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Assessment of the Nutritional Status and Personal Hygiene of Adolescent Girls in Rural Areas of Chittagong, Bangladesh.

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Abstract

Aims: The study was conducted to explore nutritional status and personal hygiene practices of rural adolescents girls at Chittagong area in Bangladesh.

Study design: The study was cross sectional in nature.

Place and Duration of Study: The study was performed in the rural areas at Chittagong in Bangladesh, during the period from September, 2017 to August, 2018.

Methodology: The data was collected by administration of a prestructured, pretested questionnaire from selected adolescent girls to describe the situation of nutritional status and personal hygiene. Height and weight were measured by standardized techniques in a sample of 350 adolescents. Then BMI was calculated. IBM SPSS Statistics version 23.0 was used to determine statistical analysis. Level of significance was considered at 5 % level.

Results: We found 2.67% of adolescent girls were overweight, 58% normal weight, 39.33% underweight, 28% had normal Hb level, 76% washing hand with soap before eating, 95% washing hand with soap after using toilet, 98% were using footwear during latrine usage, 29% using pad during menstruation.

Conclusion: About fifty percent girls had normal nutritional status. Maximum girls were not having normal hemoglobin level. Out of 350 girls most were not using sanitary pad. There was no significant association between BMI of different rural areas in Bangladesh. Therefore it is important to give nutritional knowledge to build up awareness.

Keywords: *Nutritional status; personal hygiene; adolescent girls; rural area.*

1. INTRODUCTION

Adolescence is one of the most critical periods in human development. The relatively uniform growth of childhood is suddenly altered by a rapid increase in the rate of growth [1]. It is a period of transition of dramatic growth and physical development. This period is marked by rapid and sequential physical and mental changes that transform a young child into an adult child. These physical changes include height gain, weight gain, changes in body composition, physiology and endocrine etc. [2]. Rapid growth and changes increase their nutritional needs and the risks of malnutrition. Parents simply need to provide more nutrients and emotional support.

Nutritional status during adolescence plays an important role in the human life cycle. The nutritional status is the state of health, human growth, physical and mental development, conditioned by the types and quantities of essential nutrients of the food consumed, to meet individual needs, families and population groups [3]. It is the condition of the body in those aspects influenced by the diet; nutrient levels in the human body and the ability of these levels to maintain normal metabolic integrity [4].

Malnutrition (under nutrition or over nutrition) that refers to an impairment of health due to deficiency or excess or nutrient imbalance is important for public health among adolescents worldwide. It creates a lasting effect on a person's growth, development and physical condition [5].

Under-nutrition in adolescents is a serious public health problem in developing countries. Energy and nutritional needs are higher during adolescence than at any other time in life, except pregnancy and lactation. Today's teenagers are tomorrow's adults who are the strength of the nation. An undernourished girl runs the risk of developing complications during pregnancy, which increases

the chances that a child with low birth weight perpetuates a cycle of malnutrition and disease [2].

A declining trend has been identified in the prevalence of malnutrition in developing countries. On the other hand, a growing shift towards higher rates of overweight and obesity in adolescents in developed and developing countries have been reported [6].

The principle of maintaining cleanliness and grooming of the external body is known as personal hygiene. It is an important part of staying healthy. Adolescence is a time of change in change child's body and personal hygiene will need to change too. During this period many health hazards can affect them due to lack of knowledge, superstitious family system, fear to clarify their doubts with elders, neglecting of boys, lack of confidence etc. Healthy hygienic practices of adolescent girls are primary concern for overall development of women. However the assessment of nutritional status and practices personal hygiene of adolescent girls are very important in rural area of Bangladesh.

