

Study on Nutritional Status Among Secondary School Children in a Rural Area of Bangladesh

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Abstract

Background: Adolescents health status is a cumulative effect of the health and nutritional problems occurring during early childhood as well those originating in period of adolescence. **Objectives:** To determine nutrition and health status of adolescents using body mass index, dental caries and visual acuity, and the relationship between BMI, gender, age and period of adolescence. **Methods:** A Cross-sectional study was conducted during January to December, 2016 among secondary school children in a selected rural area as sample. A total 106 study subjects were selected purposively. Data were collected by interview and previous records by pretested questionnaire and data collection sheet. **Results:** In present study, the mean age of the 106 respondents was 13.92 ± 1.6 years. Among 106 respondents, 60 (56.6%) were female and 46 (43.4%) were male. A total of 106 respondents, 63 (59.5%) respondents were underweight, 40 (37.7%) respondents were Normal weight and only 3 (2.8%) were overweight. The mean BMI of was 18.18 ± 2.78 . Majority of the respondents 99 (93.4%) drunk the Tube-well water. **Conclusion:** Under weight is an important issue than over weight among rural secondary school children in Bangladesh.

Key words: nutritional status, children, rural area

Introduction

Nutritional status is defined as the nutritional state of an individual, or a population or a community.¹ Attention to nutritional status is especially important in school children as they are undergoing the complex processes of growth and development, which are influenced by the genetic makeup of the individual and coexisting medical illness in addition to nutritional status.² Nutritional status is the balance between the intake and utilization of food

nutrients by man in the process of growth and development³ and according to Goon *et al.*⁴ is an integral component of the overall health of an individual and provides an indicator of the well-being of children living in a particular region. Malnutrition is one of the principal public health problems, affects large numbers of children in developing countries. Despite the economic growth observed in developing countries, malnutrition and particularly under nutrition is still highly prevalent.⁵ School

age is a dynamic period of physical growth as well as of mental development of the child. The nutritional status of school-aged children impacts their health, cognition, and subsequently their educational achievement. Nutritional needs during this period are increased because of the increased growth rate and changes in body composition associated with puberty. The dramatic increase in energy and nutrient requirements coincides with other factors that may affect their food choices and nutrient intake and thus nutrition status. There are many body changes which results due to the influence of hormones. Greatest nutrients need for boys is between 12-15 years and for girls is 10-13 years.⁶ The school is an opportune setting to provide health and nutrition services to disadvantaged children.

Methods

A Cross-sectional study was conducted during January to December, 2016 to determine nutritional status among secondary school children in a selected rural area. A total 106 secondary school children were selected purposively as sample according to inclusion and exclusion criteria. They were interviewed with a specific pre tested questionnaire and some information were gathered by document review by data collection sheet. Collected data were cleaned, edited and analyzed with the help of software SPSS windows version 23. The analyzed data have been presented in this chapter through tables and appropriate graphs.

Results

A total of 106 respondents, 63 (59.5%) respondents were underweight, 40 (37.7%) respondents were normal weight and only 3 (2.8%) were overweight. The mean BMI of was 18.18 ± 2.78 (Table I).

Table – I: Distribution of the respondents by BMI

BMI (Kg/m2)	Number of respondents (N)	Percentage (%)
<18.5 (Underweight)	63	59.5
18.5 to 24.99 (Normal weight)	40	37.7
≥25 to 29.99 (Overweight)	3	2.8
Total N (%)	106	(100.0)
Mean (SD)	18.18±2.78	

Table II: Distribution of respondents by age

Age of the respondents	Number N	Percentage %
>12	8	7.7
12 - 15	84	79.2
15<	14	13.1
Mean	13.92	
SD	±1.6	

A total of 106 respondents, majority 84 (79.2%) were in the age group of 12-15 years. The mean age of the rural respondents was 13.92 (SD±1.6) years (Table –II). Majority of the respondents 99 (93.4%) drunk the Tube-well water, only 7(6.6%) drunk the Supply water and non of the respondents drank pond water. Near about all the respondents except 2 (1.9%), 104 (98.1%) had habit of hand washing before taking food.

Discussion

In this study majority of the respondents 63 (59.5%) were underweight, 40 (39.6%) respondents were normal weight and only 3 (2.8%) were overweight. The mean BMI was 18.1816 ± 2.78 . These findings seems to be consistent with previous studies accompanied in rural school children of Bangladesh.^{7,8}

Obesity is a critical health concern among children. Childhood obesity has reached epidemic proportions globally, both in developed and developing countries, even in those countries where deficiency diseases represent a severe public health problem.^{9,10} But the present study findings suggest, over weight and obesity are not a serious health issue among the children in rural Bangladesh.

