



## Original Research Article

# Health Care Facilities and Nutritional Status of Orphans Residing in Selected Orphanage in Capital City of Bangladesh

A.K.Obidul Huq<sup>1\*</sup>, Tanni Chowdhury<sup>2</sup>, Provat Roy<sup>3</sup>, K.M.Formuzul Haque<sup>4</sup>  
and M.Bellal Hossain<sup>5</sup>

<sup>1</sup>Department of Food Technology and Nutritional Science, Mawlana Bhashani Science and Technology University, Santosh, Tangail-1902, Bangladesh

<sup>2</sup>Centre for Child and Adolescent Health (CCA), International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b)

<sup>3</sup>Medical Officer, Sylhet MAG Osmani Medical College, Sylhet, Bangladesh

<sup>4</sup>Department of Public Health, Daffodil International University, Dhaka 1207, Bangladesh

<sup>5</sup>Department of Nutrition and Food Engineering, Daffodil International University, Dhaka 1207, Bangladesh

*\*Corresponding author*

## A B S T R A C T

### Keywords

Orphan;  
Nutritional  
status;  
Health;  
Hygiene;  
Food intake  
pattern.

Present cross sectional study was carried out among the three orphanages namely Rayarbazar Rahamania Etimkhana, Sir Salimullah Muslim Etimkhana and Bawniabad Islamia Etimkhana of Dhaka city in Bangladesh during January to June 2013. A total number of 300 orphan children aged 6-12 years who were live on those orphanages for at least one year. The major objective of the study was to identify the health care facilities available in the orphanages as well as the individual's nutritional status which was largely depends on their food intake patterns. The boys and girls ratio was almost double (1.86). More than eighty five percent children had no parents and only 13.3% had the single parent. The major reasons for coming to live the orphanages were better education (50.7%) purposes. Nutritional status of the orphans was not satisfactory levels, about 12.0%, 14.3% and 6.3% of the orphans were severely underweight, stunted and wasted respectively. Different orphanages have the different menu planning, Rayerbazar Rahamania Etimkhana and Bawaniabad Islamia Etimkhana prepared menu for a week and Sir Salimullah Muslim Etimkhana was prepared for a month. The organization supplies meal thrice per day. But there is no opportunity to serve any mid time meal & light meal before sleeping. Only Sir Salimullah Muslim Etimkhana serves mid-time meal. The dietary patterns of the total orphans indicate milk and milk products are consumed only in as a special menu feast and occasionally taken some fruits.

## Introduction

The nutritional status and life styles of the orphans in Bangladesh is very poor. A large number of orphans are presence in

the country both rural and urban area. But the lack of sufficient number of orphanage dietary patterns, behaviour, proper

educational system as well as overall life style and nutritional status (growth and development) is markedly considerable for the nation. For this consideration a study was carried out among the selected orphanages in Dhaka city. The prevalence of under-nutrition is highly prevalent in low and middle earnings countries. In Asia, the rate of under-nutrition is the highest in the world (WHO, 1999). It is well recognized that 46 percent children fewer than five in South Asia is moderately or severely underweight. Half of the world's malnourished children are to be found in only three countries, India, Bangladesh and Pakistan (Rattan, 1997). In general, childhood under nutrition is assessed by stunting (low height for age), underweight (low weight for age) or wasting (low weight for height) following different internationally and regionally recommended standards (WHO, 2006). Body mass index (BMI), as measured by weight in kilogram (kg) divided by height in meter (m) squared, has been widely used for assessing nutritional status of adults (International Diabetes Institute, 2000) and thinness in adolescents and more recently in children aged 0-5 years (WHO, 2006). Very recently international cut offs child overweight and obesity for the age range of 2-18 (Cole *et al.*, 2000) and for thinness (Cole *et al.*, 2007) have been produced. Children are important assets of a country because they can obtain an essential role to provide the human potential requisites for its development and after all they will be tomorrow's youth. For proper growth of children, nutrition plays a vital factor in the early years of life. Under-nutrition is mainly responsible for dietary shortage in relation to children's needs (National Institute of Nutrition, 2003). It is a vital reason with more than half of all child deaths all over the World (Pelletier *et al.*, 1995) and is

