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CHILDHOOD OBESITY AND ITS IMPACT ON HEALTH

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Abstract

BACKGROUND: Statistics indicating the worrisome rate at which the issue is growing have brought forth a lot of recent media emphasis on obesity. Obesity has traditionally only been associated with adults, growing more common as people age. However, as a result of children's sedentary lifestyles brought on by a variety of circumstances, obesity in youngsters is now on the rise. The prevalence of childhood obesity has increased, and it is becoming increasingly difficult to control. In fact, the issue is getting so terrible that people are starting to worry that the present generation of kids would be the first in centuries to have a shorter life expectancy than their parents.

AIM: To assess the prevalence of overweight and obesity among pre-school and school children and its impact on their health

MATERIAL AND METHODS: The study was conducted in the Department of Pediatrics, as the investigator was familiar with the area and a good rapport was established with the school authorities. Moreover, data on the prevalence of overweight and obesity among pre-school children, school going children and adolescents in this area was not available. The investigator selected children in the age group of 3 to 12 years for the study. A total of 1800 subjects were screened for the prevalence of overweight and obesity in the age group of 3-12yr. Among the 1800 surveyed school children subjects, 480 were overweight and 130 were obese.

RESULT: It is inferred from the above table that among the selected subjects, 4 percent of obese boys and 6 percent of obese girls were in the age group of 3-5 years. 6 percent of obese boys and 9 percent of obese girls were in the age group of 6-8 years. 8 percent of obese boys and 14 percent of obese girls were in the age group of 9-12 years. 18 percent of overweight boys and 8 percent of overweight girls were in the age group of 3-5 years, 30 percent of overweight boys and 19 percent of overweight girls were in the age group of 6-8 years and 34 percent of overweight boys and 34 percent of overweight girls were in the age group of 9-12 years.

CONCLUSION: A culture that encourages overeating and discourages exercise is to blame for the current obesity epidemic. Controlling portion size, eating a low-fat, low-energy density diet, and engaging in regular physical activity are all habits that can help prevent obesity, but it is become more and more difficult to adopt and sustain these behaviors in the current climate.

KEYWORDS: Childhood, Obesity, Adolescent, Diet and Overweight

Introduction

Children and adolescents in affluent and developing nations alike struggle with being overweight and obese, as well as adults. Overweight and obesity are among the most significant public health issues today, according to the World Health Organization, and they are becoming an epidemic on a global scale. It is also becoming more widely acknowledged as a serious issue in developing nations and nations going through economic transformation. 1,2

Statistics indicating the worrisome rate at which the issue is growing have brought forth a lot of recent media emphasis on obesity. Obesity has traditionally only been associated with adults, growing more common as people age. However, as a result of children's sedentary lifestyles brought on by a variety of circumstances, obesity in youngsters is now on the rise. The prevalence of childhood obesity has increased, and it is becoming increasingly difficult to control. In fact, the issue is getting so terrible that people are starting to worry that the present

generation of kids would be the first in centuries to have a shorter life expectancy than their parents.

Non-communicable diseases (NCDs) are illnesses that are not contagious. Diseases are caused by hereditary or environmental factors. Sometime the term "disease of affluence" is used to describe those caused by lifestyle factors. Obesity, high blood pressure, diabetes, heart disease, cancer, and mental health issues are a few examples. Non-communicable illnesses have environmental, behavioral, and hereditary factors.3

Children are an investment in the society of the future. Their wellbeing and growth from youth to adulthood will have an impact on the future stability and prosperity of nations.4 Childhood is the period of life from the age one to the onset of puberty. It is also the time when the youngster is supposed to pick up the foundational skills needed for a smooth transition to adulthood. The most important time in a person's life is during these early formative years, when the foundations for good physical, cognitive, and social development are set. Between birth and adulthood, there are several developmental changes that take place during childhood, which is not one uniform stage of life. One of the most prevalent chronic diseases in children is obesity, and this condition is becoming more and more widespread.5,6

Childhood obesity used to be seen as an issue in wealthy nations. Today, developing nations are also experiencing this issue. Despite the widespread misconception that overweight children will outgrow their condition, juvenile obesity is not a benign condition. A youngster is more likely to remain overweight into adolescence and adulthood the longer they have been overweight.7,8

Globally the prevalence of childhood obesity varies from over 30 per cent in USA to less than 2 per cent in sub-Saharan Africa. Currently the prevalence of obese school children is 20 per cent in UK and Australia, 15.8 per cent in Saudi Arabia, 15.6 per cent in Thailand, 10 per cent in Japan and 7.8 per cent in Iran.9 Reddy et al.10 says that Many people of Asian races show a tendency for fat deposition in the abdominal area referred to as central adiposity.

