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Evaluation the pervasiveness of obesity among Children's at National Institute of medical science and research Jaipur Rajasthan

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Abstract
Introduction: Obesity is associated with an increased risk of morbidity and mortality as well as reduced life expectancy. The objective of the study was to assess the prevalence of obesity among children of age group 4-12 years.
Materials and Methods: Height without shoes was measured using metal column height-measuring stands to the nearest 0.1 cm. Weight was measured using lever scales to the nearest 0.1 kg while the subjects wore their light clothes. Height of the child was measured using a stadiometer.
Results: The sample size of 100 patients was selected for the study in which 48 were girls whereas 52 were boys. In age group 4- 6 years 22 were boys and 24 were girls. In age group 7-10 years 14 were boys and 18 were girls. In third age group between 11-12 years 8 were boys and 14 were girls the presence of obesity in all age group was more in girls.
Conclusion: Our study showed higher prevalence of overweight and obesity among females so there is also an urgent need to increase awareness via education and motivation.

Keywords: Overweight, obesity, morbidity, mortality

Introduction

The factors attributing to increasing childhood obesity are increased intake of high-calorie foods that are low in vitamins, minerals and micronutrients coupled with decreased physical activity [1]. Many factors, including genetics, hormonal influence, inutero environment, metabolic changes, lifestyle changes, socioeconomic status, nutrition status of parents, sleep pattern and eating habits, are believed to play role in the development of obesity. But, more than 90% of cases are due to modifiable factors and only less than 10% are due to hormonal or genetic changes. Addressing different areas by focusing on behavioral changes and environmental modification towards healthier lifestyles will be the primordial treatment to decrease childhood obesity. Data from India related to obesity rates in children and adolescents comparing both national and international cut-offs are scarce. We present the age- and sexspecific prevalence of overweight and obesity among children and adolescents in Chennai using the International Obesity Task Force (IOTF) guidelines which corresponds to an adult-equivalent body mass index (BMI) of 25 kg/m2 and 30 kg/m2, [2] and Khadilkar's Asian Indian guidelines for children and adolescents [3]; which corresponds to an adultequivalent BMI of 23 kg/m2 and 28 kg/m2, respectively.

Overweight and obesity are major risk factors for a number of chronic diseases, including diabetes, cardiovascular diseases and cancer. Obesity in children and adolescents is gradually becoming a major public health problem in many developing countries, including India [4]. 'One-half of obese school children become obese adults. However, whether or not obesity persists into adulthood, obesity in childhood appears to increase the risk of subsequent morbidity' [5-7]. Significance of estimating prevalence of childhood obesity thus cannot be overemphasized.

Materials and Methods

The study was conducted among 100 children of age group 4-12 years. Permission was obtained from the Institutional Ethics Committee ………………to conduct the study. Informed written consent was obtained from one of the child's parents and in addition assent was obtained from the child before conducting the study.

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Height without shoes was measured using metal column height-measuring stands to the nearest 0.1 cm. Weight was measured using lever scales to the nearest 0.1 kg while the subjects wore their light clothes. Height of the child was measured using a stadiometer. Standing height was measured by making the child to stand against the fixed calibrated rod with the adjustable head rest without footwear, standing erect, looking forward with feet's together. Weight was measured in kilograms using a standard electronic weighing machine without footwear and with light clothes. Body mass index (BMI) was calculated from their height and weight (kg/m2). The BMI cutoff points recommended by the International Obesity Task Force were used to define overweight and obesity.8 Questionnaire and profoma are distributed to the school children on the day of parents teachers meet and details filled by the author. Age was taken as per the completed years on the school records. Statistical analysis was done by using SPSS, version 22 (SPSS, Inc., Chicago, IL) and $p< 0.05$ was considered statistically significant.