highly prevalent in low and middle income countries; one in two children is malnourished. The national nutrition survey (1995-1996) report illustrates that about 62% of the children aged 6-9 years are malnutrition's, 43.4% of the children are stunted but not wasted and 9.3% of the children are wasted but not stunted. In addition, 9.1 % of the children are both stunted and wasted (Jahan and Hossain, 1998). In the developing world, 43% of the children are stunted and 9% are wasted (Park, 2005). Directly or indirectly malnutrition contributes to more than 60% of 10 million child deaths each year (WHO, 2002). An orphan is children permanently bereaved of or abandoned by his or her parents. In common usage, only a child who has lost both parents is called an orphan. When referring to animals, only the mother's condition is usually relevant. If she has gone, the progeny is an orphan, in spite of the father's condition. Adults can also be referred to as orphans, or "adult orphans". Early orphanages, called "orphanotrophia", were established by the Orthodox Church in the 1st century a mid various alternative means of orphan support. Jewish law, for instance, prescribed care for the widow and the orphan, and Athenian law supported all orphans of those killed in military service until the age of eighteen. Plato (Laws, 927) says: "Orphans should be placed under the care of public guardians. Men should have a fear of the being alone of orphans and of the souls of their deceased parents. A man should love the unlucky orphan of whom he is guardian as if he were his own child. He should be as careful and as diligent in the management of the orphan's assets as of his own or even more careful still (The Catholic Encyclopedia, 2012). The care of orphans was referred to bishops and, during the Middle Ages, to monasteries. Many

orphanages trained some form of "binding-out" in which children, as soon as they were old enough, were given as apprentices to households. This would ensure their support and their learning an occupation (Wikipedia). The objective of the study was to determine the dietary patterns, food behavior of the orphans whose living in urban Dhaka city and as well as the nutritional status of the orphans.

## **Materials and Methods**

### **Study Design**

This cross sectional study was carried out among the selected orphanages in Dhaka city. A total number of 300 individuals were randomly selected in the three orphanages namely Rayarbazar Rahamania Etimkhana, Sir Salimullah Muslim Etimkhana and Bawniabad Islamia Etimkhana. The study was conducted during January to June 2013.

### **Anthropometric Assessment**

The anthropometric data were collected based on standard methods. Age of the subjects under study was determined by interrogation and confirmed through probing if the birth certificate or the health card were unavailable. Measurements of weight and height were obtained from all subjects. The subjects were weighed wearing minimal cloths and bare footed. Three weight measurements were obtained using a bathroom weighing scale and the average was calculated and recorded to the nearest 0.5 kg. The height was measured with a wooden measuring board without shoes and the average was calculated and recorded to the nearest 0.1 cm.

### **Socio-demographic Data**

Information on demographic and socio-

economic variables was obtained by a semi-structured pre-tested questionnaire.

### **Dietary Behaviour Assessment**

Food intake pattern was assessed by the three days consecutive food consumption of food frequency questionnaire methods. Food frequency, average food frequency and food score was estimated from the obtained data set.

### **Data Analysis**

The data set were first checked, cleaned and entered into the computer from the numerical codes on the form. The data was edited if there is any discrepancy and then cleaned it. The frequency distributions of the entire variables were checked by using SPSS 20.0 windows program. For tabular, charts and graphical representation Microsoft word and Microsoft excel were used.

## **Results and Discussion**

Although malnutrition among children is a severe public health problem throughout the world but it is more dramatic concern for the developing countries like India, Bangladesh, Pakistan, and other south East Asian and sub-Saharan countries. Table 1 shows the majorities of the orphans are aged in six to twelve years old. In this study observed that about forty percent of the children are aged between six to seven years. Usually, the orphans are leaves their orphanage at the age of twelve years or later. The male and female ratio is almost double (1.86). More than eighty five percent children have no parents and only 12.3% have the parents either father or mother. Orphanage authority mainly bears the children living cost and it was almost ninety five percent. The major reasons for

coming to live the orphanages are for better education (50.7%), parents are not alive (37.3%) and for better environment and obviously this is happens for their parents are not alive. Relatives like uncle, grandfather etc. plays an important role for the orphans and they occasionally come to visit the orphanage. Table 2 shows the mean age, height and weight of the children and table 3 shows the nutritional status according to Weight-for age (underweight), Height-for age (stunted) and weight for height (Wasted) of the children and indicates that moderate to severe underweight, stunted and wasted were as high as about thirty five percent, forty percent and less than one-fourth respectively which were more concern their health and nutrition conditions. Nutritional statuses of the orphans are very poor. About 12.0%, 14.3% and 6.3% of the orphans were severely malnourished i.e. underweight, stunted and wasted respectively. The moderate under weight, stunted and wasted are also higher percentage.

