



Patterns and Barriers of Physical Activity among Medical Students in Davangere, Karnataka

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ABSTRACT

Introduction: Physical inactivity has been identified as the fourth leading risk factor for global mortality. Medical students play an important role in promoting health education to the patients starting with their clinical training years.

Objectives: The study was conducted to assess the patterns of physical activity among the medical students and to assess the perceived barriers of physical activity among them.

Methodology: A cross sectional study was conducted among students of a medical college those students available at the time of interview were included in the study. The study was conducted from 19/10/2019 to 2/12/19. A batch of interns who were posted to community medicine department, were trained with the Global Physical Activity Questionnaire and were asked to collect the data from other medical students.

Results: Out of the 250 students interviewed, 46% of them were males and 54% of them were females. Around 76% of the male students and 85% of the female students does not fulfil the WHO recommendations on moderate physical activity on health. Based on MET minutes/week $\geq 67\%$ of the students are inactive/low active, 33% are active.

Conclusion: Majority of medical students have not met the recommended WHO criteria for physical activity among students.

Key words: Physical activity, medical students, barriers

INTRODUCTION

It's rightly said, "For those who don't make time for exercise, they will have to make time for illness." - Edward Stanley. Insufficient physical activity and unhealthy diets have emerged as two of the most important modifiable risk factors not only for type 2 diabetes but for other chronic Non-Communicable Diseases.¹

Physical activity is associated with many health benefits like, maintenance of weight, decreased risk factors for NCD's. Around 31% of the adults and 80% of the adolescents do not engage in recommended levels of physical activity.² This decreased physical activity among adolescents is a serious public health issue.³

It has been identified that physical inactivity is the fourth leading risk factor for global mortality and is one of the causes for approximately 21- 25% of breast and colon cancers, 27% of diabetes and 30% of ischemic heart diseases.⁴

Health promotion is one the important aspect among physicians for the well-being of the community which includes lifestyle modifications like promotion of physical activity and including balanced diet as part of their everyday work. Hence medical students play an important role in promoting health.

Several studies have reported that medical students do not meet the recommended level of physical activity.^{5,6,7} Some few studies have observed

the prevalence of obesity among medical students.^{8,9,10} Also, medical students have been shown to exhibit few early risk factors for chronic diseases.¹¹

Among medical students it's very important to adopt healthy lifestyle as they are more likely to establish health promotion opportunities for their patients. Although student behaviour is considered a temporary part of college life, unhealthy behaviour at this level generally persist in adult life. University and college areas, therefore allow us an opportunity to educate one's self on health and nutritional education.

College life is also a period during where individuals are exposed to stress and lack of time, posing a barrier to adoption of healthy practices.

With this background in mind, the current study was designed to assess the patterns and perceived barriers of physical activity among medical students.

OBJECTIVES

The study was conducted to assess the patterns of physical activity among the medical students and to assess the perceived barriers of physical activity among them.

MATERIAL AND METHODS

Across sectional study was conducted among students in a medical college Davangere. All students aged more than 18 years were the study population and those students available at the time of interview were included in the study.

The present study was conducted in the campus of a medical college, Davangere. The study technique used was Interview technique. Students who were available at the time of interview were included in the study.

Inclusion Criteria: All medical students of a medical college, Davangere aged 18 years and above.

Exclusion Criteria: Students medically ill and students who did not consent for the study

Methodology: The study was conducted from 19/10/2019 to 2/12/19. A batch of interns who were posted to community medicine department, were trained with the Global Physical Activity Questionnaire and were asked to collect the data from other medical students.

Study Tool:

Global Physical Activity Questionnaire¹²: As per the existing guidelines, to assess physical activity

metabolic equivalent [MET] scores were calculated for individual and sub domains. Overall energy expenditure was calculated using GPAQ data, 4 METs were assigned to the time spent in moderate activities, and 8 METs to the time spent in vigorous activities. Categorical indicator is calculated, based on the total time spent on physical activity during a typical week, the number of days as well as the intensity of physical activity was taken into account. Individuals were classified as active if, throughout a week (including activity for work, during transport and leisure time), they were involved in at least 150 minutes of moderate-intensity physical activity OR 75 minutes of vigorous-intensity physical activity OR an equivalent combination of moderate- and vigorous-intensity physical activity achieving at least 600 MET-minutes. In addition, physical activity was further classified based on MET minutes into three groups as: Inactive/low (<600 met-minutes), active (600-1200 met-minutes) and highly active (>1200 met-minutes).¹³

RESULTS

A total of 250 medical students were interviewed, out of which 45.6% of them were males and 54.4% were females belonging to the age group 18-26years. Majority (85%) of the students were staying at hostels and remaining at home. Among the students 38.8% were in phase II MBBS, 18.8 doing their internship, 18.4 in Phase III MBBS, 15.2% in Phase IV and 8.8% in Phase I.

