

## Mother's Perception on Childhood Obesity in Dhaka, Bangladesh

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### Abstract:

**Background:** Globally, obesity among children is considered a major health problem. **Objective:** To investigate the level of mother's perception on childhood obesity and the relationship between the level of the mother's perception and childhood obesity in Dhaka, Bangladesh. **Method:** A descriptive study was carried out in 120 mothers and 120 children were conveniently recruited from three urban schools in Bangladesh. Using questionnaire data was analyzed by t-test (t), ANOVA (F), and Pearson's correlation (r). **Results:** The prevalence of Mother's overweight 25.8%, and obese 23.3%, and the mean BMI was 26.53. 89.2% of children were underweight, 3.3% overweight, and obese. The girls had significantly higher BMI than boys which were statistically significant ( $p=0.00$ ). Girls in elder age had significantly higher ( $p=0.04$ ) BMI. Mothers' BMI and child BMI ( $p=.00$ ) were very significantly related. That means mothers with higher BMI tend to have higher BMI with children. **Conclusion:** The results of this study show that Mothers' perception did not effect on childhood obesity. But factors of children, especially girls becoming in elder age, mothers with higher BMI tend to higher BMI of their children is contributing to childhood obesity. So it is necessary to arrange a health education program or obesity control management program to reduce childhood obesity through school health and community health education program.

**Keywords:** Obesity, Mother's Perception, BMI.

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## I. BACKGROUND

Globally, obesity among children is considered as a major health problem. Over the past two decades, In Australia, the number of overweight and obese children has increased significantly, one-fourth of children and adolescents were 21% and 25% are respectively<sup>1</sup>. The prevalence of obesity among children and adolescents was found to be 22.1 % in Brazil, 41.8 % in Mexico, 19.3 % in Argentina, and 22.0% in India<sup>2</sup>. A study from Bangladesh it is known that, the rate of obesity in boys 25.9% and girls 19% in November 2012<sup>3</sup>.

It is found that a high percentage of the low- income Mexican mother hope that carbonated and non-carbonated sweetened drinks and high fat- snacks might not be injurious to their child's health and they expect their child would be less active in 2009<sup>4</sup>. Likewise, In Iran, a large number of mothers have no general knowledge on childhood obesity or healthy body weight for children. As a result, they are usually incapable of detecting their children are obese<sup>5</sup>.

As a result, Childhood obesity leads to more serious health-related problems in adulthood. Overweight children are liable to stay obese in adulthood and more likely to develop non-communicable diseases like diabetes and cardiovascular diseases at a younger age<sup>6</sup>. If a mother cannot recognize their child's obesity or overweight correctly in childhood, it would be negatively influenced by the future BMI of the children<sup>7</sup>. Mother's education, pre-existing knowledge of obesity, occupation in a health setting, as well as a family income play a paramount role to prevent childhood obesity in a family<sup>5</sup>. A study was conducted among the Bangladeshi community in East London to explore the mother's attitude and believe in childhood obesity and recommended that, further study is needed to identify the gap of the levels of mother's perception<sup>8</sup>. Besides, another study shows that a better understanding of mothers' perception on childhood obesity is needed to achieve success in the preventive intervention of childhood obesity<sup>9</sup>.

It is informed from a Bangladeshi study that, if both the students and parents are given ample elementary education on a balanced diet, then there will be a good chance to control malnutrition of children<sup>10</sup>. Chinese Mothers did not have judgment ability to understand the real weight of their child to prevent childhood

obesity<sup>11</sup>. Yet, the level of the mother's perception on childhood obesity has not been well identified in Bangladesh. Therefore, this study is important to investigate the level of the mother's perception of childhood obesity at Dhaka, Bangladesh.

#### **General objective**

The general objective of this study was to investigate the level of mother's perception on childhood obesity and the relationship between level of mother's perception and childhood obesity in Dhaka, Bangladesh.

#### **Specific Objectives:**

To investigate body weight, height and BMI of children and mother

To analyze the relationship between child obesity and their characteristics

To analyze mothers' perception on childhood obesity by BMI of children and mother

To investigate of the mothers' perception on childhood obesity.

## **II. METHODS**

**Study Design:** A descriptive study was carried out to investigate the mothers' perception of obesity.

**Study Participants:** The study was conducted in three different schools in Dhaka. These are City Corporation Adorsho Government High School, Ideal school and college, Mugda Branch, & Mystic International English medium school in Dhaka, Bangladesh. The accessible population was the mother whose children was studying in selected schools. The sample size was 120 estimated by the Purposive sampling technique. The Inclusion Criteria: Mothers whose children were studying in selected school; able to understand Bengali; mentally stable condition; & agreed to participate voluntarily in this study.