The nutritional status and life styles of the orphans in Bangladesh is very poor. A large number of orphans are presence in the country both rural and urban area. But the lack of sufficient number of orphanage the dietary patterns, behavior, proper educational system as well as overall life style and nutritional status (growth and development) is markedly considerable for the nation. The entire orphanage has the special religious education system and the educational is mainly Islamic system and all three orphanage has a good number of scholarships are available for better education.

Table 4 shows that Rayerbazar Rahamania Etimkhana and Bawaniabad Islamia Etimkhana prepared menu for a week and

Sir Salimullah Muslim Etimkhana was prepared for a month. The dietary patterns (average Food Frequency) of the total children of the orphanages and indicates milk and milk products are consumed only in as a special menu feast and occasionally taken some fruits.

Different orphanages have the different menu planning, Rayerbazar Rahamania Etimkhana and Bawaniabad Islamia Etimkhana prepared menu for a week and Sir Salimullah Muslim Etimkhana was prepared for a month. The organization supplies meal thrice per day. But there is no opportunity to serve any mid time meal & light meal before sleeping. Only Sir Salimullah Muslim Etimkhana serves mid-time meal.

All the Orphanages used usually tap water for the purpose of preparing foods and also drinking foods. The authority purified drinking water and used cleansing agents (detergents) to wash the utensils and indicates all the orphanage purified drinking water and used cleaning agents to wash the utensils. The authority used proper sanitation system to remove the wastage in the kitchen and indicates for proper sanitation used cleansing agents.

Washing hand before eating and after using toilet is very important indicators for human, at the same time washing with soap or detergent is also important. All the children wash their hands before eating but one – third of them washed hand only with water. Properly and regularly clean teeth is essential for better health and the study observed that all most all the children clean their teeth regularly but about sixty percent of them used toothpaste (table 5).

**Table.1** Socio-demographic information of the orphanage children.

Variables	Classification	Frequency	Percentage
Age in Years	≤6	9	3.0
	6-7	117	39.0
	8-9	96	32.0
	10-11	66	22.0
	>11	12	4.0
	Total (5-14)	300	100
Sex	Male	192	64.0
	Female	108	36.0
	Total	200	100
Orphan Status	Only father	20	6.7
	Only mother	17	5.7
	None	263	87.7
	Total	300	100
Bear of children's cost	Parents	2	0.7
	Relatives	16	5.3
	Orphanage authority	279	93.0
	Others	3	1.0
	Total	300	100
Reasons for come to the orphanage	Parents are not alive	112	37.3
	Parents are alive but poor	6	2.0
	For good food	5	1.7
	For better environment	14	4.7
	For education	152	50.7
	No other place to live	11	3.7
	Total	300	100
Presence any guardian except the parents	Yes	77	25.7
	No	223	74.3
	Total	300	100

**Table.2** Distribution of the age, weight and height of the studied orphans

Measures	Range	Mean±SD
Age (years)	5-13	9.2 ± <b>1.15</b>
Weight (kg)	14.5-41.0	25.3± <b>4.23</b>
Height (cm)	81.5- 150.5	115.5± <b>12.5</b>

**Table.3** Nutritional status according to Weight for Age, Height for Age and Weight for Height of the orphan

Indicators		Nutritional status	n (%)
WAZ –score	≥-3.00 SD	Severe Underweight	36 (12.0)
	-2.00 to -2.99 SD	Moderate Underweight	54 (18.0)
	-1.00 to -1.99 SD	Mild Underweight	99 (33.0)
	-0.99 to + 0.99 SD	Normal	105(35.0)
	+0.99 to + 1.99 SD	Mild overweight	6 (2)
	Total		300 (100)
HAZ -score	≥-3.00 SD	Severe Stunted	43 (14.3)
	-2.00 to -2.99 SD	Moderate Stunted	71 (23.7)
	-1.00 to -1.99 SD	Mild Stunted	68 (22.7)
	-0.99 to + 0.99 SD	Normal	118 (39.3)
	Total		300 (100)
WAH -score	≥-3.00 SD	Severe Wasted	19(6.3)
	-2.00 to -2.99 SD	Moderate Wasted	53 (17.7)
	-1.00 to -1.99 SD	Mild Wasted	72 (24.0)
	-0.99 to + 0.99 SD	Normal	152 (50.7)
	+0.99 to + 1.99 SD	Mildly overweight	4 (1.3)
	Total		300 (100)