Few studies have investigated the assessment of the nutritional status and personal hygiene in different countries among adolescent girls. But limited research has been in our country. Furthermore, the assessment of nutritional status has been essential to plan and provide comprehensive care to adolescents in recent years. Therefore, this study is necessary to understand the nutritional status of adolescents, their dietary practices and personal hygiene practices. The objective of this cross-sectional study is to assess the nutritional status and evaluate the personal hygiene in adolescent girls in the rural areas in Bangladesh. Taking into account the fact that improving the health of adolescents, as future mothers, will guarantee the health of the future generation, we hope that the results of this study can be used to design relevant intervention programs that respond to the needs of this age group of the community.

2. MATERIAL AND METHODS

2.1 Study Area

The cross-sectional study was conducted to assess the nutritional status of rural adolescent girls of Bangladesh. Total number of 350 adolescent girls were within the age group of 10-19 years was selected in different rural area of Bangladesh. Data was collected by following questionnaire method. The study was carried out during the period from September, 2017 to August, 2018 to assess the nutritional status and personal hygiene of adolescent girls.

2.2 Collection of demographic data

Data regarding age, height, weight, education of the mother, economic condition of the family, educational qualification, BMI, hemoglobin level, washing hand with soap after visiting toilet, using pad during menstruation etc was collected by interviewing them. The responses were recorded in the questionnaire.

2.3 Anthropometric Assessment

Anthropometric measurements for height and weight were done by using stadiometer and digital weight scale. BMI was calculated using standard formula [7]:

$$\text{BMI} = \frac{\text{wt (kg)}}{\text{ht}^2\text{(m)}}$$

where wt= weight in kg, ht= height in meter

2.4 Biochemical Analysis

For measurement of hemoglobin level capillary blood samples will be collected in strip of easy touch GCHB (Bioptik Technology, Inc., Taiwan). The hemoglobin values were recorded in the provided log sheet.

2.5 Personal Hygiene Assessment

Personal hygiene assessment of rural adolescent girls was done by menstruation hygiene practices such as-use sanitary pads, frequency of changing pads. Another information such as- washing hand with soap before eating, washing hand after visiting toilet, using footwear during visiting toilet etc.

2.6 Experimental Design and Statistical Analysis

A cross-sectional study was carried out in different rural area to know the prevalence of nutritional status and personal hygiene of adolescent girls. The data was compiled from the questionnaire and fed into the Microsoft excel, 2010. Then data was exported into SPSS 23.0 software (SPSS inc., USA) for mean, frequency, and percentages of different variables.

3. RESULTS AND DISCUSSION

3.1 Assessment of Nutritional Status

A total number of 350 adolescent's girls were studied from different rural area of Chittagong, Bangladesh. Maximum study subjects were in the age group of 10-19 years, followed by age group of 10-15 years (67.33%) and 16-19 years (32.67%). The overall mean weight and height of study population was 43.39± 4.44 kg and 1.51± 0.04 meter. BMI is an indicator of acute undernutrition,

the result of more recent food deprivation and/or illness [8].

In the present study, when the BMI of the adolescents was calculated, it was seen that 42% of them were malnourished, and the remainder had normal BMI that was 58%. This result corroborates with that of Chandrashekarappa et al. [9] in Mysuru District of Karnataka, India which represented 63.6% of normal BMI among the study participants of adolescent girls.

Apart from this, 39.33% of the study population was underweight. Similar study was conducted by Chandrashekarappa et al.[9] in which 36.4% were malnourished and 24.1% was underweight. A study conducted in rural Bangladesh by Alam et al. [10] showed the prevalence of thinness was higher in early and late adolescents. He found that at the age of 13 years, the prevalence was 31%, fell to 20% at 15 years and increased to 33% at the age of 18 years. A study by Bhattacharyya and Barua [11] performed in Dibrugarh, Assam, which showed a prevalence of 25.7% and the study of Srivastav et al. [12] conducted at Gautam Buddh Nagar in Uttar Pradesh, which showed a prevalence of 24%. But higher prevalence of 57% was found in the assessment by Maliye et al. [13] in Wardha. The difference of prevalence may be due to the use of different references as cutoffs in different studies. It may also be due to the difference in the age groups of the study participants and to the variation of social, cultural, environmental and economic factors, which play a very important role in nutrition [9].

