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Original Article

The nutritional status of tribal and Bengali children under the age of five at Chattogram Hill Tracts in Bangladesh

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ABSTRACT

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-5 years and developing countries are the worst affected. This paper investigates the nutritional status of under-5 children of the Chattogram Hill Tracts who are culturally different from the plain land population. Analysis of nutritional status data shows that out of 400 children, 56.25% were boys, 43.75% were girls, and 52.5% were aged <2 years. About 53.5% of children were tribal and 46.5% were Bengali. Majority (51%) of the children's mothers' age was below 25 years, 43% was illiterate, 92% were housewives, and 82.5% had monthly family income that was <10,000 taka. Regarding children nutritional status, 19.5% was moderate stunted, 29.25% was mild stunted; severe, moderate, and mild underweight were 12%, 18%, and 23%, respectively. About 5.5% was found severe wasted and 23.75% was moderate wasted. By mid upper arm circumference, 13% were of moderate acute malnutrition and 3.25% were of severe acute malnutrition.

Keywords: Bangladesh, Chattogram Hill Tracts, ethnic minorities, nutritional status

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INTRODUCTION

Chattogram Hill Tracts (CHTs) are located in southeastern part of Bangladesh which is significantly different from other parts of the country in geography, the ethnic composition of the population, and agricultural, dietary, and cultural practices. The indigenous population on CHT represents approximately 1.1% of the country's population. There are three predominately tribal districts (Bandarban, Khagrachari, and Rangamati) in CHT. The largest groups of tribal, collectively known as "jumma," live in these three hill districts, Bandarban, Khagrachari, and Rangamati of CHT.[1] The four major ethnic groups in the region beside the Bangalis are the Chakmas, Tripuras, Marmas, and Mros. All of them are descendants of different sects of Mongoloid families and moved into the region between the 14th and mid-19th centuries.

Malnutrition is one of the catastrophes on human life affecting millions of lives worldwide and developing countries are the worst affected. It has been recognized as one of the major causes of morbidity and mortality among the children <5 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.[2] Adequate nutrition during infancy and early childhood is fundamental to the development of child's full human potential. It is well recognized that the period from birth to 2 years of age is the "critical window" for the promotion of optimal growth, health, and behavioral development.[2] Poor nutrition leads to ill-health and ill-health contributes to further deterioration in nutritional status.[2,3]

Approximately 12 million children younger than 5 years of age die every years in developing countries. Malnutrition is

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prevalent in developing countries and it is the leading causes of death.[1,2] According to 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.[5] Bangladesh is a developing country and its economy is growing very fast. However, this development is not equal in every part of the country. CHT 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-5 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.[6] In brief, Z-score indices are linear, sex independent and allow for further computation of summary statistics such as means and standard deviation to directly classify a population's nutritional status.[7] Available evidence shows that mid upper arm circumference (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.[8] To see the nutrition status of under-5 children of a selected area of CHT, this study was conducted.

Objective

The objective of the study was to assess the nutritional status of under-5 children of selected area of CHT of Bangladesh.

MATERIALS AND METHODS

This cross-sectional study conducted to determine the nutritional status of under-5 children of selected area of CHT. The study was conducted in Ramgarh Upazila Health Complex, Khagrachari and Upazila Health Complex, Matiranga, Khagrachari. The research work was carried out between January 2018 and December 2018. A total of 400 children aged 6 months–5 years reported to the 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 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 MUAC was used to assess the nutritional status of the children's. Data were analyzed using SPSS 21.0.

RESULTS

Out of 400 children, 56.25% were boys, 43.75% were girls, and 52.5% were aged <2 years. About 53.5% of children were tribal and 46.5% were Bengali. Majority 51% of the children's mothers' age was below 25 years, 43% was illiterate, 92% were housewives, and 82.5% had monthly family income that was <10,000 taka [Table 1]. Regarding children nutritional status by HAZ, 19.5% were moderate stunted, 29.25% were mild stunted, by WAZ severe, moderate, and mild underweight were 12%, 18%, and 23%, respectively, by HWZ, 5.5% of children were found severe wasted and 23.75% were moderate wasted and by MUAC, 13% were found moderate acute malnourished and 3.25% were of severe acute malnourished [Table 2].

