

## Nutritional Status of Under-Five Children of Chattogram Hill Tracts

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### Abstract

**Introduction:** Adequate nutrition during infancy and early childhood is fundamental to the development of child's full human potentials. Malnutrition is recognized as one of the major causes of morbidity and mortality among the children under-five years of age and developing countries are the worst affected.

**Objectives:** To assess the nutritional status of under-five children of selected area of Chattogram hill tracts of Bangladesh.

**Material and Methods:** This cross-sectional study was conducted among 300 children with age between 6 months to 5 years reported to the outpatient department of selected hospitals were included purposively. All the data were collected by interviewing the mothers of the children by using a pretested semi-structured questionnaire. Nutritional status was assessed by using WHO recommended height for age Z-score (HAZ) for stunting, weight for age Z-score (WAZ) for underweight, height for weight Z-score (HWZ) for wasting and mid upper arm circumference (MUAC) for overall nutritional status.

**Results:** Out of 300 children 53.3% were boys and 48.4% were aged less than 2 years. About 50.7% children were tribal and 49.3% were bengali. Majority (56.45%) of the children's mothers' age was below 25 years, 36.7% were illiterate, 92.7% were housewives and 85.6% had monthly family income less than 10,000 taka. Regarding children's nutritional status 15.6% were moderate stunted, 30.7% were mild stunted; severe, moderate and mild underweight were 4.3%, 13.3% and 24.7% respectively. About 1.7% was found severe wasted and 15.3% was moderate wasted. By MUAC 20.3% were of moderate acute malnutrition and 3.3% were of severe acute malnutrition.

**Conclusion:** This study revealed a high prevalence of malnutrition among under-five children in the study area. Considering the acute and long-term consequences of malnutrition, special interventions program is needed to overcome the situation.

**Key-Words:** Under-five children, Nutritional status, Chattogram hill tracts.

### Introduction

Malnutrition is one of the catastrophes on human life affecting millions of lives worldwide and developing countries are the worst affected<sup>1</sup>. It has been recognized as one of the major causes of morbidity and mortality among the children less than five years. Adequate nutrition is essential in early childhood to ensure healthy growth, proper organ formation and function, a strong immune system, and neurological and cognitive development<sup>2</sup>. Adequate nutrition during infancy and early childhood is fundamental to the development of child's full human potential<sup>1</sup>. It is well recognized that the period from birth to two years of age is a "critical window" for the promotion of optimal growth, health, and behavioural development<sup>2</sup>. Poor nutrition leads to ill-health and ill-health contributes to further deterioration in nutritional status<sup>1,2</sup>.

Approximately 12 million children younger than 5 years of age die every year in developing countries. Malnutrition is prevalent in developing countries and it is the leading cause of death<sup>2,3</sup>. According to Food & Agriculture Organization of United Nations (FAO) report 2010 Rates of malnutrition in Bangladesh are among the highest in the world. More than 54% of preschool-age children, equivalent to more than 9.5 million children, are stunted, 56% are underweight and more than 17% are wasted<sup>4</sup>. Bangladesh is a developing country and its economy is growing very fast. But this development is not equal in every part of the country. Chattogram hill tract is one of the remote areas of the country where all sorts of development activities including education and health care facilities are hard to reach.

The most commonly collected indicators of nutritional status are the anthropometric measurement of children under five years of age. The World Health Organization (WHO) working group's report on measuring the nutritional status of children recommends the use of Z-scores system as they have significant advantages over other approaches<sup>5</sup>. In brief, Z-scores indices are linear, sex independent and allow for further computation of summary statistics such as means and standard deviations to directly classify a population's

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nutritional status<sup>6</sup>. Available evidence shows that MUAC is the best (i.e. in terms of age independence, precision, accuracy, sensitivity, and specificity) case detection method for severe and moderate malnutrition and that it is also simple, cheap and acceptable<sup>7</sup>. This study was conducted to see the nutritional status of under-five children of a selected area of Chattogram hill tracts.

### Materials and Methods

This cross-sectional study was conducted to determine the nutritional status of under-five children of a selected area of Chattogram hill tracts. The study was conducted in Border Guard Hospital, Guimara, Khagrachari and Upazilla Health Complex, Matiranga, Khagrachari during the period of January to December 2017. Total 300 children aged 6 months to 5 years reported to outpatient department were selected on the basis of defined selection criteria. Data were collected by face to face interview of the mothers of the children with pre-tested semi-structured questionnaire. Before starting data collection, institutional permission from concerned authorities and informed written consent was taken from the children's parents or legal guardian considering all ethical issues. An electronic weighing scale which was standardized daily with a standard weight was used to measure the weight of the children. A standard height scale was used for measuring height. The World Health Organization (WHO) recommended height for age Z-score (HAZ) for stunting, weight for age Z-score (WAZ) for under weight, height for weight Z-score (HWZ) for wasting and mid upper arm circumference (MUAC) was used to assess the nutritional status of the children<sup>5</sup>. Data were analyzed by using SPSS 21.0.