In our study, the prevalence of overweight was 2.67%. Similar low prevalence of obesity 0.3% was found by Alam et al. [10]. Another study was conducted by Kumar et al. [14], in Davangere, Karnataka, which showed a prevalence of 8.82%. Goyal et al. [15] observed 13.35%; Ghosh et al. [16] found prevalence of overweight 6% for 8-11 years, 67% for 12-15 years, 26% for 16-18 years and in case of prevalence of obesity 2% for 8-11 years, 29% for 12-15 years, 7% for 16-18 years. Nawab et al. [17] reflected that the prevalence of overweight and obesity were 7.9% and 3.9% respectively. The difference in the prevalence may be due to the dietary pattern and socioeconomic factor.

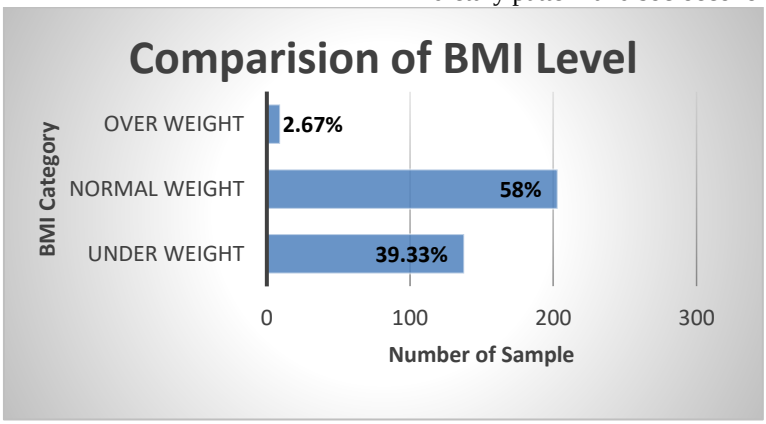

Fig. 1. BMI level in adolescents girls

Further analysis related to association of Association of BMI level among different rural areas showed that there was no significant difference among BMI of adolescents girls of different rural areas (Table 1)

Table 1. Association of BMI level among different rural areas

Area	Mean value of BMI
A	18.69
B	18.88
C	19.02
D	18.98
E	19.29

3.1.2 Hemoglobin level in adolescent girls:

In adolescent girls, anemia is an important nutritional problem. Figure 2 reveals that, 28% adolescent girls were having normal hemoglobin level (12-15.5 g/dl) while 72% girls were lower hemoglobin level .Similar study had conducted by Bhandari [2] and Anand et al. [18]. Bhandari [2] found that 35% of adolescent girls had normal HB levels as against 76% were anemic. Anand et al. [18] observed that prevalence of anemia was 8.7% in 12-14 years girls and 51.5% in 15 -18 years girls.

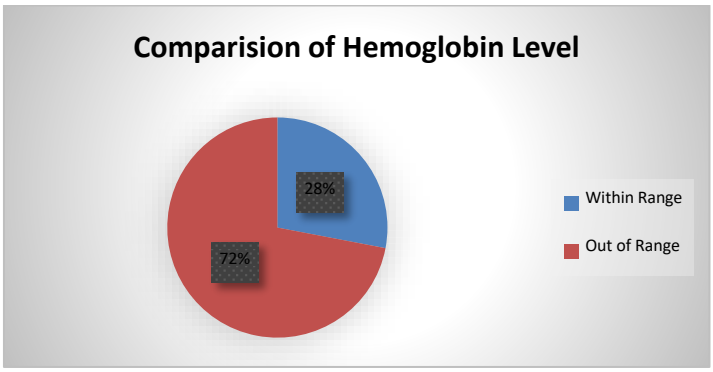

Fig. 2. Percentage of hemoglobin level

3.2 Assessment of Personal Hygiene

Personal hygiene refers to maintaining cleanliness of one's body to preserve complete health. It includes different activities such as-washing hand before eating, cleansing after using toilet, using pad during menstruation etc. Table 2 reflects that 76% girls washing hand with soap before eating while 24% were not used. Similar study was conducted by Jeyakumar and Ghugre [19] in urban slum of Pune, Maharashtra, who represented that nearly 90% of the adolescent girls washed their hands with only water before food .

