EUROPEAN
ACADEMIC
RESEARCH

Knowledge and Attitude regarding Adiposity in Urban Adolescent Students

SYEDA NUSRAT JAHAN[1]
Lecturer, Department of Community Medicine
Shaheed Suhrawardy Medical College
Dhaka, Bangladesh
MEERJADY SABRINA FLORA
Professor, Department of Epidemiology
National Institute of Preventive and Social Medicine (NIPSOM)
Dhaka, Bangladesh
SYED TARIQ REZA
Register, Department of Medicine
Dhaka Medical College & Hospital
Dhaka, Bangladesh

Abstract:

Background: Adiposity is an increasing prevalent nutritional disorder among adolescent in both developed and developing countries. Adiposity in adolescent is a cause for concern because it may predict the adult adiposity as well as adiposity related chronic diseases. **Objective:** The aim of this study was to assess knowledge and attitude regarding Adiposity in urban adolescent students. **Methods:** A cross sectional study was conducted in purposively selected four secondary schools in Dhaka city and 450 students were selected conveniently. A semi-structured, pre-tested, self administered questionnaire was used for collection of data on knowledge related variables. Levels of knowledge were categorized as poor and good according to Likert self-rating scales. **Results:** More than half (53.3%) of the students gave incorrect answer regarding own body weight. More than two fifth (46.8%) had knowledge regarding own body weight. Almost two fifth

*(40%) of the students knew the meaning of diet and almost one third (31.1%) gave incorrect answer regarding meaning of diet. 49.1% of the students had correct knowledge about unhealthy food. More than two fifth (47.8%) of the students strongly agreed and more than one third (39.1%) agreed that balanced diet is helpful for maintaining healthy body. More than two fifth (43.3%) strongly agreed and more than one third (38.4%) agreed the statement playing computer/video games for long time are harmful for health. None of the students disagreed the statement. Occupation of mother and family income of respondents showed statistical significance in terms of adiposity. **Conclusion:** Knowledge level of the adolescent students regarding adiposity was not satisfactory. This study might help the policy makers in understanding the size of the adiposity problem in Bangladesh and effective spread of information and increased motivation regarding adiposity should be done to prevent adiposity.*

Key words: Knowledge, Adiposity, Urban adolescents

Background

Adiposity is an increasing prevalent nutritional disorder among adolescent in both developed and developing countries. Adiposity in adolescent is a cause for concern because it may predict the adult adiposity and as well as adiposity related chronic diseases. . Most of the epidemiological studies describe the problem of obesity, not adiposity. Adiposity actually measure fat mass (FM) of the body, either in total or in percentages. Fat mass (FM) means all extractable lipids from adipose and other tissues in the body (Vivian & Dale, 2004). Adiposity is one of the most widespread and major problems affecting children and adolescents and is a global nutritional concern. During the past 20 years, prevalence of adiposity among children and adolescents has doubled in America (William *et al,* 2004). The United States National Center for Health Statistics suggests that nearly 15% adolescents are

[1] Corresponding author: draney2011@yahoo.com

overweight or obese. In Europe, the scenario is same like USA. In 2009, 12.8% of the Dutch boys and 14.8% of the Dutch girls aged 2–21 years were overweight and 1.8% of the boys and 2.2% of the girls were classified as obese (Schönbeck *et al,* 2011). However, an increased prevalence is found in many countries where the major nutritional disorder previously was malnutrition. In Brazil, a country that rapidly emerging from developing to the developed world, the prevalence of overweight and obesity was 11.1% and 2.7% in girls and 8.2% and 1.5% in boys, respectively (Dartagnan *et al,* 2011). In India, there are several studies done in different parts of India. These studies show that the prevalence of adiposity is 11.7% to 19.7 % (Gupta *et al,* 2011; Jagdish *et al.* 2011; Raman *et al,* 2006). In a study in Bangladeshi school adolescent in urban area, the prevalence of obesity was 17.9%, higher among males (19.9%), compared to females (15.3%) (Mohsin *et al,* 2010). Thus adiposity is increasingly seen as a public health problem in both developed and developing world. In Bangladesh a study was previously done regarding prevalence of obesity in children age 5-15 years (Mohsin *et al,* 2010). However no study yet was done regarding adiposity in adolescents. The national burden of adiposity in adolescents is still unknown. A sound understanding of the prevalence, etiology and knowledge regarding and attitude towards the problem are required if strategies for the prevention and treatment of this epidemic is to be developed.

Methods

A cross sectional study was conducted in purposively selected four secondary schools in Dhaka city from July 2011 to June 2012 and on 450 students including both sexes from class six to eight. The formula used here to calculate the sample size was

Sample size (n) = $Z^2 p {*} q / d^2$
Here, Z=1.96 (95% confidence interval)
p=prevalence

q=1-p

d=error (precision)

Estimated sample size was 450.

