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Nutritional Status of Boys Studying in Government and Private Schools- A Comparative Study

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Abstract
The purpose of the study was to compare the children studying in government and private schools in respect to their nutritional status. The subjects of the study were school boys studying in classes 6 to 8 and their ages ranged between 11 to 15 years. Body mass index (BMI) was used as a criterion measure to analyse the nutritional status of both the groups. The data was statistically analysed employing appropriate statistical techniques (mean, standard deviation, standard error of means and t-ratio). The t-value obtained was 40.64 which is higher than the table value of 1.96 with 643 degrees of freedom. Analysis of data reveals that a difference of 15.61 in the means of BMI score between government and private schools is statistically significant at 0.05 level of confidence. It was further revealed that 9.0% subjects studying in government schools are undernourished and 91% are average nourished. No subject from government schools was found over nourished and obese. In the private schools no subject is undernourished, 67, 0% are average nourished, 22, 0% are over nourished and 11.0% fall in the category of obese.

Keywords: Nutritional status, government school, private school.

Introduction
Ability of an individual to perform well in fitness related and sports activities is related to various traits namely maturation, body size and physique type. Some of these traits e. g. body weight have hereditary implications but at the same time may also be influenced by environmental factors, including the nature and amount of exercise, nutritional practices and health habits. Individuals differ dramatically in these basic traits and if at all change is desired in these it could only be done to a very limited extent. It is possible to bring in a change in the physique type or body form to some extent through good nutrition and exercise, however, changes in maturity and the height and the breadth of the skeleton do not seem possible through exercise.

Obesity leads to cardio-vascular problems among people. According to the World Health Organization, close to 18 million children and 200 million adults around the world were obese in 1995. Now figures are closer to the 300 million mark. Obesity is not just a product of the Western world. In fact, developing countries hold around one-third of the world's obese population (The Independent, August 2002) [1].

The sudden increase in obesity cases is mainly attributed to technological advances that have left us more sedentary. We drive rather than walk or cycle; we spend a lot of time sitting in front of computers; we have an abundance of junk food. Children particularly spend a lot of time playing computer games, watching television and eating fatty snacks like chips and chocolates, instead of playing outside and eating nutritious meals.

Nahida and Adhikari (2003) [2] in their study assessed the body composition and nutritional aspects of basketball players of Bangladesh Institute of Sports (BKSP). Twenty-one junior basketball players were evaluated using Heath-Carter technique. The average height and weight were 174.7cm$\pm$5.1 and 61.2kg $\pm$5.8 respectively. Optimum fat % 10.9($\pm$4.2) was observed with an average ectomorphic-endomorph (3.5-2.3-2.9) body type, which might not be desirable for basketball players.

Uppal (2003) [3] in his study to estimate the body-mass index of BKSP students participating in different games and sports observed that majority of the sportspersons were classified as

Normal. Some of the boxers were found to be underweight as well as overweight might be because of the fact that they have to retain themselves in different weight categories.

Methodology

The subject for the study were studying in government (N= 351) and private (N= 285) schools of Faridabad, Haryana. The age of the students ranged from 16 to 20 years.

The Body-Mass Index was computed with the help of the following two variables:

1. Weight
2. Height

The formula used to calculate Body-Mass Index was:

$$BMI = \frac{Weight}{Height^2}$$

The weight of the subjects was recorded in kilograms with the help of a calibrated weighing machine. At the time of weighing in the subjects was in minimum clothing so as to get the exact weight. The height was recorded in meters with the help of a stadiometer. While measuring height, the subject was bare-footed.

In June 1998, the National Institute of Health, USA released the first Federal Guidelines for identifying, evaluating and treating overweight and obesity. The new classifications based on BMI are as follows and these were used for computing the Body-mass Index of the subjects.

Table 1: New classifications based on BMI

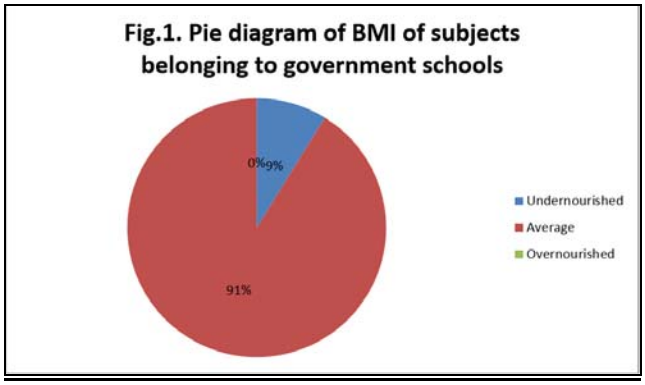
Classification	BMI Score
Underweight	<18.5
Normal	18.5-24.9
Overweight	25.0-29.9
Obesity Class I	30.0-34.9
Obesity Class II	35.0-39.9
Extreme Obesity	>40.0

Findings

In the study the subjects of government and private students are identified as under-nourished, average, well-nourished and obese. Following table shows the number and percentage of the subjects in categories.

