Impact of Physical Activity on Body Mass Index of Medical Students in Pad. Dr. Vithalrao Vikhe Patil Institute of Medical Science, Ahmedagar

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Research Article

Abstract: **Background:** The prevalence of obesity is increasing in epidemic proportions in developed countries but it is not clear what factors are producing this phenomenon. One factor frequently mentioned as being responsible for the obesity epidemic increases energy intake as a result of consumption of high-fat or high-energy diets, larger portion size, and the easy availability of low-cost food. Physical Activity is defined as any activity that involves the use of one or larger ms. group and raises the HR. Physical Activity is a component of energy balance that is particularly important in the pathogenesis of obesity and its treatment. Physical exercise and Activity are important for maintaining long term weight loss and can be beneficial in preventing lean body mass while dieting. **Aim**: To see the prevalence of obesity and its relation to physical activity among medical student. **Methods and Material:** 100 Medical student subjects in the age group of 18 – 25 yr. were taken up for the study. Subject with a known case of any neurological, cardio respiratory and musculoskeletal dysfunction was excluded. They were assessed for obesity with BMI and Physical activity with the help of the International Physical Activity Questionnaire. **Result:** Shows that More the Vigorous and Moderate Physical Activity, Lesser is the BMI. **Conclusion:** Conclusion of my study is that there is 34% prevalence of obesity showing, there is a positive co-relation between the obesity and physical activity. And the subjects with mild physical activities are obese.

Keywords: BodyMassIndex, Physical Activity Questionnaire

Introduction

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced life expectancy or increase health problem. Obesity is most commonly caused by a combination of excessive food energy intake, lack of physical activity and genetic susceptibility, although a few cases are caused primarily by genes, endocrine disorder, and medication or by illness. Obesity is a lead increase in adult. However, it has been estimated to affect 20 – 40 % of adult.[1] The prevalence of obesity is increasing in epidemic proportions in developing countries, [2-6] but it is not clear what factors are producing this phenomenon. One factor frequently mentioned as being responsible for the obesity epidemic increases energy intake as a result of consumption of high-fat or high-energy diets, larger portion size, and the easy availability of low-cost food.[7-9] Physical Activity is defined as any activity that involves the use of one or more large ms.group & raises the HR. It is a component of energy balance that is particularly important in the pathogenesis of obesity & its treatment. Physical exercise & Activity are important for maintaining long term weight loss & can be beneficial in preventing lean body mass while dieting. A dose- response relationship has been demonstrated in overweight adult women between the amount of exercise & long term weight loss maintenance.[10,11] Physical activities play an important role in the prevention of becoming overweight and obese in childhood and adolescence, and reducing the risk of obesity in adulthood. In many Western settings, a large proportion of children and adolescents do not meet recommended physical activity guidelines and, typically, those who are more physically active have lower levels of body fat than those who are less active. There is substantial evidence that the level of physical activity is associated with obesity, and it has been suggested that reduced physical activity in the population is primarily responsible for the continuing increase in the prevalence of obesity.[8, 11-12] Various authors have suggested that technological development and automation in the workplace have modified the need for energy expenditure at work, and that, together with other components of the sedentary lifestyle of the modern societies, they may play an important role in the obesity epidemic [7, 8, 14] The Purpose of my study is to see the prevalence of obesity & its relation to physical activity among medical student.

Material and Methodology

Sampling Technique: - Simple Random Sampling

It is an observational study conducted at Padmashree Dr.Vitthalrao Vikhe Patil Medical College; Ahmednagar.Permission to carry out Research was

obtained from Institutional Ethical committee. Proper instruction, explanation about procedure of test protocol was given.100 Medical student in the age group of 18 – 25 year of both sexes were selected. They were assessed for obesity with BMI, i.e weight (kg)/ height (m2) (1) & Physical activity with the help of the International Physical Activity Questionnairre.[15] Exclusion criteria: 1. Individual with age group below 18 years and above 25 years. 2. Patient with any neurological, musculoskeletal and Cardio respiratory disorder. Information on Work Related Physical Activity Questionnaire respectively, i.e (1) Which of the following choices would you say best describes your main or usual activity at work: (a)sitting down most of the day; (b) standing most of the day (c) walking, carrying some weight, frequent movement; or (d) heavy labor, jobs (2) Tell me which of these choices best describes most of your leisure-time activity: (a) I don't exercise (b) occasional physical or sports activities (c) regular physical activity several times a month or (d) physical training several times a week. Based on this information, individuals were classified into four categories for Work Related Physical Activity [3].