### Results

Out of 300 children 53.3% were boys and 48.4% were aged less than 2 years. About 50.7% children were tribal and 49.3% were bengali. Majority (56.45%) of the children's mothers' age was below 25 years, 36.7% was illiterate, 92.7% were housewives and 85.6% had monthly family income were less than 10,000 taka (Table-I). Regarding children nutritional status by HAZ 15.6% were moderate stunted, 30.7% were mild stunted, by WAZ severe, moderate and mild underweight were 4.3%, 13.3% and 24.7% respectively, by HWZ 1.7% children were found severe wasted and 15.3% were moderate wasted and by MUAC 20.3% were found moderate acute malnourished and 3.3% were of severe acute malnourished (Table-II).

**Table-I:** Socio-demographic characteristics of the Children (n=300)

Characteristics		Frequency	%	
Age	6-12 months	68	22.7	
	13-24 months	77	25.7	
	25-59 months	155	51.6	
Sex	Boys	160	53.3	
	Girls	140	46.7	
Ethnic Group	Bangali	148	49.3	
	Tribal	Marma	62	20.7
		Tripura	56	18.7
		Chakma	34	11.3
Mother's age	18-25 years	169	56.4	
	26-30 years	88	29.3	
	30 and above	43	14.3	
Mother's Education	Illiterate	110	36.7	
	Primary	92	30.7	
	Secondary	58	19.3	
	Above secondary	40	13.3	
Mother's Occupation	Housewife	278	92.7	
	Working	22	7.3	
Monthly family income ( Taka)	Up to 5,000	92	30.7	
	5,001 -10,000	164	54.7	
	> 10,001	44	14.6	

**Table-II:** Distribution of the children by Nutritional status (n = 300)

Nutritional status	Frequency	%
<i>Height for Age Z-score Category (Stunting)</i>		
Normal	161	53.7
Mild Stunting	92	30.7
Moderate Stunting	47	15.6
<i>Weight for Age Z-score Category (Underweight)</i>		
Normal	173	57.7
Mild Underweight	74	24.7
Moderate Underweight	40	13.3
Severe Underweight	13	4.3
<i>Height/Length for Weight Z-score Category (Wasting)</i>		
Overweight	4	1.3
Normal	245	81.7
Moderate Wasting	46	15.3
Severe wasting	5	1.7
<i>Mid Upper Arm Circumference (MUAC)</i>		
Normal	229	76.4
Moderate acute malnutrition	61	20.3
Severe acute malnutrition	10	3.3

### Discussion

In this study, out of 300 children about 85.6% parents' monthly family income was below 10,000 taka indicate that our study subjects belong to low socio-economic status that cannot ensure proper health and nutrition. The present study

results revealed that the total prevalence of stunting, underweight and wasting were 46.3%, 42.3%, and 17%, respectively of which 15.6%, 4.3% and 1.7% of children were moderately stunted, severe underweight and severe wasted respectively. These findings indicate that the severity of stunting, underweight and wasting were in a very high prevalence rate; according to WHO-classification<sup>8</sup> which confirm that malnutrition is a serious public health problem<sup>9</sup>. In a study from India, it was shown that the overall prevalence of underweight, stunting, and wasting was 63.7%, 47.8% and 32.7% respectively<sup>10</sup>. Above findings of nutritional status are higher than that of the present study findings which may be due to regional variation and socio-economical influences.

This study finding regarding prevalence of stunting (46.3%) is higher than that of national figure<sup>11</sup>. and study conducted by Rahman and Biswas<sup>12</sup>; but consistent with the study<sup>13</sup> in chattogram hill tract showed that the prevalence of stunting was 48.0%. Prevalence of underweight was 42.3% which is higher than the national figure (33.0%) of Bangladesh<sup>11</sup>. This may be due to the study area was remotest and least developed area of Bangladesh. A multi-stage cross-sectional study done in Vietnam<sup>14</sup> also revealed that the prevalence of underweight was found to be 31.8%. The difference from present study may be due to variation in characteristics and level of progress. A study conducted by Rahman and Biswas in Bangladesh found that 47.0% children were underweight<sup>12</sup>. This finding is inconsistent with the present study findings. In the study, the overall prevalence of wasting was 17%. The current finding of wasting is higher than the national figure (14.0%) of Bangladesh<sup>11</sup>. This might also be due to the speciality of the study area. A cross-sectional study conducted by Avachat et al<sup>15</sup> revealed that 15.7% children were wasted. A cross-sectional community-based survey<sup>16</sup> was conducted among 15408 children under-five years of age in Iran and the rates of stunting, underweight, and wasting were 9.5%, 9.6%, and 8.2%, respectively. These findings are lower than that of the present study findings that might be the socio-economic difference of two countries. By MUAC 20.3% were found moderate acute malnourished and 3.3% were of severe acute malnourished, this finding is consistent with similar studies<sup>11,12</sup> in Bangladesh and a cross-sectional study<sup>17</sup> in West Bengal of India.

## Conclusion

The child growth monitoring is a good indicator of nutritional status of both the individual and the community. The present study revealed a high prevalence of stunting, underweight and wasting among the under-five children of Chattogram hill tracts. The Government, development partners, non-government organizations, and experts have to work in concert to improve the basic and effective nutrition interventions to ameliorate nutritional status of under-five children.

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