National data indicate that 16 per cent of children aged six to nineteen years are overweight.11 Shetty et al.12 says that in developing countries such as India, especially in urban populations, childhood obesity is emerging as a major health problem.

Obese children and teens have been found to be at risk for cardiovascular disease (CVD), including high cholesterol levels, high blood pressure, and abnormal glucose tolerance. The Onset of diabetes in children and adolescents can result in advanced complications such as CVD and kidney failure Sleep apnea is estimated to occur in about seven per cent of obese children.13,14

AIM: To assess the prevalence of overweight and obesity among pre-school and school children and its impact on their health

MATERIAL AND METHODS:

Study Design: It is a cross sectional survey. The cross-sectional survey was taken up through a multistage sampling method to get appropriate representation.

Study area: The study was conducted in the Department of Pediatrics, as the investigator was familiar with the area and a good rapport was established with the school authorities. Moreover, data on the prevalence of overweight and obesity among pre-school children, school going children and adolescents in this area was not available.

Selection of study subjects: The investigator selected children in the age group of 3 to 12 years for the study. A total of 1800 subjects were screened for the prevalence of overweight and obesity in the age group of 3-12yr. Among the 1800 surveyed school children subjects, 480 were overweight and 130 were obese.

Identification of Subjects: The subjects were screened for overweight and obesity by measuring their height and weight and calculating their Body Mass Index (BMI). Based on age and specific BMI percentiles, the subjects were classified as overweight (85^{th}-95^{th} percentile) and obese (>95^{th} percentile), and non-overweight and non-obese (< 85^{th} percentiles).

Measurement of Height:

The students were instructed to stand with feet flat, together, and against the wall with the heel, buttocks, shoulders, and head touching the wall. The arms were naturally hanging at the sides, the head held pleasantly upright. With the aid of a non-stretchable measuring tape, the subjects' heights were recorded. A mark was then made on the wall after keeping the scale perpendicular to it. The sample's height was then measured using a non-stretchable measuring tape.

Measurement of Weight:

A bathroom scale was used to record the weight of the chosen subjects. The test subjects were instructed to stand barefoot, with their knees straight and facing

front, on the weighing scale. The readings were thoroughly examined and the closest 0.5g value was recorded.

Body Mass Index (BMI):

There are various ways that height and weight might be associated. The BMI or Quetelet index (Kg/m^2) ratio is the most beneficial. When used for children, BMI provides a consistent measurement across age groups and is the accepted criterion for evaluating obesity in both children and adults. Body mass index (Kg/m^2) is calculated by dividing weight in kilograms by height in square meters. A BMI score beyond the 95th percentile for either age or gender is considered obese, while a BMI between the 85^{th} and 95^{th} percentiles for either age or gender is considered overweight.

RESULTS:

i) Prevalence of overweight and obesity among the surveyed school children

Among the 1800 surveyed subjects, 480 were overweight and 130 were obese which is represented in Figures 1 below. Among the surveyed 1800 school children, 27 percent of the selected subjects were overweight and 7 percent were obese.

