



## Childhood overweight and obesity among school going children of Khulna city, attaining at OPD in Gazi Medical college Hospital, Khulna

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### Abstract

**Background:** Childhood overweight and obesity is one of the major public health problems globally. Obesity has been declared an epidemic in many high income countries. Childhood obesity has become an emerging urban health problem in urban cities in Bangladesh.

**Objectives:** The aim of the study was to explore the overall pictures of body weight status in school going children.

**Methodology:** This cross-section study was done in July 2018 to December 2018 at Gazi medical college hospital OPD, attaining 5 years to 15 years aged school going children. Structured questionnaire was filled up by the health personnel after taking anthropometric measurements in a standardized way by weight machine and measuring tape.

**Results:** Of 250 students 140 (56%) boys and 110 (44%) girls. Among them 16% of the students were found to be obese and 22% were overweight by their BMI percentile score. Among boys 22.85% were obese and for the girls it was 7.27%. Of boys 25% were overweight and for girls it was 18.18%. Boys are more obese and overweight than girls.

**Conclusion:** The rate of overweight and obesity is alarming among school aged urban children of Bangladesh. Public health programs are needed to increase awareness on risk factors for overweight and obesity among children and adolescents in order to reduce the future burden of obesity related morbidity and mortality.

**Keywords:** Obesity & overweight, School going children, BMI percentiles.

### Introduction

Childhood overweight and obesity is one of the major public health problem globally and an emerging urban health problem in urban cities in Bangladesh particularly in affluent families.<sup>1</sup> A

mere 20 years ago, children used to play outside all day, riding bikes, playing sports and building forts. Child obesity and diabetes are now national epidemics in both Canada and the US, causally related to technology over use.<sup>2</sup> However in recent

years, multiple factors such as rapid urbanization, continually decreasing number of playgrounds, easy access to modern technological devices such as computer tabs, mobiles probably have lead to less physical activity and more sedentary activity.<sup>3</sup> Childhood overweight and obesity is a particular public health concern for Bangladesh because children who are overweight or obese have higher risk of becoming overweight or obese adults.<sup>4</sup> Childhood overweight and obesity is a condition where excess body fat negatively affects a child's health or wellbeing. Obesity is a condition of excess body fat and is associated with a large number of debilitating and life threatening disorders such as diabetes, cardiovascular disease, hypertension, stroke and certain forms of cancer.<sup>5</sup> Data from high and low income countries suggests that lack of physical activity, spending time or sedentary activities such as watching television and playing video games, low paternal education and family history of obesity are risk factors for childhood overweight and obesity.<sup>6</sup> So, it is very much essential to know the prevalence of overweight and obesity among children. The most prevalent immediate consequence that impair social development and affect self-esteem of children.<sup>7</sup>

### Materials & Method

We conducted this study in July 2018 to December 2018 at Gazi medical college hospital OPD, attaining school going children, aged 5 years to 15 years.

### Development of Questionnaire

We used a structured questionnaire to collect demographic information and data on anthropometry (Height & weight).

**Table-1** Nutritional status of children

BMI for age	Number of children assessed		
	Male	Female	Total
Under weight < 5 <sup>th</sup> percentile	06 (4.29%)	11 (10%)	17 (6.8%)
Normal 5 <sup>th</sup> to 85 <sup>th</sup> percentile	67 (47.85%)	71 (64.55%)	138(55.2%)
Overweight 85 <sup>th</sup> to 95 <sup>th</sup> percentile	35(25%)	20 (18.18%)	55( 22%)
Obese > 95 <sup>th</sup> percentile	32(22.85%)	08(7.27%)	40(16%)
TOTAL	140	110	250

### Collection of data

We setup 'Well baby care up to 15 years'' at OPD of Gazi medical college hospital, Khulna. After attaining consent from parents, we were going to collect data. We took 250 school going children in this study.

### Anthropometric measurements

After calibrating the weight machine the weight of the children was taken after putt off their shoes. For taking the height we used a measuring tape. We excluded the child from the study if the child had been suffering from any physical disability. We collected anthropometric measurement (body weight & height) of all the students. We calculated BMI = (wt. in Kg / Ht.in m<sup>2</sup>) and according to BMI we categorized students into normal weight if BMI was between overweight and underweight with respect to age and sex, overweight if BMI was more than the standardized value for age and sex at +1SD of Z scores of BMI, obese if BMI was more than the standardized value for age and sex at +2SD of Z scores of BMI and underweight if BMI was more than the standardized value for age and sex at -2SD of Z scores of BMI.

### Results

We enrolled total 250 students; among them 140 (56%) boys and 110 (44%) girls. Of them 16% of the students were found to be obese and 22% were overweight by their BMI percentile score. Among boys 22.85% were obese and for the girls it was 7.27%. Of boys 25% were overweight and for the girls it was 18.18%. Boys are more obese and overweight than girls.

Table 1 shows that 22% of the students are overweight. Among them 25% are boys and 18.18% are girls. It also shows that 16% of the

students are obese. Among them 22.85% are boys and 7.27% are girls.

