COMPARISON OF BODY FAT PERCENTAGE AMONG THE STUDENTS OF DIFFERENT SOCIOECONOMIC STATUS

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Abstract

The purpose of the study was to compare the body fat percentage among the students of different socio-economic status. By using simple random sampling researcher had selected 12 colleges with two colleges from each district from the Lucknow region. Again 3500 male students aged between 18-22 years were randomly selected from these 12 colleges and they were divided into three income groups, that is High Income Group, Middle Income Group and Low Income Group by using Socio-Economic Status Scale Questionnaire developed by G. P. Srivastava (1991) and from three groups a total of 300 students, 100 students each from High Income Group, Middle Income Group and Low Income group were selected for the purpose of this study using stratified random sampling technique. Skin fold caliper was used for body fat percentage which is component of health-related physical fitness. To compare this component among the students of different socioeconomic status one way analysis of variance (ANOVA) was used followed by L.S.D. (least significant difference) wherever applicable. All statistical function was performed by the use of SPSS v.16 software. The level of significance was set at 0.05. It was found that significant differences were found in Body Fat Percentage between High Income Group and Middle Income, between High Income Group and Low-Income Group, and between Middle Income Group and Low-Income Group.

Keywords: Body Fat, Percentage, Socio-Economic, Status, Students.

Introduction

Socio-Economic Status in terms of primary conditions and characteristics is determined through vocation, income and wealth, home and its locations, education, activity and associations (Soreson Herbert; 1977) [1]. Socio-economic status (SES) is an economic and sociological combined total measure of a person's work experience and individual's or family's economic and social position in relation to others based on him or her income, education and occupation also. When analyzing family socio-economic status and income of households, education and occupation of earners are examined. As well as an individual versus combined income when their own attributes are assessed National Centre for Educational Statistics (2008)[2]. According to Bharadwaj (2001)[3], by the term 'Status', we mean the recognition given to an individual by his group relations (Kelly, 1951)[4]. As a rule of conservation (Cooley; 1956)[5] in terms of the sense of belonging (Park and Burgess; 1921)[6] it is the result of the ranking of a role by the group of (Ogburn &Nimcoff; 1960)[7] that determines for its possessions of a degree of respect, prestige and influence (Maclver& Page; 1937)[8]. They are, thus the ancient powers and privileges of the family bestowing prestige, authority and power (Mussen, Conger and Kagan; 1963)[9]. Societies have thus developed two types of distinct status –The ascribed and the achieved (Linton 1936; Ogbum and Nimcoff; 1960)[10][7].

It is assigned to individual without any reference to their innate differences or abilities (Linton R.; 1936)[10]. It can be predicted and ascertained since by the birth. The achieved statuses are as minimum those requiring special qualities although they are not required limited to those. They are not assigned to an individual since birth but are left open to be filed through competitions (Linton R.; 1936, Ogburnand Nimcoff; 1960)[10][7], and individual efforts (Linton; 1936)[10].Thus, the status is conceived of as a prestige variable dependent on social and economic factors, which are not configured in any constant manner. The prediction of status will therefore be based upon a broad sampling of such factors and will provide estimates of reasonable, although not exact validity.

Kenneth H. Cooper (2015)[11], defined as fitness related to certain aspect of health-related physical fitness. The physical fitness is primarily influenced by an individual's habits of exercise also. Thus, it is a dynamic state and may change it. The characteristics of physical can constitute health-related physical fitness of body composition include endurance and strength, skeletal muscles, joint flexibility and cardio respiratory endurance also. Body composition refers to the body's relative amount of fat and lean body tissue or fat free mass (e.g., muscle, bone and water). Body weight can be sub divided simply into two components: fat weight (the weight of fattissue)andfatfreeweight(theweightofremainingleantissue).Percent body fat, the percent of total weight represented by fat weight is the preferred index used to evaluate a person's body composition (Nieman &Facsm; 1986)[12].

All the above attributes change the physical conditioning programs in response to appropriate and it is related to health. Strength and endurance of skeletal muscles of the trunk help maintain correct posture and prevent problems such as low back pain.