Results

The children were divided according to different age groups. First age group includes children between age of 4 to 6 years whereas in second age group children of age group 7 to 10 years were included and Third age group children of age group 11 to 12 years were included. The sample size of 100 patients was selected for the study in which 48 were girls whereas 52 were boys, Gender Distribution were shown in Figure 1. In age group 4- 6 years 22 were boys and 24 were girls. In age group 7-10 years 14 were boys and 18 were girls. Gender Distribution according to age group were shown in figure 2. In third age group between 11-12 years 8 were boys and 14 were girls the presence of obesity in all age group was more in girls. Figure 3.
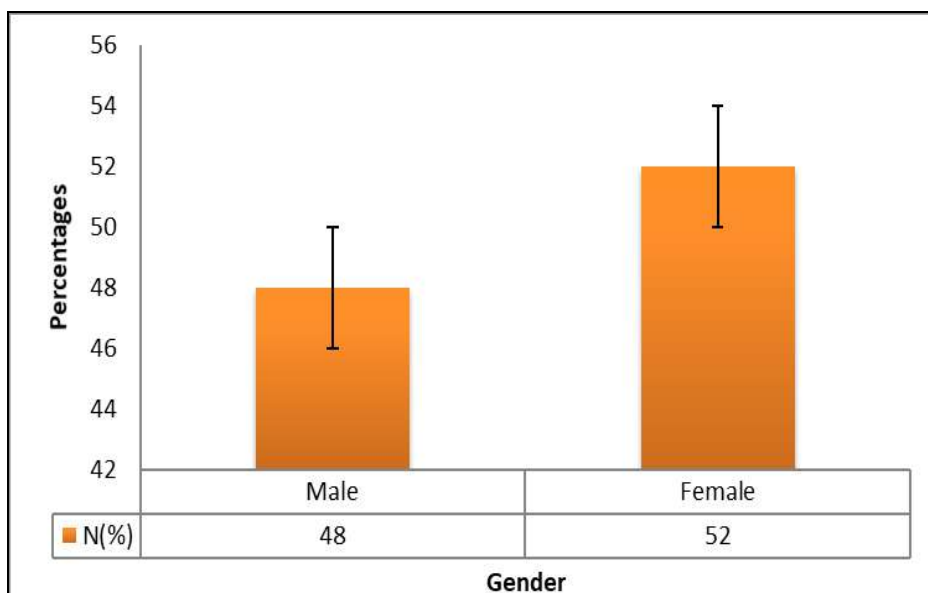
Fig 1: Gender Distribution
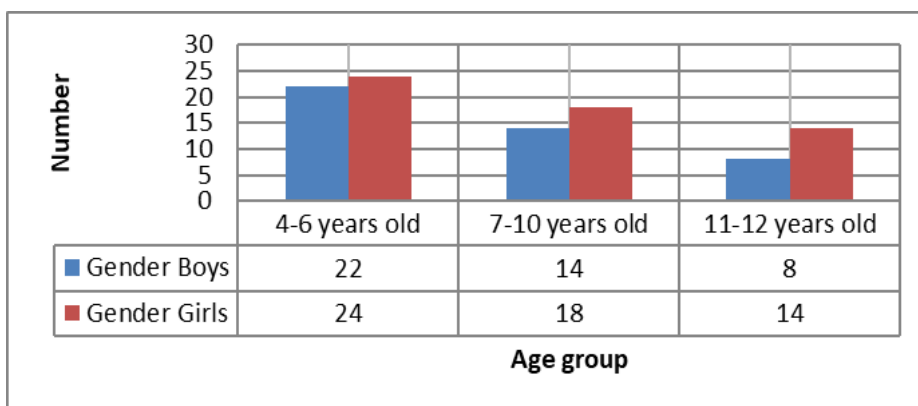
Fig 2: Gender Distribution according to age group
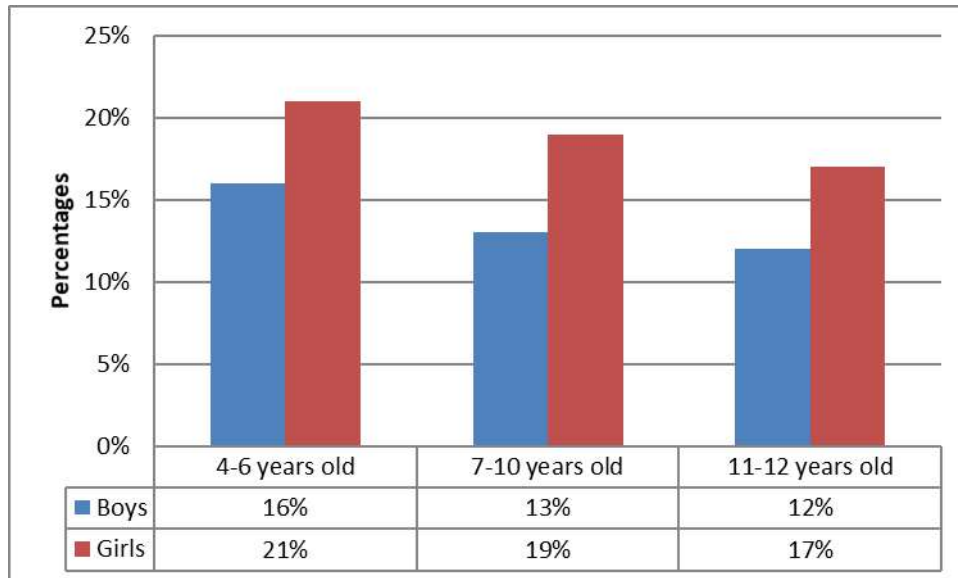
Fig 1: Prevalence of obesity in different age group of school children

Discussion:
In a study conducted by Ramachandran *et al*. [8] on Southern Indian children, the prevalence of overweight (BMI >25) was found to be 17.8% in boys and 15.8% in girls, whereas obesity (>30 kg/m 2) was higher in boys (3.6%) and rare in girls (2.9%) [9].

Verma *et al*. conducted a study and reveal that the prevalence of overweight obese children was 7.5%. The prevalence of obesity was maximum in 18-year age group (15%) and minimum in 15 years of age group (3.2%). Obesity was more in male children than female children [10].

The sample size of 100 patients was selected for the study in which 48 were girls whereas 52 were boys,. In age group 4-6 years 22 were boys and 24 were girls. In age group 7-10 years 14 were boys and 18 were girls. In third age group between 11-12 years 8 were boys and 14 were girls the presence of obesity in all age group was more in girls.

