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A COMPARATIVE STUDY OF CHILDHOOD OBESITY OF BOYS FROM URBAN AND RURAL SCHOOLS OF HARYANA

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Abstract

Urbanization and modernization, sedentary life, consumption of oily and junk food and other life style changes has contributed to overweight and obesity to large extent. The purpose of the study was to explore prevalence of obesity and nutritional deficiency in school going children of rural and urban schools of Haryana, India. The study was done between school boys of 10 -12 years from urban and rural areas of Haryana and it shows that urban students are significantly more over weight and obese where as rural students are significantly more under nourished and fall in starvation category. Digital weighing machine and stadiometer were used to examine the BMI of the subjects. High percentage of overweight and obesity was found in students of urban school. Perhaps high demand of exposure to nutritional values is required in rural and urban school going students.

Keywords- *BMI, WHO, Obesity, starvation*

Introduction

Obesity is not an immediate lethal disease itself, but it is a significant risk factor associated with a range of serious non-communicable diseases and conditions like increased risk of coronary heart disease, hypertension, diabetes mellitus, gallstone etc Obesity refers to the conditioning of having an excessive amount of fat. This implies that the actual amount of body fat or its percentage of total weight must be assessed or estimate. Exact standards for allowable fat percentages have not been established. Body Mass Index (BMI) is now the most widely used clinical standard to estimate obesity. To determine a person's BMI, body weight in kilograms is divided by the square of body height in meters. Generally, the BMI is highly correlated with body fat and usually provides a reasonable estimate of obesity. In 1997, the World Health Organization proposed a classification system for underweight, overweight and obesity based solely on BMI values. BMI values have been divided into five categories: underweight, normal weight, overweight, obesity and extreme obesity. Within the obesity classification, there are two sub classifications, class I and class II. Extreme obesity is Class III. BMI of 30 or higher almost always indicates excessive adiposity or obesity for all populations. This classification system has made a major contribution to our understanding of the true prevalence of overweight and obesity.

Reasons of obesity

Junk food: The variety of such products being manufactured and heavily advertised through the media (e.g. pictures of large sodas with snacks etc) makes the young child compel the parents to procure these items and he keeps munching them anytime and anywhere. Not surprisingly, the child misses regular meals. The temptation of little surprise gifts with the products traps children. Wafers, chocolates, crunches, specially flavored namkeen, kurkure, burgers, pizzas; noodles are easily available in every nook and corner. Most of these items are high on calories or even empty calories since they are devoid of other important nutrients like vitamins, iron, calcium etc. It is postulated that consumption of extra 100 calories per day will result in 5 kg weight gain in one year time.

Social factors: Increasing per capita income of the middle income groups has led to an increase in the trend of social gatherings, functions, and celebrations. In school, children celebrate their birthdays by getting sweets, pastries or savories (that are often high calories) for their classmates. In a class of average 60-70 children, there would be an equal number of such occasions spread out not so far apart.

Lifestyle of family: In certain families the eating pattern itself is such that meals are rich in fats and consumption of sweets, desserts are a regular feature. Most often, children are given pacifiers in the form of chocolates, biscuits, noodles etc by parents who leave them back home with the care of baby sitters to make up for the guilt of not being able to devote adequate time to them.

Television/computer: Most parents have no control over their children watching various television programmers. Children have access to video games and computers also mushrooming cyber joints have made these accessible. This contributes to the child becoming a 'couch potato' rather than spending that time in outdoor activity. Consequently, children are gaining more weight than they should. Parents also tend to exploit availability of video games and television in order to meet their own commitments of partying, socializing etc by leaving the children at the mercy of the small screen.

Lack of activity: A significant change responsible for obesity is the lack of exercise that children nowadays get. Earlier, children had more time to play, run about or work out compared to the children of this generation. Long school hours, the ordeal of getting ready for school and tuitions increases inactivity. Without activity, even the recommended calories lead to a positive energy balance, which accumulates as body fat contributing to obesity. Inadequate play areas: Due to unsafe roads (traffic, crime) children are discouraged form walking or cycling to school. Motorized vehicles are popular and they are perceived to be quicker and safer for transport. Erosion of open spaces for exercise and lack of parental time to supervise play are all part of new lifestyles.

