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Assessment of body mass index among physical educationist

Varinder Singh

Varinder Singh
Assistant Professor, University College Ghanaur, Punjab, India

Abstract
Purpose: The aim of the present study was to investigate the degree of overweight and obesity among **Physical Educationist and also compare the body mass index between male and female physical educationist".** Total 14 male and 12 female physical education professionals who were attending 19th refresher course in Physical Education conducted by Academic Staff College Punjabi University Patiala Punjab were selected as a subject. The age of the subjects was between 29 to 50 years. BMI was used for the evaluation of the degree of overweight and Obesity. Body composition analyzer was used for assessment of BMI.
Statistics: - The data was analyzed by percentage technique for finding degree of overweight and obesity.
Result: - The result of the study showed that men had BMI 26.96 kg/m^2 while women had BMI 24.50 kg/m^2, whereas total mean (men/women) of BMI was 25.89 kg/m^2 and SD 3.25. The t test showed that the observed differences between men and women in BMI were insignificant (t $_{(cal)}$ =0.064, t $_{(tab)}$ 2.064 at .05 level of significance.) Additionally, it was found out that more than half of the men (72%) were overweight and 50 % women were normal weight while approximately 34% of women were overweight and/or obese (8%). The overall picture showed that 54% physical educationists were overweight, 34 % normal weight and 8% were obese. Basically it is due to lack of physical activity and balanced diet in their daily routine.

Keywords: *overweight, obesity, Body Composition Analyzer, Body Mass Index*

1. Introduction

Obesity is the most common nutritional disorder of the present days. It has serious implications for health and can shorten the life span. It is essentially a disorder of energy balance now it is not only a problem of developed countries but also developing countries as well. Obesity is characterized by an excessive amount of adipose tissue and the term is applied to persons 20 % or more above desirable weight.

There are two types of obesity based on anatomical characteristics of adipose tissue, hypercellular obesity is characterized by an increase in the number of fat cells as much as three to five times above normal. Onset of this type generally occurs during childhood when the mother over feeds the baby fat is distributed over the entire body, fat cells may or may not enlarge. In normocellular obesity the number of adipocyte is normal but cells are greatly enlarged or hypertrophied. Onset of this type occurs during the adult years or pregnancy.

Haider Javed Warraich *et al*. (2009) [1]. A cross sectional study design with children studying in grades 6th to 8th grade, in different schools of Karachi. We visited 10 schools of which 4 consented; two subsidized government schools and two private schools. A questionnaire was developed in consultation with a qualified nutritionist. Height and weight were measured on calibrated scales. A modified BMI criterion for Asian populations was used. Data was collected from 284 students. Of our sample, 52% were found to be underweight whereas 34% of all the children were normal. Of the population, 6% was obese and 8% overweight. Of all obese children, 70% belonged to the higher socio-economic status (SES) group, while of the underweight children, 63.3% were in the lower SES. Amongst obese children in our study, 65% ate meat every day, compared to 33% of normal kids. Conclusion study shows that socio-economic factors are important since obesity and overweight increase with SES. Higher SES groups should be targeted for overweight while underweight is a problem of lower SES. Meat

Correspondence
Varinder Singh
Assistant Professor, University College Ghanaur, Punjab, India

intake and lack of physical activity are some of the other factors that have been highlighted in our study Ramesh K Goyal, *et al.* (2010) [5]. In the study investigated the prevalence of obesity and overweight and their association with socioeconomic status (SES) and the risk factors like diet, physical activity like exercise, sports, sleeping habit in afternoon, eating habits like junk food, chocolate, eating outside at weekend, family history of diabetes and obesity. The study was carried out in 5664 school children of 12–18 years of age and having different SES. The obesity and overweight were considered using an updated body mass index reference. SES and life style factors were determined using pre-tested questionnaire. Results: Age-adjusted prevalence of overweight was found to be 14.3% among boys and 9.2% among girls where as the prevalence of obesity was 2.9% in boys and 1.5% in girls. The prevalence of overweight among children was higher in middle SES as compared to high SES group in both boys and girls whereas the prevalence of obesity was higher in high SES group as compared to middle SES group. The prevalence of obesity as well as overweight in low SES group was the lowest as compared to other group. Eating habit like junk food, chocolate, eating outside at weekend and physical activity like exercise, sports, sleeping habit in afternoon having remarkable effect on prevalence on overweight and obesity among middle to high SES group. Family history of diabetes and obesity were also found to be positively associated. Conclusion: Our data suggest that the prevalence of overweight and obesity varies remarkably with different socioeconomic development levels.

Methods

Subjects: In present study 14 male and 12 female physical education professionals who were attending 19th refresher course in Physical Education conducted by Academic Staff College Punjabi University Patiala Punjab were selected as a subject. The age of the subjects was between 29 to 50 years.

Objective of the study
1. To examine the BMI of male and female physical educationist.
2. To compare the Body Mass Index among male and female Physical Educationist.

Hypothesis:-it was hypothesized that there would be significant difference between men and women Body mass index value.

Measurement: The body composition analyzer was used for assessing Body Mass Index of the subject. The subject is asked to stand on body composition analyzer with bare foot and hold the handle of body composition analyzer in front of his chest level. The investigator now will add subject's height and age in the monitor. After adding all the information of the subject the machine will show the value of BMI of the subject. The Body Mass Index (BMI) was used for the evaluation of the degree of overweight and obesity, according to the values for adults set by World Health Organization (WHO).

$$BMI = \frac{mass\ (kg)}{(height(m))^2}$$

BMI Categories
- Underweight = <18.5
- Normal weight = 18.5–24.9
- Overweight = 25–29.9
- Obesity = BMI of 30 or greater

Statistical Analyses
In order to investigate degree of overweight and obesity among Physical Educationist the percentage technique was used and to compare body mass index among male and female physical educationist the t test was used at 0.05 level of significance.