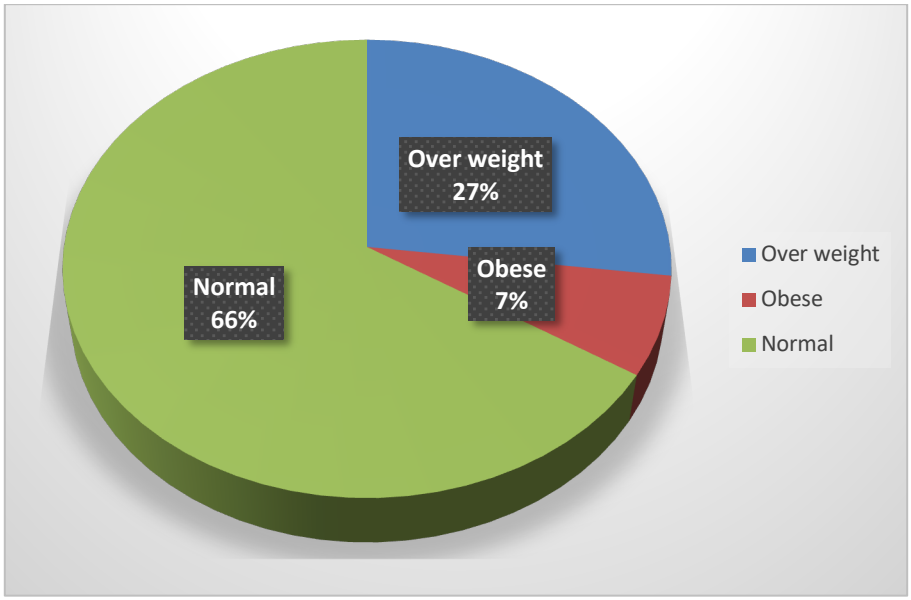
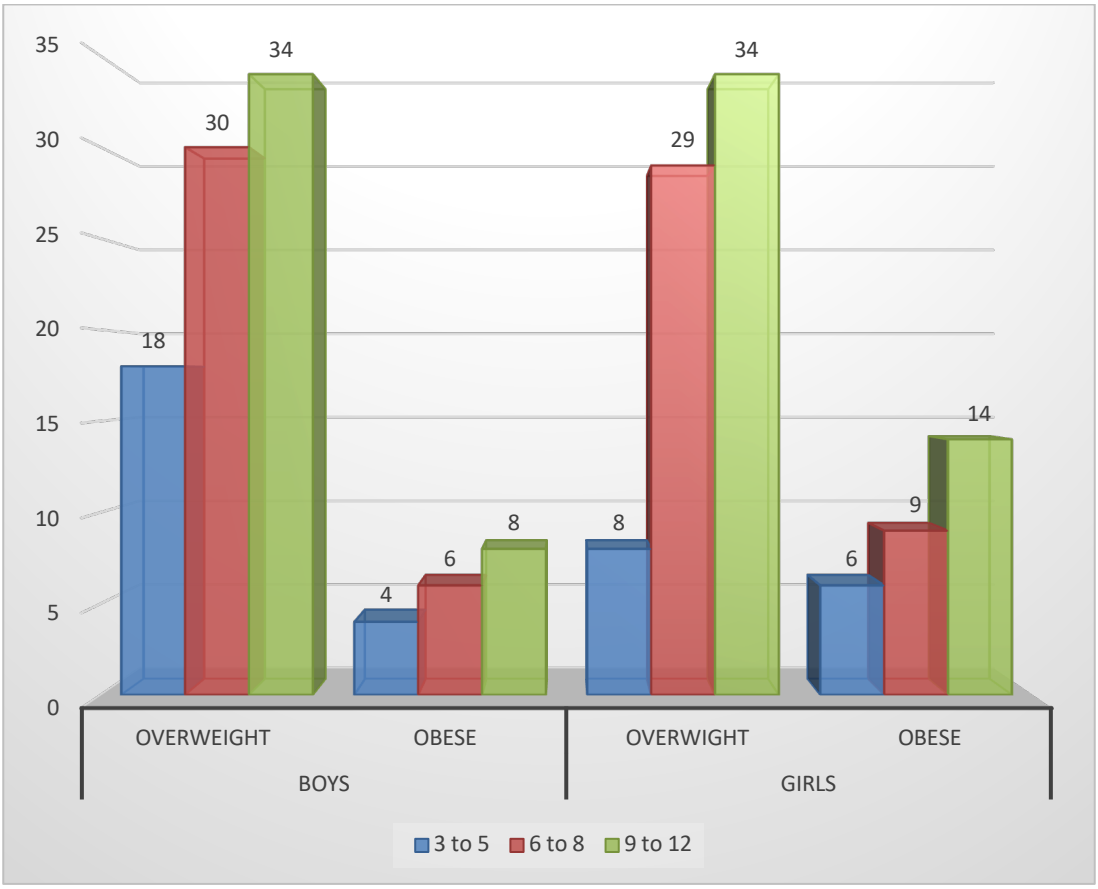


