

# Prevalence of Obesity and Overweight in Affluent Adolescents from Ludhiana, Punjab

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## ABSTRACT

*The objective was to study the prevalence of obesity among adolescents in public schools of Ludhiana, catering to the affluent segment of population. We selected 1000 students from these schools by random, purposive sampling. Their anthropometry was taken. Students also filled-up a prevalidated questionnaire regarding dietary habits and lifestyle. Overweight/Obesity was defined using age and sex specific Body mass index (BMI) cut off points. Incidence of obesity was 3.4% and overweight was 12.7%. A significantly greater number of boys (15%) were overweight as compared to girls (10%).*

**Key words:** Adolescent, Obesity, Overweight, Punjab.

## INTRODUCTION

Limited data is available on the prevalence of obesity in Indian sub-continent. Punjab is an economically advanced State of the country with high per capita income and Ludhiana, an industrial city has a large population of affluent families who are exposed to a modern lifestyle. Children belonging to High schools/Senior Secondary classes are particularly vulnerable to external factors owing to newfound independence and the influence through peer pressure and exposure to media. We conducted this study to determine the prevalence of obesity among adolescents belonging to well-to-do families of Ludhiana.

## METHODS

The school based cross sectional study was conducted on 1000 adolescents, including equal number of boys and girls. The study was done in public schools catering to the affluent segment of population, with annual school fees more than Rs 20,000/- per annum. The schools were selected by random selecting technique using purposive sampling procedure keeping in view the operational feasibility. The students were required to fill the pre-validated questionnaire including information on parameters like—socio-economic status, dietary habits and exercise pattern. The measurement of height and

body weight of each student was recorded by following the standard techniques and body mass index calculated. The international cutoff points for the body mass index were used; BMI  $\geq$ 95th percentile for age and sex was considered as obese and BMI  $\geq$ 85th percentile was considered as overweight(1). The results were analyzed statistically by applying students *t*-test, *Z*-test and Chi-square ( $\chi^2$ ) test. *P*-value  $<$ 0.05 was taken as significant.

## RESULTS

Overall incidence of obesity in the study group was 3.4%, with no significant difference between boys and girls. A significantly greater number of boys (15%) as compared to girls (10.2%) were overweight. More than half of the adolescents in the study group, 57.2% of boys and 52.8% of girls, spent 1-4 hours/day viewing TV or sitting at the computer. Out of the total obese children, significant percentages (82.3%) were non-vegetarian, where as only 8.8% of vegetarians and ova-vegetarians were obese. A normal body mass index was most characteristic of vegetarians. The incidence of obesity/overweight was found to be significantly higher in those adolescents who ate meals outside home. The mean scores of replacing snacks for meals were significantly higher in obese and over-

**WHAT THIS STUDY ADDS?**

- The prevalence of obesity and overweight was 3.4% and 12.7%, respectively in affluent adolescents from Ludhiana, Punjab.

weight adolescents as compared to adolescents with a normal body mass index.

**DISCUSSION**

Obesity is a global nutritional concern. The prevalence of obesity is high in developed countries and similar trends are being observed in recent years among children from developing countries(2-4). School based data on obesity in India shows a prevalence of 5.6-24% among children and adolescents(5). The large range in the reported prevalence of overweight and obesity could be due to regional differences, non-uniformity in the criteria used to classify socio economic status and, the different age range of the children studied. In the present study, the prevalence of obesity was 3.4% and overweight was 12.7% Kapil, *et al.*(5) reported a 7.4% prevalence of obesity in affluent school children in Delhi where as Khadilkar, *et al.*(6) reported a prevalence of obesity to be 5.7% and overweight 19.9% among affluent school boys in Pune.

One of the major reasons for childhood obesity is watching television or using computers. In our study more than half of the adolescents spent 1-4 hr/day on sedentary activities. Physical inactivity has not only a prime role in the development of overweight and obesity, but also in the development of chronic diseases such as heart disease, diabetes, hypertension, cancers and osteoporosis in later life. Eating out has become a trend these days. Youngsters prefer to go out with their friends for meals, though families also go out together. In the present study, about 52 per cent children ate meals outside the home, boys more frequently than girls (60% and 43% respectively) which had significant correlation with obesity. The results of this study were consistent with the studies done by Baudier, *et al.*(7), Bhatia, *et al.*(8), and Lin, *et al.*(9) who reported that majority of adolescents like to eat meals outside home and prefer junk food over regular

meals. Since snacking is becoming a part of adolescent food habits, it is important to provide a variety of nutritious snacks in schools and at home(10). As indicated from the available studies(11,12) in most of the high income population, the overweight and obesity track from childhood to adulthood. The Punjabi population may also experience a high prevalence of adulthood obesity similar to the developed countries. Therefore, appropriate measures to prevent further progression of the problem into an epidemic must be taken right at this stage; otherwise obesity could emerge as the single most important public health problem in adults.

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