Table 1: Sociodemographic characteristic of the children (*n*=400)

Characteristics	Frequency	Percentage	
Age (months)			
6–12	93	23.25	52.5
13–24	117	29.25	
25–60	190		47.5
Sex			
Boys	225		56.25
Girls	175		43.75
Ethnic groups			
Bengali	186		46.5
Tribal			
Marma	78	19.5	53.5
Tripura	66	16.5	
Chakma	45	11.25	
Mros	25	6.25	
Mothers age			
16–25 years	204		51
26–35 years	121		30.25
35 and above	75		18.75
Mothers education			
Illiterate	172		43
Primary	115		28.75
Secondary	75		18.75
Above secondary	38		9.5
Mothers occupation			
Housewife	368		92
Working	32		8
Monthly family income (taka)			
Up to 5000	110	27.5	82.5
5001–10,000	220	55	
≥10,001	70		17.5

Table 2: Distribution of the children by nutritional status (*n*=400)

Nutritional status	Frequency		Percentage
	Height for age Z score category (stunting)		
Normal	205		51.25
Mild stunting	117	29.25	48.75
Moderate stunting	78	19.5	
	Weight for age Z score category (underweight)		
Normal	188		47
Mild underweight	92	23	53
Moderate underweight	72	18	
Severe underweight	48	12	
	Height/length for weight Z score category (wasting)		
Overweight	28		7
Normal	255		63.75
Moderate wasting	95	23.75	29.25
Severe wasting	22	5.5	
	Mid upper arm circumference		
Normal	335		83.75
Moderate acute malnutrition	52	13	16.25
Severe acute malnutrition	13	3.25	

DISCUSSION

In this study, out of 400 children, about 82.5% of parents' monthly family income was below 10,000 taka indicate that our study subjects belong to low socioeconomic status that cannot proper health and nutrition. The present study result revealed that the total prevalence of stunting, underweight, and wasting was 48.75%, 53%, and 29.25%, respectively, of which 19.5%, 12%, and 5.5% 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[9] which confirms that malnutrition is a serious public health problem.[10] 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.[11] Above findings of nutritional status are higher than that of the present study findings which may be due to regional variation and socioeconomical influences.

This study finding regarding prevalence of stunting 48.75% is higher than that national figure,[12] Which is 33.05% but another study conducted by Rahoman and Biswas;[13] which is consistent with the study[14] is CHT showed that the prevalence of stunting was 41.00%. The prevalence of underweight was 53% which is higher that national figure (33.0%) of Bangladesh.[12] This may be due to the study area was remotest and least development area of Bangladesh. A multi-stage cross-sectional study done in Vietnam[15] also revealed that the prevalence of underweight was found to be 31.8%. This difference from the present study may be due to variation in characteristics and level of progress. A study conducted by Rahman and Biswas[13] in Bangladesh found that 47.0% of children were underweight.[13] This finding is inconsistent with the present study findings. In the study, the overall prevalence of wasting was 29.25%. The current finding of wasting is higher than the national figure (14.0%) of Bangladesh.[12] This might also be due to the specialty of the study area. A cross-sectional study conducted by Avachat *et al*.;[1] revealed that 15.7% of children were wasted. A cross-sectional community-based survey[17] was conducted among 15,408 children under-5 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 finding that might be the socioeconomic difference of two countries. By MUAC, 13% were found moderate acute malnourished and 3.25% were of severe acute malnourished, this finding is consistent with similar studies[12,13] in Bangladesh and a cross-sectional study[18] 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-5 children of CHT. The government, development partners, non-government organization, and experts have to work in concert to improve the basic and effective nutrition interventions to improve nutritional status of under-5 children.

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