Minimal levels of endurance and muscular strength are needed for living routine tasks, such as carrying grocery bags or picking up a young child. The low levels of endurance and muscular strength in individuals are limited in the performance of routine tasks and have to lead a modest life. Such limitations are perhaps only indirectly related to health, but individuals who cannot pick up and hug a grandchild or struggle to get up from a soft chair surely lower life quality than that fitter peer enjoyed. Body composition also refers to the ratio or percentage between fat and lean tissue in the human body (NiemanDavidC&FacsmPH; 1986)[12]. Excess body fat is clearly related to many different health problems including cardiovascular disease, diabetes mellitus and certain forms of cancer also. Body composition is affected by routine diet but the role of habits as well as exercise play a crucial in preventing obesity and maintaining acceptable levels of body fat (Cark E. Willgoose; 1961)[13].

In the present study the research scholar has made an attempt to know the living standard, health related physical fitness different socioeconomic group and trying to improve their life in a right track.

Methods and Materials

By using simple random sampling researcher had selected 12 colleges with two colleges from each district from the Lucknow region. Again 3500 male students aged between 18-22 years were randomly selected from these 12 colleges and they were divided into three income groups that is High Income Group, Middle Income Group and Low-Income Group by using Socio-Economic Status Scale Questionnaire developed by G. P. Srivastava (1978)[14].

The socio economic status of students were analyzed using socioeconomic statusscale (SESS) urban questionnaire developed by G.P. Srivastava (1978) for reliability of the scale, coefficient stability was calculated and was found to be 0.94 and the content validity and concurrent validity of the scale is also established and accordingly the students were categorized on High Income Group, Middle Income Group and Low IncomeGroup and from three groups a total of 300 students, 100 students from each income group were selected for the purpose of this study using stratified random sampling technique. To compare the selected health related physical fitness components among the students of different socioeconomic status one way analysis of variance (ANOVA) was used followed by L.S.D. (least significant difference) wherever applicable. All statistical function was performed by the use of SPSS v.16 software.

Analysis of the data

For the statistical treatment in this study one way analysis of variance (ANOVA) was applied to find out the significance difference among different socio-economic groups in relation to their nutritional status. L. S. D. post hoc test was applied to find out the paired difference. The level of significance was set at 0.05.

Table No. 1Descriptive statistics

Variable	Groups	N	Mean	S.D.	Std. Error
Body Fat Percentage	High	100	22.77	17.82	4.95
	Middle	100	20.93	15.81	5.12
	Lower	100	15.75	11.26	4.49

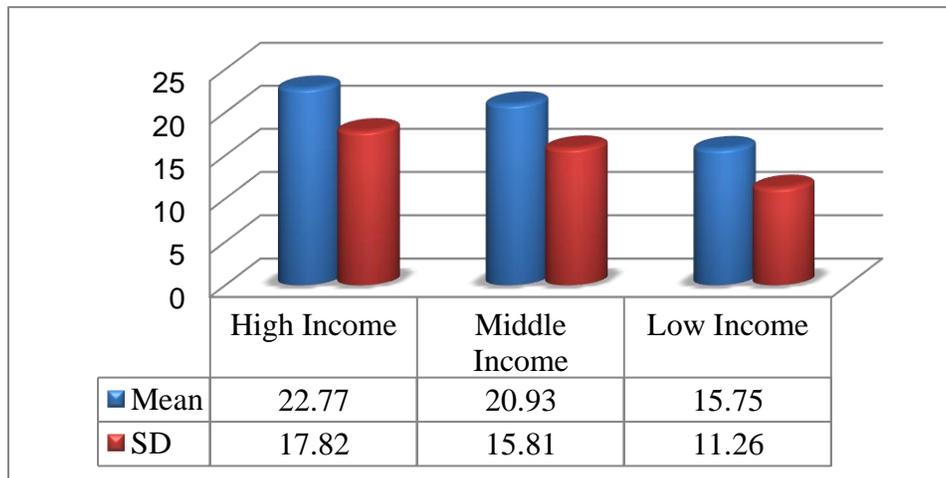|	High Income	Middle Income	Low Income
■ Mean	22.77	20.93	15.75
■ SD	17.82	15.81	11.26

Fig. no.1 - Difference of Mean and SD among High Income Group, Middle Income Group and Low-Income Group.

