Original article

Association Between Sociodemographic Status and Physical Functioning of Obese School Going Children- A Cross Sectional Study

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Abstract

Background:
Obesity is major non-communicable disease (NCD) all over the world affecting both children & adult. More than 30 million overweight children are living in developing countries & 10 million in developed countries. Childhood obesity leads to a significant reduction in health-related functioning. So, the negative effects of childhood obesity on quality of life (QoL) have to be determined to combat the problem.

Objective:
To determine the association between sociodemographic status and physical functioning of obese school going children.

Methods:
This was a cross sectional type of descriptive study conducted at different schools of Rajshahi city from June 2015 to September 2015. Four (4) schools were selected- a) Govt. Laboratory High School, Rajshahi b) Rajshahi Collegiate School c) River view Collectorate School, Rajshahi and d) Rajshahi University School. The study population were 5 to 15 years old obese school children. A total number of 221 children were interviewed.

Results:
The ages of the respondents were between 4 to 15 years, and the mean age was 7.83±3.058 years. Among the 221 respondents more than half (56.6%) were in 4-7 years of age group, another 24.0% belonged to the age group of 8- 11 years and only 19.5% were 12- 15 years age group. Weight of the respondents was from 20 to 65 kg and mean weight of the respondents was (41.64±10.75). Here, 36.2% weight was from 37-47 kg and 29.0% weight was from 26-36 kg. Another 23.1%, 7.7% and 4.1% weight was from 48-58 kg, 59-69 kg and 15-25 kg respectively. There was no significant relationship with respondent age and sex with physical functioning ($p \geq 0.05$). There was a significant relationship with weight and physical functioning ($p \leq 0.05$).

Conclusions:
The sociodemographic status may influence the physical functioning of the obese school going children. Their lifestyle must be modified in this early life otherwise they will be affected by different non communicable disease

Keywords: Obesity, School children, Sociodemographic status, Physical functioning

Introduction:

Obesity is major non-communicable disease (NCD) all over the world affecting both children & adult. More than 30 million overweight children are living in developing countries & 10 million in developed countries. Childhood obesity can have complications for child's physical, social and emotional well-being. Childhood obesity leads to a significant reduction in health-related functioning. So, the negative effects of childhood obesity on quality of life (QoL) have to be determined to combat the problem.[1]

Clinicians and public health officials have used HRQoL and well-being to measure the effects of chronic illness, treatments, and short- and long-term disabilities. In addition, institutes in the National Institutes of Health (NIH) –centers within the Centers for Disease Control and Prevention (CDC) – such as the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) – have included the evaluation and

improvement of HRQoL and well-being as a public health priority.[2]

Throughout the history of mankind, increase in weight has been viewed as an indication of health and well-being. During times of food shortage, ensuring adequate energy intake to meet requirements has been a major nutritional concern. Today, however, obesity threatens to become the 21st century's leading health problem.[3]

The problem of obesity is worldwide although its prevalence varies from one place to another. None the less, it is increasing at an alarming rate affecting both developed and developing countries. The obesity epidemic as a worldwide phenomenon.[4]

The main focus was on larger and more representative samples of adults. They used BMI (kg/m2) as the standard population-based measure of overweight and obesity status. The cut-offs used to delineate obesity were: 18.5 for thinness, 18.5-24.99 for normal, 25.0-29.99 for overweight grade I, 30.0-39.99 for overweight grade II, and >40.0 for overweight grade III.[5]

There was very little grade II and above obesity in Asia, and most countries had levels in the 5-15% range for grade I obesity with the exception of urban China, urban Thailand, Malaysia. Furthermore, the review indicated that nearly half the population in the countries of the Western Pacific had grade II or above obesity. For the Middle East countries, although the data were limited, it appeared that more than a third of the oil producing countries such as Kuwait and Saudi Arabia were overweight or obese.[6]

