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Original Article

Prevalence of diurnal physical mobility and sedentary behavior among allied healthcare college students in Puducherry, India

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Abstract

Background: Allied and Healthcare Education (AHE) is a program that educates students for careers as physical therapists, occupational therapists, nutritionists, dietitians, medical laboratory technicians, and other health and related professionals. The healthy lifestyles of AHE students may contribute to the development of a healthy community, which is more likely to deliver good patient care. Several studies have been conducted to determine the global prevalence of physical activity (PA) and sedentary behavior among the general public. The purpose of this study is to determine the level of diurnal physical mobility and sedentary behavior among Pondicherry AHE students.

Methods: The International Physical Activity Questionnaire (IPAQ) was used to collect data from 158 AHE undergraduate students, and the results were given in metabolic equivalents (MET).

Results: It was discovered that 86 (54.4 percent) college students practiced low levels of physical mobility with a mean MET of 318.5, 44 (27.8%) students practiced moderate physical mobility with a mean MET of 1260.9, and only 28 (17.7%) students practiced high levels of physical mobility with a mean MET of 5250.5, among 158 study populations.

Conclusion: The majority of AHE students have changed their physical mobility behaviors, according to the survey. In addition, the survey discovered that a higher percentage of pupils were physically inactive, putting them at risk of acquiring an illness at a young age.

Keywords: Allied healthcare education, Physical exercises, Metabolic equivalents, International physical activity questionnaire, India

Introduction

Physical mobility is the most important aspect of human life since it helps people stay healthy. Healthy behaviors, particularly physical activity, have been emphasized for decades (1). Furthermore, physical activity has its unique effects on people of different ages. Regular exercise or activities, for example, may

help to promote optimal growth in children and preserve bodily functions in teens and early adulthood, resulting in healthy aging (2). Structured and accidental mobility are the two types of physical mobility (3). Physical mobility that is structured is an intentional effort to improve health and fitness. Incidental physical mobility is classified variably depending on the type and context of the activity (4). Calculating the energy expenditure of the activity in kilocalories or the metabolic equivalent (MET) of the activity is a common approach of evaluating physical mobility (5).

In 2016, 28 percent of adults aged 18 and up around the world were not physically active enough (men 23 percent, women 32 percent) (6). Part of the reason for the reduction in physical mobility is inactivity during leisure time and sedentary behavior at home and at work. Furthermore, passive transit is becoming more popular, resulting in a lack of physical mobility (7). Physical activity plans are vital during college because they impact healthy behavior and, as a result, can have considerable long and short-term health advantages. As they transition from childhood to maturity, individuals' activity and fitness levels fall during college. As students get older, this trend is unlikely to reverse (8).

Allied and Healthcare Education (AHE) is a curriculum that trains students to work as physiotherapists, occupational therapists, nutritionists, dieticians, medical laboratory technologists, and other allied and healthcare professions (9). Healthy lifestyles among AHE students may contribute to the development of a healthy community, which will provide effective protective therapy to their patients. Inactivity at a young age is a major worry in most countries, as it increases the risk of disease and shortens life expectancy. Numerous research investigations have been conducted on the worldwide decline in physical mobility and increase in sedentary behavior. As a result, more study is needed to gain a complete picture of the incidence of physical inactivity among Allied and Healthcare College students in India on a regional basis. As a result, the goal of this study is to find out how common sedentary behavior and diurnal physical mobility (DPM) are among Allied and Healthcare College students in Puducherry, India.

Materials and methods

A prevalence survey was used as the study design. A multistage convenience sample strategy was used to recruit a total of 158 students. In Puducherry, India, this survey was done among undergraduate allied and healthcare students. This study was place between January 2021 and April 2021. After being informed of the study's goal and methodology, everyone gave their informed consent to participate. The International Physical Activity Questionnaire (IPAQ) was used to collect responses from students. In fact, the amount of diurnal physical mobility was measured using IPAQ. The IPAQ includes 27 specific questions about walking, moderate intensity, and vigorous intensity physical activity, with responses generated in four domains: work, transit, domestic, and leisure-time. The energy cost of a certain work was quantified in METS (13). The World Health Organization (WHO) has approved this questionnaire for assessing physical activity levels in persons aged 15 to 69. It has shown to be a trustworthy and widely acknowledged method of determining a person's degree of physical activity (10,11,12).

Prior to using the questionnaire to assess their anthropometrics, all participants completed height, weight, and BMI measures. The survey asks participants how much time they spend being physically active in the previous seven days, and it includes three types of activities: walking, moderate-intensity activity, and intense-intensity activity. Metabolic Equivalents were utilized to determine the level of METs. Subjects would be classified into one of three groups based on their responses to this questionnaire: low, moderate, or high physical activity. The participants completed all the questions on their own.

Statistical analysis

The data was analysed using descriptive statistics because the current study did not evaluate the associations between demographic variables (gender, age, place of residence, length of stay, and BMI) and physical mobility levels. The frequency, percentage, mean, and standard deviation of descriptive data were calculated using Microsoft Excel Worksheet 2019 and displayed as frequency, percentage, mean, and standard deviation.

Results

A total of 158 undergraduate Allied and Healthcare College students from Puducherry participated in this prevalence survey. There were 55 (32.27 percent) male participants and 103 (67.72 percent) female participants in the entire sample. Participants in the poll ranged in age from 18 to 25, with the majority (93 percent) falling between the ages of 18 and 21 and the remainder falling between the ages of 22 and 25. (7 percent). The average height and weight of the participants were 1.62 ± 0.1 m and 56.5 ± 12.6 kg, respectively. The average BMI was also 21.47 ± 4.39 kg/m^2 (Tables 1, 3, and 4).