It describes mean time duration of moderate intensity physical activity among males was 97.09 minutes and among females was 87.14 minutes. Similarly, for the vigorous intensity physical activity the mean time duration for males and females is 37.7 and 12.5 minutes respectively.

Table 1: Socio demographic characteristics of the study population (n=250)

Variables	Students (%)
Gender	
Male	114(45.6)
Female	136(54.4)
Age (in years)	
18-20	98(39.2)
21-26	152(60.8)
Place of living	
Home	38(15.2)
Hostel	212(84.8)
Educational status	
I Phase MBBS	22(8.8)
II Phase MBBS	97(38.8)
III Phase MBBS	46(18.4)
IV Phase MBBS	38(15.2)
Internship	47(18.8)

Table 2: WHO recommendations on physical activity for health (Not meeting) (based on number of minutes of activity and MET minutes/week)

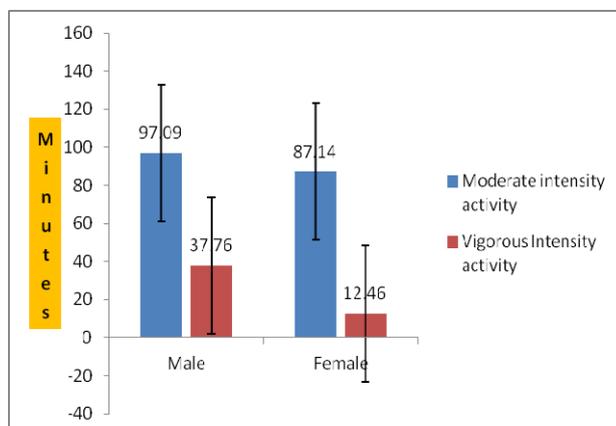
Category	Men (%)	Women (%)	Both (%)
Category based on number of minutes of activity			
<150 minutes of moderate activity	87 (76)	116 (85.3)	203 (81.2)
<75 minutes of vigorous activity	99 (87)	135 (99.3)	234 (93.6)
Total	114	136	250
Category based on MET minutes/week <600			
Inactive /Low active (<600)	63 (55.2)	104 (76.4)	167 (66.8)
Active (600-1200)	38 (33.3)	29 (21.3)	67 (26.8)
Highly active (>1200)	13 (11.4)	03 (2.2)	16 (6.4)
Total	114	136	250

Table 3: Physical Activity patterns of the students

Domain	Male (%)	Female (%)
Work/Students		
Moderate intensity activity	62(54.3)	103(75.7)
Transport		
Walk or bicycle for at-least 10 min continuously	71(62.2)	103(75.7)
Recreational		
Vigorous intensity activity	65(57)	42(30.8)
Moderate intensity activity	64(56.1)	72(52.9)
Sedentary behaviour		
< 4hours	42(36.8)	52(38.2)
>4hours	72(63.1)	84(61.7)
Total	114(100)	136(100)

Even though majority of the students do not meet the recommended WHO guidelines for physical activity, this table describes the physical activity pattern among the students describing it in three domains i.e., work/during college hours, transportation domain and recreational domain. At the institution during the college hours, around 75.7% of the female students and 54.3% of the male students were involved in moderate intensity activity. The transportation domain measuring physical activity were at least for 10 minutes continuously they should use bicycle or by walking was done among 62% of the males and 75.7% of the female students (table 3).

Graph 1: Mean time duration of physical activity among study population



Around 76% of the male students and 85.3% of the female students does not fulfil the WHO recommendations on moderate physical activity on health. Similarly, around 87% of the male students and 99% of the female students does not fulfil the WHO recommendations on vigorous physical activity on health. Based on the WHO recommendations on MET minutes/week $\geq 67\%$ of the students are inactive/low active, only 33% of the students are active and among them 6.4% of the students are highly active. On an average in a day mean minutes spent sitting or reclining is around 292 minutes /day for each student (table 2).

During the recreational hours, 57% of the males were involved in vigorous intensity activity whereas only 30% of the female students were involved in vigorous intensity activity. Half of the participants were involved in Moderate intensity activity during recreational hours.