**Table.4** Dietary pattern (average Food Frequency) of the total children of the orphanages

Types of foods	Times per day	Times per week	Times per month
Rice	2.3	-	-
Ruti / Bread	0.7	-	-
Chira / Muri	-	2	-
Egg	-	3	-
Meat	-	-	2
Fish	-	3	
Milk and milk products	Special menu feast and occasionally		
Green leafy Vegetables	-	3	-
Non leafy vegetables		4	-
Dal	2	-	-
Fruits	Occasional and seasonal fruits (In season regularly)		

**Table.5** Distribution of the assessment of hygienic conditions of the authority

Variables	Names of Organization		
	RRE	SSME	BIE
Sources of water for preparing foods	Tap water	Tap water	Tap water
Sources of drinking Water	Boiled water	Boiled water	Tap water
Authority purified drinking water	Yes	Yes	No
used proper sanitation system to remove the wastage in the kitchen	Yes – Cleaning agents is also used	Yes – Cleaning agents is also used	Yes but irregular; Cleaning agents is used

**Table.6** Distribution of the children’s hygiene practices in the orphanage children.

Variables	Features	Frequency	Percentage
Practices washing hand before eating	Yes	300	100
	Only water	63	21.0
	Water with soap	237	79.0
	No	0	0.0
	Total	300	100
Washing hand after coming from toilet	Yes	300	100
	Only water	58	19.3
	Water with soap	172	57.3
	Ash	49	16.3
	Mud	21	7.0
	No	0	0.0
	Total	300	100
Bath regularly	Yes	276	92.0
	No	5	1.7
	Not responses	19	6.3
	Total	200	100
Regular Clean teeth	Yes	287	95.7
	Coal	16	5.3
	Powder	63	21.0
	Toothpaste	208	69.3
	No	2	0.7
	Not responses	11	3.7
	Total	300	100
Cut nails regularly	Yes	279	93.0
	Not responses	21	7.0
	Total	300	100

Washing clothes regularly is co responses for better personal hygiene and observed almost all the orphans wash their cloths regularly. Another personal hygiene is related with nail cutting and was observed all most all of the children cut their nails regularly. How many number orphans are sleeping in one room is influences the healthy and sound life and this study indicates two third of the children sleeping in a room which gathered 6-10 children and the arrangement of sleeping and indicates more than eighty percent are sleeping in a bed. All the organizations have the presence of electric fan in every room but the number of electric fans is limited. In the orphanages Playing and watch the television were the recreation facilities for maximum children.

## References

- Cole, T.J., M.C. Bellizzi, K.M. Flegal and Dietz, W.H. 2000. "Establishing a standard definition for child overweight and obesity worldwide: international survey". *BMJ.*, 320: 1240-1243.
- Cole, T.J., K.M. Flegal, D. Nicholls and Jackson, A.A. 2007. "Body mass index cut offs to define thinness in children and adolescents: international survey". *BMJ.*, 335:194 198.
- International Diabetes Institute., 2000. "The Asia-Pacific perspective: redefining obesity and its treatment", Geneva: World Health Organization".
- Jahan, K., and Hossain, M. 1998. Nature and Extent of malnutrition in Bangladesh. Bangladesh National Nutrition Survey, 1995-96. Institute of Nutrition and Food Science, University of Dhaka, July, Part-1:116. 117.

- National Institute of Nutrition., 2003. Dietary guidelines for Indians. A manual. Hyderabad: National Institute of Nutrition.
- Park, K., 2005. Parks Textbook of Preventive and Social Medicine.18<sup>th</sup> ed. Jabalpur: Banarasidas Bhanot.
- The Catholic Encyclopedia, 2012 Volume XI.
- WHO., 1995. "Physical Status: The Use and Interpretation of Anthropometry", TRS -854. Geneva, World Health Organization.
- WHO., 1999. "Health situation in the South East Asia Region 1994-1997", WHO regional office for South East Asia, New Delhi.
- WHO., 2002. Child Health Research: A Foundation for Improving Child Health, World Health organization, Geneva.
- WHO., 2006. "Child Growth Standards based on length/height, weight and age. World Health Organization. *Acta Paediatrica.* 450: 76-85.