Fig 1: Prevalence of Overweight and obesity among school children

Table1: Age and Gender wise distribution of the Overweight and obese children

Age (Years)	Boys (403)				Girls (207)			
	Overweight	%	Obese	%	Overweight	%	Obese	%
3-5	71	18	17	4	16	8	12	6
6-8	122	30	23	6	60	29	19	9
9-12	139	34	31	8	72	34	28	14

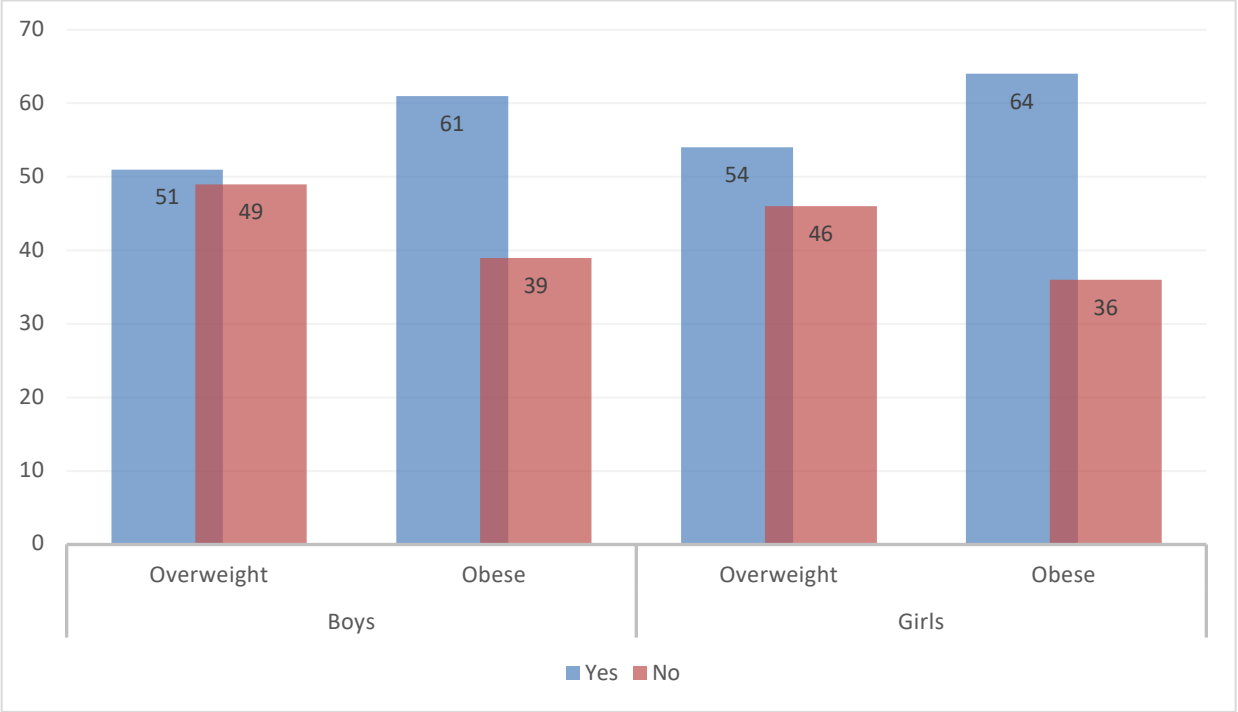


Graph 1: Age and Gender wise distribution of the Overweight and obese children

It is inferred from the above table that among the selected subjects, 4 percent of obese boys and 6 percent of obese girls were in the age group of 3-5 years. 6 percent of obese boys and 9 percent of obese girls were in the age group of 6-8 years. 8 percent of obese boys and 14 percent of obese girls were in the age group of 9-12 years. 18 percent of overweight boys and 8 percent of overweight girls were in the age group of 3-5 years, 30 percent of overweight boys and 19 percent of overweight girls were in the age group of 6-8 years and 34 percent of overweight boys and 34 percent of overweight girls were in the age group of 9-12 years.

