ASSESSMENT OF PHYSICAL ACTIVITY AMONG COLLEGE GOING STUDENTS IN PUNE CITY USING GLOBAL PHYSICAL ACTIVITY QUESTIONNAIRE (GPAQ)

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Abstract:
Background: The prevalence of obesity among children and adolescents is increasing at an alarming rate. Lifestyle characterized by lack of physical activity might cause obesity in children. Childhood obesity is a proven risk factor for adult obesity. Therefore, we wanted to find out physical activity levels in this population. Objective: This cross sectional study intends to find out levels of physical activity and also to find out gender specific differences among college going students in Pune. Methods: Study was carried out among 500 adolescents between the age group 17-21 years. Global physical activity questionnaire was administered to assess the physical activity levels. Results: The overall physical activity among the age group 17-21years with the mean age group19 was 2022.82 METS. It was also found out that males were more physically active as compared to females with P value 0.01 in the age group 21 years. Conclusion: The results show that Participants among the age group 17-21 years are physically active and males are more physically active as compared to females.

Keywords: Physical activity; childhood obesity; Adolescents; Students

INTRODUCTION

Physical inactivity is one of the ten leading causes of death globally[1]. According to the author Deepak Kumar Gupta, there has been a significant increase in prevalence of adolescent obesity in India since the past three years. In addition, male gender and higher socioeconomic status is associated with significant risk of both being overweight and obese[2].

Insufficient physical activity can be a risk factor for non-communicable diseases[1]. This can lead to various health problems such as hyperlipidemia, hypertension, glucose intolerance and orthopedic complications[3]. Further risk factors that contribute to obesity in adolescents are unhealthy food habits, watching TV, insufficient sleep duration, high BMI in parents and high birth weight[4].

Global Physical Activity questionnaire (GPAQ) was developed by World Health Organization (WHO) in the year 2006.It is validated in nine countries. Around 50 countries use GPAQ for physical activity data collection and it is a suitable physical activity surveillance instrument for developing countries and can be used in all age groups. Metabolic equivalents (METS) are used for the analysis of GPAQ data. MET is the ratio of a person's working metabolic rate relative to the resting metabolic rate. One MET is defined as the energy cost of sitting quietly, and is equivalent to a caloric consumption of one kcal/kg/hour[5-7].

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Adolescence is the age where lifestyle as well as physiological changes occurs in the body[8]. Therefore by doing this study, we can check their physical activity levels and come to a conclusion about the lifestyle among adolescents in Pune. By analyzing the current health risks faced by the young generation, we can prevent further derogatory effects of ill health and loss to personal and national wealth in terms of both productivity and money.

AIMS & OBJECTIVES

Aim: Assessment of physical activity among college going students in Pune city using Global Physical Activity Questionnaire (GPAQ).

Objectives:

- To find the level of Physical Activity in the age group 17-21 years
- To find Gender specific level of Physical Activity.

METHODOLOGY

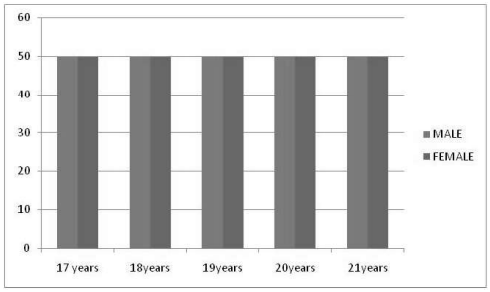
This cross-sectional study was carried out among college going students across different streams (Medical, Engineering, MBA) in the city of Pune during the period October-December 2015. It included about 500 college students aged 17-21 years using purposive sampling technique. Study participants were undergraduates. Of the total 500 students, 250 were females and 250 males. Institutional ethical committee clearance was obtained followed by a written informed consent signed by participants. The sample size was scientifically calculated.

GPAQ questionnaire was administered to the participants. Self evaluation of each participant's physical activity (PA) level was found out using GPAQ analysis guide and Microsoft Excel. The questionnaire contains three main domains: Activities at work, transportation and recreational activities. As per the guidelines for interpreting GPAQ version 2.0, individual were classified as active, if throughout a week (including activity for work, during transport and recreational activities), they were involved in at least 150 minutes of moderate-intensity physical activity OR 75 minutes of vigorous-physical activities OR an equivalent combination of moderate and vigorous-intensity physical activity achieving at least 600 MET-minutes[5-7].

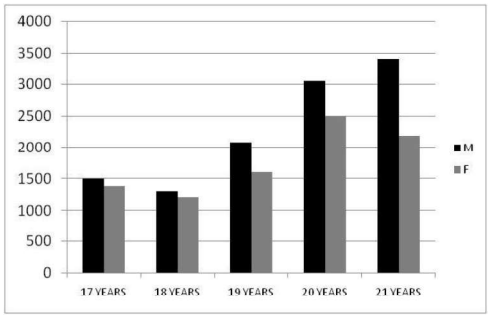
Statistical analysis

GPAQ analysis guidelines and Microsoft Office Excel version 2007 was used for analysis of data collected. Mean was calculated and data was represented in graphical form. Unpaired t-test was to compare between males and females. In all calculations, P value less than equal to 0.05 was considered to be significant.