A semi-structured, pre-tested, self administered questionnaire was used for collection of data on socio-economic and knowledge and attitude related variables. Levels of knowledge were categorized as "Poor", and "good" and attitude were measured by five point Likert self-rating scales.

Anthropometric measurements were taken for three points (triceps, subscapular and calf) skin fold thickness. Slaughter *et al* (1988) equation was used in this study and % of body fat (BF) was measured by following equation

Boys: %BF= 0.735($\sum$2SKF)c +1.0   [c= triceps+calf]

If $\sum$2SKF is >35mm then

%BF=0.783($\sum$2SKF)d +1.6 [d=triceps+subscapular]

Girls: %BF= 0.610($\sum$2SKF)c+5.1 [c=triceps+calf]

If $\sum$2SKF is >35mm then

%BF=0.546($\sum$2SKF)d+9.7 [d=triceps+subscapular].

Percentage of body fat was classified into four categories -low, mid, upper and obesity. Data was imported in SPSS 16.0 version and analyzed. Descriptive statistics were computed for background characteristics of their family. Statistical associations between categorical variables were tested using chi-square test and mean difference of continuous variables by independent t-test. All *p* values presented were two tailed. The statistical tests were considered significant at a level of 5 % (0.05).

Ethical approval was obtained from the Ethical Review Committee of Diabetic Association of Bangladesh (BADAS). Written permission was obtained from authority, i.e. Principal / Governing body of the school. Informed written assent from students and consent from their parents/guardian were taken.

Results:

Participants <14 years old had higher adiposity (10.9%) than participants ≥14 years old (10.0%). Participants of small family members (<5 persons) had higher adiposity (11.5%) than from large family members (8.3%). The participants of nuclear family had more adiposity (10.4%) than from joint family (8.8%). Participants having family income >30,000 TK had significantly higher adiposity (14.6%) than participants having income <30,000 TK (5.8%) p=0.015. Participants who studied in English medium school had higher adiposity (15%) than who read in Bangle medium school (5.7%) p=0.008. Participants' mothers have had education level up to HSC had higher adiposity (61.3%). On the other hand, fathers' education level showed no significant difference in adiposity. Participants' mother who were housewives showed more adiposity (13.4%) than mothers who were in service (4.9%) p=0.005. **(Table 1)** Table 2 shows knowledge of the students regarding adiposity. More than half (53.3%) of the students gave incorrect answer regarding own body weight. More than two fifth (46.8%) had knowledge regarding own body weight. Almost two fifth (40%) of the students knew the meaning of diet and almost one third (31.1%) gave incorrect answer regarding meaning of diet. 49.1% of the students had correct knowledge about unhealthy food. Highest proportion (73.8%) of students gave the correct answer about fat or oil in food. Almost one third (36%) of the students had knowledge about activities that increase body weight. Lowest proportion of the students had knowledge (26%) about minimum days/week of physical activity that required to healthy life. **(Table 2)** Table 3 shows attitude of the students towards adiposity. More than two fifth (47.8%) of the students strongly agreed and more than one third (39.1%) agreed that balanced diet is helpful for maintaining healthy body. Only 8.9% disagreed the statement. More than one third (39.9%) strongly agreed and almost half (56.4%) agreed that playing

outdoor games are helpful for maintaining healthy body. Only 4.4% disagreed the statement. More than one third (38.4%) disagreed and one fifth (26.2%) strongly disagreed the statement performing regular exercise cannot prevent overweight. 17.1% strongly agreed the statement. More than two fifth (43.3%) strongly agreed and more than one third (38.4%) agreed the statement playing computer/video games for long time are harmful for health. None of the students disagreed the statement. More than two fifth (43.3%) of the students disagreed and 47.6% of the students strongly disagreed the statement regular intake of Burger / Sandwich / in Tiffin can't increase body weight. Only 4.7% strongly agreed and 4.4% had no opinion regarding the statement. Only 16.7% of the students disagreed and 22% strongly disagreed the statement Regular intake of soft / carbonated drinks cannot increase body weight. More than one third (38%) of the students did not give opinion regarding the statement. 16.7% disagreed and 22% strongly disagreed the statement excessive TV watching can increase body weight. More than one third (34.7%) did not have any opinion regarding the statement. One fourth (25.6%) of the students agreed and 17.65 disagreed the statement sleeping less than 7 hours in a day is good for health. **(Table 3)**

