Original Article

Nutritional Status Among Under Five Children in Rural Area of Bangladesh

Farida Nasreen[1], Md. Ashraful Haque[2], Shayla Nazneen[3],Md. Mokhlesur Rahman Sarker[2]

Abstract:
Background: The nutritional status of the people of Bangladesh is considered to be worse among Asian countries, and Bangladesh ranks 57th in relation to children aged less than 5 years. In context of Bangladesh, nearly 33% children were suffering from underweight, 36% from stunting and 14% from wasting. **Objective:** The objective of the study was to assess the nutritional status of children less than five years of age. **Methods:** This was a cross-sectional descriptive survey conducted among purposively selected 200 children of 24-59 months of age in rural area of Bangladesh (Gangachara, Rangpur). The data were collected 21 January 2018 to 31 January 2018 by the 3rd year MBBS students. **Results:** Mean age of the study population was 40.36 ± 1.17months, among them boys were 52% and girls 48%. Regarding anthropometric assessment, according to weight for height Z-score, 10.5% was wasted moderately and 02% was severely wasted and height for age Z-score, showed 29% of children were stunted moderately and 3.5% children were severely stunted. According to weight for age Z-score, 22% of children were moderately underweight and 5.5% children were severely underweight. MUAC classification revealed 15% of children were in border line nourishment and 1.5% was malnourished. **Conclusion:** There has been some improvement in child nutritional status over the past decade. Though, the prevalence of malnutrition is high in Bangladesh.

Indexing words: Nutritional status, Under five children, Rural area

Introduction:
Nearly half of all deaths in children under 5 are attributable to under nutrition. Under nutrition puts children at greater risk of dying from common infections, increases the frequency and severity of such infections and contributes to delayed recovery. In addition, the interaction between under nutrition and infection can create a potentially lethal cycle of worsening illness and deteriorating nutritional status. Poor nutrition in the first 1,000 days of a child's life can also lead to stunted growth, which is irreversible and associated with impaired cognitive ability and reduced school and work performance.[1] In 2010, it has been reported that, 27% of children under five years (171 million) are stunted and 16% (104 million) are underweight globally.[2] Globally in 2011, 165 million children under 5 years of age were stunted, 101 million children were underweight and 52 million children were wasted.[3] It is also alarming that 10.5 million children of age under-five years die worldwide every year and 98% of these deaths reported to occur in developing countries.[4] Of the total global disability-adjusted life-years (DALYs), 11% are due to childhood malnutrition alone. About 80% of undernourished children of the world live in just 20 countries in Africa, Middle East, Asia, and the Western Pacific; Bangladesh is one of these countries.[5] Currently, 195 million under-five children are affected by malnutrition; 90% of them live in sub-Saharan Africa and South Asia.[6] Good nutrition is the cornerstone for survival, health and development. 5.9 million Children under the age of five died in 2015. Child malnutrition causes 27.9% of child deaths in developing countries in 2015.[7] The nutritional status of the people of Bangladesh is considered to be worse among Asian countries, and Bangladesh ranks 57th in relation to children aged less than 5 years, and the prevalence of childhood malnutrition in Bangladesh is one of the highest in the world; about 43% of under-5 year children are stunted, 41% have underweight and about 17% suffer from wasting.[8] Rates of

1. Associate Professor, Dept. of Community Medicine, Rangpur Army Medical College
2. Associate Professor, Dept. of Medicine, Rangpur Medical College
3. Lecturer, Dept. of Physiology, Shaheed Shuhrawardy Medical College, Dhaka

malnutrition in Bangladesh are among the highest in the world, with six million children estimated to be chronically undernourished.[9] According to BDHS, 2014, 36 percent of children under 5 are considered to be short for their age or stunted, while 12 percent are severely stunted (below -3 SD). Rural children are more likely to be stunted than urban children (38 percent compared with 31 percent). Under Millennium Development Goal 1 Bangladesh has set a target to halve the rate of underweight children between 1990 and 2015. Using the WHO standard, the MDG1 target is 31 percent, whereas using the NCHS reference, the target is 33 percent. Using the WHO reference, the 2014 BDHS data show that Bangladesh is 2 percentage points short of reaching MDG1 target for underweight. One in five children less than 6 months is underweight. Three standard indices of physical growth that describe the nutritional status of children are: Height-for-age (stunting), Weight-for-height (wasting), and Weight-for-age (underweight). Height-for-age measures linear growth. A child who is more than two standard deviations below the median (-2 SD) of the WHO reference population in terms of height-for-age is considered short for his or her age, or stunted. This condition reflects the cumulative effect of chronic malnutrition. If a child is below three standard deviations (-3SD) from the reference median, then he or she is considered to be severely stunted. Weight-for-height describes current nutritional status. A child who is more than two standard deviations below (-2 SD) the reference median for weight-for-height is considered to be too thin for his or her height, or wasted. This condition reflects acute or recent nutritional deficit. Along with stunting, wasting is considered severe if the child is more than three standard deviations below (-3 SD) the reference median. Children whose weight-for-age is below two standard deviations (-2 SD) from the median of the reference population are classified as underweight. Children whose weight-for-age is below three standard deviations (-3 SD) from the median of the reference population are considered severely underweight. Weight-for-age is an overall indicator of a population's nutritional health[10].

Child nutritional status assessment not only serves as a means for evaluating the health condition and survival of children but also provides an indirect measurement of the quality of life of an entire population. Therefore, the present study was aimed to assess the nutritional status of the children (24-59 months) under five years in rural area of Bangladesh.