**Table 2:** Obese in different age group.

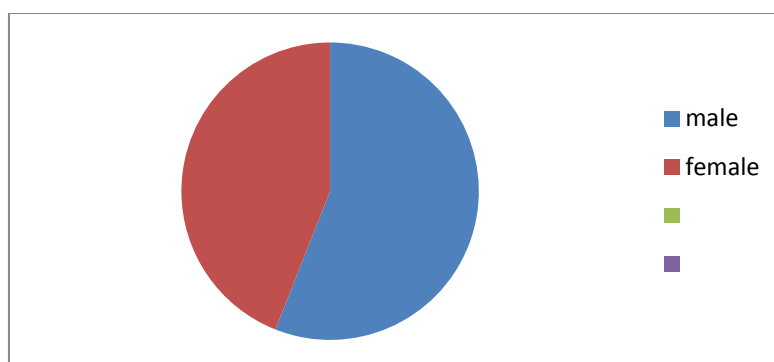
Age in years	Obese students( male and female) 16%(40), n=250	
	Male 32(22.85%), n=140	Female 8(7.27%), n=110
5 – 10	18 (56.25%)	6(75%)
11 – 15	14 (43.25%)	2(25%)

Table 2 shows that most of the male and female students of 5 – 10 years age group are obese.

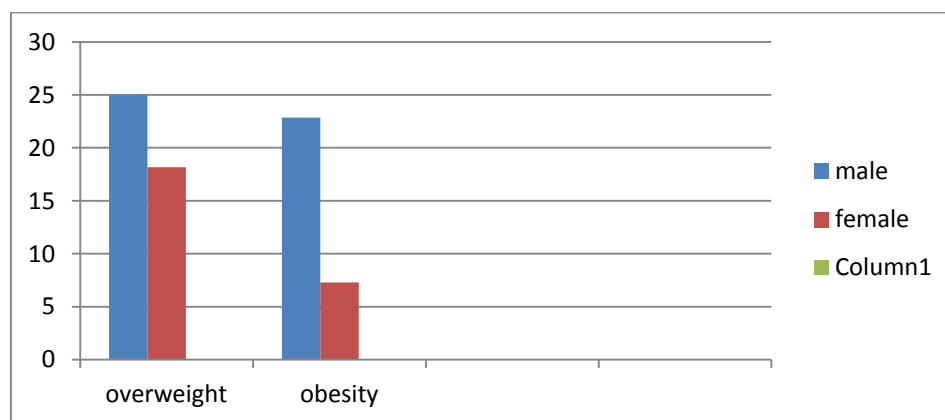
**Table 3:** Overweight in different age group.

Age in years	Overweight students (male& female) 55(22%), n=250	
	Male35(25%), n=140	Female 20 (18.18%), n =110
5 – 10	18(51.43%)	9(45%)
11 – 15	17(48.57%)	11(55%)

Table 03 shows that most male students of 5 – 10 years old are overweight whereas female students 10 – 15 years old are overweight.



**Fig. 1.** Shows male and female ratio (140 male (56%) and 110 female (44%))



**Fig. 2** shows overweight and obesity among male and female students

**Discussion**

The prevalence of obesity is very high in high income countries and many of them have declared obesity an epidemic. In the US, obesity is

considered a major health problem. Half of the population is obese; among adults more than 60% are overweight and more than 30% are obese; among children over 17% are obese. In the UK,

among adults 23% of men and 25% of women are obese. Among children from 2 to 15 years 5.5% of boys and 7.2% of girls are obese 22% of boys and 28% of girls are overweight.<sup>8</sup>

The low income countries are showing the same trend as the high income countries in increasing rate of obesity. Rapid urbanization and industrialization are changing the food habits resulting in socio-economic, demographic and cultural changes leading to nutritional transition in low income countries.<sup>9</sup>

In another study, the percentage of obesity and overweight in school going children from affluent societies of Dhaka city in Bangladesh are 25% and 22% respectively and male students are more obese and overweight than the female.<sup>1</sup> Most studies from the high income countries reported an increasing prevalence of obesity in children and adolescence period.<sup>10</sup> One study in china showed that the rate of childhood obesity is more in urban children (23 – 30%) than in rural children (16 – 20%).<sup>11</sup>

One large scale country wide cross-sectional study from June to September 2009 over 10,135 students from 6 years to 15 years, representative of both urban and rural school showed overall obesity and overweight 3.5% & 9.5% and the proportion of obese and overweight students were greater among the students from urban school (5.6%, 10.6%) compared to the students from rural school (1.2%, 8.6%)<sup>12</sup>. Another study on English medium school of Dhaka city in 2012 showed about one fourth are obese and one fifth are overweight.<sup>13</sup>

A cross-sectional study conducted in Dhaka city among 5000 study subjects identified 7.6% were obese.<sup>14</sup> In Thailand obesity among 6 to 12 years old increased from 12.2% to 15.6% in two years, between 1991 & 1993.<sup>15</sup>

### Conclusions

The prevalence of obesity and overweight is alarming among the school aged urban children in Bangladesh and it is vivid that half of the children

are vulnerable to over-nutrition problem. While under nutrition is still predominating among the rural children, obesity and overweight is emerging in urban children. Having overweight parents along with limited exercise and high levels of sedentary activities lead to obesity among school children in urban cities in Bangladesh. Public health programs are needed to increase awareness on risk factors for overweight and obesity among children and adolescents in order to reduce the future burden of obesity related morbidity and mortality.

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