Table 1: Socioeconomic & demographic indicators and adiposity

Characteristics	Low (n=103)	Mid (n=284)	Upper (n=17)	Obesity (n=46)	x^2	P
	n(%)	n(%)	n(%)	n(%)		
Age (years)						
<14	26(25.7)	59(58.4)	5(5.0)	11(10.9)		
≥14	77(22.1)	225(64.5)	12(3.4)	35(10.0)	1.25	ns
Monthly family income(Taka)						
<30,000	58(25.9)	144(64.3)	9(4.0)	13(5.8)		
≥30,000	45(19.9)	140(61.9)	8(3.5)	33(14.6)	10.44	0.015
Total family member						
<5	70(25.9)	158(58.5)	11(4.1)	31(11.5)		
≥5	33(18.3)	126(70.0)	6(3.3)	15 (8.3)	6.18	ns
Family type						
Nuclear	93(23.7)	245(62.3)	14(3.6)	41(10.4)		
Joint	10(17.)	39(68.4)	3(5.3)	5(8.8)	1.62	ns
Type of school (medium)						
English	44(20)	136(61.8)	7(3.2)	33(15.0)		
Bangla	59(25.7)	148(64.3)	10(4.3)	13(5.7)	11.71	0.008
Father's highest education						
Up to graduation	56(24.5)	144(62.9)	11(4.8)	18 (7.9)		
Post graduation & professional	47(21.3)	140(63.3)	6(2.7)	28(12.7)	4.35	ns
Mother's highest education						
Up to HSC	61(22.1)	179(64.9)	10 (3.6)	26(9.4)		
≥Graduation	42(24.1)	105(60.3)	7 (4.0)	20(11.5)	1.03	ns
Mother's occupation						
Working mother	43(28.3)	99(65.1)	4(2.6)	6(3.9)		
House wife	60(20.1)	185(62.1)	13(4.4)	40(13.4)	12.71	0.005

Table 2: Knowledge of the students regarding adiposity

Level of knowledge	Appropriate answer	Incorrect answer	Do not know
	n(%)	n(%)	n(%)
Knowledge regarding own body weight	211(46.8)	239(53.2)	0(0)
Meaning of dieting	180(40.0)	140(31.1)	130(28.9)
Knowledge about unhealthy food	221(49.1)	0(0)	229(50.9)
Knowledge about less fat/oil in food	332(73.8)	97(21.6)	21(4.7)
Knowledge about activities that increase body weight	162(36.0)	20(4.4)	268(59.6)
Knowledge about minimum days/week of physical activity that required to healthy life	117(26.00)	80(17.8)	253(56.2)

Table 3: Attitude of the students towards adiposity

Statement	Strongly agree n(%)	Agree n(%)	Uncertain/no opinion n(%)	Disagree n(%)	Strongly disagree n(%)
Balanced diet is helpful for maintaining healthy body	215(47.8)	176(39.1)	19(4.2)	40(8.9)	0(0)
Playing outdoor games are helpful for maintaining healthy body	176(39.1)	254(56.4)	0(0)	20(4.4)	0(0)
Performing regular exercise cannot prevent overweight	77(17.1)	0(0)	82(18.2)	173(38.4)	118(26.2)
Playing computer/video games for long time are harmful for health	195(43.3)	173(38.4)	82(18.2)	0(0)	0(0)
Regular intake of Burger / Sandwich / in Tiffin can't increase body weight	21(4.7)	0(0)	20(4.4)	195(43.3)	214(47.6)
Regular intake of soft / carbonated drinks cannot increase body weight	21(4.7)	80(17.8)	175(38)	75(16.7)	99(220)
Excessive TV watching can increase body weight	2(.4)	82(18.2)	156(347)	75(16.7)	99(22)
Sleeping less than 7 hours in a day/24 hours is good for health	22(4.9)	115(25.6)	174(387)	79(17.6)	60(13.3)

Discussion

This was a cross sectional study and four hundred fifty adolescent students were included in this study. To the best of our knowledge this type of study was hardly done not only in