Methods:

This was a cross sectional descriptive type of study. Data were collected from rural inhabitants of Gangachara Upazilla, Rangpur. Two hundred children of 24-59 months age were studied from 21 January 2018 to 31 January 2018. Data were collected by the 3rd year MBBS students of Rangpur Army Medical College during their Residential Field Site Training Programme. The world Health Organization recommended height for age, weight for age, and weight for height Z – score and Mid Upper Arm Circumference (MUAC) was used to assess the nutritional status of the children. Each student visited different households of the village and collected various data from respondents by face to face interview following a preformed partially structured questionnaire. Data were then edited and processed. Data were analyzed by using SPSS version 16. Informed written consent was taken from the parents or children's legal guardian considering all ethical issues. Confidentiality was maintained regarding both verbal and documentary data.

Results:

A total of 200 under 5 children were studied by face to face interviewee to assess nutritional status by using anthropometric measurement. The findings of the study were plotted in table and charts. The socio-demographic variables were showed in frequency and percentage. The nutritional status was expressed in frequency table.

Table 1 shows the socio demographic characteristics of the study population. Out of 200 children most of them 92 (46%) were in the age group of 24 to 36 months. Among them, 108 (54%) study subjects were boys and 92 (46%) were girls. Among the respondents majority 174 (87%) were female and most 147 (73.8%) had no formal or primary education, 47 (23.5%) were completed secondary level education and 06(03%) were graduated. Among the respondents 161 (80.5%) were housewife, 11 (5.5%) were service holders and others 28 (14%). Most of the respondents 168 (84%) had monthly family income were in between Tk 5000

to 10000. Among them most of them lived in semipacca house114 (57%). Of the study population Muslim were 137(68.5%) and Hindu 63 (31.5%).

Table 1: Socio-demographic characteristics of the study subjects (n=200)

Characteristics	Frequency	Percentage
Age of the subjects		
24-36 months	92	46
36-48 months	48	29
48-59 months	50	25
Gender of the subjects		
Boys	108	54
Girls	92	46
Parents education		
No formal/primary education	147	73.8
SSC & HSC	47	23.5
Graduate & above	06	03
Parents occupation		
House wife	161	80.5
Service	11	05.5
Farmers and others	28	14
Parents monthly income (Taka)		
<10000	168	
10001-20000	26	13 84
>20000	06	03
Type of house		
Kancha	71	35.5
Semipucca	114	57
Pucca	15	07.5
Religion		
Islam	137	68.5
Hindu	63	31.5

Table 2 shows maximum 136 (67.5%) children were normal in their height for age followed by 58 (29%) were moderately stunted and 07(3.5%) were severely stunted.

Table 2: Nutritional status of the children by Height for Age (n=200)

Height for age	Frequency	Percentage
Normal	135	67.5
Moderate stunting	58	29
Severe stunting	07	03.5
Total	200	100

p<0.0001

Table 3 shows, out of the total 200 children, majority 145(72.5%) of the children's weight were within the normal limit for their age followed by 44(22%) children were moderately underweight and 11(5.5%) children were severely underweight.

Table 3: Nutritional status of the children by Weight for Age Z-score (n=200)

Weight for age	Frequency	Percentage
Not underweight	145	72.5
Moderate underweight	44	22
Severe underweight	11	05.5
Total	200	100

p<0.0001

Table 4 shows, according to height for weight Z-score, it was found that 175 (87.5%) children were normal, 21(10.5%) were moderately wasted, and 04(02%) were severely wasted.

Table 4: Nutritional status of the children by Weight for Height Z-score (n=200)

Weight for Height	Frequency	Percentage
Normal	175	87.5
Moderate wasting	21	10.5
Severe wasting	04	02
Total	200	100

p<0.0001

Table 5 shows that according to Mid Upper Arm Circumference (MUAC) classification, 30(15%) children were moderate acute malnutrition (MAM) and 03(1.5%) found in severe malnutrition (malnourished)**.**

Table 5: Nutritional status of children by MUAC classification (n=200)

MUAC	Frequency	Percentage
Normal	167	83.5
Borderline	30	15
Malnourished	03	1.5
Total	200	100

p<0.0001

Discussion:

It was a descriptive type of cross sectional study conducted among 200 under five children of age 24 to 59 months in order to assess the nutritional status by using anthropometric measures. The mean age of the children was 40.36 ±1.42 months. In our study boys and girls were found 54% and 46% respectively. Anthropometric indices were used and compared to WHO, (2006) Growth Standards[11]. In our study result

stunting was found 32.5%, wasting was 12.5% and underweight 30%, which is almost closer to the BDHS, 2014[10] where stunting was 36%,wasting 14% and underweight 33%. Our findings were closer to the findings of the study done by Sultana et al (2015)[12] except underweight, which reveals prevalence for wasting was 11.2% stunting 33.5% and under-weight was 13.1%. It may be due to socioeconomic development of our country. According to MUAC measurement in our study 167 (83.5%) children were found normally nourished and 15% borderline and 1.5% had severe acute malnutrition. These findings are consistent with the study done by sultana et al (2015) [12] in Bangladesh, where 79% were found normally nourished and 19.9% children in moderately acute malnutrition and only 1.1% was in severe acute malnutrition. Our findings are inconsistent with the study conducted by Biswas et al (2010)[13] in India who found MAM were among boys 38.49% and among girls 32.22% and severe malnutrition 2.15% in boys and 1.20% in girls respectively. It may be due improvement of socioeconomic status of Bangladesh within these periods.

Conclusion and Recommendation

Achievements in child nutrition have been mixed in Bangladesh. Some outcome indicators are declining. But the prevalence of malnutrition is high in our country. So, Government and other development partner should take interventions like exclusive breast feeding campaigns, complementary feeding and infant young child feeding (IYCF) programme, food diversification and food fortification at the community level to improve the situation.

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