Table 2: Genetic Inheritance

	Boys				Girls			
	Over Weight		Obese		Over Weight		Obese	
	No	%	No	%	No	%	No	%
Yes	170	51	43	61	80	54	38	64
No	162	49	28	39	68	46	21	36



Graph 2: Genetic Inheritance

It is inferred from the above table parents of 64 percent of the obese girls and obese boys (61 percent) were obese and 51 percent of the overweight boys and 54 percent of the overweight girl's parents were obese.

Table 3: Consumption of Fast-food

	Boys				Girls			
	Over Weight		Obese		Over Weight		Obese	
	No	%	No	%	No	%	No	%
Yes	280	84	58	82	123	83	50	85
No	52	16	13	18	25	17	9	15

Among overweight School children Eighty four percent of the boys, 83 percent of the girls, 82 percent and 85 percent of obese Children boys and girls had the habit consuming of fast foods like rolls, pizza, burgers and other foods which are loaded with calories. Davis et al.,15 point out that the fast-food restaurants near schools increase the risk of obesity among the student population.

DISCUSSION:

According to the World Health Organization (WHO), overweight and obesity are one of the most significant public health issues facing the world today and are becoming an epidemic. It is also becoming more widely acknowledged as a serious issue in developing nations and nations going through economic transformation. In both developed and developing nations, children and adolescents are being affected by the issue of overweight and obesity. It is not just an issue for adults. Adolescence, which marks the transition from childhood to maturity, occupies a crucial place in the course of human development and is marked by an incredibly quick rate of growth.

Overweight and obesity among children and adolescents have increased dramatically in wealthy countries during the past 20 years, and similar trends, albeit more slowly, are also seen in emerging nations.
Nicklas et al.16 found that Childhood obesity has reached epidemic levels in developed countries. Twenty five percent of children in the US are overweight and 11 per cent are obese. Since 1980, the percentage of obese children in the age group of 6 to 11 has doubled, and the percentage of obese adolescents aged 12 to 19 has tripled.17
Livingstone et al.18 estimates the prevalence of childhood obesity in Scandinavian countries is lower when compared to Mediterranean countries; nonetheless, the proportion of obese children is rising in both cases.
Ramachandra et al. 19 found the prevalence of overweight (including obese) adolescents to be 22 per cent in better off schools to 45 per cent in low-income group schools. In an affluent school in Delhi the prevalence of overweight was 31 percent, of which 8 percent were frankly obese.20 Longitudinal data indicate that sustained and accelerated childhood weight and BMI gain are associated with adult morbidity. It signifies that an individual child has to be monitored with regular weight and or serial BMI measurements. Realizing that Indians are at risk of metabolic diseases at lower level of weight, the International Task Force (IOTF) has proposed the standards for adult obesity in Asia and India as BMI > 23 as overweight and BMI > 25 as obesity.4
Rodriguez et al.21 found socio-economic status and cigarette smoking as independent predictors of asthma. Obese children have a greater risk of social and psychological problems such as discrimination and poor self-esteem.22
Obese children and adolescents have difficulties with peer relationships. Overweight children, tend to have few friends.23 Youngster who faces depression are at greater risk to develop an increased Body Mass Index and Higher BMI is linked with increasing symptoms of depression.24
Eating a high fat, high-carbohydrate fast food meal produces damaging cellular changes that are greater and long lasting in obese people than in people with normal weight. Obese individuals have higher levels of oxidative stress and inflammation than normal weight individuals. Obese in Indian children continue to climb and with no reversal of this trend in sight, high obesity rates are attributed to a sedentary lifestyle and consumption of calorie dense snacks. Ironically, while the importance of among the scientific and public health communities, many of are becoming more sedentary.

CONCLUSION: In conclusion, childhood obesity is rising at epidemic rates, especially among young children, and it is closely associated with serious comorbidities and health issues. The main objective should be prevention, which, if accomplished, will aid in reducing adult obesity. Therefore, if we recognize the obesity epidemic as a crisis, make it a financed government and public health priority, and work together across disciplines to undertake an efficient public health campaign in the prevention and early treatment, we will have the best chance of successfully reversing it.

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