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Document heading **doi: 10.21276/apjhs.2017.4.2.37** **Research Article**

Prevalence of obesity among apparently healthy school children aged5– 15years of shimoga town

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ABSTRACT

Developing countries are undergoing nutritional transition due to increased economic development and market globalization leading to rapid changes in lifestyle and dietary habits. Malnutrition, in every form, presents significant threat to human health. Developing countries like India are facing the peculiar situation of having to deal with both ends of the spectrum (under-nutrition and over nutrition) of nutritional disorders. Girls were found to be more obese than boys and the difference is statistically significant.

Key Words: Obesity, BMI , Anthropometry, Shimoga.

Introduction

Malnutrition ,in every form, presents significant threat to human health. The world today faces a double burden of malnutrition which includes both under nutrition and obesity, especially in developing countries [1].In India, approximately 19% (190million)of the growing population comprises school-aged children ofwhom30%(48 million)currently reside in urban India childhood obesity is a single marker of the child at risk for development of various non- communicable diseases later in life[2].Invariably obesity is a product of imbalance between energy intake and energy output. Several factors such as overeating, psychosocial factors,physical inactivity and genetic predisposition trigger this energy imbalance[3].On one hand, undernutrition is an epidemic which has been invogue for ages. On the other hand, overnutrition evident as overweight and obesity has been recently on the rise. Elevated blood pressure in children and adolescents may be a nearly expression of essential hypertension in adulthood [4].

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Aims and objectives

To estimate the prevalence of obesity among apparently healthy school childrenaged5-15years of Shimoga town.

Materials and methods

A) Type of study: Cross-sectional study.
B) Study area: Shimoga urban area(school-based study)
C)Study period: from September 2015to and August2016
D) Sample number: Sample size for the study is 500.
Inclusion criteria: Apparently healthy school children aged 5-15years of Shimoga town.
Exclusion criteria: Children below 5years and above 15years.Childrenwithchronic illness and long term medications. Children with congenital anomalies. Children diagnosed to be obese and hypertensive secondary to other cause.

Study methods

A list of schools with fee structure of around 20,000 Indian rupees (INR) per annum in the urban area of Shimoga was obtained and the permission to undertake the study in such schools were obtained from the school principals. From the list of schools four schools were selected using lottery method of simpler and on sampling.

Initially questionnaires were issued to the students. After the questionnaire was filled up, students were asked to come to the investigator with their questionnaires in hand and then their weight and height were measured one by one and were noted in their respective questionnaires with the help of teachers. After collection of data from all the four schools, the questionnaires were used for analysis.

Data analysis was done using MS Excel software, EpiInfo 7version software andalsoSPSS17version software.

Results

Table 1: Age group and gender distribution of the study sample

Age(years)	Male n (%)	Female n (%)	Total n (%)
5-8	60(20%)	40(20%)	**100(20%)**
9-12	100 (33.3%)	80(40%)	**180 (36%)**
13-15	140(46.7%)	80(40%)	**220(44%)**
Total	300(100%)	200(100%)	500(100%)

Note: Percentages indicate column percentages

The above table shows that,60% (300)children are malesand40% (200)children are females. Most of the study subjects were aged 13-15 years.

Table 2: Age group distribution of obese and overweight children

		Normal	Overweight	Obese	Total
Age(yrs)	5	18(90.0%)	1(5%)	1(5%)	20(100%)
	6	18 (90.0%)	1 (5%)	1(5%)	20 (100%)
	7	28(93.4%)	1(3.3%)	1(3.3%)	30(100%)
	8	28(93.4%)	1(3.3%)	1(3.3%)	30 (100%)
	9	36(90%)	2(5%)	2(5%)	40(100%)
	10	37(92.5%)	2(5%)	1(2.5%)	40(100%)
	11	46(92%)	2(4%)	2(4%)	50(100%)
	12	44(88%)	4(8 %)	2(4%)	50(100%)
	13	55(91.7%)	3(5%)	2(3.3%)	60(100%)
	14	72(90%)	5(6.3%)	3(3.7%)	80(100%)
	15	71(88.7%)	5(6.3%)	4(5%)	80(100%)
Total		450(90%)	30(6%)	20(4%)	500(100%)

The above table shows that 90% of children are in the normal range of BMI,6% are overweight and 6% are obese.

Table 3: Sex wise distribution of prevalence of non-obese and obese with hypertension and non-hypertension

Sex	BMI			Total
	Non obese	**Overweight**	**Obese**	
Male	280 (92%)	15(5%)	5 (3%)	**300 (100%)**
Female	170 (85)	15(7.5%)	15 (7.5%)	**200 (100%)**
Total	450 (90%)	30(6%)	20 (4%)	**500 (100%)**

The chi-square statistic is 12.3843. The *p*-value is .002045. The result is significant at *p*< .05.

The association between rows (groups) and columns (outcomes) is considered to be very statistically significant. The table shows7.5% females are obese whereas only 3% males are obese. Thus prevalence of obesity is more in girls than in boys and the observation is statistically significant. 5% males are overweight whereas only 3% females are overweight. Thus prevalence of obesity is more in girls than in boys and the observation is statistically significant.

Discussion

Study was undertaken in "Shimoga" town, being a locality of Subbaiah Medical College, Shimoga. The present study was carried out among 500 apparently healthy school children aged 5-15years.60% (300) children are males and 40% (200) children are females. Most of the study subjects were aged13-15 years. Many studies have been conducted to estimate the prevalence of undernutrition and overweight/obesity in India. Different studies across the country have showed a prevalence of obesity ranging from 2.1% to 9.9%.

Out of the study population of 500(100%), 450(90%)are apparently healthy school children. 10%areobese which is higher than the study done by Premnath *et al*, Deoke *et al*[5,6].

In the present study out of 300(100%)boys, 8%(20)were obese whereas out of 200(100%) girls, 12%(30) were obese. 4% are obese and 6% are overweight.

Girls were found to be more obese than boys and the difference is statistically significant similar to Mudur *et al* [7] and Sonya Jagadesh *et al*[8] Outof50obeseand overweight children, majority belonged to11-15years age group.

Obesity and overweight have both been described as anomalous accumulation of excessive body fat which may be harmful to health [9]

7.5% females are obese whereas only 3% males are obese. Thus prevalence of obesity is more in girls than in boys and the observation is statistically significant. 5% males are overweight whereas only 3% females are overweight. Thus prevalence of obesity is more in girls than in boys and the observation is statistically significant.

Conclusion

In the present study, prevalence of obesity is 10% among apparently healthy school children aged 5-15 years of Shimoga. Prevalence of obesity is more in girls than in boys and the observation is statistically significant. Thus, timely recognition and intervention will result in decreased adulthood morbidity and mortality.

Conflict of Interest: None
Source of support: Nil

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