Research Article

PUNJABIS BASAL METABOLIC RATE NEEDS ATTENTION

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A R T I C L E   I N F O

A B S T R A C T

In the present study an attempt has been made to report the prevalence of basal metabolic rateamong school girls of Punjab, total 6000 students (3000 each from government & private schools and 3087 from rural & 2913 from urban schools) were selected with stratified random sampling techniqueranging in age from 10-17 years. The data was obtained from various government and private schools of Punjabbased on literacy rate of parents. Height of each individual is measured with anthropometric rode and the basal metabolic rate(BMR) was calculated by the bio electrical impedance machine with scale HBF-361. Further't' test was employedfor testing the hypothesis the level of significance was set at 0.05 levels. The results show that basal metabolic rate was more prevalent among those girls who are associated from private and urban schools& vice versa.

INTRODUCTION

Childhood obesity is one of the most serious public health challenges of the 21st century. The problem is global and is steadily affecting many low-and moderate-income countries, particularly in urban settings. The prevalence has increased at an alarming rate. Globally in 2010 the number of overweight children under the age of five is estimated to be over 42 million. Close to 35 million of these are living in developing countries. Overweight and obesity are the fifth leading risk for global deaths (Keerthan *et. al*, 2011). Childhood obesity is highly prevalent in the United States (CDC, 2010). Data from the 2007–08 National Health and Nutrition Examination Survey indicate that 17 percent of U.S. children and adolescents (ages 2–19 years) were obese, and approximately 30 percent were either overweight or obese (Ogden *et. al.*, 2008). According to a survey, India is the third most obese country in the world. The prevalence of Obesity in Punjab is the highest at 33 percent. In India, 2.5 million people are obese (Chowbey**, 2016).** Punjabis are the most obese people in the country, Health Minister J P Nadda told the RajyaSabha today, while men from Tripura and women from Meghalaya are the thinnest. Men and women from Punjab followed by Kerala and Delhi are the most obese people with 22.2, 17.8 and 16.8 percent of men and 29.9, 28.1 and 26.4 per cent of women from particular states reporting a BMI of more than 25(Naddu, 2016). More than 40 percent of the population in Punjab is overweight or obese. According to the study, two-fifths of Punjab is overweight and obese. "41 percent of

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defendants were overweight and obese in the survey," said Dr Thakur(Thakur, 2015). (Mushtaq *et. al.,* 2011) Children living in the urban area with high socioeconomic status were significantly at risk for being overweight and obese as compared to children living in the urban area with lower socioeconomic status and rural children. (Khader *et al*., 2008) the daily pocket money was associated with overweight, while family monthly income was fond to be associated with obesity. The study results could be explained by the fact that mothers with higher education mostly will have a job leaving their children for longer times enabling them to take several unhealthy snacks. It is important to note that children could gain more weight after purchasing several unhealthy snacks that are available in school's canteens and groceries. Kaur & Deol (2014) revealed that body fat percent, basal metabolic rate and skeletal muscle have significant differences among teaching, non-teaching and class-d employees of Punjabi University Patiala. But insignificant differences were found for body mass index, visceral fat and trunk subcutaneous fat among all the three categories. Epstein *et. al*. (1989) indicated that the RMR is higher in obese than in lean children, that changes in percent overweight that result from increases in height and no change in weight do not decrease RMR over 6 month, and parent weight does not improve the prediction of child RMR.

MATERIAL AND METHODS

Selection of subjects

Aim of the present study is to determine the prevalence of basal metabolic rate in Punjab school girls by using API Growth chart standard. For this purpose total 6000 girl

students were selected randomly as a sample and the age rages from 10-17 years (3000 each from government & private schools and 3087 from rural & 2913 from urban schools). The data was obtained from variousgovernment and private schools of Punjab based on parents economic status.

Tools

Basal Metabolic Rate

Each subject was made to stand bare foot on bio electrical impedance machine with scale HBF-361. The subject's height, age, and gender were manually saved in the machine. System automatically calculates the actual values of Basal metabolic rateand displayed the same machine. If the test performed systematically then it was saved otherwise test was repeated again.

Statistical Consideration

SPSS was utilized for interpretation of the data. The results were analyzed statistically by applying 't' test. In all the examinations, the 5 Percent critical ($p < 0.05$) was used to indicate statistical significance.
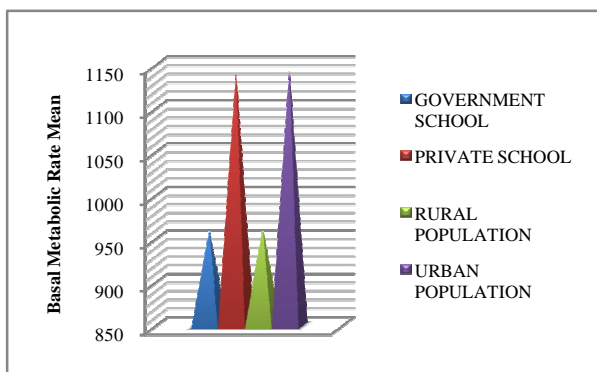
RESULTS

Different types of descriptive statistic such as mean and standard deviation was computed to describe each variable statistically. The level of significance was set at .05. Its results have been depicted in the following tables.

Table 1 Significant Mean Differences Of Basal Metabolic Rate Between Government Vs Private And Rural Vs Urban Schools

Group	N	Mean	Standard deviation	Mean Diff	Std. Error Mean	Std. Error Diff	't'
Government school	3000	959.66	142.83	-181.70	2.60	4.43	-41.00*
Private school	3000	1141.36	196.24		3.58		
Rural	3087	961.82	140.65	-182.66	2.53	4.42	-41.25*
Urban	2913	1144.49	198.85		3.68		

Tabulated 't'value is (1.960) at .05 level of significance   df=5998

Table- 1 shows that the mean values of basal metabolic rate in regard to government vs private schools are 959.66 & 1141.36 whereas the SD is 142.83 & 196.24. In the case of rural vs urban schools, the mean value is 961.82 & 1144.49 and SD is 140.65 & 198.85 respectively. The calculated t-value of government vs private school girls is -41.00* and in the case of rural vs urban the t vale is -41.25*, which is greater than the tabulated t-value (1.960) at .05 levels. So, it depicts that there is a significant difference of basal metabolic rate found between government and private as well as rural and urban school girls.

Figure 1 Mean Scores of Basal Metabolic Rate between Government Vs Private and Rural Vs Urban Schools

DISCUSSION

The results proved that the prevalence of basal metabolic rate was statistically significantly higher among students enrolled in private schools, urban population compared to those in government schools and rural population. The result might be due to the fact that faulty eating habits and increased fat content of the diet among affluent children have given rise to many health problems especially among the children. Food in urban area has been replaced by high calorie snacks and junk food which is a major factor to higher basal metabolic rate in affluent children. The burden of school work and academic competitiveness has decreased the participation in sports and other form of physical activities in urban area which leads to high frequency of basal metabolic rate in school girls. The results are aligned with Wardlaw & Kessel (2002) noted that a person with a high body weight also has a relatively high basal metabolic rate because of the large amount of muscle required to carry the large body and that lean body mass especially muscle mass influences BMR. The prevalence of overweight/obesity was much higher among students enrolled in private schools compared to those in government schools in their study conducted in Delhi private and government schools by Stigler *et al.* (2011).

CONCLUSION

The study revealed that girls' student belonging to the private and urban schools have more basal metabolic rate as compare to government and ruralschool girls. Therefore study establishes that obesity relation exists between private & government and rural & urban school girls in Punjab.

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