Quetelet's index of body mass, that is weight in kilograms divided by height in meters squared (wt/ht2), provided a classification that placed a desirable range of weight and height distribution for men and women to be at 20.0-25.0 kg/m2. This classification thus placed grade I obesity at a body mass index (BMI) of 25.0-29.9, grade II obesity at 30.0-39.9, and grade III obesity at ≥ 40.0 kg/ hr2; at the grade III level, there is morbid obesity.[7]

The World Health Organization (WHO, 1998) revised the classification of obesity in 1997 thereby obesity was defined as a BMI ≥ 30.0, and 2) a new category of obesity was created, class II obesity. Thus, the revised classes are as follows: class I obesity (30.0-34.9), class II obesity (35.0-39.9), and class III obesity (≥ 40.0), overweight (pre-obese, 25.0-29.9), normal (18.5- 24.9), and underweight (≤ 18.5).[8]

Methods:

This was a cross sectional type of descriptive study conducted at different schools of Rajshahi city from June 2015 to September 2015. Four (4) schools were selected- a) Govt. Laboratory High School, Rajshahi b) Rajshahi Collegiate School c) River view Collectorate School, Rajshahi and d) Rajshahi University School. The study population were 5 to 15 years old obese school children. A total number of 221 children were interviewed. The sample were taken purposively. The data were collected from the children according to objectives of the study by a structured questionnaire. It was designed to find out the sociodemographic status and physical functioning means mobility of lower extremities, dexterity of upper extremities, axial or central related to neck and back functions and complex activities which involve more than one subdomain are related to instrumental activities of daily livingof obese school going children. Data were collected from the children by face-to-face interview. They were allowed to answer the question by their own judgement. No leading questions were asked. Finally, data were analyzed by SPSS-20 to find out necessary frequencies, percentage, Chi square test etc.

Results:

This cross-sectional study was carried out on 221 students of four different Schools of Rajshahi city. School children aged 5-15 years irrespective of sex and obese children were included in this study. The collected data were analyzed by using SPSS-20. After completion of data analysis, the results were organized in the tabular form and figures as necessary respectively. The tables and figures are described bellows.

Figure-1 showed the distribution of the respondents according to their age. The ages of the respondents were in between 4 to 15 years, and the mean age was 7.83±3.058 years. Among the 221 respondents more than half (56.6%) were in 4-7 years of age group, another 24.0% belonged to the age group of 8- 11 years and only 19.5% were 12- 15 years age group.

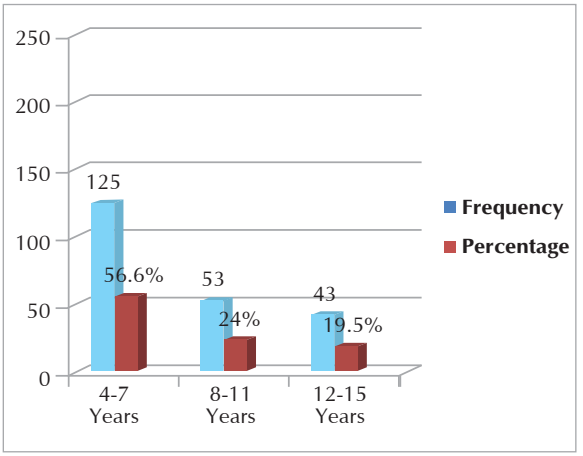

Figure-1: Distribution of the respondents by age

Table-I showed the distribution of the respondents by weight. Weight of the respondents was from 20 to 65 kg and mean weight of the respondents was (41.64±10.75). Here, 36.2% weight was from 37-47 kg and 29.0% weight was from 26-36 kg. Another 23.1%, 7.7% and 4.1% weight was from 48-58 kg, 59-69 kg and 15-25 kg respectively.

Table-I: Distribution of the respondents by weight

Weight (Kg)	no. (%)
15- 25	9(4.1)
26- 36	64(29.0)
37- 47	80(36.2)
48- 58	51(23.1)
59- 69	17(7.7)

Mean=41.64, Minimum=20
Maximum=65, (±SD=10.75)

Figure-2 showed the distribution of the respondents by child's sex. Here, majority (60.6%) of the respondents was girl and 39.4% of the respondents were boy.

