Nutritional Status of Adolescent Girls in Bangladesh: A Review Paper Focusing on Regional and Institutional Variations

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Abstract   Adolescence is the most important period of life for overall growth and development. Nutritional deficiency in this period leads to poor nutritional status such as stunting, wasting, underweight and anemia. As for girls, they are the most vulnerable group for malnutrition and having major consequences since they will be mothers in future. The objective of this paper is to review the nutritional status of adolescent girls at different regional and institutional level. From the study we found that about 66% of the adolescent girls were suffering from underweight all over the country along with 51.2% stunting and 20.3% wasting. A comparison between urban and rural girl's nutrition with same economic condition was conducted. The prevalence of underweight was found 61.7% in urban area and 42.3% in rural area. But severe thinness was 22.4% among urban girls where it was 10.3% among rural girls. There has been evidence that girls with frequent occurrence of illness have shown poor nutritional status and vice versa. The prevalence of fever and jaundice were twice as high in underweight girls (66.7%) as girls with normal weight (33.3%). Periodic food shortage, economic status, age, geographical location, poor knowledge and health care facilities were some of the factors identified that contribute to the poor nutritional status. Improved nutritional services and policies concerning adolescent nutrition as their major focus may play an important role in improving the nutritional status of adolescent girls in Bangladesh.

Keywords: nutritional status, adolescent girls, Bangladesh, regional variations, institutional variations

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1. Introduction

According to World Health Organization (WHO) adolescence is the period of human growth and development which takes place after childhood and before adulthood that is between 10 to 19 years of age [1]. Girls however begin their adolescent growth at the age of 9. In this period, about 20% or more of adult height, 50% of adult weight and 50% of adult skeletal mass are developed [2].

Nutrition plays significant roles in the growth and development during adolescence. Nutritional deficiency in this period even leaves chronic damage to the health of the adolescents. Stunting, wasting, anemia, low BMI etc. are common complications related to malnutrition during this period [3]. In girls, poor nutrition often leads to delayed puberty and development of small pelvis [4]. Chronic malnourished girls are more likely to remain malnourished during adolescence and when pregnant they give birth of malnourished babies [5].

In South East Asia, malnutrition among adolescent girls is more common and is a large problem. In India, 32% stunting and 53% Low BMI were found among adolescent girls. The rate is 47% and 53% respectively in Nepal [6]. In Bangladesh, there are 13.7 million adolescent girls who aged between 10 to 19 years. Among them the prevalence found of Low BMI was 50%. The average energy intake of rural adolescent girls was found 81% of the Recommended Daily Allowance [7].

However, nutritional status may vary due to different influencing factors like regional and institutional variations, ethnic differences, food consumption pattern etc. As a result, overall findings on nutritional status of the country may not reflect the severity that may persist among the adolescent girls living in disaster vulnerable and food insecure regions of the country. This paper will focus on highlighting the nutritional status of adolescent girls considering regional and institutional variations and disaster vulnerability as well.

2. Methods and Procedures

A systemic search was conducted to identify all research papers relevant to the nutritional status of adolescent girls in Bangladesh published between 2010 and 2017. Different keywords were used to conduct the search for desired articles. The focus was to collect data regarding to stunting, wasting, low body mass index, under nutrition etc. at different regional and institutional level of the country. Only articles containing most relevant and qualitative data were sorted out for the purpose of formulating the review article.

3. Result

3.1. Reviewing Nutritional Status of the Adolescent Girls around the Country

Source: [8].
Area: 4 selected areas of Rangpur, Naogaon, Gazipur and Dhaka.
Sample size: 434 adolescent girls aged between 10 to 19 years.

The study showed that about 65.9% girls were found underweight, 32% normal weight, 0.3% overweight and 0.2% obese in the selected areas. By water low classification, about 16.6% girls were found mildly wasted, 3.5% moderately & 0.2% severely wasted, 39.6% mildly stunted, 9.2% moderately and 2.3% severely stunted [Table 1]. The study found that the prevalence of stunting was higher than wasting and underweight in the total sample population.

Table 1. Nutritional status of adolescent girls according to BMI category and Water Low classification

BMI category		Water Low Classification		
Malnutrition category	Population (%)	Malnutrition category	Population (%)	
			Wasting	Stunting
Underweight	65.9	Normal	79.7	48.8
Normal weight	32.9	Mild	16.6	39.6
Overweight	.9	Moderate	3.5	9.2
Obese	.2	Severe	.2	2.3

3.2. Reviewing Nutritional Status of Adolescent Girls at an Institutional Level

Source: [9]
Area: Home Economics College, Dhaka
Sample size: 65 adolescent girls aged between 15 to 19 years.

