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PREVALENCE OF OVERWEIGHT AND OBESITY AMONG SCHOOL GOING CHILDREN.

Pediatrics

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ABSTRACT

Aim: The aim was to determine the prevalence of obesity and overweight among students.

Methodology: It was a cross sectional observational study, all participating subjects were assessed for inclusion – exclusion criteria, and on qualification they were requested to fill up self-designed questionnaire followed by measurement of height and weight of the students were recorded.

Results: A total of 128 students, consisting of 73 male and 55 female (57% and 43% respectively) with mean age of 13.02 ± .58 years participated. Based on BMI categorization a total of 10 (7.8%) students were underweight; 82 (64.1%) students were healthy weight; 28 (21.9%) were Overweight and 8 (6.2%) students were obese.

Conclusion: This study finds a prevalence of overweight as 21.9% and 6.2% of obesity among school students.

KEYWORDS

Overweight Obesity; Prevalence; Children.

INTRODUCTION

There are estimated 243 million adolescent population in India [1], prevalence of overweight and obesity is reportedly increasing day by day and there maybe multiple factors responsible for it. The current prevalence of childhood overweight in India ranges from 4% to 27.5% across various studies and obesity ranges from 1% to 12.9% among Indian children.[2-10]

Obesity is now the considered as ongoing epidemic, mostly due to increased intake of high energy food and reduced exercise. A study of rural Kerala state exposed the fact that the percentage of overweight and obese children are growing in rural areas of Kerala, they also showed that obesity was seen more in boys [11].

There are lack of Indian studies reporting prevalence of Obesity of child and adolescent population, specially in school going children. In view of the paucity of Indian studies on prevalence of obesity among school students, we planned this cross sectional observational study to assess the prevalence and gender difference among school students.

METHODOLOGY

This was a cross-sectional school based study, conducted at a English medium high school at Agra, Uttar Pradesh, India during June 2018. The permission for carrying out the study was obtained from school authorities. Voluntary consent was obtained after sharing the objectives of the study and reassuring the participants about their anonymity (by not recording their names) and the confidentiality of information they were providing. The printed data sheets were distributed in the class room and consenting students completed and submitted the socio-demographic data sheet and other questionnaire. Participating Students were measured for their height and weight.

SUBJECTS

All students of both sexes studying in class VIII and IX, who gave consent, were included for the study. Those with any diagnosed concurrent chronic medical illness and other disabilities were excluded.

Tools

Socio-demographic Data Sheet: The socio demographic data sheet included age, gender, number of siblings, parenting style, hobbies and health concerns. To maintain the confidentiality of individual student the name and roll number of the students were not recorded.

Procedure: It was a cross sectional observational study. Study was conducted consenting school premises and all subjects were assessed for inclusion – exclusion criteria, and on qualification they were requested to fill up self-designed questionnaire consisting of questions pertaining to socio-demographic data printed on a single sheet paper. This paper were distributed among students and submitted back by students on completion of questionnaire. Subsequently height and weight of the students were measured and recorded.

Body weight was measured (to the nearest 0.5 kg) with the subject standing motionless on the weighing scale with feet 15 cm apart, and weight equally distributed on each leg. Height was measured (to the nearest 0.5 cm) with the subject standing in an erect position against a vertical scale and with the head positioned so that the top of the external auditory meatus was in level with the inferior margin of the bony orbit.

Body mass index (BMI) was calculated as weight in kilograms/(height in meter)^2. Overweight and obesity was assessed by BMI for age.[12] Children with BMI of 25 and above were considered overweight and children with BMI more than 30 were considered obese. Data were analyzed using SPSS version 11.5.

STATISTICALANALYSES

The collected data of all patients was statistically analyzed, using Statistical Package for Social Sciences (SPSS, Inc., Chicago, Illinois) version 10.0. Data analysis included means and standard deviations for continuous variables. Frequency analysis for categorical variables was used to determine the prevalence of obesity.

RESULTS

A total of 128 students, consisting of 73 male and 55 female (57% and 43% respectively) were included for the study, Table 1-3 summarizes the sample characteristics and findings. The mean age of the group was 13.02 ± .58 years (table -3) . The 24 students were only child in their family, 53 (41.4 %) students were younger sibs, 41 (32%) students were eldest in family and only 10 (7.8%) were middle child of family (table-1). Based on BMI categorization a total of 10 (7.8%) students were underweight; 82 (64.1%) students were healthy weight; 28 (21.9%) were Overweight and 8 (6.2%) students were obese (Table - 1), similarly gender wise BMI categorization is shown in table-2.