Method and methodology

The sampling was done by random selection which includes boys of 10 to 12 years of age from rural and urban schools of Haryana. Anthropometric measurements were taken to calculate BMI of the subjects. Weight was measured in the upright position to the nearest 0.1 kg using calibrated electronic balance. Height was measured without shoes to the nearest 0.1 cm using calibrated stadiometer. The instruments required in the study are as follows:

1. A digital weighing machine.

2. Height measuring scale..

BMI classification – It is to assess how much an individual's body weight departs from what is normal or desirable for a person of his or her height. BMI = Weight (Kg.) / Height2 (m). The WHO classification of BMI are valid when applied to adults, and do not predict health.

Category BMI range Kg/m2

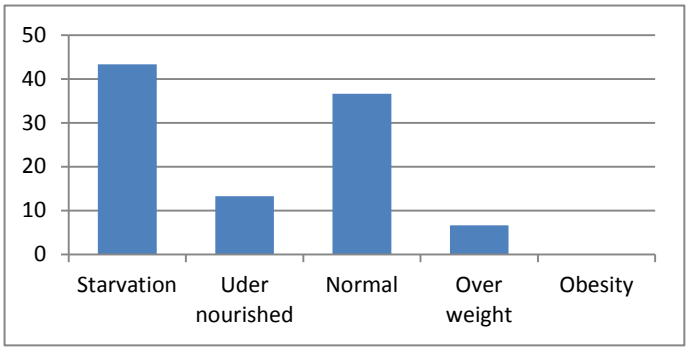
Starvation	< 15
Underweight	15 – 18.5
Normal	18.5 – 25
Overweight	25 – 30
Obese	30 – 40

Result and discussion

In the present study total 60 subjects were taken out of which 30 subjects were from urban school and 30 were from rural school of Haryana.

Table no. 1- distribution of population according to WHO BMI

Group	BMI	rural n-30	%
starvation	<15	13	43.30%
under nourished	15-18.5	4	13.30%
normal	18.5-25	11	36.60%
Overweight	25-30	2	6.60%
obese	30-40	0	0%

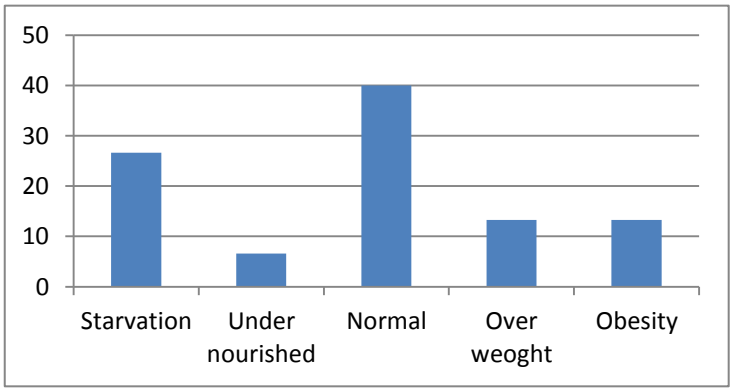


In the table – rural population was arranged according to W.H.O, criteria based on BMI value:

In the rural study population 43.30% subjects are in starvation category, 13.30% subjects fall in under nourished category, 36.60% subjects fall in normal category, where as only 6.6% fall in overweight category and 0% in obesity. Overweight/obesity is significantly low in rural students. Whereas starvation and undernourished is significantly higher in rural students.

Table no 2- Distribution of population according to W.H.O BMI category urban

Group	BMI	rural n-30	%
starvation	<15	8	26.60%
under nourished	15-18.5	2	6.60%
normal	18.5-25	12	40.00%
Overweight	25-30	4	13.30%
obese	30-40	4	13%



In the table no 2, urban population was arranged according to W.H.O criteria based on BMI value.

In urban study population 26.6% subjects are in starvation category, 6.6% subjects are undernourished, 40% subjects are normal category, where as 26.60% subjects fall in overweight/obesity category is significantly higher in urban students, where as starvation/undernourished is significantly lower in urban student.

Conclusion

In the present study we found the prevalence of overweight and obesity is high in urban students as compared to rural students. The study also suggests that under nutrition rates remain high both in urban and rural children but rural children are comparatively more under nourished than urban children. The study shows the risk of exposure to diabetes mellitus is higher in urban students than rural students. This can be due to consumption of junk food or inactivity whereas children in rural area are more undernourished and prone to deficiency disorder. In some cases total body fat % is much below the prescribed limit. Social attention has to be given for their overall nutrition.

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