In a study of Zhang X *et al* the prevalence of obesity among primary school children was 11.7% (14.5% for male students and 8.2% for female students) respectively [11].

Prevalence of overweight and obesity was 5.07% (9%5 CI: 4.20-6.11) [12] and 2.61% (95% CI: 2.00-3.40) [12], respectively, among children residing in urban areas, higher than those in rural areas with reported prevalence for overweight and obesity of 1.76% (95% CI: 0.93-3.32) [12] and 0.2% (95% CI: 0.03 to 1.10) [12] respectively. Children from urban areas were 3.04 times (95% CI: 1.52-6.09) and 14.10 times (95% CI: 1.94-102.38) [13] at greater risk of being overweight andobese compared to children in rural areas. Similar trend was observed in other studies [13].

It was observed that prevalence of overweight and obesity was 2.84% (95% CI: 2.09-3.86) [12] and 1.82% (95% CI: 1.24-2.68) [12], respectively, among children studying in Government schools, whereas it was found to be higher among children studying in private schools, being 6.23% (95% CI: 4.99-7.77) (17) and 2.48% (95% CI: 1.73-3.53) [12], respectively. Children from private schools were 1.71 times (95% CI: 1.14-2.56) [12] and 1.06 times (95% CI: 0.61-1.83) [12] at greater risk of being overweight and obese, respectively, compared to children in Government schools. Similar trend was also observed in other studies [15, 16]. These findings suggest that children belonging to relatively higher socioeconomic strata who are likely to study in private schools and reside in urban areas, are at higher risk of obesity, most likely due to associated lifestyle changes leading to inappropriate diet and increasing levels of physical inactivity.

Consumption of Junk food, dietary habits, sedentary lifestyle and easy modes of transport to school are the contributors that give rise to the higher prevalence of obesity in children. Health education regarding prevention of obesity should be given to parents to assess healthier lifestyle motivation among their children.

Conclusion
Our study showed higher prevalence of overweight and obesity among females so there is also an urgent need to increase awareness via education and motivation. Risk factors identified were sedentary lifestyle; unhealthy food patterns, sleep deprivation and birth weight and most of these factors are modifiable. Protective factors identified were to prefer fruits and vegetables for healthy diet, adequate physical activity and outdoor play and visiting restaurants rarely.

References
1. Kaushik JS, Narang M, Parakh A. Fast food consumption in children. Indian Pediatr. 2011;48:97-101
2. Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. Establishing a standard definition for child overweight and obesity worldwide: international survey. BMJ. 2000; 320:1240-3.
3. Khadilkar VV, Khadilkar AV, Borade AB, Chiplonkar SA. Body mass index cut-offs for screening for childhood overweight and obesity in Indian children. Indian Pediatr. 2012;49:29-34.
4. Popkin BM, Doak CM. The obesity epidemic is a world wide phenomenon. Nutr Rev 1998;56:106-14.
5. Must A, Strauss RS. Risks and consequences of childhood and adolescent obesity. Int J Obes Relat Metab Disord. 1999;23:S2-11.
6. Gidding SS, Bao W, Srinivasan SR, Berenson GS. Effects of secular trends in obesity on coronary risk factors in children: The Bogalusa Heart Study. J Pediatr. 1995;127:868-74.

7. Chu NF, Pan WH. Prevalence of obesity and its comorbidities among schoolchildren in Taiwan. Asia Pac J Clin Nutr. 2007;16:601-7.
8. Sundquist J, Johansson SE. The influence of socioeconomic status, ethnicity and lifestyle on body mass index in a longitudinal study. Int. J Epidemiol. 1998;27(1):57–63.
9. Ramachandran A, Snehalatha C, Vinitha R, *et al*. Prevalence of overweight in urban Indian adolescent school children. Diabetes Res Clin Pract. 2002;57(3):185-90
10. Verma V, Bagri DR, Sharma VK, Barouha R, Haque FA. Predictors of prevalence of overweight and obesity in children. Int J Stud Res. 2015;5:28-33.
11. Zhang X, Zhang F, Yang J, Yang W, Liu W, Gao L, *et al*. Prevalence of overweight and obesity among primary school-aged children in Jiangsu Province, China, 2014-2017-2018. PLoS
12. Herbert Rob. [Last cited 2009 Dec 27]. Available from: http://www.pedro.org.au/wpcontent/uploads/CIca lculator.xls.
13. Hutchon David JR. BSc, MB, ChB, FRCOG Consultant Gynaecologist, Memorial Hospital, Darlington, England. [Last cited 2009 May 29]. Available from: www.hutchon.net/confidOR.htm.
14. Raj M, Sundaram KR, Paul M, Deepa AS, Kumar RK. Obesity in Indian children: Time trends and relationship with hypertension. Natl Med J India. 2007;20:288–93. [PubMed] [Google Scholar]
15. Laxmaiah A, Nagalla B, Vijayaraghavan K, Nair M. Factors Affecting Prevalence of Overweight Among 12- to 17-year-old Urban Adolescents in Hyderabad, India. Obesity. 2007;15:1384–90. [PubMed] [Google Scholar]