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ASSESSMENT OF PHYSICAL ACTIVITY LEVEL IN FEMALE STUDENTS OF RESIDENTIAL COLLEGE USING GLOBAL PHYSICAL ACTIVITY QUESTIONNAIRE: A CROSS SECTIONAL ANALYSIS

Hiral Shah[1], Hitarthi Dhami[2], Tarpan Shah[3]

[1]Senior Assistant Professor, Shree Swaminarayan Physiotherapy College; [2]Student Shree Swaminarayan Physiotherapy College, [3]Associate Professor & Vice Principal, Shree Swaminarayan Physiotherapy College, Surat.

ABSTRACT

Background: We are facing a rising trend of NCDs (Non-communicable diseases) associated with sedentary lifestyle. Students who are obese or develop obesity during college years are at increased risk for continued obesity throughout adulthood. Present study was conducted with an objective to study prevalence of sedentary lifestyle among college students and its epidemiological correlates, in particular with the association with hostel residence.

Methodology: Cross-sectional analysis of 50 female residential students of age ranged from 19-22 years was conducted for assessment of BMI and Physical activity level by Global Physical Acivity Questinnaire (GPAQ). Informed consent was obtained prior. From GPAQ questionnaire Physical activity level and BMI data was collected and analysis was done.

Result: Out of 50 subjects 26% subjects were having vigorous PA. 62% subjects were having moderate PA. 12% subjects were having low PA. Out of 50 subjects 42% subjects were in normal categories. 10% subjects were Overweight. 48% subjects were Underweight.

Discussion: In present study, reason for poor physical activity level in 12% students may be physical inactivity during the daily routine and travel domain. They can be encouraged to improve their physical activity level on daily basis. College activities should include compulsory extra-curricular activities to be undertaken by the students such as including sports, athletics, aerobics or yoga.

Conclusion: 12% subjects were found to have low PA. 10% subjects were Overweight. 48% subjects were Underweight. There is still a need to encourage students in residential college to be active on routine basis to prevent shattering burden of non-communicable diseases in society.

Key Words: Physical inactivity, Hostellers, NCDs, BMI, Physical activity level assessment, Physical activity level questionnaire

INTRODUCTION AND BACKGROUND

Physical activity (PA) is a health enhancing behavior when practiced regularly, PA reduces the risk for a range of chronic disease. Also among the young, current and future health benefits can be obtained through engaging in physically active lifestyle. It helps building strong bones, healthy joints, a strong heart, a good mental health and prevents today's major public health concern obesity. [1]

College is a time of great change for young adults. Newly found independence allows the college student to make decisions and choices that were often previously made for him or her. One of the most important decisions a college student may make is how to incorporate physical activity (PA) into a busy lifestyle [2].

After a decade into the 21st century, we are facing a rising trend of non-communicable diseases associated with sedentary lifestyle. Studies have shown sedentary lifestyles to be

Corresponding Author:
Hiral Shah, Shree Swaminarayan Physiotherapy College, Kadodara, Surat, India
Mob: 08128697939; E-mail: hgandhi22@gmail.com

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associated with an increased risk of cardiovascular diseases (CVD), and all-cause mortality. [1]

Physical activity has been defined as ant bodily movement produced by skeletal muscle that results in energy expenditure. [3]

Benefits of Physical Activity:

Although gaps still exist in the literature, there is evidence that physical activity is an integral component of health and wellness in children. Potential benefits of physical activity include: Chronic disease risk reduction, Obesity risk reduction, Enhanced cognitive function and academic performance, Enhanced body image and self-esteem. [1]

Recommended Daily Levels of Physical Activity for Children and Youth

Physical activity guidelines specifically targeted for children and youth are a relatively recent development. Since the early 1990s, recommendations for daily levels of physical activity for children and youth have been developed by a number of different governments, agencies and organizations.[4, 5, 6]

Some areas of consensus between the differing recommendations include the following: Children and youth should accumulate at least 60 minutes of physical activity on a daily basis. Youth should engage in a variety of different types and intensities of physical activity.Children and youth should be actively encouraged to reduce the amount of time spent in sedentary activities. Extended periods of time spent on sedentary pursuits are associated with decreased physical activity levels and an increased risk of overweight and obesity. Children and youth should participate in activities that are age appropriate.[7]

Physical Inactivity

Studies have shown sedentary lifestyles to be associated with an increased risk of cardiovascular diseases (CVD), and all-cause mortality. Some estimates from developed countries indicate that only 15% of the population older than 18 years of age get regular vigorous activity (three times a week for at least 20 min), and 60% report no regular leisure time activity at all, with 25% not active at all.[1]

Television is unquestionably a sedentary activity, and many studies have hypothesized that increase in television viewing may be partly to blame for reductions in PA.[2]

The students who are obese or develop obesity during the college years are at increased risk for continued obesity throughout adulthood.[8]

The apparent protective effect of being more active, and consequently less inactive, was identified first through studies of occupational activity over 50 years ago. Today, there is a significant amount of literature quantifying and qualifying the role of physical inactivity as a risk factor and worldwide interest and efforts to increase levels of participation.[9]

Obesity, physical inactivity and smoking are of public health concerns due to their association with chronic diseases such as heart disease, hypertension and type II diabetes.