Table 1: Prevalence of Obesity

No. of Subject	Obese	Underweight
100	**34**	**20**

Graph 1: Prevalence of Obesity

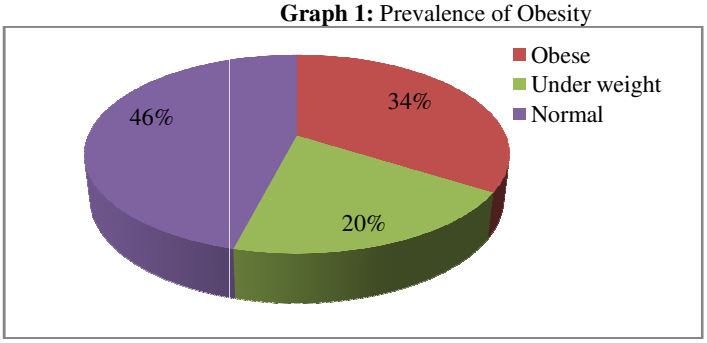


Table 2: Subject wise Distribution of Grading of Obesity

Grading of Obesity	No. Of Subject
Underweight	20
Normal	46
Pre-Obese	26
Obese class-1	08
Obese class-2	0
Obese class-3	0

Graph 2: Subjective Distribution of Grading of Obesity

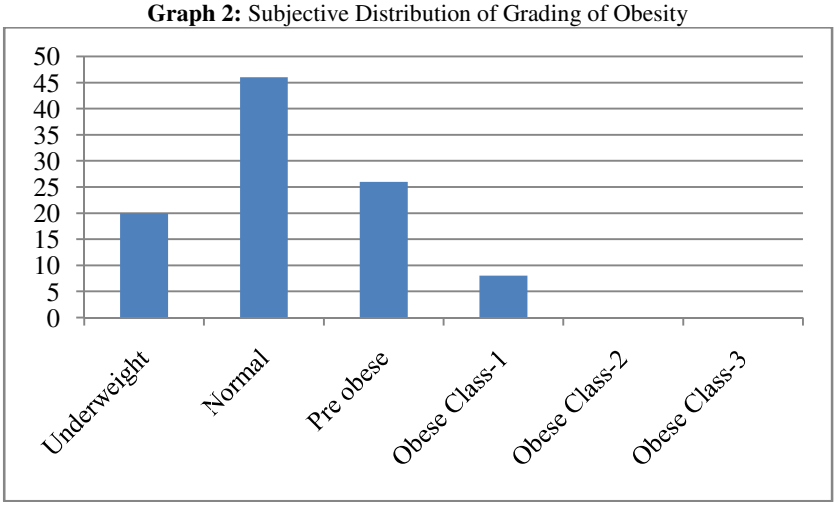


Table 3: Percentagewise Distribution of Physical Activity

Grading Of Physical Activity	No. of subject
Vigorous	27
Moderate	26
Mild	47

Graph 3: Percentage-wise Distribution of Grading of Physical Activity

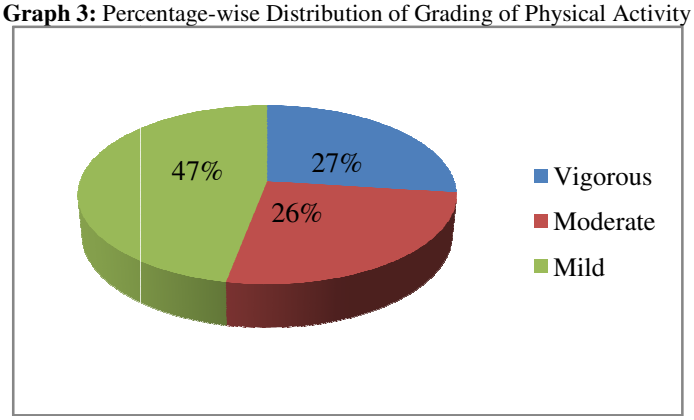
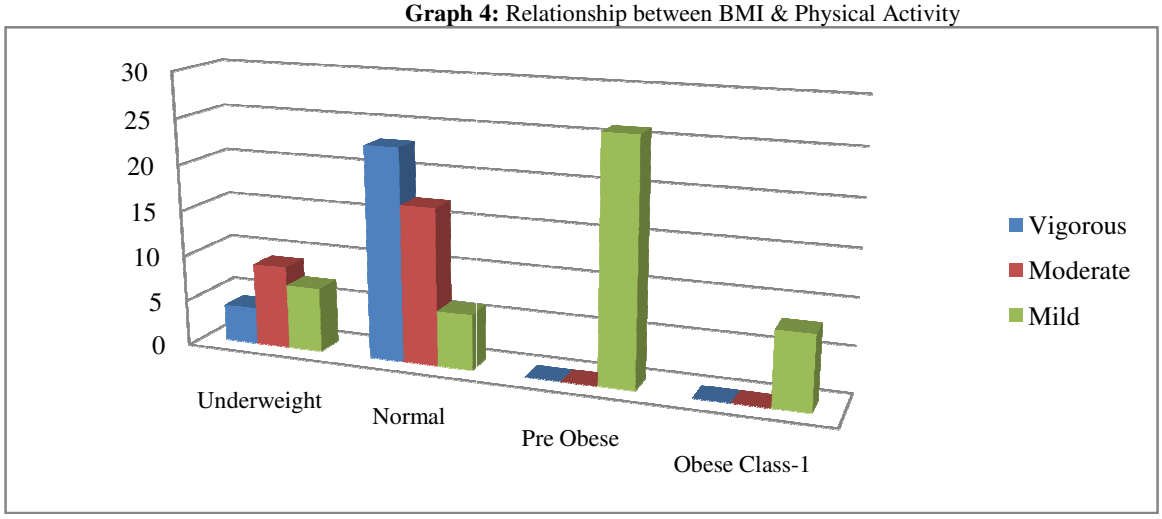