Table 2: Number and percentage of the subjects in different BMI categories

Number and percentage of subjects identified as							
Under-nourished		Average		Well-nourished		obese	
Government	Private	Government	Private	Government	Private	Government	Private
31(8.83%)	0(0%)	320(91.17%)	190(66.87%)	0(0%)	64(22.46%)	0(0%)	31(10.87%)



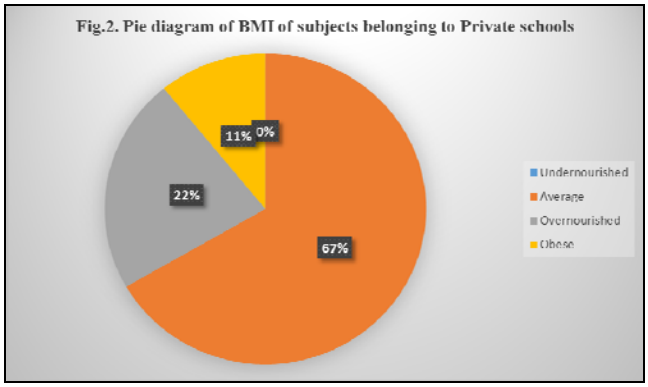
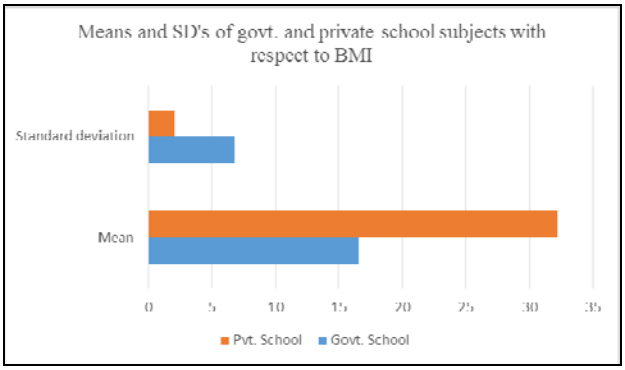


Table 3: Significance of difference in the means of government and private schools with respect to body-mass index

Group	Mean	Mean Difference	Standard Deviation	Standard Error	t- Ratio
Government School	16.56	15.61	6.83	0.38	40.64
Private School	32.18		2.06		

The analysis of the data in the above table reveals that a difference of 15.61 in the means of BMI score between government and private schools of Faridabad Haryana is statistically significant at 0.05 level of significance. The t-value obtained is 40.64 which is higher than the table value of 1.96 with 643 degrees of freedom.



Discussion of Findings

BMI is a common measure expressing the relationship or ratio of weight-to-height. It is a mathematical formula in which a person's body weight in kilograms is divided by the square of his or her height in meters (i.e., weight / height ^{2}). The literature reveals that BMI is more highly correlated with body fat than any other indicator of height and weight (McArdle, catch and catch, 2000). In the present study the analysis of data revealed that the BMI of subjects studying in private schools was significantly higher as compared to the subjects belonging to government schools. The analysis further revealed that among the subjects belonging to private schools no subject was classified as under nourished and that among the subjects belonging to government schools no subject was classified as obese.

In as much as the subjects selected for the study were in the age range of 16 to 20 years, they may still few more centimeters in their height. However, the subjects belonging to private schools need to become concerned about their status and must add lean body weight (in respect of underweight subjects) and reduced fat weight (in respect of obese) so that they can prevent themselves from some of the medical problems. From the literature it is evident that all adults (aged 18 years or older) who have a BMI of 25 or more are considered at risk for premature death and disability as a consequence of overweight and obesity. These health risks increase even more as the severity of an individual's obesity increases.

The problem of overweight and obesity is mostly attributed to technological advances that have made us more sedentary. In as much as subjects studying in private schools mostly come from the affluent families they have more opportunities to acquire technological gadgets such as computers, i-pads, mobiles and variety of other electronic gadgets as compared to subjects studying in government schools. The eating habits of subjects belonging to private schools are also very peculiar. They get addicted to junk foods that in addition of being harmful also cause obesity.

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