**Instruments:** Data were collected by using a self-administered questionnaire. The questionnaire was three parts: (1) Socio-demographic Characteristics and Health-related Questionnaire of Mothers (SDC&HRQ of Mother); (2) Socio-demographic Characteristics and Health-related Questionnaire for Children (SDC&HRQ of Children); & (3) Mothers' Perception on Childhood Obesity Questionnaire (MPCOQ). This instrument was developed by Susan j. Paxton 2002 and modified in Bangladeshi context. Permission of instruments obtained from the author to use.

**Data Collection Methods:** After taking approval from the Institutional Review Board (IRB), NIANER, and then IRB, BSMMU the researcher made an appointment with the Headmaster among three schools. After taking permission the researcher met with another teacher and student for the purpose of the study. The mothers of the student were invited to come to school with the help of the headmaster. The researcher identified the subjects who will be able to meet the inclusion criteria. Written consent form provided and verbally informed the participants on how to complete the questionnaire. After that, questionnaires distributed among mothers after being signed in the consent form. They allowed to write the answer on the questionnaire given to them.

**Data Analysis:** Data were analyzed using a computer software program Statistical Package for Social Science. Data were analyzed by using descriptive statistics and inferential statistics. The data on demographic characteristics, mother's perception on childhood obesity were analyzed. The researcher interpreted data on answering each question and draw conclusions.

## **III. RESULTS**

### **3.1. CHARACTERISTICS OF THE MOTHER AND CHILDREN**

#### **Table 1 Distribution of Socio-Demographic Characteristics of Mother (n=120)**

Distribution of socio-demographic characteristics of the mother shows that the age of the mother ranged from 25-55 years with a mean score of 37.71 years (SD=5.70). The highest percentage of the mother was in the age group 36-43 years (62.5%). The educational level of mothers was varied, below half of the mother has completed both primary and university levels (25.8%), some of them (20.0%) finished higher secondary school and a few were also found 13.3 %, completed secondary school, 10.8%, no schooling, and others 4.2% respectively. Others mean vocational education from the institute. Among them, the maximum (91.7%) participants were Muslims, 85% were housewives. Near half (31.7%) of the respondents had monthly income 30001-40000 taka. Some of the family income was 24.2% (n=29) 40001 or more taka. Incomes were few income less than 10000 tk (16.7%), 10001-20000tk (15.0%), and 20001-30000tk (12.5%) respectively. More than half of the family had four to five family members (69.2%), Majority of the family lived in nuclear families (80.8%), and each family was consisted of four to five family members (69.2%) and had two children (67.5%). After the calculation of the mother's BMI, it found that mother's BMI underweight 26.7%, overweight 25.8%, and obese 23.3%, and mean BMI was 26.53±4.76.

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Characteristics	n	(%)	M (SD)
Age (yrs.)			37.71(5.70)
25-35yrs	45	(37.7)	
36-43 yrs.	54	(62.5)	
44-55 yrs.	21	(17.5)	
Education			
No Schooling	13	(10.8)	
Primary to High School	31	(25.8)	
Secondary School	16	(13.3)	
Higher Secondary School	24	(20.0)	
University or over	31	(25.8)	
Others (Specify etc)	5	(4.2)	
Religion			
Islam	110	(91.7)	
Hindu	9	(7.5)	
Buddhist	1	(.8)	
Occupation			
Housewife	102	(85.0)	
Government service	1	(.8)	
Private service	7	(5.8)	
Business (self-employed)	6	(5.0)	
Other	4	(3.3)	
Family income (Tk/Mon)			
Less than 10,000	20	(16.7)	
10,001 - 20,000	18	(15.0)	
20001 - 30,000	15	(12.5)	
30,001 – 40,000	38	(31.7)	
40,001 or more	29	(24.2)	
Numbers of family members			
Two or Three	9	(7.5)	
Four or five	83	(69.2)	
Six or more	28	(23.3)	
Types of family			
Nuclear family	97	(80.8)	
Joint family	15	(12.5)	
Extended family	8	(6.7)	
Numbers of children			
Only one	9	(7.7)	
Two	81	(67.5)	
Three or more	30	(25.0)	26.53(4.76)
BMI of mothers*			
Underweight	32	(26.7)	
Normal weight	29	(24.2)	
Overweight	31	(25.8)	
Obese	28	(23.3)	

\*Underweight < 18.5, Normal weight =18.5-24.9, overweight = 25-29.9, Obese= ≥30

**Table 2: Distribution of Health related Characteristics of Mother (n=120)**

Distribution of health characteristic of the mother describes more than half (55.0%) of the mother thought that their bodyweight were not as proper weight, Fifty-five percent of the mothers always concerned about their child's health, (59.2%) of mothers thought that bodyweight of their children were normal and 17.5% of them consider their children as “fatty relatively”. The majority (64.1%) mothers thought that their children eat “moderate in daily life” and “eat less” 31.7%. Most of the mothers (98.4%) realized that homemade foods were good for the health of their children than fast food. On the other hand, the mother thought that more than half of the children (57.5%) took part in insufficient physical exercise.

