

## AN ANALYSIS OF BODY MASS INDEX BETWEEN PRIVATE AND GOVERNMENT SCHOOL CHILDREN

Sajal Kumar Biswas<sup>1</sup> and Rajarshi Kar<sup>2</sup>

<sup>1</sup>Ph.D scholar, University of Kalyani

<sup>2</sup>Ph.D scholar, Laksmibai National University of Physical Education, Gwalior, India

### Abstract:

Body Mass Index is an easily accessible and viable tool for assessing obesity. This study investigated the difference in Body mass index (BMI) between Private and Government school children. A total of 265 school children (age 12-13) were selected for the study out of which 145 were from private schools and 120 were from government schools. Body Mass Index (BMI) was calculated by dividing weight in kilograms by height in meters squared for all the students. Independent t test shown that private school students BMI (25.28+2.09) is significantly higher than Government school students BMI (17.47+3.81).

### INTRODUCTION

Human organism needs movement and activity to grow, develop, and maintain health. Advances in modern technology, however, have almost completely eliminated the necessity for physical exertion in daily life. Physical activity is no longer a natural part of our existence. This lack of physical activity has reduced our ability to maintain a healthy body weight and body composition. Recommended body composition is a primary objective to achieve overall physical fitness and enhanced quality of life. Individuals at recommended body weight are able to participate in a wide variety of moderate to vigorous activities without functional limitations. A technique to determine thinness and excessive fatness is the Body Mass Index (BMI), which incorporates height and weight to estimate critical fat values at which the risk for disease increases. Scientific evidence indicates that there is a significant increase in the risk for disease when BMI exceeds 25. Individuals are overweight if their indexes lie between 25 and 30. BMI above 30 defined as Obese and below 20 as underweight. (Hoeger & Hoeger, 2004).

Today, it is not only adults who lead physically inactive lifestyles, but also children and youth. According to the World Health Organization (WHO), there are now more people in the world who are overweight or obese (1 billion) than are hungry or underweight (800 million). With preferences for leisure activities that lack physical activity; living conditions, especially in urban areas, characterized by reduced space for children to play and to be physically active; and reduced time accorded to physical education in schools, serious concerns have been raised which have led to concerted efforts to reinforce the importance of sport and physical education in the community (WHO, 2002).

Vikram et al. (2003) in his study showed that Asian Indians have excess cardiovascular risk at BMI values considered "normal" and therefore the definitions of "normal" ranges of BMI needed to be revised for Asian Indians. Indian adults are more prone to adiposity and central obesity at a lower BMI. Lower BMI cut-offs of 23 kg/m<sup>2</sup> for overweight and 28 kg/m<sup>2</sup> for obesity have been suggested for Asian adults (Snehalata et. al., 2003). There was a need to investigate BMI status of Indian children after the BMI cut-offs have been lowered. A study attempted to develop age and sex specific cut- offs for BMI to screen for overweight and obesity in Indian children. The results were Compared to the cut-offs suggested for

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European populations and those by the Indian Academy of Pediatrics 2007 Guidelines, the age and sex specific cut off points for BMI for overweight and obesity for Indian children were also presented (Khadilkar et. al., 2012). In India, the scenario is not same everywhere. There is clear cut diversity in different parts of society. Likewise, there is a difference between the socio-economic status of school children from private schools and government schools. Students from higher socio-economic strata select private schools (Goyal & Pandey, 2009). In our study we aimed to investigate if there is any difference in BMI status between Private schools and Government schools in India.

**METHODS**

The participants of the study were 265 school students aged 12-13. Out of which 145 were private school students and 120 were government school students. Intact groups were selected for Private schools from Indus-valley World school, Kolkata and for Government schools; students from Bally Jora-Aswatthatala Vidyalaya, Howrah were a part of the study.

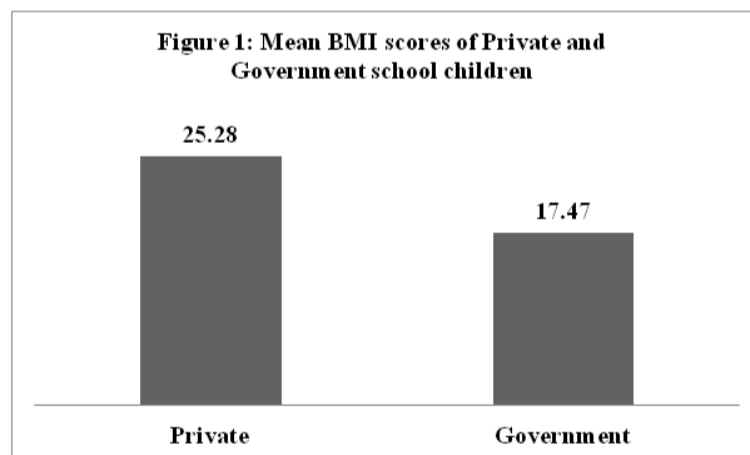
All the students were male. Body Mass Index (BMI) was calculated by dividing weight in kilograms by height in meters squared. Descriptive statistics and graphical depiction was calculated for Government and private schools. Independent Samples T-Test was conducted to analyze significance mean difference in BMI between Private and Government school students.

**RESULTS**

Data was collected and analysed in order to draw a conclusion about Body Mass Index of Private and Government school children, and the scores are given below.

<b>Table 1: Mean and Standard deviation of BMI scores of Children from Government and Private schools</b>		
	<b>Private</b>	<b>Government</b>
<b>Mean</b>	25.28	17.47
<b>Standard Deviation</b>	2.09	3.81

The mean and Standard Deviation of the two groups of Private and Government school children has been presented in Table 1. The mean BMI scores of Private and Government school children have been represented graphically in figure no 1.