RESULTS



Graph 1: No of males and females



Graph 2: Physical activity levels in all and age groups and comparison among males and females

Table 1: Unpaired t-test to compare mean of physical activity between males and females.

	MEAN		P VALUE
AGE GROUPS	MALE	FEMALE	
17 YEARS	1507.6	1388	0.71
18 YEARS	1302.4	1217.6	0.76
19YEARS	2082.8	1603.6	0.23
20YEARS	3050	2499.6	0.12
21YEARS	3421.6	2197.6	0.01*

DISCUSSION

The objective of the study was to find out levels of physical activity using GPAQ questionnaire among college going students. The age group under inclusion was 17 years to 21 years. As shown in graph one, there were 100 students each under each age group. Out of which 50 were males and 50 females in each age group. Although we tried to match equal number of males and females in each age group but BMI matching could not be done due to time and resource constraints, in contrast with the study done by Ranjit M Anjana et al in which they tried to correlate BMI and physical activity[16].

The overall mean score of physical activity in all the age group was 2022.82 METS which is more than the recommended value by GPAQ guidelines[5-7]. This shows that students from all the age group are physically active. The biggest contributors to this value were brisk walking/cycling (>10 minutes/day), moderate intensity activities at work/college, occasional vigorous intensity activities. The reason for this might be development and evaluation of intervention to promote physical activity in young people, access to sports, gymnastic and other recreational facilities at college/work, increased awareness of PA, social support in community settings and an increased need to be physically fit due to social considerations[9-12]. This contradicts with number of studies carried out in developed nations, which claim that there is high prevalence of physical inactivity. The behavioral Risk Factor Surveillance published in 2003 showed that 52.8% of U.S. citizens were inactive (50.2%menand 55.4% women)[13]. In a study done using the International Physical Activity Questionnaire (IPAQ) in Sweden in 2002-03 on 1470 adults aged 18-74 years,31% of the population was found to be inactive[14]. while the Health survey for England reported a 63% prevalence of inactivity for men and 76% prevalence for women[15]. The reason for this might be that this studies were carried out in the last decade and there is a difference in lifestyle habits among Indians, Europeans and Americans. Also a study conducted in 2013 compared physical activity among people more than 20 years of age in four different states showed poor physical activity[16] which could be due to poor

resources in rural India and more use of technology in urban India.

The study also shows that males were more active than females from all the age group[17,18]. The reason for this might be in girls, the onset of secondary sexual characteristic may contribute to perceptions of discomfort and lower self-esteem, which can lead to decrease level of physical activity. In boys, the age of the early peak height velocity (PHV) can positively influence the behavior of PA due to increased muscle mass and strength, which tends to occur after the peak height velocity (PHV). These changes in body composition and physical fitness promote better sports performance in boys. Another reason for this might be that historically, girls receive more conservative education from family and society. It can also be due to social, religion perceptions, environmental factors and cultural reasons[19].

Further the study shows that students from age group 20 and 21years were physically more active as compared to age group17 to 19 years. The reason for this might be that 17, 18 and 19 years is an age group where students are mentally burdened with academics as compared to 20, 21 years. Since, high school is very important period in adolescents' life because, it is the period to enter a graduation college from high school and should obtain higher grades to join universities, thus students tend to quit a lot of their activities and become less physical active. It has also been found out that in the age group 20 & 21 males are more physically active as compared to females. The reason for this might be that be that individuals who regularly participate in sports during adolescence tend to perform more daily PA, and are more likely to perform PA in their adulthood. Another reason for girls being less physically active as compared to boys in the age group 20 & 21 years is that in this age group there are behavioral changes, the increasing obligations in daily tasks, work at home and/or the transition from school to work can facilitate the reduction of PA. In contrast, the physical changes that occur in boys such as a gain in height, body weight, higher proportion of lean mass and the widening of shoulders, are beneficial for participation in PA, as they result in a more appropriate physical build for success in many types of PA, particularly those that emphasize speed, power and strength. Furthermore, late-maturing boys tend to perform more PA involving sports and games[18,19].

Strength of this study is GPAQ was used as an outcome measure which is designed by WHO, good number of sample size was included to collect the data and it is first study done in Pune, Maharashtra. Limitation of this study is that we have not included BMI and other physical variables in our study. Perception of parents regarding physical activity was also not considered and also it was a time bound study. Future scope of study might be that a similar study can be done in adult and elderly age group. Also a comparison between physical variables like BMI and physical activity can be done. There can also be a study comparing PA among different cultures of different states in India and in Asia.

CONCLUSION

Our study shows that students from age group 17-21 years are physically active and males are more physically active as compared to females.

CLINICAL IMPLICATION

Colleges can take numerous steps to shape a health –promoting environment, like establishing policies that foster and allow better participation in more physical activity behaviors for both boys and girls, with a special focus on the latter group. For e.g. Colleges can continue to increase opportunities for physical activity, they can adopt and enforce more physical education classes, provide variety of physical activities to encourage students participation and increase students awareness about benefit of being active. Colleges and education authorities can broaden their association with organizations including sports and recreational clubs. Using this evidence in practice, such programs can be started in various other states and cities.

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CONFLICTS OF INTEREST

None

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