Regarding physical consequences, major health organizations have come to an understanding that obesity is linked to serious medical conditions including high blood pressure, high cholesterol, diabetes mellitus, heart disease, stroke, gallbladder disease, arthritis, sleep disturbances, breathing problems and cancer [7, 10, 11]

There are many good sources of assessment of physical activity, in both youth and adults. There are many methods that can be used, including pedometer, accelerometers, questionnaires/surveys and diaries.[12]

Measuring Physical Activity in Youth

Self report instruments are a straightforward means for population health researchers to gather information on the physical activity levels of children and youth in school and colleges, and outside of school as well. These instruents are generally reliable and valid, are relatively simple and inexpensive to administer, and are appropriate for use in population studies.[7]

One of the subjective measures is GPAQ – GLOBAL PHYSICAL ACTIVITY QUESTIONNAIRE. The global physical activity questionnaire (GPAQ) was developed by World Health Organization (WHO) for PA surveillance in countries.[13] GPAQ collects information on PA participation as well as sedentary behavior.[14]

The present study was conducted with an objective to study the prevalence of sedentary lifestyle amongst college students and its epidemiological correlates, in particular with the association with hostel residence.

MATERIALS AND METHODOLOGY

The study was a cross-sectional analysis of college students studying in college in Kadodara Surat. To have a representation of various academic disciplines, we purposively selected paramedical college students. The sample consisted of a total of 50 female residential students of age ranged from 19-22 years (mean 20 years). Students were approached randomly and were explained about the questionnaire. Students of the college present in the premises were eligible to participate, allowing for voluntary participation. Informed consent was obtained prior to conducting the interviews. To get an adequate representative sample, we targeted a minimum sample size of 50 students from the college.

Global Physical Activity Questionnaire (GPAQ)

The global physical activity questionnaire (GPAQ) was developed by World Health Organization (WHO) for PA surveillance in countries.[13]

GPAQ collects information on PA participation as well as sedentary behavior. This instrument was mainly developed for use in developing countries. The major strengths of GPAQ include the fact that it is domain specific, which implies that it assesses different types of PA undertaken in three domains plus sitting. The three domains include: Activity at work, travel to and from places and recreational activities.[14]

Here 50 subjects were taken. Questions were asked to them individually which are included in GPAQ Scale end by it, data was collected. According to it, MET minutes/week PA was calculated for all the participants.

For the calculation of physical activity the following MET values are used: [13]

Domain	METS value
Work	Moderate MET value = 4.0
	Vigorous MET value = 8.0
Transport	Cycling and walking MET value = 4.0
Recreation	Moderate MET value = 4.0
	Vigorous MET value = 8.0

Total physical activity MET-minutes/week (= the sum of the total MET minutes of activity computed for each setting).

Equation: Total Physical Activity = [(P2 * P3 * 8) + (P5 * P6 * 4) + (P8 * P9 * 4) + (P11 * P12 * 8) + (P14 * P15* 4)]

The PA level thus retrieved was entered into a computer based spreadsheet.

RESULTS

Out of 50 subjects 26% subjects were having vigorous PA. 62% subjects were having moderate PA. 12% subjects were having low PA.

Vigorous PA	Moderate PA	Low PA
13	31	6
26%	62%	12%

BMI

Out of 50 subjects 42% subjects were in normal categories. 10% subjects were Overweight. 48% subjects were Underweight.

Normal	Over Weight	Under Weight
21	5	24
42%	10%	48%

DISCUSSION

In this study, 26% subjects were found to have vigorous PA, 62% subjects were having moderate PA. 12% subjects were having low PA.

42% subjects were found to be in normal category of BMI, 10% subjects in Overweight category and 48% subjects were in Underweight category.

Using GPAQ scoring for calculating physical activity across the domains of work, transport and recreation, 13 (26%) students were found to have high physical activity, 31 (62%) had moderate while 6 (12%) had low activity level.

Previous study comparing physical activity level in day scholers and hostellers has reported hostellers had significantly lesser physical activity compared to the day scholars in the transport domain and recreational domain ($p<0.001$). On further analysis, hostel residence was found to be the significant risk factor for low physical activity.[15]

In the present study, reason for poor physical activity level in 12% students may be physical inactivity during the daily routine and travel domain. They can be encouraged to improve their physical activity level on daily basis.

Low physical activity during the most active period of a person's life can predict middle-aged behavior adapting into an even more sedentary lifestyle. This may lead to various diseases like coronary heart disease, hypertension, diabetes, cancer etc. in their future life as adults.[16]

Increasing the public knowledge about adopting physical activity habits in daily routine has been suggested for planning effective preventive strategies. Group health discussions, pamphlets, posters etc. can be used for the purpose. College activities should include compulsory extra-curricular activities to be undertaken by the students such as including sports, athletics, aerobics or yoga. All these health measures should be regarded not as an indulgence but an investment.[17]

CONCLUSION

Present study found 26% subjects to be having vigorous PA. 62% subjects were found to have moderate PA. 12% subjects were found to have low PA. Present study found 42% subjects were in normal categories of BMI. 10% subjects were Overweight. 48% subjects were Underweight. There is still a need to encourage the students in residential college to be

active on routine basis to prevent shattering burden of non-communicable diseases in the society.

ETHICAL CLEARANCE

Ethical clearance for the present study was obtained from ethical committee of Shree Swaminarayan Physiotherapy College.

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Abbreviations: Noncommunicable diseases- NCD, GPAQ-Global Physical Activity Questionnaire, PA- Physical Activity, BMI- Body Mass Index, CVD- Cardio vascular diseases.

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Conflict of Interest

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