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A cross-sectional assessment of domain-specific physical activity among university students

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Abstract

The purpose of the present study is to determine the levels of physical activity in different domains among the university students. The study was carried out on the 255 students of Guru Nanak Dev University, Amritsar. Physical activity levels were assessed by using IPAQ (long form). Physical activity levels were quantitatively measured in MET-min/week. Mann-Whitney U test was employed to assess the group differences. Findings revealed that males were more physically active than females in leisure and sports domain while no significant gender differences were found in work, transportation and domestic domains. Students from rural background were more active in work and leisure-time domains while urban students were more physically active than rural students in transportation domain. No significant difference was found in physical activity levels among rural and urban students in domestic domain.

Keywords: Physical activity levels, domain, international physical activity questionnaire, university

1. Introduction

We can consider university students as future representatives of families, societies and nations ^[1]. Hence, regular monitoring of their health status is imperative. Regular physical activity is a key indicator of better health as health-enhancing effects of regular physical activity on obesity, cardiovascular disease (CVD), chronic morbidity and premature death are well-recognized. ^[2-4] Physical activity can be done in different domains and milieu, including work-related, domestic, transportation, and leisure-time and sports activities, all of which contribute to the overall energy expenditure, hence, providing health enhancing gains. ^[5] People should undoubtedly know that only vigorous physical activity is not to be considered beneficial, people of all ages can benefit from moderate physical activity for 30 minutes daily for five or more times a week. ^[6]

With concern to India, there is paucity of data pertaining to domain-specific physical activity levels. A very few studies had attempted to assess the physical activity levels in Indian universities students. A study done on general population of India found that 91% of population does not perform physical activity in leisure time. ^[7] Likewise, another study depicted that 52.1-74.4 % of dental professionals were totally sedentary in leisure times. ^[8] An ethnicity based study on Malaysian university students revealed that students of Indian origin were relatively more active than other ethnic groups. ^[9] Meanwhile, with regard to total physical activity, various studies carried out in different countries have shown that 30 to 60 percent of university students are not sufficiently active. ^[10-11] This study is an attempt to explore domain-specific physical activity practices among Indian university students.

2. Materials and methods

A cross-sectional survey was conducted on conveniently drawn sample of 255 students from the various departments of Guru Nanak Dev University, Amritsar. More than half (50.59%) subjects were male. Sample was categorized into different section viz. male vs. female, rural vs. urban and total students. All the subjects were informed about the objective of the study and a verbal consent was taken to participate in the study. The subjects were interviewed using International Physical Activity Questionnaire (Long Version, 2002). ^[12] The instrument comprises of 27 questions regarding physical activity done during last seven days. The questionnaire provides data about the total physical activity levels, intensity-specific scores

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and domain-specific scores. However, the present study is confined only to domain-specific physical activity scores which provide data in each of four domains:

Part 1: Work domain

Part 2: Active-Transportation domain

Part 3: Domestic and garden domain

Part 4: Leisure-time domain

IPAQ guidelines were used to process data. [12] Continuous data were presented in MET (metabolic equivalents of task) values. Energy estimation for a particular activity was done by using compendium of physical activity. [13]

2.1. Statistical Analysis: SPSS version 16 was used to analyze data. Normality of data was tested employing Kolmogorov-Smirnov test. Since the continuous scores were skewed, they are presented as MET (min-max.) and median values. A non-parametric test ‘Mann-Whitney U’ was employed to uncover the differences of physical activity levels between different sections in each domain. Level of significance was put at 0.05.