Table No. 2 Analysis of Variance (ANOVA) for the variable "Body Fat Percentage"

	Sum of Squares	Df	Mean Square	F
Between Groups	2259.067	2	1129.534	
Within Group	7027.970	297	23.663	**47.73**
Total	9287.037	299	1553.197	

*Significant at 0.05 level of confidence; Tab f(0.05) =2.99

From the above cited table no.2 it is found the calculated 'F' value (47.73) found more than tabulated F (2.99), hence there is significant difference exist among High Income Group, Middle Income Group and Low-Income Group in the variable body fat percentage.

Further Least significant difference (LSD) was carried out to know the mean significance difference among the selected income groups and it is presented in the following table no.3.

Table No. 3 Mean wise comparison among High Income Group, Middle Income Group and Low-Income Group on "Body Fat Percentage"

High	Middle	Lower	MD	Sig.
17.82	15.81	--	2.01*	0.44
17.82	--	11.26	6.56*	0.00
--	15.81	11.26	4.55*	0.00

*Significant at 0.05 level of confidence

Mean wise comparison for the variable of Body Fat Percentage is presented in the above cited table no. 3, and from the table it is found that significant difference exists between High Income Group and Middle-Income Group, High Income Group and Low-Income Group, Middle Income Group and Low-Income Group also.
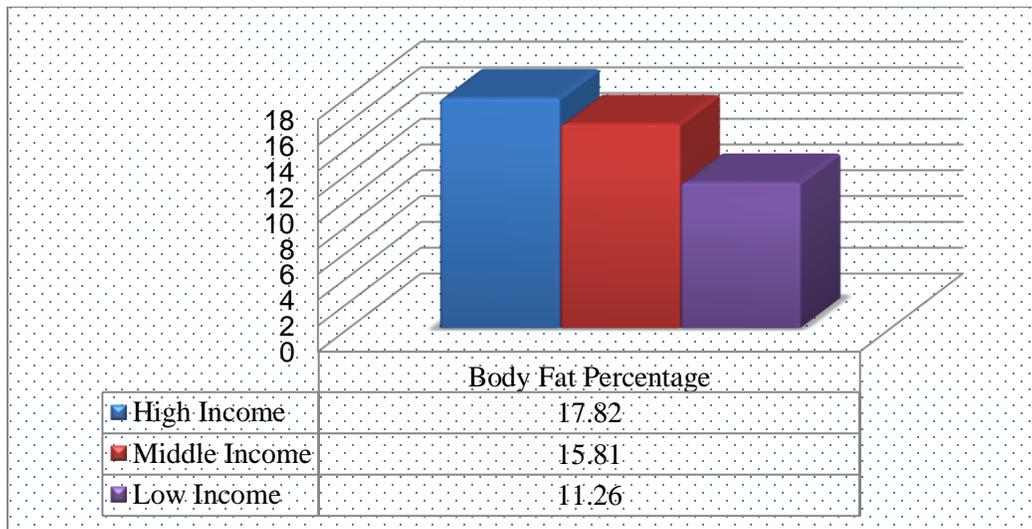

Fig. no.2 - Difference of mean among High Income Group, Middle Income Group and Low-Income Group on "Body Fat Percentage."

Result and Discussion

The comparison of the selected variable of health-related physical fitness showed that significant difference exists between the various income groups considered. This result was similar to the previous studies, some of which are given below. Coledam D.H. et al. (2013)[15] reported same type of results in their study; they worked on influence of socioeconomic status on health-related fitness in adolescents age ranged from 10 to 18 years-old. The aim of this present was to analyzing the association between socioeconomic indicators and adolescent's physical activity and health-related fitness also. They found that physical activity and health-related

physical fitness were associated with socioeconomic status. It was evident the mean of Body Fat Percentage among all three income groups showed that differences were found among students of High-Income Group and Low-Income Group, Middle Income Group and Low-Income Group, High Income Group and Middle-Income Group.

Fahlman M.M., Hall H.L.& Lock R. (2006)[16] recommended that influence of socioeconomic status on health-related fitness in female high school students. He found that there is a significant on the following dependent variables: percent fat, mile run, activity level and perceived barrierstoexercise.Theresult of this study was suggested that minority and low socioeconomic student groups should be given separate and different interventions regarding health-related fitness also.

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