Table 4: BMI With Relation To the Physical Activity

Physical Activity	BMI(Body Mass Index)			
	Underweight	Normal	Pre-obese	Obese class-1
Vigorous	4	23	0	0
Moderate	9	*17*	0	0
Mild	7	6	26	8

Graph 4: Relationship between BMI & Physical Activity



Result

Shows the Prevalence of Obesity, In that the 34%Subject are Obese& 20%are Underweight & 46%are Normal. Shows that the Distribution of subject according to the Grading of Obesity. In that 20%are Underweight, 46% are Normal, 26% are Pre-Obese & 8% are Obese Class-1[1]Shows that Distribution of subject according to the Physical Activity, In that 27% are Vigorous, 26% Moderate & 47% are Mild. Shows Relationship between Obesity & Physical Activity, In that In Underweight, 4 Subject are Vigorous, 9 are Moderate & 7 are Mild. In Normal, 23 Subject are Vigorous, 17 are Moderate & 6 are Mild. In Pre-Obese, 26 Subject are Mild. In Obese Class-1, 8 Subject are Mild. Overall Result of the Shows that More the Vigorous & Moderate Physical Activity, Lesser is the BMI.

Discussion

The purpose of my study is to see the prevalence of obesity among medical students and its relationship between BMI with the physical activity. BMI (Body Mass Index), to evaluate the grading of obesity & also see the grading of physical activity, according to the International Physical Activity Questionnaire. The study shows that, there is a significant co-relation between the BMI (Body Mass Index) & Physical Activity. Overall result shows that the subject with mild physical activity, are obese & subject with vigorous & moderate physical activity are underweight & normal.

Conclusion

The conclusion of my study is that there is 34% prevalence of obesity showing, there is a positive co-relation between the obesity& physical activity and subject with mild physical activity are obese.

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Suggestion & Limitation

Limitations:-

1. Small Sample Size.
2. Study Conducted In Short Span Of Time.

Suggestions:-

1. Further study with larger sample size should be conducted.
2. Further Study to be carried out for a larger span of time

APPENDIX:-

Grading Of Obesity:-

1-Body weight

For adult, it can be calculated as-

- **Body mass index (quetelet index)** = weight/height2(m)

Classification	BMI	Risk of co morbidities
Under weight	< 18.50	Low
Normal range	18.50 – 24.99	Average
Over weight	>25.00	
Pre-obese	25.00 - 29.99	Increased
Obese class - I	30.00 – 34.99	Moderate
Obese class - II	35.00 – 39.99	Severe
Obese class - III	>40.00	Very severe

Graded of the obesity can be calculated by according BMI (Body Mass Index)

- **Physical Activity Questionnaire**

INTERNATIONAL PHYSICAL ACTIVITY QUESTIONNAIRE BY AINSWORTH -2000

I am interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions will ask you about the time you spent being physically active in the last 7 days.

Think about all the vigorous activities that you did in the last 7 days. Vigorous physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

1. During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling?
   _____ Days per week
   □ No vigorous physical activities
   → Skip to question 3
2. How much time did you usually spend doing vigorous physical activities on one of those days?
   _____ Hours per day
   _____ Minutes per day
   □ Don't know/Not sure

Think about all the moderate activities that you did in the last 7 days. Moderate activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

3. During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis?
   Do not include walking.
   _____ Days per week
   □ No moderate physical activities → Skip to question 5
4. How much time did you usually spend doing moderate physical activities on one of those days?
   _____ Hours per day
   _____ Minutes per day
   □ Don't know/Not sure

Think about the time you spent walking in the last 7 days. This includes at work and home, walking to travel from place to place, and any other walking that you might do solely for recreation, sport, exercise, or leisure.

5. During the last 7 days, on how many days did you walk for at least 10 minutes at a time?
   _____ Days per week
   □ No walking → Skip to question 7
6. How much time did you usually spend walking on one of those days?
   _____ Hours per day
   _____ Minutes per day
   □ Don't know/Not sure

The last question is about the time you spent sitting on weekdays during the last 7 days. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

7. During the last 7 days, how much time did you spend sitting on a week day?
   _____ Hours per day
   _____ Minutes per day
   □ Don't know/Not sure