3. Results

Table 1: Domain-specific comparisons of physical activity levels between males and females

Domain	Male (n=129)		Female (n=126)		p-value
	MET (min-max)	Median	MET (min-max)	Median	
Work	0-1875	0	0-1630	0	0.262
Transport	0-3420	297	0-2772	248	0.475
Domestic	0-1975	180	0-1320	162.5	0.762
Leisure-time	0-3950	954	0-2415	628.5	0.001*

*Significant at 0.05 level

Table 1 depicts the differences of physical activity levels among males and females in four domains. In work domain, MET min/week ranged from 0-1875 in males and 0-1630 in females; median value in both groups was zero which indicates that half of the both gender groups were completely inactive in work domain. No significant gender difference was found in physical activity levels in work domain. In transport domain, MET value ranged from 0-3420 in males and 0-2772 in females and median value was 297 in males and 248 in females. No significant difference was found between males and females in transport domain.

In domestic domain, MET value ranged from 0-1975 in males and 0-1320 in females whereas median value was 180 and 162.5 in males and females respectively. Similarly, no significant difference was reported between both genders in domestic domain. Contrary to three domains, significant difference was found between males and females in leisure and sports domain where males were significantly more active ($p<0.05$) than females. MET values ranged from 0-3950 in males and 0-2415 in females. The median values were 954 in males and whereas it was 628.5 in females.

Table 2: Domain-specific comparisons of physical activity levels between rural and urban students

Domain	Rural (n=121)		Urban (n=134)		p-values
	MET (min-max)	Median	MET (min-max)	Median	
Work	0-1874	0	0-1630	0	0.001*
Transport	0-2772	197	0-3420	247.5	0.033*
Domestic	0-1975	180	0-1380	115	0.076
Leisure-time	0-3950	924	0-3702	612.5	0.001*

*Significant at 0.05 level

Table 2 demonstrates the results from Mann-Whitney U test among rural and urban participants. In work domain, MET (min-max.) values in rural students were 0-1874 and in urban students, it was 0-1630. The median value was zero in both rural and urban students. The rural students had significantly higher physical activity levels ($p<0.05$) in work domain than the urban students. In transport domain, MET value ranged from 0-2772 in rural and 0-3420 in urban students whereas median value was 197 in rural and 247.5 in urban students. The urban students were found to have significantly higher physical activity levels ($p=0.033$) in transportation domain as compared to rural students. In domestic domain, MET value ranged from 0-1975 in rural and 0-1380 in urban students whereas median values were 180 and 115 among rural and urban students respectively. No significant difference was reported between rural and urban students with regard to the physical activity levels in domestic domain. In leisure & sports domain, MET values ranged from 0-3950 in rural students and 0-3702 in urban students. The median values were 924 and 612.5 among rural and urban students respectively. The rural students were reported to have significantly higher physical activity

levels ($p<0.05$) in leisure and sports domain than the urban students.

4. Discussion

The study was carried out on the students of Guru Nanak Dev University, Amritsar to explore the physical activity levels in different domains. While comparing males and females, the results revealed that males were significantly active in leisure time domain whereas no significant difference was found in other three domains. These findings are in agreement with other studies. [14-15] Median values were 0 MET-min/week in work domain among both genders which indicates that approximately half of the total students were inactive in work domain. A similar study on dental professionals showed that 35.6% to 74.6 % students reported 0 MET-min/week in work domain. [8] Regarding residential differences, Mann-Whitney U results depict significant differences in work, transport and leisure-time domains except domestic domain. Rural students were found to be more active in work and leisure-time domain while urban students were more active in transportation

domain. Similar results have been reported in a study conducted on Ukrainian university students.^[16]

5. Conclusions

If we talk about today's scenario, India is undergoing major epidemiological, nutritional and demographic transitions resulting in dramatic lifestyle changes. Eventually, the possibilities are less to be more physically active in domains like the job, transportation or household work; accordingly, there is a greater need for people's engagement in the leisure-time physical activities or in sports activities which can fulfill their daily need of energy expenditure for achieving the health enhancing benefits.

6. Recommendations

Since, there is a scarceness of data regarding physical activity levels of people of all age groups in India; further research is recommended in order to establish the association of physical activity levels with demographic characteristics, socio-economic factors, motivational factors, barrier to physical activity and other possible correlates.

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