors' physical activity habits have an impact on their attitudes towards conselling behavior[15]. Studies shows that doctors are less likely to engage in physical activity, which is contributing to the rise in obesity[16]. In order to encourage future doctors to exercise more, it is imperative to create the right conditions. The standard of healthcare will gradually rise as a result.

Conclusion

Our study showed us that only 1 in 4 participants involved in the study are physically active according to the WHO's GPAQ's minimum requirement of 600 MET minutes per week, which is a very alarming fact. Students must take more initiative to take part in physical activities. This cross sectional study tried to find out the knowledge gap in the physical activity pattern among medical students. The increase in screen time has a significant association with physical inactivity. So it is high time to make provisions in the medical colleges for improving the physical activity.

Ethical Clearance: taken from Institutional Ethical Committee, Sree Uthradom Thirunal Academy Medical Sciences 2021.

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Conflict of Interest: None

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