

PREVALENCE AND RISK FACTORS FOR OVERWEIGHT AND OBESITY AMONG SCHOOL GOING CHILDREN IN AMALAPURAM MANDAL, ANDHRA PRADESH

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ABSTRACT

OBJECTIVE

To assess the prevalence and risk factors for overweight and obesity among school going children from 6th to 10th standard in both government and private schools and to compare the prevalence of overweight and obesity between government and private schools.

METHODS

It was a cross-sectional study, 1024 children between 6th to 10th standard were enrolled, BMI was obtained in all.

RESULTS

The prevalence of overweight and obesity was 1.46% and 0.29% in government school compared to 6.45% and 5.76% in private schools with significant p value (0.015).

CONCLUSION

Prevalence of overweight and obesity was high among children from private schools compared to those from government school.

KEYWORDS

BMI, Overweight, Obesity.

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INTRODUCTION: Obesity is an important public health problem associated with risk of complications in childhood and increased morbidity and mortality throughout adult life. The prevalence of overweight and obesity have doubled over the past two decades in developed and developing countries including India.^[1,2] 42 million children under the age of 5 are overweight or obese, 39% of adults aged 18 years and above are overweight and 13% are obese in 2014.^[3] Children's risk varies by socioeconomic status, race, maternal education level, gender, diet and life style.^[4] Childhood obesity increases the risk of adult obesity as well as chronic health problems such as type 2 diabetes, hypertension, cardiovascular diseases and other comorbidities.^[5] The increased indulgence in sedentary activities like watching television, sitting in front of computers is also contributing to failure of weight reduction measures in children and adolescents. As obesity is preventable, the prevention and treatment of obesity has emerged as a challenge to the paediatrician.

METHODS: This study was conducted over a period of 1 year in three schools of Amalapuram out of which one was a private school and two were government schools.

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This was an institutional based cross-sectional study and the study population included all children from both genders aged between 10-15 years and studying in 6th to 10th standard. Children with features suggestive of syndromic and endocrinologic obesity like dysmorphic facies, hypogonadism, mental retardation, syndactyly, polydactyly, etc. were excluded. Children below 6th standard and above 10th standard also were excluded from the study. Total of 1024 children participated in the study, 512 each from government and private schools. After obtaining prior permission from the school authorities, anthropometric data was collected from 1024 children and body mass index was calculated as per the formula wt. in Kg/Height in metre².

Electronic weighing scale used to measure body weight to the nearest 0.1 kg accuracy, stadiometer was used to measure height to the nearest 0.1 cm accuracy with subjects lightly dressed and without shoes. Waist circumference was measured midway between the lateral lower rib margin and the uppermost lateral border of iliac crest, in standing position, at the end of gentle expiration thrice and mean of 3 values was used. Predesigned questionnaire was used to collect personal data, family history of obesity, diabetes, heart disease, dietary habits, physical activity, screen time, etc. WHO 2007 BMI percentile chart was used to plot body mass indices.

All children whose body mass index was between 85th to 95th percentiles were classified as overweight and those children whose body mass index was above 95th percentile were classified as obese. Statistical analysis was done using SPSS windows version 19.0.

RESULTS: The mean weight of children from government schools was 35.45 ± 8.62 kg and from private school was 43.34 ± 10.79 kg (p value < 0.001). The mean height of children from government school was 1.47 ± 0.11 cm and that from private school was 1.50 ± 0.09 cm which is statistically significant (p value < 0.001).

The mean waist circumference of all overweight and obese children from government school was 72.83 ± 5.36 cm and that from private school was 76.68 ± 6.45 cm (p=0.017). The mean BMI of students from private school was 18.88 ± 3.67 , significantly higher than the value from government school, 15.95 ± 2.15 .

	Govt.	Govt.	Private	Private	Total
Age in years	Overweight	Obesity	Overweight	Obesity	
10	2	0	3	1	6
11	1	0	20	12	33
12	3	1	18	16	38
13	5	0	12	18	35
14	3	1	7	5	16
15	1	1	6	7	15
Total	15(1.46%)	3(0.29%)	66(6.45%)	59(5.76%)	143(13.96%)

Table 1: The Prevalence of Overweight and Obesity among Government and Private Schools as Per Age

The above table showing prevalence of overweight and obesity in both types of school out of all participated 1024 subjects. Total prevalence combining both government and private schools is 13.96% with p value 0.015 and Chi square value 5.93. Also it can be seen that prevalence was more in subjects from private schools with p value < 0.05 which is statistically significant. In the present study, 677 were boys in whom results of overweight and obesity were 40(5.91%) and 30(30%). Among 347 girls, the values were 41(11.78%) and 32(9.19%). Therefore, prevalence of overweight and obesity combined together was more in girls compared to boys. In the present study, out of 143 children with body mass index $> 85^{\text{th}}$ percentile, family history of obesity was noted among 43 children, hence family history was positive in 30.06% subjects. In 94(65.7%) out of 143 overweight and obese children excessive screen time was noticed and 111(77.6%) children were found to be less involved in physical activities. Regarding habit of consumption of junk foods, the figure was 95(66.40%).

DISCUSSION: In the present study of 1024 children, the prevalence of overweight was 81(7.91%) and that of obesity was 62(6.05%), combined 143(13.96%). Our study results are comparable with previous studies in India from Chennai by Vedavathi et al.^[6] where prevalence of obesity was 6.2%. In a similar study by Jagadesan et al in Chennai in 2013, among adolescent school children of Government and private schools, the prevalence of overweight and obesity was 21.4% and 3.6% among private and government schools and the prevalence was 16.2% among boys, 21.3% among girls.^[7] 50-80% of obese children will continue as obese adults and fall into risk group of diabetes, hypertension, coronary artery disease and other obesity related diseases.^[8]

In the present study, consumption of junk foods at fast food outlets^[9] was detected as a risk factor in 95(66.4%) children who are overweight or obese. This is comparable to the study by Weicha et al for children among 6th to 10th grade in Boston. The association of screen time with overweight and obesity was found in 94(65.7%) children. The association of longer television viewing and other

sedentary habits with obesity is on the rise in developing countries^[10,11] as evidenced from our present study also.

In this study, positive family history of obesity was found in 43(30.06%) subjects who were obese or overweight comparable to the study by Whitaker et al.^[12] where family history was positive in 26% of the subjects. Decreased physical activity as a risk factor for obesity was found in 111(77.6%) children which is comparable to the study results of Jamn gramm et al.

CONCLUSION: To conclude, the prevalence of overweight and obesity is high among children from private schools and in girls. The overweight children are more in number compared to obese children, towards whom preventive strategies can be applied to stop progressing to obesity. Excessive television or computer spending time, consumption of junk foods, lack of physical activity are the main factors associated with obesity. Therefore, school based programs will be most likely successful but media should play a major role in spreading awareness. Recommendations made by Yashpal committee, Kothari commission should be implemented by the schools in increasing the physical education classes and providing proper dietary advice. Comprehensive strategies which include parents, school authorities and medical practitioners is required to prevent children from becoming overweight and obese, thus preventing the associated morbidities and mortality.

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