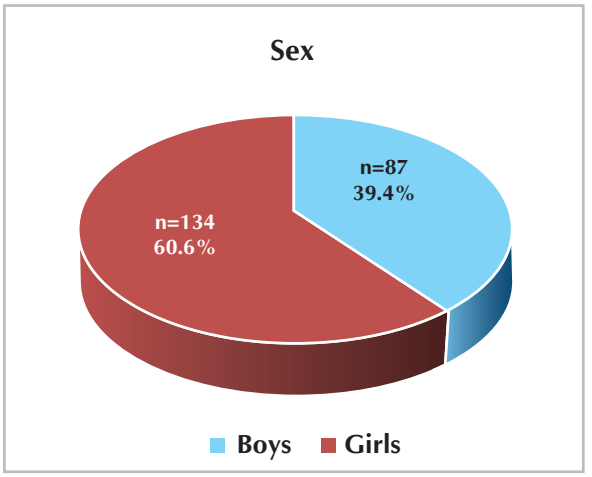

Figure-2: Distribution of the respondents by child's sex

Table-II showed the distribution of the respondents by age group and total assessment of physical functioning. Among 221, 125 respondents were 4-7 years age group, 53 were 8-11 years age group and 43 were 12-15 years age group. Those who belong to 4-7 years were group only 23 respondents had good physical functioning, 57 had average and 45 had poor physical functioning. And those who belong to 8-11 years age group only 8 had good physical functioning, 34 had average and 11 had poor physical functioning. Other those who belong to 12-15 years age group, only 6 had good physical functioning, 24 had average and 13 had poor physical functioning. And there was no significant relationship with respondent age and physical functioning (p≥ 0.05).

Table-II: Distribution of the respondents by age group and total assessment of physical functioning

Total assessment of physical functioning		Age group						χ^2	p-value
		4-7 (n=125)		8–11 (n=53)		12–15 (n=43)			
		no.	%	no.	%	no.	%		
<15	Good	23	18.4	8	15.1	6	14.0		
15–20	Average	57	45.6	34	64.2	24	55.8	5.886	0.208
>20	Poor	45	36.0	11	20.8	13	30.2		

Table-III showed among 221, 87 were male and 134 were female. Among male respondents only 11.5% had good, 58.6% had average and 29.9% had poor physical functioning. Among female respondents' 20.1% had good, 47.8% had average and 32.1% had poor physical functioning. There was no significant relationship with sex and physical functioning (p≥0.05).

Table-III: Distribution of the respondents by sex and total assessment of physical functioning

Total assessment of physical functioning	Sex				χ^2	p-value
	Male (n=87)		Female (n=134)			
	no.	%	no.	%		
<15 Good	10	11.5	27	20.1		
15-20 Average	51	58.6	64	47.8	3.638	0.162
>20 Poor	26	29.9	43	32.1		

Table-IV showed among 221 respondents, 9 was within 15-25 kg, 64 was within 26-36 kg, 80 was within 37-47 kg, 51 was within 48-58 kg and 17 was within 59-69 kg. Respondents those who belong to 15-25 kg body weight 55.6% had good, 33.3% had average and 11.1% had poor physical functioning. Respondents those who were within 26-36 kg body weight 23.4% had good, 46.9% had average and 29.7% had poor physical functioning. Respondents those who were within 37-47 kg body weight 13.8% had good, 58.8% had average and 27.5% had poor physical functioning. Respondents those who belong to 48-58 kg body weight 11.8% had good, 54.9% had average and 33.3% had poor physical functioning. Other those who were within 59-69 kg body weight 41.2% had average and 58.8% had poor physical functioning. It revealed that there was a significant relationship with weight and physical functioning (p≤0.05).