Table 2. Distribution of study population according to their hand washing before meal

Washing hand with soap before eating	Frequency	Percentage (%)
Yes	266	76
No	84	24

Table 3 shows that most of the girls (95%) clean hand with soap after using toilet. These results were similar to Jeyakumar and Ghugre [19] who found more than 90% washed their hand with soap and water after visiting the toilet.

Table 3. Distribution of study population according to their washing hand with soap after using toilet

Washing hand with soap after using toilet	Frequency	Percentage (%)
Yes	331	95
No	19	5

Footwear protect the feet from contaminated soil that is the preventive measure of helminthes infection. The present study observed that 98% girls used footwear during visiting toilet while only 2% were not usings (Fig. 3). But Jeyakumar and Ghugre [19] revealed that 20% of the adolescent girls in urban slum did not use footwear.

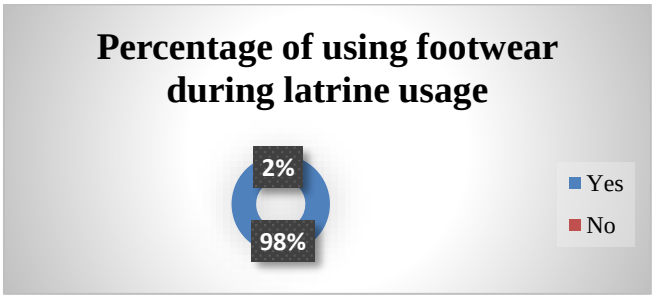

Fig.3. Percentage of using footwear during latrine usage

Menstruation is one of the most important changes occurring in the girls during the adolescent years. Menstrual hygiene is essential aspect for adolescents girls, as it has a health impact in terms of increased vulnerability to reproductive tract infections (RTI). It was revealed that 29% adolescent girls used sanitary pad during menstruation while 71% were not using. In one study reported 53.7% girls using sanitary pads during menstruation 34.63% girls used old clothes during menstruation [20].

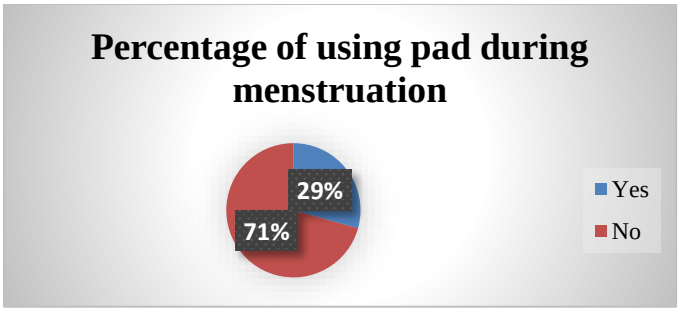

Fig.4: Percentage of using pad during menstruation

Table 4 reflects that, 56% of the adolescent girls of the rural areas changes pad 2 times while 14.67 % changes pad 3 times.

Table 4. Distribution of study population according to daily pad changes

Number of daily pad changing	Frequency	Percentage (%)
1 times	103	29.33
2 times	196	56
3 times	51	14.67

4. CONCLUSION

Adolescent's girls are major part of the population. Their nutritional status influences their reproductive functioning, pregnancy outcome, birth weight etc. About fifty percent rural adolescents' girls had normal nutritional status. There was no significant difference in BMI of different rural areas study population. The personal hygiene was better among adolescents' girls. Therefore nutritional knowledge should be provided among rural adolescents girls to improvement their nutritional status.

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