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### RESEARCH ARTICLE

#### ASSESSMENT OF PHYSICAL ACTIVITY IN MEDICAL STUDENTS IN A CITY, A CROSS SECTIONAL STUDY

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#### Abstract

**Background:** Physical inactivity and the associated health problems pose a current and growing threat to public health. Today's medical student is a future physician. There is an increase in morbidity and mortality among doctors due to noncommunicable diseases. Physical activity plays an important in the prevention of non-communicable diseases, including obesity, diabetes, cardiovascular diseases and stroke. Metabolic equivalent task is used as a means of expressing the intensity of physical activity.

**Aims and Objective:** To assess physical activity in MBBS students in a medical college.

**Material and Methods:** It was a cross-sectional study conducted on 200 medical students (129 males and 71 females) aged between 18-25 years. Physical activity of MBBS students was assessed in detail with respect to the time, type and quality of activity. IPAQ (short) questionnaire was used and information was asked about three specific types of activity such as walking, moderate-intensity activities, and vigorous-intensity activities and calculation of MET was done.

**Results:** The MET score was calculated from IPAQ and it was found that 28.5%, 45.5%, and 26% of students fall in low, moderate, and high physical activity groups, respectively.

**Conclusion:** It was observed that nearly a quarter of medical students had low physical activity as calculated by MET. Follow up study in students in the academic period is needed to identify the trend of physical activity among them.

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#### Introduction:-

Regular physical activity is a key protective factor for the prevention and management of noncommunicable diseases (NCDs) such as cardiovascular disease, type-2 diabetes and cancers. Physical activity also benefits mental health, including the prevention of cognitive decline and symptoms of depression and anxiety; and can contribute to the maintenance of healthy weight and general well-being. Global estimates indicate that 27.5% of adults<sup>1</sup> and 81%

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of adolescents<sup>2</sup> do not meet the 2010 WHO recommendations for physical activity<sup>3</sup> with almost no improvements seen during the past decade. There are also notable inequalities: data show that in most countries, girls and women are less active than boys and men, and that there are significant differences in levels of physical activity between higher and lower economic groups, and between countries and regions. In adults, physical activity confers benefits for the following health outcomes: improved all-cause mortality, cardiovascular disease mortality, incident hypertension, incident site-specific cancers,<sup>2</sup> incident type-2 diabetes, mental health (reduced symptoms of anxiety and depression); cognitive health, and sleep; measures of adiposity may also improve.<sup>4</sup> Recommendation for physical activity for adults is to 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, for substantial health benefits. Physical inactivity and the associated health problems pose a current and growing threat to public health. Today's medical student is a future physician. There is an increase in morbidity and mortality among doctors due to non-communicable diseases. Metabolic equivalent task is used as a means of expressing the intensity of physical activities. It is important to assess their physical activity, as medical students are important in promotion of physical activity in the community and for their better health.

#### Study design:

It was a cross sectional study.

#### Study Population and Selection Criteria:

##### Inclusion criterion:

1. Medical Students in GMC Aurangabad.
2. age 18 years and above.

##### Exclusion criteria:

1. Participants who did not give consent for the study.
2. Below 18 years of age.
3. Physically handicapped students.

#### Sample Size:

Considering the prevalence as 41.3% from a study by Padmapriya et al in Bangalore<sup>9</sup> sample size was calculated using the formula,  $n=4pq/d^2$ . ( $p=41.3\%$ ,  $q=100-p$ ,  $d=20\%$  of  $p$ ). The minimum sample size came out to be 142. A total of 200 students were included in the study.

#### Study Procedure:-

It was a cross-sectional study conducted from September to November 2022 in GMCH Aurangabad on 200 medical students (129 males and 71 females) aged between 18-25 years. Institutional ethical committee clearance was obtained prior to the initiation of the study. 50 students each from First to Final MBBS were taken. Participants were explained regarding the purpose of the study. After obtaining informed consent, individual face-to-face interviews were conducted, using a semi-structured questionnaire. Physical activity of students was assessed in detail with respect to the time, type and quality of activity using the International Physical Activity Questionnaire i.e., IPAQ (short) questionnaire and information was asked about three specific types of activity such as walking, moderate-intensity activities, and vigorous-intensity activities. MET was calculated. Height, weight and Body Mass Index (BMI) of each student along with demographic details were collected. BMI was calculated using the formula weight divided by height in meter square and WHO classification was used for analysis. The information was noted down in the CRF form. Participants were given enough time to answer the questions. After the calculation of the total MET score, the participants were divided into various categories:

#### Categorical score for MET:

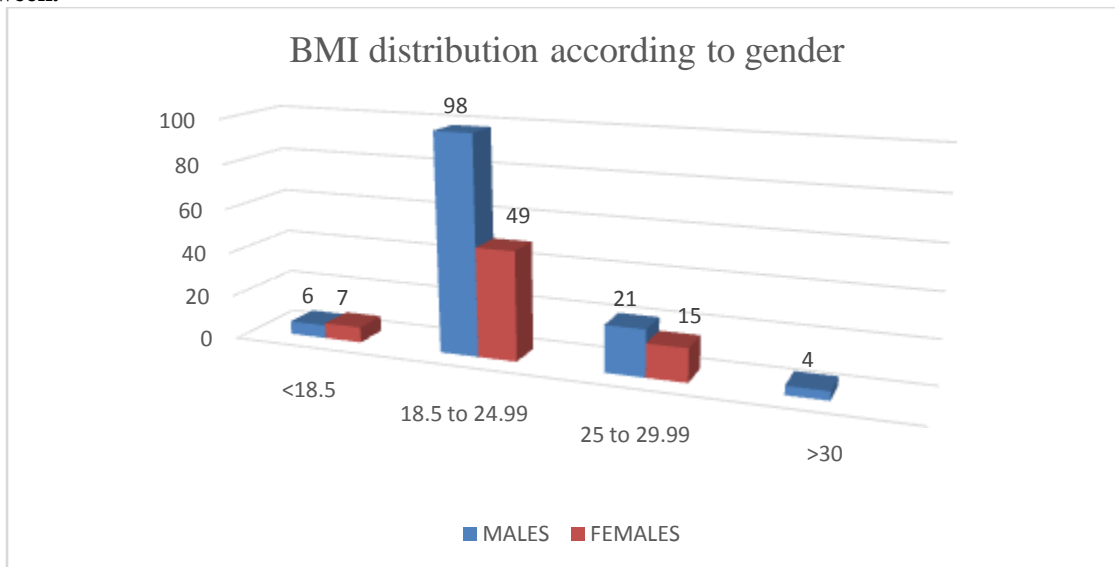
• Category	MET-minutes/week
• Category 1 (low)	<600 MET-minutes/week
• Category 2 (moderate)	≥600 to <3000 MET-minutes/week
• Category 3 (high)	≥3000 MET-minutes/week.

**Analysis:**

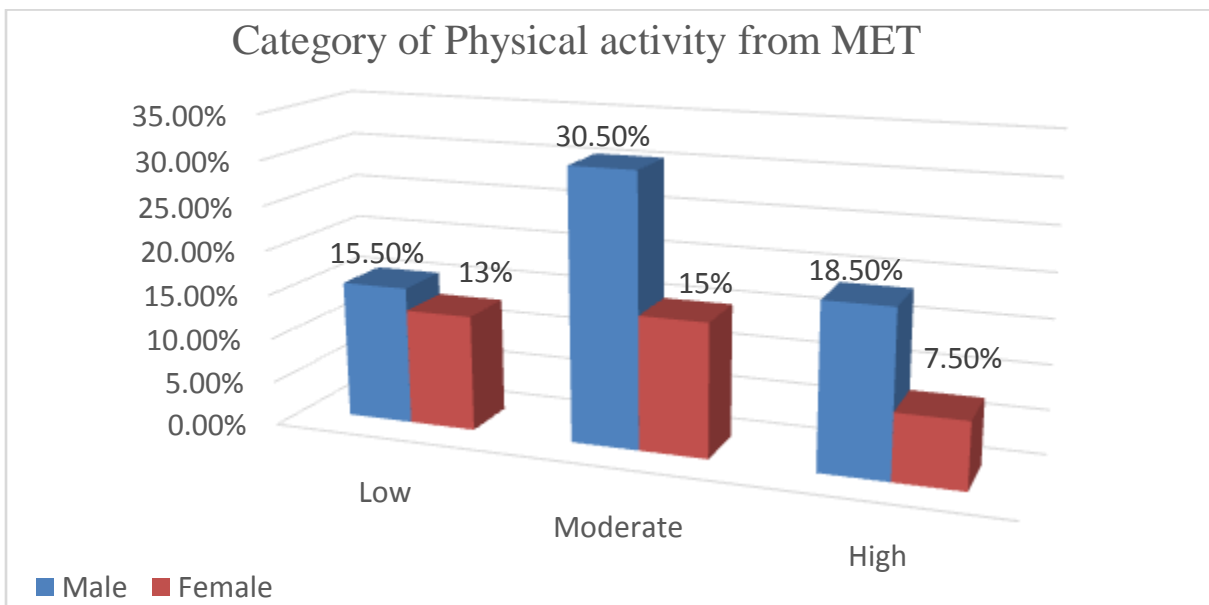
All collected data was extracted in google sheets, copied in MS-excel and the analyses was done using MS-excel, open EPI and easy-to-use spreadsheet for automatic scoring of the International Physical Activity Questionnaire (IPAQ)<sup>8</sup>