Table-IV: Distribution of the respondents by weight in Kg and total assessment of physical functioning

Total assessment of physical functioning	Weight in Kg										χ^2	p-value
	15-25 (n=9)		26-36 (n=64)		37-47 (n=80)		48-58 (n=51)		59-69 (n=17)			
	no.	%	no.	%	no.	%	no.	%	no.	%		
<15 Good	5	55.6	15	23.4	11	13.8	6	11.8	0	0.0		
15-20 Average	3	33.3	30	46.9	47	58.8	28	54.9	7	41.2	21.7	.005
>20 Poor	1	11.1	19	29.7	22	27.5	17	33.3	10	58.8		

Discussion:

During the last decade, new instruments measuring health and wellbeing have been developed that are suitable for epidemiological studies. In adults,[9] adolescents, [10] and children [11] these measures have been shown to discriminate among population groups known to have different levels of health. Because it is subjective, health-related QoL should be assessed whenever possible from the participant's (ie, the child's) perspective.[10]

The present study was conducted to assess health related quality of life among obese school children. Health related quality of life was assessed by the PedsQL 4.0 is a validated 23-item questionnaire for children aged 2 to 18 years. The best possible score on the PedsQL is 100 (range of 0-100). Near-identical parallel parent-proxy and child self-report versions are available, which were completed independently by the parents (at home) and the children (at school) in this study.[12]

Study showed the ages of the respondents were in between 4 to 15 years, and the mean age was 7.83±3.058 years. Among the 221 respondents more than half (56.6%) were in 4- 7 ≤34 years of age group, another 24.0% belonged to the age group of 8- 11 years and only 19.5% were 12- 15 years age group. Weight of the respondents were from 20 to 65 kg and mean weight of the respondents was (41.64±10.75). Here, 36.2% of the respondent's weight were from 37-47 kg and 29.0% of the respondent's weight were from 26-36 kg. Another 23.1%, 7.7% and 4.1% of the respondent's weight were from 48-58 kg, 59-69 kg and 15-25 kg respectively. In gender issue majority (60.6%) of the respondents was girls and 39.4% of

the respondents were boy.

A similar study was conducted to assess Health-Related Quality of Life of Overweight and Obese Children in state of Victoria, Australia. In this study the mean (SD) age of the child participants was 10.4 (1.1) years (range, 9-12 years) and the prevalence of overweight and obesity were 20.2% and 4.3%, respectively. A slightly higher proportion of females than males were classified as overweight or obese (21.3% overweight and 4.9% obese female's vs 19.2% overweight and 3.8% obese males), but this difference was not significant (P=.33). Males and females did not differ significantly by height, weight, BMI, age in years, weight category, location of residence, disadvantage index, or maternal education; therefore, except where specified, males and females were combined for analyses.[13]

The study found was no significant relationship with respondent age and physical functioning ($p \geq 0.05$). There was also no significant relationship with sex and physical functioning ($p \geq 0.05$). Study found a significant relationship with weight and physical functioning ($p \leq 0.05$). By the increase of school children weight, physical functioning is decrease.

A study revealed that the mean (SD) scores for each of the PedsQL scales and subscales by weight category. Parent- and child-reported physical and social functioning and total scores decreased significantly with increasing weight, as did the child self-reported psychosocial summary score (P=.004). Similar, although not statistically significant, trends were seen for the parent proxy psychosocial summary score and school functioning and for parent- and child-reported emotional functioning[13].

Conclusion:

It assesses physical functioning from which total, physical health summary scores are derived. Physical functioning increase with age and decrease with obesity. Weight is significantly related with physical functioning. Behavior change intervention program among the school children in field practice syllabus may be one of the applicable ways to improve health related quality of life.

Recommendations:

This study finding clearly disclosed the need for promoting health related quality of life among obese school children. Behavior changes intervention program among the obese school children in field practice syllabus need to introduce. Skill based health education program on health-related quality of life health related quality of life in regular interval among obese school children.

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