Bangladesh but also in South East Asia. In this study socioeconomic and demographic factors were extensively studied. Both Bangla and English medium school and public and private school were included in the study so that the participants of both higher and middle class could be incorporated. This finding was similar to a previous study in India which showed English medium students had higher adiposity (Bharati *et al,* 2008). The study showed that participants of small family members (<5 persons) had higher adiposity (11.5%) than large family (≥5) members (8.3%). The same was true for the participants of nuclear family had more adiposity (10.4%) than the joint family (8.8%). Nuclear family had less family The participants who studied in English medium school had significantly higher adiposity (15%) than those read in Bangla medium school (5.7%). From the finding of present study it can be interpreted that adiposity was more prevalent in higher educated family. Over consciousness and small family may be the reason behind that. No similar study was found to compare. The occupation of mothers also showed significant difference on adiposity. Participants' mothers who were housewives showed more adiposity (13.4%) than those mothers were in service (3.9%). It is well known that monthly income is the key factor that influences the socioeconomic status and way of living in a family. In this study the participants of both higher and middle class were included. The distribution of monthly income showed the overall status of the urban community. Those family income >30,000 TK had significantly higher adiposity (14.6%) than those income <30,000 TK (5.8%) p=0.015. Higher socioeconomic group had more adiposity because they had more purchasing power. This is similar to an Indian study which reveals children of higher classes belonging to higher socioeconomic group are also in greater risk of obesity (Rajaat *et al,* 2011). It is essential to know the knowledge and attitude of the population regarding a disease to do necessary steps to prevent the disease. From

literature review, regarding adiposity no study yet has been done to know the knowledge and attitude of population in Bangladesh and south Asia. In the present study, more than half (53.3%) of the students gave incorrect answer regarding own body weight. More than two fifth (46.8%) had knowledge regarding own body weight. Highest proportion (73.8%) of students gave the correct answer about fat or oil in food. Almost one third (36%) of the students had knowledge about activities that increase body weight. Lowest proportion of the students had knowledge (26%) about minimum days/week of physical activity that required to healthy life.

Conclusion

Knowledge level of the adolescent students regarding adiposity was not satisfactory and attitude towards adiposity was also not encouraging. This study might help the policy makers in understanding the size of the adiposity problem in Bangladesh and effective spread of information and increased motivation regarding adiposity should be done to prevent adiposity.

REFERENCES

Bharati, D.R., Deshmukh, P.R. and Garg, B.S., (2008), Correlates of overweight & obesity among school going children of Wardha city, Central India. *Indian J Med Res*, 127(6), 539-43.

Dartagnan, P.G., Giselle D.R., António J.R., Martins S., Isabel M.C. and Eduarda M.C., (2011), Effects of social and environmental determinants on overweight and obesity among Brazilian schoolchildren from a developing region. *Rev Panam Salud Publica*, 30(4), 295–302

Gupta, D.K., Shah, .P, Misra, A., Bharadwaj. S. and Gulati, S., (2011), Secular Trends in Prevalence of Overweight and

Obesity from 2006 to 2009 in Urban Asian Indian Adolescents Aged 14-17 Years. PLoS ONE, 6(2), e17221, www.olosone.org. doi:10.1371/journal.pone.0017221

Jagdish, P., Goyal, N.K., Indira, P., Vijay, B.S. and Bharat, P., (2011), Determinants of Overweight and Obesity in Affluent Adolescent in Surat City, South Gujarat region, India. *Indian J Community Med*, 296-300.

Mohsin F, Tayyeb S, Baki A, Sarker S, Zabeen B, Begum T, Azad K and Nahar N., Prevalence of obesity among affluent school children in Dhaka. *Mymensingh Med J*, 19(4), 549-54.

Rajaat, V., Pankaj, B., Jyoti, P. S., Shekhar, S., Anusha, V.,(2011), Overweight and obesity among school-going children of Lucknow city. *Journal of family and community medicine*, 18(2), 59-62.

Raman, K. M., Nikhil, T., Yashpal, S., Rashmi, A, Khushi. G., Kalaivani, M.,(2006), A Study of Growth Parameters and Prevalence of Overweight and Obesity in School Children from Delhi. *Indian pediatrics* ,vol. 43

Schönbeck, Y., Talma H., van Dommelen. P., Bakker, B., Buitendijk, S.E., et al. (2011), Increase in Prevalence of Overweight in Dutch Children and Adolescents: A Comparison of Nationwide Growth Studies in 1980, 1997 and 2009. *Plosone,* 6(11), www.plosone.org. e27608. doi:10.1371/journal.pone.0027608.

Slaughter MH, Lohman TG, Boileau RA, Horswill CA, Stillman RJ, Van Loan MD, Bemben DA. Skinfold equations for estimation of body fatness in children and youth. Hum Biol. 1988 Oct; 60(5):709-23.

Vivian H, H. and Dale, R.W., (2004*), Applied Body Composition Assessment*, 2nd Ed, USA, Human Kinetics, 4-6.

William, H. Dietz., M.D., Ph.D. (2004). Overweight in Childhood and Adolescence, N J., Wright,D.P; Rifas-Shiman,S.L., Rich-Edwards,J.W., Taveras,E.M., Gillman,M.W., & Oken, E.,(2009). Intrauterine expose

to gestational diabetes, child adiposity, and blood pressure. *American Journal of hypertension*, 22(2), 215-220.