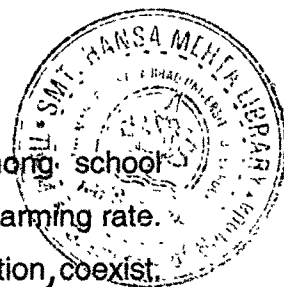


ABSTRACT

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The problem of overweight and obesity is escalating among school children all around the world, more so in developing countries at an alarming rate. In India both the forms of malnutrition, undernutrition and overnutrition, coexist. Few studies conducted so far indicate an increase in rates of overweight and obesity in children and adolescents.

The present study was carried out to assess the prevalence of overweight and obesity and the related risk factors among school children of urban Vadodara. From the anthropometric measurements of the children their BMI was calculated on the basis of which the children were classified into their overweight status. Data regarding dietary history, activity pattern and biochemical estimations were obtained on a sub sample. The main principle of this study was to facilitate the policy makers in effective planning and implementation of inculcating healthy life style among the children and adolescents to curb the rapidly increasing epidemic of overweight and obesity among them.

In the present study a total of 4808 children - 2890 boys and 1918 girls, were enrolled from 10 private schools representing various zones of urban Vadodara. They were studying in 8th–12th classes and were in the age range of 12-18 years. The children were classified into overweight/obese, overweight and obese based on IOTF recommended Cole et al standards. The sub sample comprised of 214 children of whom 65 were non overweight/obese, 111 were overweight and 38 were obese children respectively. The fasting blood sugar and lipid profile were carried out on a total of 197 children to determine metabolic aberrations among them.

The overall prevalence of overweight and obesity were respectively 7.3% and 1.9% by Must et al standards, 8.4% and 1.5% by Cole et al standards, 7.1% and 2.4% by CDC standards and 10.4% and 3.0% by Agarwal standards. The prevalence rates of overweight and obesity by Agarwal standards, which are based on Indian school children, were the highest.

From the data, age and sex specific BMI percentile values were calculated for 12-17 years at 6 months interval and percentile curves were developed. Different standards used to assess the magnitude of the problem gave different values of prevalence. However, the overall concordance between different standards was found to be good.

International Obesity Task Force has recommended Cole et al standards for classification of children into non overweight/obese, overweight and obese for meaningful comparison of prevalence rates. Hence Cole et al standards were used for the analysis.

The per capita income of Rs. 2000 and above exhibited a higher level of overweight and obesity in children. The relative risk of being overweight or obese was much higher in a child with both parents overweight or obese than either parent being overweight or obese. The type of diet had no influence on the overall prevalence. The school meal programmes attributed to higher percentage of overweight/obesity among children. More number of overweight and obese children used vehicle for commutation. Their physical activity involvement was less. The percentage of obese children involved in daily TV viewing and use of computer was high.

Fat contributed 36% of the total calories in the diet. Higher percentage of overweight and obese children had > 30% calories coming from fat. More percentage of overweight children had energy intake >100% RDA. The mean energy intake and energy expenditure per kg body weight was equal in case of non overweight/obese children but was much higher in overweight and obese children.

With increase in gradation of obesity, TC increased while HDL-C decreased. TC/HDL-C, TC/LDL-C and LDL-C/HDL-C were higher in overweight and obese boys. Only TC and TG values were higher in obese girls. TG values were higher in overweight and obese children consuming non/ovo vegetarian diet. VLDL-C and TG values were found to be higher in children

consuming ≥ 60 g fat. Children having $> 95^{\text{th}}$ percentile of waist circumference had higher values of TC, LDL-C, non HDL-C and TG. Exercise had no influence on aberrations in lipid profile.

Children identified as overweight/obese at the base line maintained their weight status at the final follow up after two years. The mean increase in BMI was 1.3 and 1.0 for overweight boys and girls respectively while it was 1.7 and 0.8 for obese boys and girls respectively

In the stepwise multiple regression analysis with BMI as a dependant variable heredity, energy intake, sex and age entered the equation as independent variables. The total variation due to these variables was 24.5%.

The study highlights the increasing trend of overweight and obesity among school children of urban Vadodara. The epidemic requires to be tackled through sustainable school based intervention programmes promoting healthy dietary practices and increased physical activities.