Characteristics	n	(%)
Body weight of themselves is regarded as		
Properly weighted	54	45.0
Not Proper weighted	66	55.0
Concerns about Childs' health		
Not concerned at all	8	6.7
Sometimes concerned	46	38.3
Always concerned	66	55.0
The body weight of my child is regarded as:		
Thin relatively	28	23.3
Normal	71	59.2

Fatty relatively	21	17.5
Daily food intake of my child is regarded as:		
Eat less	38	31.7
Eat moderate	77	64.1
Eat more	5	4.2
Daily exercise taken of my child is regarded as:		
Take insufficiently	69	57.5
Take moderately	49	40.8
Take physical excessively	2	1.7
Type of food is good for child as mother thinks		
Homemade food	118	98.4
Fast food	1	.8
Food from restaurant or shop	1	.8

**Table 3: Distribution of Socio-Demographic Characteristics of Children (n=120)**

This table shows the distribution of socio-demographic characteristics of children. Out of 120 children, the majority (79.2%) were girls and the mean age 13.81 ranges between 13-16 years. The birth rank of the first child was higher (49.2%), Majority (59.2%) preferred both types of food. Among them, 47.5% prefer taking homemade food frequently three times or more, they thought that the majority (66.7%) took the proper amount of food daily. The majority (89.2%) of the children were underweight and 3.3% were overweight and obese.

Characteristics	n	(%)	M (SD)
Gender			
Boy	25	20.8	
Girl	95	79.2	
Age (yrs.)			
9-12 years	22	18.3	13.81(1.93)
13-16 years	91	75.8	
17-18 years	7	5.8	
Birth rank			
The first child	59	49.2	
Second	32	26.7	
Third or later	29	24.2	
Type of preferred food in daily life			
Fast food such as Burger, Pizza, Hotdog etc.	19	15.8	
Homemade food	30	25.0	
Both of them	71	59.2	
Frequency of taking fast food (per week)			
Once	49	40.8	
Twice	33	27.5	
Three times or more	37	30.8	
Frequency of taking homemade food as tiffin (weekly)			
Once	41	34.2	
Twice	22	18.3	
Three times or more	57	47.5	
Daily food intake is regarded as:			
Less than proper amount of food	29	24.2	
Proper amount of food	80	66.7	
More than proper amount of food	11	9.2	
BMI for Children*			
Underweight	107	89.2	19.86(3.54)
Normal weight	9	7.5	
Overweight	1	.8	
Obese	3	2.5	

\*Underweight < 18.5, Normal weight =18.5-24.9, overweight = 25-29.9, Obese= $\geq$ 30

**Table 4: Distribution of Health-related Characteristics of Children (n = 120)**

Table 4 shows that the distribution of health-related characteristics of the children. More than half (52.5%) of the children watched TV for less than one hour or equal to one hour. Most (73.3%) of time playing

games, but (68.3%) did not take part in physical exercise, those who participated in the physical exercise they took moderate (25.8%) in physical exercise and most (64.2%) of them also thought that their bodyweight was normal as their age.

Characteristics	N	(%)
Hours of watching TV a day		
One hour or less	63	52.5
Two hours	37	30.8
Three hours or more	20	16.7
Hours of playing games a day		
Less than one hour	88	73.3
One hour	25	20.8
Two hours or more	7	5.8
Physical exercises a day		
Taken (yes)	38	31.7
Not taken (no)	82	68.3
If yes, how much they take physical exercise a day		
Insufficiently	7	5.8
Moderately	31	25.8
Self-perception of child weight is regarded as:		
Lower than my age relatively	18	15.0
Normal as my age	77	64.2
Higher than my age relatively	25	20.8

### 3.2. MOTHERS' BMI BY MOTHER'S SOCIO-DEMOGRAPHICS CHARACTERISTICS

**Table 5: Distribution of Mother's BMI by Mother's Socio-Demographic Characteristics (n=120)**

Table-5 shows that distribution of mother's BMI by mother's socio-demographic characteristics. Seven socio-demographic characteristics were included in this study. There were not found any significant relationship among variables.