**Results:-**

Mean age of students was 22.7 years. BMI ranged from 16 to 32. Mean BMI was 22.17 +/- 3.72. Table 1 shows BMI distribution **73.5%**(147) had BMI in normal range of 18.5 to 24.99. **18%**(36) were overweight,**6.5%** (13) of students were underweight i.e BMI less than 18.5 and **2%**(4) were obese with BMI more than 30. **32.5%**(65) of students were enrolled in Gym, aerobics, yoga & played sports. **76.5%**were hostellers &**23.5%**were days scholar. **73.5%** walked to college whereas **26.5%**used vehicles. Table 2 shows **MET score**. It was calculated from IPAQ (short) & it was found that **28.5%**(15.5% males and 13% females) had low physical activity of **<600 MET min/week**, **45.5%**(30.5% males and 15% females) had moderate physical activity with **600 to 3000 MET minute/week**&**26%**(18.5% males and 7.5% females) of students had high physical activity with **>3000 MET min/week**.



**Table 1:-** BMI distribution according to gender.



**Table 2:-** Gender wise categorization of Physical activity according MET.

**Discussion:-**

Table 1 shows that 6.5% of students were underweight, i.e., their BMI less than 18.5. 73.5% (147) had a BMI in the normal range of 18.5 to 24.99. 18% (36) were overweight and 2% (4) were obese. For physical activity students were asked about their enrollment in any physical activity or sports. 32.5% (65) students were enrolled in Gym, aerobics, yoga and sports. To assess the physical activity, students were asked about their place of residence and 76.5% were hostellers and 23.5% were day scholars. While asked about the means of transport used to travel to and from medical college, 73.5% walked to college whereas 26.5% used vehicles in the form of two wheelers or autorickshaws. As per the MET score calculated from IPAQ, 28.5% (15.5% males and 13% females) had low physical activity of <600 MET min/week, 45.5% (30.5% males and 15% females) had moderate physical activity with 600 to 3000 MET min/week & 26% (18.5% males and 7.5% females) of students had high physical activity with >3000 MET min/week.

Similar findings were made in a study by Anand et al.<sup>10</sup>, who discovered that although participants had a positive attitude towards physical activity, only one-third (32.3%) of them followed the suggestions. In our study, more than a quarter of participants did not reach the recommended levels of physical activity. Regular exercise is an important part of a healthy lifestyle; therefore, all medical professionals should maintain a high physical activity level to remain healthy. Today's medical students are future doctors. It is crucial that medical personnel engage in physical activity while advocating exercise to patients to prevent and control non-communicable diseases.<sup>6,11,12</sup> It is common knowledge that medical students' degree of physical exercise and the advice they provide to patients are directly related. Based on a study of the literature, the degree of physical activity among students was assessed as a predictor of health promotion.<sup>6,13,14</sup>

**Conclusion:-**

It was observed that nearly more than a quarter of medical students had low physical activity as calculated by MET. Positive finding was that the majority of students had a normal BMI. Also, the distance from the hostel to the classroom was beneficial, as the majority of students walked to the classroom, which helped in achieving the MET. Follow up study among students in the academic period is needed to identify the trend of physical activity and nutrition among them, as non-communicable diseases are on the rise among doctors.

**Recommendations:-**

Encouragement of physical activity is necessary among medical students. Future doctors are today's medical students, and with the rise of non-communicable diseases in both patients and doctors, it is crucial to instill physical activity into their daily lives so that they can maintain their own health and counsel their patients on healthy lifestyle choices. In each semester, medical students should have their dietary, anthropometric, and physical activity habits evaluated.

**Limitations:**

The study was conducted among medical students in a medical college in Maharashtra. The study's findings might not apply to the entire population. Additionally, individuals who provided consent for the study were included, so it was not possible to recruit an equal number of participants from each gender to compare the physical activity between males and females.

**Source of Support:**

Nil.

**Conflict of Interest:**

None declared.

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