The mean BMI of the sample was 21.82 ± 3.30, however the BMI for male students was found to be 21.63 ± 3.29 and for female students it was 22.07 ±3.33 (t = -.748 df =126, p value = .456). (Table-3)

DISCUSSION:

Purpose of this present study was to see the prevalence of overweight and obesity among school students. We found 21.9 % prevalence of

overweight and 6.2% prevalence for obesity. We compared to mean BMI of male and female students, but it was almost similar for the both groups, however we find slightly higher BMI among females. The found results of prevalence are comparable to many earlier studies [2-11] and this affirms the fact that the prevalence of overweight and obesity is increasing and may called as metabolic epidemic. Overweight or Obesity is the result multiple factors with wide variety of reasons but the final pathway involves "caloric imbalance" which means less calories expended for the amount of calories consumed. The long list of etiological factors may be grouped as genetic, behavioural, and environmental factors.[13]

As on Indian context with economical growth there is rapid change in socio cultural aspect of nutritional habits and physical activities. These change in lifestyle and food habits leads to increased prevalence of obesity and overweight in all age groups. In a review that included 42 epidemilogical studies, shows the trend of increased prevalence of obesity and overweight among Indian children from 16 % in 2001 to 19.3% in studies reported after 2010 [14]. This increasing trend is being continuing to increase, as our study found jointly 27.1% of prevalence for overweight and obesity.

In ours study we did not found any significant gender difference when we compared the mean BMI across gender. But when we look for frequency of overweight across gender it was found to be 19.2% vs 25.5% respectively for male and female students. Similarly for obesity it was 6.8% vs 5.5 % for male and female students. A similar study done with school children in urban Chennai found the number of overweight boys to be 17.8% and girls 15.8 %. They also remarked that in affluent cities of India, the prevalence of obesity reaches the levels of industrialized countries, with values increasing with socioeconomic class. [15]. However there are lots of conflicting ideas about BMI based classification or definition of overweight or obesity, specially when economically affluent society or developed country is being compared to lower economical class or developing country. In fact Lower BMI (body mass index) cut-offs of 23 and 25 kg/m2 have been suggested by the World Health Organization (WHO) and International Obesity Task Force for Asian Indian adults for overweight and obesity, respectively [16].

In future we need larger samples size, along with a simultaneous assessment of etiological factors, quality of life, burden of various other psychological problems associated with obesity. The importance of the study reflects from the dramatic increase in the prevalence of obesity among school children is warranting strong and comprehensive prevention efforts. Schools have been identified as a key setting for public health strategies to prevent overweight and obesity. (17)

CONCLUSION: This study finds a prevalence of overweight as 21.9% and 6.2% of obesity among school students.

TABLE- 1 : Demographic profile of the sample and distribution of variables along with percentage.

		n = 128	%
Gender	Male	73	57.0
	Female	55	43.0
Number of Sibs	0	24	18.8
	1	78	60.9
	2	19	14.8
	3	7	5.5
Sibling Seniority	No sibs	24	18.8
	Eldest	41	32.0
	Youngest	53	41.4
	Middle	10	7.8
BMI category	Underweight (below 18.5)	10	7.8
	Healthy (BMI =18.5-24.9)	82	64.1
	Over weight (BMI =25+)	28	21.9
	Obesity (BMI =30+)	8	6.2

TABLE 2: Gender Wise Distribution Of Bmi Based Classification

		n	%
Male students	Underweight (below 18.5)	7	9.6
	Healthy (BMI =18.5-24.9)	47	64.4
	Over weight (BMI =25+)	14	19.2
	Obesity (BMI =30+)	5	6.8
	Total	73	100.0
Female students	Underweight (below 18.5)	3	5.5
	Healthy (BMI =18.5-24.9)	35	63.6
	Over weight (BMI =25+)	14	25.5
	Obesity (BMI =30+)	3	5.5
	Total	55	100.0

TABLE 3: Mean Values Of Continuous Variables And T Test To Compare Mean BMI Across Gender

Age	**Mean ± SD**	**13.02 ± 0.58**		
BMI	Mean ± SD	21.82 ± 3.30		
		t	df	p value
Mean BMI Males	21.63 ± 3.29	-.748	126	.456
Mean BMI Female	22.07 ±3.33			

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