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## Assessment of Nutritional Status of a Government Girls Orphanage in Tangail District of Bangladesh

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### Abstract

Evidence shows that school-age children are particularly vulnerable to under nutrition, if they are orphan than issue is more complicated. Children malnourished at school age are likely to have been malnourished since adult hood and chance to suffer by different communicable and

noncommunicable diseases (NCD). The objectives of the study were to assess the complete nutritional status of the female orphans living in the Government Shishu Sadan (Girls) in Tangail district and also to explore the associate factors of the nutritional status. A cross-sectional study was conducted among 100 school going female orphans (age between 6-16 years) in 2012 in a selected government orphanage named Government Shishu Shadan (Girls), located in the Tangail district of Bangladesh. Selection of target population was based on the well communication and full co-operation from the orphanage authority. One in every three (32.0%) orphan girls was malnourished that is underweight or overweight. They are deprived from balanced diet like, egg, milk, and fruits. Majority of the orphan girl suffering from fever and common cold and their hygiene practice is also questionable. The rate of chronic under nutrition became more prevalent with long duration of stay in the orphanage. Efforts should be directed towards increasing energy intake in the orphanages' diets.

**Key Words:** orphan, girl, nutritional status, under nutrition

### **Introduction**

The orphan children are the most inseparable segment of our population [1]. In Asia, the percentage of children who are orphans is smaller, but the absolute number is more than that of sub-Saharan Africa. It was estimated that 37.4 million children are orphaned in South Asia [2], though there is no any valid statistic in Bangladesh. Ministry of Social Welfare of Bangladesh has a major program named Child Welfare and Child Development in order to provide access to food, shelter, basic education, health services and other basic opportunities for hapless children, whereas in private sector these are mostly known as orphanages and Madrassahs [3].

Very disappointedly, orphan children have to face with many problems including their basic needs such as food and safe water as well as parental care, supervision and protection etc. Most unfortunately, they are exposed to various kinds of child labor, exploitation, physical and sexual abuse also. They can't enjoy the access to quality education, health care, protection and participation. Again, poverty and hunger is the order of the day for many of them. Resulting,

they suffer from malnutrition & poor health. Despite of being highlighted as one of the most priority issues under the Millennium Development Goals (MDGs) framework now it is also the priority of Sustainable Development Goals (SDGs), malnutrition remains an important public health concern in the developing world [4], though malnutrition is regarded as a vital risk factor for morbidity and mortality, poor cognitive development and reduced productivity [5-7].

A number of factors have been suggested to affect both the level of food security experienced at household level and the children's nutritional status, some of which are independently associated with households in which orphans live. These can broadly be classified into child characteristics (e.g., age and gender), household characteristics (e.g., household income, and number of children in the household), parental characteristics (e.g., occupation, education level and age of the household head) and community factors (e.g., water supply and sanitation) [8-13]. On that context, it was very important to assess the nutritional status of the orphan children accurately to draw the attention of the policy makers to fulfill the compensation regarding the food security and proper nutrition to for orphan children. The aims of the study were to assess the complete nutritional status of the female orphans living in the Government Shishu Sadan (Girls) in Tangail district and also to explore the associate factors of the nutritional status.

### **Methods and Materials**

An observational study was conducted among 100 school going female orphans (age between 6-16 years) in 2012 in a selected government orphanage named Government Shishu Shadan (Girls), located in the Tangail district of Bangladesh. Selection of target population was based on the well communication and full co-operation from the orphanage authority. Data collection procedure was face-to-face interview with the help of an interviewer administered semi-structured questionnaire whereas questions were asked passively and cautiously not influencing the respondents. Used questionnaire was developed with contenting socio-demographic characteristics, anthropometric measurements, and besides these, a Quantitative

Food Frequency Questionnaire (QFFQ) was used to obtain qualitative and descriptive information on food consumption patterns. The QFFQ consisted of two components, namely, a list of the foods and a set of frequency-of-consumption response categories. An extensive list of defined foods was included, with the aim of estimating the dietary diversity. To verify food intake, all 100 orphanage children completed the QFFQ's in individual interviews. Nutritional status was expressed by body mass index (BMI) calculation and categorized using Centers for Disease Control and Prevention (CDC) growth chart. A pilot study was conducted among 10 students from the same population two weeks prior to the actual field work to test and evaluate the contents, wording and expression, the topical sequence of questions and duration of interview and the reliability, suitability, clarity and value of the measuring instruments. Ethical clearance was taken from Mawlana Bhashani Science and Technology University and the authority of Government Shishu Shadan (Girls), and prior to data collection both verbal and written consents were taken. After collection of data, all the data were checked and rechecked for their completeness and consistency, and revisited to the respondents was done if there was any discrepancy before entering to the computer. Data were analyzed by using SPSS 20.0.