Variable	Category	M±SD	t/F	P
Age of mother				-1.61(.11)
	25-41 yrs.	26.12±4.51		
	42- 58 yrs.	27.71±5.34		
Education				.10(.92)
	No Formal education	26.65±5.02		
	Formal education	26.52±4.76		
Occupation				.782(.44)
	No occupation	26.67±4.93		
	Occupation have	25.72±3.68		
Family income (Tk/Mon)				1.27(.29)
	Less than or equal 10,000 to 20000	26.64±5.11		
	20001-40001 or more	26.45±4.54		
Numbers of family members				-.945(.35)
	Less than five	26.30±4.12		
	Six or more	27.27±6.48		
Type of family				-1.07(.29)
	Nuclear family	26.30±4.36		
	Extended family	27.49±6.21		

### 3.3. MOTHERS BMI BY MOTHERS' HEALTH-RELATED CHARACTERISTICS (N=120)

**Table 6: Distribution of Mothers' BMI by Mothers' Health-related Characteristics (n=120)**

Distribution of mother's BMI by mothers' health-related characteristics showed that BMI of mothers who thought their weight "not properly weighted," was 27.6 which is statistically higher than the mother who considered their weight "proper weighted" However the result was statistically significant  $p = .004$  (whereas  $p < .01$ ). On the other hand, the rest of the other variables were not significantly different.

Variable	Category	M± (SD)	t/F	P
Body weight of mother is regarded as	Properly weighted	25.23±3.41	2.91(.004)	
	Not Proper weighted	27.60±3.43		
Concerns about Childs' health	Not concerned at all	25.43±5.29	1.4(.24)	
	Sometimes concerned	25.77±4.09		
	Always concerned	27.19±5.09		
The body weight of my child is regarded as:	Thin relatively	26.17±4.70	1.78(.17)	
	Normal	26.15±4.72		
	Fatty relatively	28.30±4.79		
Daily food intake of my child is regarded as:	Eat less	26.40±4.72	.122(.89)	
	Eat moderate	26.53±4.92		
	Eat more	27.53±2.89		
Daily exercise taken of my child is regarded as:	Insufficiently	26.48±.58	.14(.87)	
	Moderately	26.52±.69		
	Excessively	28.32±.98		
Type of food is good for child as mother thinks	Homemade food	19.88±3.56	.38(.71)	
	Fast food or food from outside	18.92±1.78		

### 3.4. CHILDREN'S BMI BY CHILDREN SOCIO-DEMOGRAPHIC CHARACTERISTICS

**Table 7: Distribution of Children's BMI by Children Socio-demographic Characteristics (n=120)**

Table 7 showed that the distribution of children's BMI by children's socio-demographic characteristics. The association between BMI of children and age, which is higher 20.51 than the age of 18.50" However the result was statistically significant p=. 003 (whereas p<. 01). In addition, BMI of children and gender have a significant association which is higher 20.21 for girls than the boys of 18.55" However the result was statistically significant p= 0.04 (whereas p<. 01). The rest of the other characteristics found non-significant relationship among variables.

Variable	Category	M± (SD)	t/F	P
Age	9-13 yrs.	18.50±3.01	-3.02	.003
	14-16 yrs.	20.51±3.60		
Gender	Boy	18.55±3.65	-2.12	.04
	Girl	20.21±3.44		
Birth rank	The first child	19.85±3.66	-.018	.99
	Second or third	19.87±3.44		
Type of preferred food in daily life	Homemade food	19.89±3.56	.85	.81
	Fast-food and others	18.68±3.47		
Frequency of taking fast food (per week)	Once	19.74±3.72	.08	.77
	Twice	19.93±3.44		
	Three times or more	19.86±3.54		
Frequency of taking homemade food as tiffin (per week)	Once	20.02±3.47	.36	.72
	Twice or more	19.74±3.59		
Daily food intake is regarded as:	Proper amount of food	19.89±3.61	.15	.88
	Less or more than proper amount of food	19.79±3.42		

### 3.5. CHILDS' HEALTH RELATED CHARACTERISTICS (N=120)

**Table 8: Distribution of Childs' BMI by Childs' Health related Characteristics (n=120)**

Table 8 showed distribution of Childs' BMI by Childs' health related characteristics. Five health related characteristics of children were included in this study. There were not found any significant relationship among variables