Results: In Table I the mean (M) and standard deviation (SD) of men anthropomorphological Characteristics are presented.

Table I: Anthropomorphological Characteristics

Variables	Mean	SD
Age(years)	39.03	6.06
Height(m)	1.69	0.074
Weight(kg)	74.76	12.63

In Table II, the means of BMI for men/women are presented.

Table II

Variables	N	Mean	SD
BMI (kg/m)^2	26	25.89	3.25

In Table III, the means and SD of BMI for men and women are presented.

Table III

Variables	N	Mean	SD
BMI (kg/m)^2 (male)	14	26.96	2.58
BMI (kg/m)^2(female)	12	24.50	3.69

Table IV: Comparative Analysis of Body Mass Index between Male and Female

Group	Mean	SD	Df	"t" Ratio
Men	26.96	2.58		0.064*
Women	24.50	3.69	24	

* Insignificant at 0.05 level N=26
Tabulated value at 0.05 (2.064)

Table IV reveals that means and standard deviation with regard to men on the BMI which were recorded 26.96 and 2.58 respectively where as in the case of women the same were recorded 24.50 and 3.69 respectively. Whereas calculated t-value = 0.064, it is less than the table value (t = 2.064). So the results showed that there has been insignificant difference between men and women on body mass index. Where the women had less BMI value than men.

Discussion
The last years, all over the world, a tremendous increase in obesity is observed. A characteristic example is USA. In 1990, among states participating in the Behavioral Risk Factor Surveillance System, 10 states had a prevalence of obesity less than 10% and no states had prevalence equal to or greater than 15%. In agreement, the results of the present study, overall, indicated high percentages of total and central obesity. Men had significantly more increased BMI in comparison to the women. More specifically, the result of the study showed that men had BMI 26.96 kg/m^2 while women had BMI 24.50

kg/m^2. Whereas total mean of BMI was 25.89 kg/m^2 and SD 3.25. It was found out that more than half of the men were overweight and/or obese (72%), while approximately the 50 % women were normal weight while approximately 34% of women were overweight and/or obese (8%). The overall picture showed that 54% physical educationists were overweight, 34% normal weight and 8% were obese. Consequently it is due to lack of physical activity and imbalanced diet in their daily routine. The localization of the excessive adipose tissue is very important. Excessive adipose tissue in the area of the stomach, thorax and neck is so-called android or visceral obesity. This type of excessive adipose tissue localization is the most dangerous due to possible obesity-related disorders. BMI are related with cardiovascular risk factors and with insulin, as well as with systolic blood pressure. Moreover, BMI has shown monotonic association mortality in several recent cohort studies. Obesity is a major public health problem that increases the risk of illness from about 30 serious medical conditions. Obesity plays a central role in the development of diabetes mellitus and confers an increased risk for CHD, high blood pressure, osteoarthritis, various cancers, and all-cause mortality. Moreover, individuals with obesity are at higher risk for impaired mobility, while overweight or obese individuals experience social stigmatization and discrimination in employment and academic situations. Total percentages as the 58% of the cases of diabetes mellitus type II, the 21% of cardiovascular diseases and between 8% and 42% of certain type of cancer are due to overweight and obesity. Thus, a loss of body weight even of 5-10% can decrease the risk factors. Physical activity is important for weight control. By using energy and maintaining muscle mass, physical activity is a useful and effective adjunct to dietary management for avoiding weight gain or losing weight. Physical activity appears to favorably affect distribution of body fat. Consequently a combination of an exercise program with a balanced diet is suggested in order to lead to a normal body weight and normal abdominal fat quantity for an enhanced quality of life without health disorders due to obesity.

Discussion of Hypothesis
The hypothesis was that there would be a significant difference of body mass index between male and female physical educationist. According to the results obtained it was established that there is a no significant difference between male and female body mass index value. So the hypothesis is rejected.

Conclusions
From the findings of the study, it may be concluded that
1. There is no significant difference in between male and female physical education professional's BMI
2. There is a prevalence of overweight and obesity among male and female physical educationist because the mean value of BMI was 25.89 which comes under the overweight category from the body mass index table.
3. Male physical education professionals had BMI 26.96 kg/m^2 while female had BMI 24.50 kg/m^2 consequently male had more prevalence of overweight and obesity as compare to female physical educationist.
4. Result showed that 72% men were overweight and 215 were normal weight while 50% women were normal weight and 34% were overweight. So it is concluded that men physical educationist had more BMI than women physical educationist but both had a prevalence of overweight and obesity.

References
1. Haider Javed Warraich. Prevalence of Obesity in School-Going, Children of Karachi Journal P.L.O.S ONE 2009; 4(3):4816. *doi:10.1371*
2. Heidi J Wengreen, Cara Moncur. Change in diet, physical activity, and body weight among young-adults during the transition from high school to college. J nutritional journal. 2009.
3. Mohanty Biswajit. The prevalence of overweight and obesity in school going children of Pondicherry. Department of Biochemistry Aarupadai Veedu Medical College & Hospital, Pondicherry, 2008.
4. Najat, Yahia. Eating habits and obesity among Lebanese university students. J nutritional journal. 2008.
5. Ramesh K Goyal, Vitthaldas N Shah. Prevalence of Overweight and Obesity in Indian Adolescent School Going Children: It's Relationship With Socioeconomic Status and Associated Lifestyle Factors. Journal JAPI march. 2010, 5.