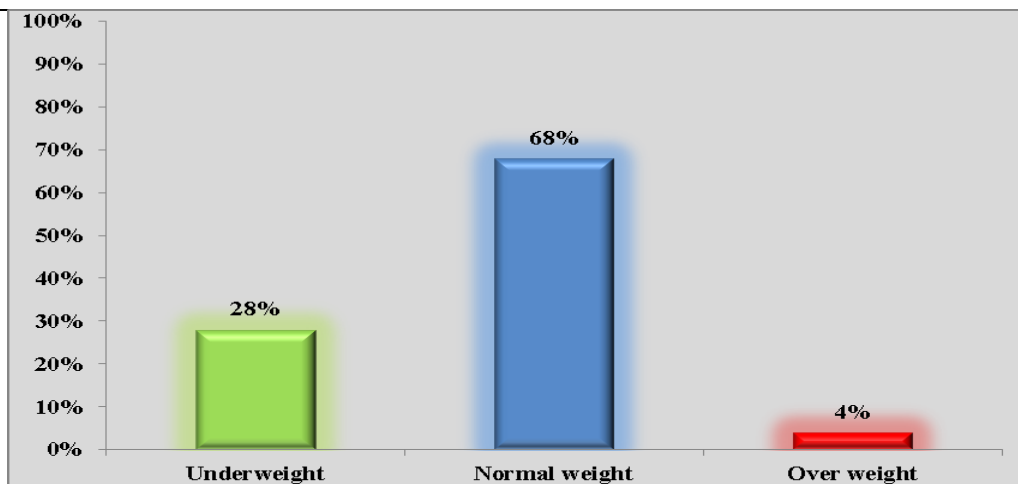
## **Results**

Mean age of the respondents was  $11.0 \pm 2.6$  years, whereas greater proportion (more than half) was within the age between 6 to 10 years. Most of them were primary school going respondents and majority was staying in the orphanage not more than 5 years. Playing game was the main option to pass their leisure times (**Table-1**).

One in every three orphan was suffering from malnutrition (overweight or underweight) (**Figure 1**). Regarding the meal patterns, all the respondents reported that all the meals were provided by the respected authority; and they were satisfied with the meal; their dining place was neat and clean; they had also desire to take any extra food besides the orphanage meal. Distribution of their food intake pattern explored that their food intake was limited regularly with rice, vegetables, pulses and potatoes; that was poorly regular for fish, meat, egg, milk and milk processed food; but very poor for fruits intake (**Table-2**).

**Table-1: General characteristics of the respondents (n=100)**

<b>Characteristics</b>	<b>Percentage (%)</b>
<b>Age (in years)</b>	
<i>Mean (±SD)</i>	11.02±2.64
<i>6 to 10</i>	52.0
<i>11 to 14</i>	38.0
<i>15 to 16</i>	10.0
<b>Educational Status</b>	
<i>Primary School Level</i>	57.0
<i>Secondary School Level</i>	41.0
<i>Higher Secondary School Level</i>	2.0
<b>Total Years of Staying in the Orphanage</b>	
<i>1 to 2 years</i>	36.0
<i>3 to 5 years</i>	34.0
<i>6 to 8 years</i>	24.0
<i>9≤ years</i>	6.0
<b>Leisure Time Activities</b>	
<i>Playing</i>	62.0
<i>Watching TV</i>	12.0
<i>Playing and Watching TV</i>	10.0
<i>Playing and sewing</i>	10.0
<i>Sewing and Watching TV</i>	6.0



**Figure 1: Nutritional status of the respondents** (Nutritional status of the respondents were expressed by BMI of the individuals)

**Table-2: Distribution of the food intake pattern of the respondents (n=100)**

Food Item	Daily	1-3 days/week	Once/fortnight	Once/month
Rice	100%	-	-	-
Bread	1%	-	38%	61%
Meat	-	99%	1%	-
Fish	-	100%	-	-
Egg	-	100%	-	-
Milk/milk based food	4%	96%	-	-
Potato	97%	-	1%	2%
Fruits	3%	-	34%	63%
Pulses	99%	-	1%	-
Vegetables	100%	-	-	-
Fast food	1%	-	15%	84%

Regarding their health status, fever and common cold were most common either separately or combined. Study found a significant relationship between occurred disease type and duration of staying in the orphanage ( $p<0.001$ ) as well as fruits intake behavior ( $p<0.05$ ) (Table-3).

**Table-3: Relationship between Occurred Disease Type and Duration of Staying in the Orphanage and Fruits Intake Behavior**

Influenced Factors	Occurred Disease Types					P value
	Diarrhea (%)	Fever (%)	Common Cold (%)	Fever and Common Cold (%)	Others (%)	
<b>Duration of Staying in the Orphanage</b>						
1-2 years	4.2	45.8	20.8	16.7	12.5	<0.001*
3-5 years	0.0	34.8	47.8	17.4	0.0	
6-8 years	10.0	20.0	40.0	20.0	10.0	
9≤ years	0.0	33.3	33.3	33.3	0.0	
<b>Fruits Intake Patterns</b>						
Daily	33.3	66.7	0.0	0.0	0.0	0.019*
Once Per Fortnight	0.0	20.7	55.2	13.8	10.3	
Once Per Month	5.0	40.0	25.0	25.0	5.0	

*[\*Chi-square and Fishers Exact test has been done,  $p < 0.05$  are considered as statistically significant]*

## **Discussion**

Current study found that 68.0% of the respondents were healthy weight, but a noticeable proportion (28.0%) was underweight and resting 4.0% were overweight. In spite these findings, this study explored a better scenario than an another study conducted in Dhaka (the Capital City of Bangladesh) in 2008 among two orphanages, which reported only 34.6% respondents were normal weight and a larger proportion (60.3%) was underweight [14]. But the proportion of malnutrition is very high compare to the general population which is not expected. For this reasons we found that girls are frequently affected by fever and common cold as we know that nutrition leads to the immunity of the body. A study in few orphanages in Poland reported there was a good proportion of healthy weight girls (about 90%) as well as a small proportion of underweight (about 5%), and 6% overweigh had been found [15]. On the other hand, another study in Kenya among primary school going orphanage children reported that there was about 32% of female respondents were underweight [16]. The ways of passing of leisure times for this study were similar with other studies [16]. Respiratory illness was the most frequent condition for the orphanage girl which was similar with other studies [14].

## **Conclusions**

One in every three orphan girl is suffering from malnutrition where under nutrition is a very big problem and carbohydrate is the main source of their energy. And resultant of malnutrition they are always suffering from different diseases like, fever, common cold and diarrhea. Proper attention should be given by the Government otherwise, development of healthy nation is quit impossible.

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