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## A Study on Body Mass status of rural area school children of Burdwan District in west Bengal

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### Abstract

The incidence of child under nutrition is high around the world, particularly alarming in the developing countries. This cross-sectional investigation has been undertaken among rural primary school-going children residing in Ausgram-II block of Burdwan district, West Bengal. The study sample was 224 children 124(55%) boys; 100(44.64%) girls aged 6-12 years. Height, weight was taken and body mass index (BMI) was calculated. Body mass index number was plotted on the CDC S age and gender specific growth charts 2-20 years for BMI-for age percentile and body mass status (underweight, normal weight, overweight/at the risk of overweight and obese/overweight). The overall mean BMI among boys and girls were  $13.89 \pm 1.40 \text{ kg/m}^2$  and  $14 \pm 2.14 \text{ kg/m}^2$ . In the present study, 58.87% boys and 55% girls were underweight, and 41.12% boys and 43% girls were normal weight and only 1% of girls are overweight/at the risk of overweight and obese/overweight. Child under nutrition (underweight) is a major underlying problem in Indian rural children, especially in rural area of West Bengal awareness about balanced diet, improvement in the level of education and socioeconomic conditions, easy access to health facilities and prevention of the gender discrimination, are the remedial measures to be taken to redress the situation. Where appropriate nutritional intervention strategies are necessary to improve their nutritional status.

**Keywords:** Rural area, children, body mass index, CDC, underweight, status, west Bengal.

### 1. Introduction

Childhood obesity is increasingly being observed with the changing lifestyle of families with increased purchasing power, increasing hours of inactivity due to television, video games, and computers, which are replacing outdoor games and other social activities. Other hand the incidence of child under nutrition is high around the world, particularly alarming in the developing countries. Under-nutrition in childhood was and is one of the reasons behind the high child mortality rate in developing countries like India. It is also highly detrimental for health in those children who survive to adulthood. The rural area of West Bengal in India underweight children is a long term problem.

The present study was undertaken to study the magnitude of underweight/thinness and its determinants among school-going children residing in Ausgram-II block of Burdwan district, West Bengal in India. Awareness about balanced diet, improvement in the level of education and socioeconomic conditions, easy access to health facilities and prevention of the gender discrimination, are the remedial measures to be taken to redress the situation.

### 2. Methods

Collection of data for the present study was done from last month of 2015 in Ausgram-II block area of Burdwan District, West Bengal. Local primary schools were approached for permission of data collection. After satisfaction of all the required conditions, authorities of three primary schools agreed for participation. All students of those schools were invited to participate in the study and the response rate was almost 85%. Absenteeism and illness were the main reasons for non-participation. A total of 224 students 124(55%) boys and 100(44.64%) girls aged 5-11 years could be included in this cross sectional study. Information on age was authenticated from the students' register.

Body weight was measured (to the nearest 0.5 kg) with the subject standing motionless on the weighing scale with feet 15 cm apart, and weight equally distributed on each leg. Height was measured (to the nearest 0.5 cm) with the subject standing in an erect position against a

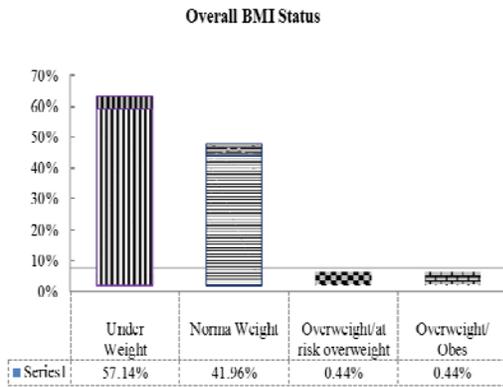
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vertical scale and with the head positioned so that the top of the external auditory meatus was in level with the inferior margin of the bony orbit.

Body mass index (BMI) was calculated as weight in kilograms/(height in meter)<sup>2</sup>. Body mass index number was plotted on the CDC S age and gender specific growth charts 2-20 years for BMI-for age percentile and body mass status (underweight, normal weight, overweight/at the risk of overweight and obese/overweight).

**3. Result and Discussion**

A total of 224 children of 6<sup>th</sup> to 11<sup>th</sup> standard participated in the study. Of them, only 94 (41.96%) were normal, 128 (57.14%) were undernourished, 1 (0.446%) were overweight, and 1 (0.446%) were obese. (Fig-1)



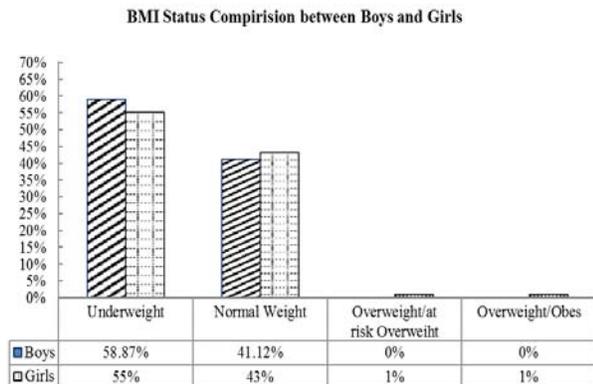
**Fig 1:**

The mean BMI of the subjects is presented in (table-1) the overall (Sex combined) mean BMI among boys and girls were 13.89 (SD ±1.40) kg/mt<sup>2</sup> and 14 (SD ±2.14) kg/mt<sup>2</sup>, respectively. There was no significant sex difference in mean BMI.

**Table 1:** Mean BMI (SD) of the subjects by sex

Sex	Mean(kg/mt. <sup>2</sup> )	SD(kg/mt. <sup>2</sup> )
Boys	13.89	±1.40
Girls	14	±2.14

In the present study, 58.87% boys and 55% girls were underweight, and 41.12% boys and 43% girls were normal weight and only 1% of girls are overweight/at the risk of overweight and obese/overweight.(Fig-2)



**Fig 2:**

Under nutrition among children and adolescents is a serious public health problem internationally, especially in developing countries.

In spite of having some limitations such as low sample size in some age groups and inability to employ any strict sampling strategy, which makes the state level of the sample questionable, the results of the present study clearly indicated that the nutritional situation of these children was unsatisfactory with rates of thinness of 58.87% and 55% in boys and girls, respectively.

Such studies should provide data on prevalence of thinness which can be used for the formulation of effective public health policies. Moreover, they would also provide useful datasets for comparisons, both nationally and internationally.

**4. Conclusion**

Undernutrition among children and adolescents is a serious public health problem internationally, especially in developing countries. Child under nutrition (underweight) is as major underlying problem in Indian rural children, especially in rural West Bengal awareness about balanced diet, improvement in the level of education and socioeconomic conditions, easy access to health facilities and prevention of the gender discrimination, are the remedial measures to be taken to redress the situation. Where appropriate nutritional intervention strategies are necessary to improve their nutritional status.

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