Table 1. Sociodemographic variables

Sociodemographic Variables		
Gender	Men N(%)	55 (34.8%)
	Women N(%)	103 (65.2%)
Average Age (Mean ± SD)		20.53±1.41
Average Height in Meter (Mean ± SD)		1.62±0.1
Average Weight in Kilogram (Kg) (Mean ± SD)		56.5±12.6
Average Body Mass Index (BMI) (Mean ± SD)		21.47±4.39

Table 2. Diurnal physical mobility (DPM) and its energy expenditure in metabolic equivalents (METS)

Level of Diurnal Physical Mobility (DPM)	Number of Sample (Sample Percentage)	Average METS Per Week
Low	86 (54.4%)	318.5
Moderate	44 (27.8%)	1260.9
High	28 (17.7%)	5250.5
Overall	158	2276.6

Table 3. Diurnal physical mobility of sociodemographic variables

Level of Diurnal Physical Mobility	Female (%)	Male (%)	Average Age (Mean ± SD)
Low (86)	56 (54.4%)	30 (54.5%)	20.72±1.41
Moderate (44)	28 (27.2%)	16 (29.1%)	20.2±1.25
High (28)	19 (18.4%)	9 (16.4%)	20.43±1.57
Overall (158)	103	55	20.53±1.41

Table 4. Diurnal physical mobility of anthropometric variables

Level of Diurnal Physical Mobility (Number of Sample)	Average Height in Meter (Mean ± SD)	Average Weight in Kilogram (Kg) (Mean ± SD)	Average Body Mass Index (BMI) (Mean ± SD)
Low (86)	1.58±0.09	54.9±13.8	21.83±4.84
Moderate (44)	1.64±0.09	56.7±12	21.24±4.25
High (28)	1.72±0.06	61.1±8.4	20.65±2.91
Overall (158)	1.62±0.1	56.5±12.6	21.47±4.39

Table 5. Sedentary behavior percentage in relation to diurnal physical mobility

Level of Physical Activity	Adapting Sedentary Behavior (SB)	Number of Sample (Sample Percentage)	Average METS Per Week
Low	SB	86 (54.4%)	318.5
Moderate	SB	44 (27.8%)	1260.9
High	SB	06 (3.8%)	4356.7
High	Ideal	22 (14%)	8528

Low physical mobility was defined as failing to reach the WHO-recommended Metabolic Equivalent (MET) of 600 MET minutes per week, which 72 (46.6%) of the 158 sample individuals did, while 86 (54.4%) did not (Table 2). 44 (27.8%) of the 72 participants who fulfilled the required MET minutes per week had moderate levels of physical mobility, while 28 (17.7%) had high levels of physical mobility.

Recreation contributes the most to the study population's mean MET minutes per week when physical mobility is pooled across multiple domains. Sedentary behavior is also prevalent among allied and healthcare college students, according to the current study. The bulk of the 158 participants (86%) adopted sedentary behavior, whereas the remaining 14% merely displayed optimal behavior (Table 5).

Discussion

In this study, 17.7% of individuals were extremely active, 27.8% were moderately active, and 54.4 percent were not physically active at all, falling short of the minimum need of 600 MET-min/week. The study also revealed that 86% of participants were adapting to sedentary behavior, while the remaining 14% were performing at their best.

Physical mobility levels are classified using the following criteria: less than 600 MET-min/week suggests inactivity, 600 MET-min/week to 3000 MET-min/week indicates moderate activity, and more than 3000 MET-min/week indicates extremely active (14). The median MET value found in this study was 462 MET-min/week, indicating that more than half of the individuals did not meet the required minimum level of physical mobility of 600 MET-min/week (16). The current findings matched those of a similar study on the Indian population that used the GPAQ and discovered that nearly half of the Indian population was inactive (15). In comparison to an Egyptian study, the current study had a significantly smaller sample (17.7%) engaged in high levels of physical mobility.

Many people (86 percent) were changing sedentary behavior because of the COVID-19 epidemic, according to the survey. Sedentary behavior is described as "any awake behavior with an energy expenditure of 1.5 metabolic equivalents (METs) or less while sitting, reclining, or lying," as opposed to physical inactivity (17). The percentage of people who were sedentary was substantially higher than in prior studies. This increase occurred because of changes in students' lifestyles, particularly their reliance on technological devices.

According to a recent assessment of Kerala MBBS students' physical activity levels, less than half of them (28.9%) were engaged in low levels of physical mobility (18). In contrast to the previous survey, more over half of health science college students were found to be physically inactive; this reduction could be attributed to students' changing lifestyles and the COVID-19 pandemic. Many Indian university students, according to recent surveys, engage in modest levels of physical activity (19). According to current studies, the bulk of the population has adapted to a low level of physical mobility (54.4 percent).

The study's flaws include not assessing the associated factor for lack of physical mobility among healthcare college students, no objective measurement, convenience participants participating in the survey, and data collected using a self-reported questionnaire, resulting in no advanced statistics being used. The current study recommends that allied healthcare college students be encouraged to participate in physical activities, promote the use of physical exercise programs, and emphasize the importance of physical fitness and health during their college years.

Conclusion

This study concluded that most Allied and Healthcare College students has low levels of diurnal physical mobility. It also revealed that a higher percentage of students had sedentary behavior than students with low level of physical activity. Other findings included that female had somewhat higher risk factors for poor physical mobility than male, and electronic gadget addiction was associated to physical inactivity in many respondents. Understanding the characteristics of physical activity has been proposed as a means of assisting young adults in improving their health through more tailored interventions. Additional research into changes in students' physical mobility should be conducted to provide more evidence to corroborate the current research findings.

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