Variable	Category	M± (SD)	T	P
Hours of watching TV a day			- .97	.35
	Less than one hour	19.57±3.32		
	Two hours or more	20.18±3.76		
Hours of playing games a day			.78	.44
	Half hours or less	20.01±3.52		
	One hour or more	19.44±3.58		
Physical exercises a day			-1.20	.23
	Taken (yes)	19.29±2.83		
	Not taken (no)	20.12±3.80		
If physical exercise is taken how much			1.18	.25
	Moderately	20.45±3.82		
	Insufficiently or excessively	19.07±2.56		
Self-perception of child weight is regarded as:			-1.96	0.06
	Normal as my age	19.32±2.66		
	Lower or more than my age relatively	20.81±4.60		

### 3.6. MOTHER'S PERCEPTION ON CHILD OBESITY, MOTHER'S BMI AND CHILD'S BMI

#### 9. Correlation between mother's perception on child obesity, mother's BMI and the child's BMI.

Table 9 shows that the Correlation between mother's perception on child obesity, mother's BMI and the child's BMI. The correlation between mother's perception on child BMI and mother's BMI ( $p=.92$ ) and child BMI (.84) were not significantly related. However, the mother's BMI and child BMI ( $r=.35$ ,  $p=.00$ ) was very significantly related. In other words, the mother who has a higher BMI tends to have a higher BMI of children.

Variable	Mother's BMI r(p)	Child's BMI r(p)
Mother Perception	-.009(.92)	.019(.84)
Mother BMI		.35(.00)

## IV. DISCUSSION

### Socio-demographic and Health-related Characteristics of the Mother

This study was conducted among three schools in Dhaka, Bangladesh. It describes how mothers perceived their Childhood obesity. This study showed that fifty-five percent of mothers always concerned about their child's health. Most of the mothers realized that homemade foods were good for the health of their children than fast food. This may be due to most of all the mothers who were educated and lived in urban areas; the majority of the family lived in nuclear families. Most of the children did not take part in physical exercise a day and those who participated in the physical exercise; took part in moderate physical exercise. In this study, it is indicated that although mothers had higher education and stay at home on the day, they did not concern about children's physical exercise for children's health.

### Socio-demographic and Health-related Characteristics of the Children

This study showed that children with a higher age group had a relationship with higher BMI. The result was consistent within Al-Ahsa District of Saudi Arabia demonstrated that the prevalence of overweight and obesity was increased with age<sup>12</sup>. Another result of this study showed that More girls have a relationship of higher BMI than boys in socio-demographic characteristics, there was a significant difference ( $t=-2.12$ ,  $p=0.04$ ). Similarly, in developing countries, more girls were overweight and or obese than boys in 2013<sup>13</sup>. In contrast, a study conducted in Bangladesh showed that the rate of overweight and obesity among boys was higher than the girls<sup>3</sup>. This might be explained by the composition of study participants. In the Sultana study, there were five hundred students and the same proportion of boys and girls students. But in this study, there were more girl students and the sample was only one hundred twenty students.

### The relationship between Mother's BMI Perception and Childhood Obesity

This study showed that mothers with higher BMI tended to higher BMI of children in the analysis of between mother's perception and childhood obesity. There was no correlation between the two variables. Similarly, In Korea, an analysis of the fifth Korea national health and nutrition examination survey (2010-2012)

by the association between socioeconomic status and obesity showed that childhood obesity was positively associated with maternal overweight (OR, 1.889; 95% CI, 1.079-3.309), maternal obesity (OR, 3.409; 95% CI, 2.228-5.215<sup>14</sup>). Another study was conducted in Australia, According to Gibson et al., (2010) reported that overweight mother increasing the possibility of a child being overweight or obese<sup>15</sup>.

Considering the result of this study, it is suggested that mothers' perception might not be an important factor of obesity in children; however, higher BMI of mothers are responsible for causing childhood obesity in Bangladesh.

## V. CONCLUSION AND RECOMMENDATIONS:

### Conclusion:

Based on the study findings, the results of this study show that mothers' perception did not effect on childhood obesity. But children, especially girls, in older age, mothers with higher BMI tend to higher BMI of their children contributing to childhood obesity. So it is necessary to arrange health education programs or obesity control management programs to reduce childhood obesity through school health and community health education program.

### Recommendations:

According to the findings the researcher proposes the following recommendations should include nursing and midwifery council –Health screening program should be arranged in community and school setting, especially for the girl children. Health education programs should be arranged for the mothers with an on overweight in the community setting. Further research should be done on an association between mothers' BMI and childhood obesity. This study will serve as a reference and guide for future researchers.

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