Original Article

Metabolic equivalent task assessment for physical activity in students of faculty of allied health sciences, the University of Lahore, Pakistan

Saba Afzal, Maryam Altaf, Maham Nasir, Bazal Bukhari, Natasha Fatima, Sadia Khan

Department of Allied Health Sciences, the University of Lahore, Pakistan

Objective: To find Physical activity (PA) for Metabolic Equivalent Task (MET), in undergraduate students using IPAQ.

Methodology: This cross-sectional study was conducted on students of Faculty of Allied Health Sciences, The University of Lahore. We included 174 (71 males and 103 females) students in the study. Ages of students were from 19 to 26 years. Information about three specific types of activities (walking, moderate intensity, and vigorous-intensity) was asked in IPAQ.

Results: Physical activity was significantly associated with functional capacity (p = 0.00). PA was directly proportional to functional capacity. As PA increased, functional capacity also increased.No significant difference was observed among METs score regarding gender (p = 0.326).

Conclusion: Metabolic equivalent task and physical activity and functional capacity were low in medical students of University.

Keywords: Metabolic equivalent task, functional capacity, inactive behavior.

INTRODUCTION

Physical activity (PA) is beneficial for management and prevention of chronic disorders such ascardiovascular disorder, type II diabetes Mellitus (T2DM) and cancers.[1-4] Its incidence rate of inactive people was 43.3% in Americas, 27.5% in Africa and 17% Southeast Asia.[5] The 'sitting too much' as a significant inactive behavior.[6] There is direct relationship of sedentariness to chronic and acute illnesses, such as metabolic syndrome, cardiovascular disease, colorectal cancer, and early death.[7]

Across 168 countries, the global, age-standardized predominance of inadequatePA was 27.5%.[8] PA accounted for 23.7 million disability-adjusted life years (DALYs) and 1.26 million deaths andlead tohigh fasting plasma glucose, high systolic blood pressure,and high body mass index.[9] Pakistan is the 6th most crowded country and its 80 million individuals are suffering from non-communicable illnesses.[10]

Students may be at bigger risk from psychological disorders, which may also influence academic routine.[11] To measure PA in its entirety at (home, work, transportation setting and interests) IPAQ is an effective instrument as it provides specific evaluation of PA that depends on intensity other than type of PA.[12] The purpose of the study was to access the PAamong students to access the METs rate in state of rest and work.

METHODOLOGY

This cross-sectional study was conducted on students of University of Lahore. Approval from Institutional Ethics Committee had been obtained. There were 174 (71 males and 103 females) students included in the study. Age of students were from 19 to 26 years. PA history was taken from students by means of IPAQ.[7] Information about three specific types of activities (walking, moderate intensity, and vigorous-intensity) was asked in IPAQ.

By using IPAQ assessment MET is analyzed as following: MET values and formula for calculation of MET-minutes/week. 1. Walking MET-minutes/week = × 3.3 walking mins × walking days. 2. Moderate MET-minutes/week = × 4.0 moderate-intensity activity mins × moderate days. 3. Vigorous MET-minutes/week = × 8.0 vigorous-intensity activity mins × vigorous-intensity days.[4] Total PA MET-minutes/week = sum ofwalking + moderate + vigorous MET-mins /week scores.

Students were divided in three categories after total METs score calculations follows:

Category and score: MET-minutes/week. Category 1 (low): < 600 MET-minutes/week, Category 2 (moderate): ≥ 600 to < 3000 MET-minutes/week and Category 3 (high): ≥ 3000 MET-minutes/week.[12]

Statistical Analysis: SPSS 22 was used for statistical analysis.

RESULTS

The study included 174 students, with 30.5% male and 69.5% female. Age ranged from 19 to 26 years. Other demographic characteristics of are shown in Table 1.

Most students were in high METs category and 142 (81.6%) had excellent function capacity (Table 2).

Table 1: Demographic characteristics of students.

Characteristics	Frequency (%)
Gender	
Male	53 (30.5)
Female	121 (69.5)
BMI Categories	
Underweight	39 (22.4)
Normal	71 (40.8)
Overweight	30 (17.2)
Obese	34 (19.5)
Qualification	
Undergraduate	122 (70.1)
Postgraduate	52 (29.9)
Marital Status	
Single	155 (89.1)
Married	52 (10.9)
Residential Area	
Urban	133 (76.4)
Rural	41 (23.6)

Table 2: Physical activity assessment.

Physical Activity Assessment Metabolic Equivalent Task	Frequency (%)
Low	64 (36.8)
Moderate	83 (47.7)
High	27 (15)
Functional Capacity	
Poor	2 (1.1)
Moderate	15 (8.6)
Good	15 (8.6)
Excellent	142 (81.6)

Functional capacity was excellent in 142 students (Table 3). PA was significantly associated with functional capacity (p = 0.00). No significant difference has been observed among METs score regarding gender (p = 0.326) (Table 4).

Table 3: Metabolic Equivalent Task vs. Functional Capacity.

MET	Functional Capacity				p-value
	Poor	Moderate	Good	Excellent	
Low	2	15	15	32	< 0.001
Moderate	0	0	0	83	
High	0	0	0	27	
Total	2	15	15	142	

Table 4: Comparison of MET Scores.

Gender	N	Mean ± SD	t	*p-value*
Male	53	1539.70 ± 1184.75	-0.985	0.326
Female	121	2085.39 ± 3948.84		

DISCUSSION

Miller and Street reported that most of the METs participants were sedentary (91%) and did not follow the physical activity guidelines.[14] In our study, 36.8% students fell in low PA group.Another study by Garret et al on nursing students showed sufficient PA in nursing students.[15]In our study, students were following moderate to low PA level.[15] A related study by Rolf found that PA of students was significantly higher in recess.[16]

Balgoon et al, reported that in female university students risk of chronic disorders and weight was increasing because of unhealthy life style and lack of PA.[17]Brehm et al reported that medical students remain healthy in medical institution as some institutions include lifestyle motivation for their students to follow healthy habits as they are going to act as role models for patients.[18] Rogel et al, concluded that academic routine had negative influences on PA of students that they are not able maintain healthy lifestyle.[19] We also reach at this point that due to their hectic routine, they could not follow recommended PA guide lines.

In another study, researcher concluded that incident of sedentary time in university students is higher.[20] A study found there were 23% and 41% were overweight/obese

students, but in our study, 17.2% and 19.5% are overweight and obese.[21]

Physical activity in students is low then recommended. So, the educators and health professionals should encourage to offer enjoyable and interesting physical activities for students to maintain healthy lifestyle.In our study, there was no significant difference PA of boys and girls, because they all are following same routine. A study found that PA of females were lesser then males.[22]

CONCLUSION

Metabolic equivalent task and physical activity and functional capacity were low in medical students of The University of Lahore. Physical inactivity or sedentary lifestyle may emerge as a potential risk factor for many non-communicated diseases.

Author Contributions:
Conception and design: Saba Afzal.
Collection and assembly of data: Saba Afzal, Natasha Fatima.
Analysis and interpretation of data: Maryam Altaf, Sadia Khan.
Drafting of the article: Bazal Bukhari, Maham Nasir, Natasha Fatima.
Critical revision of article for important intellectual content: Maham Nasir, Bazal Bukhari.
Statistical expertise: Maryam Altaf, Sadia Khan.
Final approval and guarantor of the article: Saba Afzal.
Corresponding author email: Saba: Saba.afzal1@uipt.uol.edu.pk
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