In the present study, majority of the respondents 99(93.4%) drunk the Tube-well water and the rest 7(6.6%) drunk the Supply water. It suggest that most of the Bangladeshi population is under basic water coverage.¹¹ It is consistent with the observation of WaterAid Bangladesh.¹¹ But WaterAid also revealed that there is a vast difference between coverage and quality of available water. Only 1 in 10 people don't have access to safe drinking water. According to the Joint Monitoring Programme (JMP) Report of 2020, the proportion of Bangladesh's population with access to safely managed water is at 58.5%. Despite progress on overall improved water coverage and achieving the MDG water target, access to safe water for all remains a challenge. Contamination of water is also of particular concern, with 86% of the poorest households showing *E. coli* contamination along with 16.7% of the population consuming arsenic water.¹¹ These undesirable facts lead to develop infection and other disease conditions causing malnutrition.

In this study non of the respondents drank pond water. It indicates that rural people in Bangladesh are aware about the hazards of pond water used as drinking water.

Bangladesh faces many challenges related to water, sanitation and hygiene. Water and sanitation related disease is considered as one of the most significant child diseases in Bangladesh. Non-fatal chronic conditions such as diarrhea, worm infections, cholera, malaria, trachoma and schistosomiasis are also sourced from water and improper sanitation practice. Water-related diseases are responsible for 24% of all deaths and gastroenteritis and diarrheal diseases killing 110,000 children every year in Bangladesh.¹² Improper sanitary practice such as open defecation, lack of proper hand washing practice, fecal disposal in open places are the major risk factors that results in diarrheal or water-borne diseases. Evidence shows that hand washing before taking food is a particularly important opportunity to prevent childhood diarrhea, and that hand washing with water alone can significantly reduce childhood diarrhea.¹³ In this study more or less all the children, 104 (98.1%) children out of 106 had habit of hand washing before taking food. It is a very positive sign for Bangladesh.

The present study suggests that under weight is an important issue than over weight among rural secondary school children in Bangladesh. Near about all the children were aware to drink tube well water and hand wash before eating, which is very helpful to remain their healthy life.

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References:

1. Osibogun A. handbook of public health nutrition for developing countries. 2nd edn. Lagos: Akin Osibogun consultants, 1998.
2. Duggan C., Maqbool A., Olsen I. E., Stallings V.A. Clinical Assessment of Nutritional Status. 4th edn. Canada: BC Decker Inc, 2008.
3. Adegun J.A., Ajayi-Vincent, O.B., Alebiosu, E.O. Differences in the nutritional status of young school children from public and private owned primary schools in Ekiti state, Nigeria, *European Scientific Journal* 2013; 9(7): 305-12.
4. Goon DT, Toriola al, Shaw BS, et al. Anthropometrically determined nutritional status of urban primary school children in Makurdi, Nigeria. *BMC Public Health*, 11, 769, <http://www.biomedcentral.com/1471-2458/11/769>.
5. Muller O., Krawinkel M. Malnutrition and health in developing countries. *Canadian Medical Association Journal* 2005; 173 (3) : 279-86.
6. Srilakshmi B., Islam M.Z., Akhtaruzzaman M., Lamberg, A. *Dietetics*. 3rd edn. New Delhi: New Age International Publishers, 1998.
7. Nowshin I. Nutrition for the school aged child. 1st edn. Dhaka: Neb Guide Series No. G921086A, 2002.
8. Khanam SJ, Haque MA. Prevalence and determinants of malnutrition among primary school going children in the haor areas of Kishoreganj district of Bangladesh. *Heliyon* 2021;7(9):e08077. doi: 10.1016/j.heliyon.2021.e08077.
9. World Health Organization. Obesity: Preventing and managing the global epidemic. WHO Technical Report Series 894. Geneva: WHO, 2000.
10. Steering. The Asia Pacific perspective: Redefining obesity and its treatment. Health communications Australia Pty. Limited, 2000.
11. The Crisis – Water, WaterAid Bangladesh <https://www.wateraid.org/bd/the-crisis/water>
12. Water Aid: 2011, http://www.wateraid.org/uk/what_we_do/where_we_work/bangladesh. Accessed on 10 December 2011).
13. Rabbi S.E., Dey N.C. Exploring the gap between hand washing knowledge and practices in Bangladesh: a cross-sectional comparative study. *BMC Public Health* 13, 89 (2013). <https://doi.org/10.1186/1471-2458-13-89>