Independent sample t-test was conducted to analyse the significance of mean difference between Private and Government school children's BMI scores. Results which are shown in Table 2 are the results of independent t-test conducted between BMI scores of Private and Government schools students.

<b>Table 2: Independent Samples T-Test for the means of BMI of Private and Government school students</b>						
		<b>t-test for Equality of Means</b>				
		<b>t</b>	<b>df</b>	<b>Sig. (2-tailed)</b>	<b>Mean Difference</b>	<b>Std. Error Difference</b>
<b>Body mass Index</b>	<b>Equal variances assumed</b>	21.179	263	.000	7.81816	.36914
	<b>Equal variances not assumed</b>	20.130	176.794	.000	7.81816	.38838

Results of Independent samples t-tests have been shown in Table 2. The independent t test has shown a significant difference in BMI between Private and Government school children, as the calculated t value (21.179, at 263 df) is greater than the tabulated t value (1.96) at 0.05 level of significance.

### DISCUSSION

The purpose of the study was to compare middle school children from Private and Government schools on Body mass index. As, we know that physical activities has lost its importance in the daily life of school children, it is needed to investigate the status of BMI in Indian school children.

Snehalata et. al.(2003) suggested the new cut-offs for adult BMI is 23 kg/m<sup>2</sup> as overweight and 28 kg/m<sup>2</sup> as obesity. Very fewer studies have been conducted on the basis of this new criterion in our country. A research showed prevalence of obesity and overweight in Low Income Group (LIG) school children was 0.1 and 2.7 percent respectively, amongst Middle Income Group (MIG) school children it was 0.6 and 6.5 percent and in High Income Group (HIG) school children was 6.8 and 15.3 percent (Supreet Kaur et. al., 2008). Many studies were conducted all over the world to investigate the relationship between socio-economic status and prevalence of obesity (Wang, 2001; Lindsay McLaren, 2007; Qi, & Wang, 2004).

The children from private and Government schools have different level of economic status and lifestyle patterns. Family members and parents of the children also have different amount of expectations from their kids. So, all these factors and many other factors collectively influence in physical activity behavior. In India, being a part of private school or a government school is a matter of privilege caused by socio-economic status. Our study aimed to analyze BMI of Private and Government school children.

Our study revealed that BMI of the school children was significantly related with the type of schools (Private and Government) from where they belonged. Significant difference in BMI among students was found between students of Private and Government schools. BMI scores of private school students (25.28+2.09) were much more than government school students (17.47+3.81). Khadilkar et. al., (2012) presented age and sex specific cut off points for BMI for overweight (equivalent to 23 kg/m<sup>2</sup>) and obesity (equivalent to 28 kg/m<sup>2</sup>) for Indian children. Results of our study shows clearly that mean BMI score of Private school children is way ahead the cut-off point suggested for overweight. Even the condition in government schools is not very healthy. Many of the government school students are underweight and suffering from malnutrition. Results of the study are again a reflection of socio-economic diversity of India.

### REFERENCES

- 1.Goyal. Sangeeta & Pandey. Priyanka, (2009), How do Government and Private Schools Differ? Findings from two large Indian states, South Asia Human development sector, World Bank, Retrieved on 28/12/12 from a.[http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/01/11/000333038\\_20100111004939/Rendered/PDF/526340NWP0publ10box345574B01PUBLIC1.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/01/11/000333038_20100111004939/Rendered/PDF/526340NWP0publ10box345574B01PUBLIC1.pdf)
- 2.Hoeger, Werner. W.K & Hoeger, Sharon, A (2004), Principles and Labs for fitness and Wellness (Seventh Edition), United States of America: Wadsworth/Thomson Learning
- 3.Khadilkar, V.V., Khadilkar, AV., Borade AB., and Chiplonkar, SA. (2012) Body Mass Index Cut-offs for Screening for Childhood Overweight and Obesity in Indian Children. Indian Pediatrics.
- 4.Lindsay McLaren. (2007) Socioeconomic Status and Obesity. Epidemiologic Review 29 (1): 29-48.
- 5.Snehalata C, Vishwanathan V, Ramachandran A. (2003) Cutoff values for normal anthropometric variables in Asian Indian Adults. Diabetes Care; 26 : 1380-4.

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6. Supreet Kaur, HPS Sachdev, SN Dwivedi, R Lakshmy, Umesh Kapil (2008), Prevalence of overweight and obesity amongst school children in Delhi, India, *Asia Pac J Clin Nutr*; 17 (4):592-596
7. Vikram, N. et al. (2003) Non-obese (body mass index < 25 kg/m<sup>2</sup>) Asian Indians with normal waist circumference have high cardiovascular risk. *Nutrition*, 19 (6), p. 503-509
8. World Health Organization (2002), *Reducing Risks, Promoting Healthy Life*, World Health Report, Geneva: World Health Organization, p. 4, available at: [http://www.who.int/whr/2002/en/whr02\\_en.pdf](http://www.who.int/whr/2002/en/whr02_en.pdf)
9. Youfa Wang (2001) Cross-national comparison of childhood obesity: the epidemic and the relationship between obesity and socioeconomic status. *International Journal of Epidemiology*. 30 (5):1129-1136.
10. Zhang, Qi., & Wang, Youfa. (2004) Trends in the Association between Obesity and Socioeconomic Status in U.S. Adults: 1971 to 2000 *12*(10), 1622–1632.