Sedentary behaviour was measured by asking the question sitting or reclining on a typical day which showed that, more than 63% of the male students were sedentary for more than 4 hours and 61.7% of the female students were sedentary for more than 4 hours on a typical day.

When asked for the perceived barriers to physical activity among students around 69% of the students reported that they do not have enough time to exercise, 44% of them reported that they lack self-motivation to do physical activity and > 15% of the students said that they find it in-convenient to exercise (table 4).

DISCUSSION

In our study the physical activity among students was very low. Majority of the students do not meet the WHO recommended guidelines for physical activity. This could be because they lack time to exercise as majority of the lecture classes start by 8 in the morning or they lack self-motivation to exercise in the evening as reported by the students

Table 4: Perceived Barriers to physical activity of the study participants

Perceived barriers to physical activity*	Male (%)	Female (%)	Total (%)
Do not have enough time to exercise	84(73.6)	89(65.4)	173(69.2)
Find it in convenient to exercise	24(21)	13(9.5)	37(14.8)
Lack self-motivation	50(44)	61(44.8)	111(44.4)
Do not find exercise enjoyable	10(8.7)	11(8)	21(8.4)
Find exercise boring	10(8.7)	12(8.8)	22(8.8)
Lack confidence in their ability to be physically active (low self-efficacy)	09(7.9)	22(16.1)	31(12.4)
Fear being injured or have been injured recently	16(14)	06(4.4)	22(8.8)

*multiple choices

themselves. Around 76% of the male students and 85% of the female students does not fulfil the WHO recommended guidelines based on minutes of activity.

In a study conducted by Hemal Dave et al.,¹⁴ mean physical activity level among adolescents was 2.62 ± 0.72 and also it was significantly higher among males when compared to females. Around 69.3% students were doing low physical activity, which is similar to our study where 67% of the students are inactive/low active. Few other studies have reported low levels of regular physical activity.^{3,15,16}

In one of the largest studies done phase wise on physical activity in different states of India, the various prevalence of physical inactivity in different states are as follows: Chandigarh (73%), Jharkhand (48%), Maharashtra (65%), Tamilnadu (71%) and at all these places, women showed higher levels of physical inactivity when compared to males.¹⁷

Ranjith M et al.,¹⁷ described in their study that 54.4% of the participants were inactive/low active which is slightly lower when compared to our study. While 31.9% of the participants were active and 13.7% of the participants were highly active. In our study, 26.8% of the participants were active and only 6.4% were highly active which is slightly low when compared to the above study done by Ranjith et al.,

In a study conducted by Anand T et al.,¹⁸ physical activity was found to be low among the medical students, 40% of the boys were physically active and 20% of the girls were physically active.

Though, in our study majority of the students do not meet the recommended WHO guidelines for physical activity, those students who were doing some moderate physical activity was during work/college hours followed in transportation domain which measured physical activity, where at least for 10 minutes continuously they should use bicycle or by walking was done among 62% of the males and 75.7% of the female students and not during recreational hours. In a similar study conducted by ICMR showed less scores were there for

leisure time or recreational physical activity levels and it showed >90% of the individuals reported no recreational physical activity. The insufficient recreational physical activity which is observed could be due to limited access to and also limited availability of facilities to do the same.

In another study conducted by Shah et al.,¹⁵ it has been shown a recent decline in physical activity at both work and transportation domain.

More than 63% of the male students were sedentary for more than 4 hours and 61.7% of the female students were sedentary for more than 4 hours on a typical day, which is similar to a study done in Tamil-Nadu.

In our study, majority of the students answered that they do not have enough time to exercise, which is also the same answer given by university students in a study conducted by Daskapan Arzu et al.,¹⁹ where the reason given was of a busy class schedule which even, we can correlate with our medical students.

The most important internal barrier to physical activity was lack of energy in a study conducted by Daskapan Arzu et al.,¹⁹ and in our study 44% of them reported that they lack self-motivation to do physical activity and > 15% of the students said that they find it in-convenient to exercise. Lack of time to exercise is also reported by few other studies.^{16, 20}

CONCLUSION

Majority of the students in this study have not met the recommended WHO criteria for physical activity among students. Majority of the students perceived that their barrier to perform physical activity was not having enough time to exercise and lack self-motivation. The mean time spent in sitting and reclining is more than 300 minutes on an average per day among students.

RECOMMENDATIONS

Based on our study, a few recommendations that could be followed to increase physical activity

among students. There should be a separate time for physical activity as part of the curriculum. Vehicle should be restricted in the campus. Sport activities should be encouraged.

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