According to NCHS cut off value, about 63% of girls were found to be stunted and 45% of them underweight. According to the BMI category, 48% were found underweight, 49% normal weight and only 3% overweight [Table 2].

Table 2. Nutritional status of adolescent girls according to NCHS* cut off value for HAZ* & WAZ* and BMI category

NCH cut off value for HAZ & WAZ		BMI category	
Nutritional status	Population (%)	Nutritional status	Population (%)
Stunting	63	Underweight	48
Underweight	45	Normal	49
		Overweight	3

3.3. Reviewing Nutritional Status of adolescent girls in a Monga affected area

Source: [10].
Area: kharkharia, Mudafat & Patrakhata of Chilmari.

From the study, about 15.9% girls were found at first stage of developing chronic energy deficiency, 13.6% were at second and 38.6% at third stage of chronic energy deficiency. On the basis of WHO Z-score, 32.6% were mild, 39.5% moderate and only 2.3% were severely stunted. Again, 57.1% among all the girls were mild and 14.8% were moderately wasted. No trace of severely wasted was found [Table 3].

Table 3. Nutritional status of adolescent girls based on BMI and WHO Z score classification in Chilmari

BMI category		WHO Z score classification		
Malnutrition category	Population (%)	Malnutrition category	Population (%)	
			Wasting	Stunting
Normal weight	31.8	Normal	28.6	25.6
CED 1	15.9	Mild	57.1	32.6
CED 2	13.6	Moderate	14.8	39.5
CED 3	38.6	Severe	0	2.3

3.4. Reviewing Nutritional Status of Adolescent Girls from Tribes of Chitagong Hill Tract

Source: [5].
Area: Khagrachhari, Chitagong.
Sample size: 300

According to the findings, about 50% of total girls were underweight, 35% had normal weight, 8.33% were overweight and 6.67% were obese.

Table 4. Adolescent girl's nutritional status according to BMI category

Nutritional status	Population (%)
Underweight	50
Normal	35
Overweight	8.33
Obese	6.67

NCHS*= National Centers for Health Statistics, HAZ*= Height for Age Z score, WHZ*= Weight for Height Z score, WAZ*= Weight for Age Z score.

3.5. Comparison of the Nutritional Status between Rural and Urban Adolescent Girls

Source: [7]
Area: Slums of Dhaka city and Villages of Mymensingh
Sample size: 214 adolescent girls from same economic groups of the two regions.

According to the study, the prevalence of mild thinness was 21.5% in urban girls and 31.8% in rural girls. The prevalence of moderately thinness was 17.8% in urban girls and only 0.2% in rural girls. 22.4% and 10.3% girls were severely thin in urban and rural area respectively. However, the prevalence of overweight was same in both urban and rural area that was 0.9%.

Table 5. Adolescent girl's nutritional status according to BMI category

Nutritional status		Urban (%)	Rural (%)
Underweight	Mild thinness	21.5	31.8
	Moderate thinness	17.8	.2
	Severe thinness	22.4	10.3
Overweight		.9	.9

4. Discussion

The first study shows that the prevalence of underweight (65.9%) was higher among girls of the study areas. Stunting was found higher (42.2%) comparing to underweight (20.3%). [8]. The prevalence of underweight was higher in urban slums than villages of the selected areas. Mild thinness was 21.5% in urban and 31.8% in rural areas, moderately thinness was 17.8% in urban and only 0.2% in rural areas. About 22.4% and 10.3% girls were severely thin in urban and rural areas respectively. [7]. In Monga affected areas, 15.9% girls were found at first stage of developing chronic energy deficiency, 13.6% were at second and 38.6% at third stage of chronic energy deficiency. On the basis of WHO Z-score, 32.6% were mild, 39.5% moderate and only 2.3% were severely stunted. Again, 57.1% among all the girls were mild and 14.8% were moderately wasted. No trace of severely wasted was found [10].

5. Conclusion

The overall improvement of adolescent girl's nutrition is not quite remarkable in past 7 years. Unemployment, poor sanitation and higher food price could be a reason for poor nutritional status of urban girls. Girls from Monga affected areas are highly vulnerable to malnutrition. The degree of malnutrition was found higher from other places among them. Severe shortage of food, sanitation, frequent infection and disease and poor access to health care are the main reason behind their extreme nutritional status.

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