Nutritional Status and its Determinants among Orphans in a Public Sector Orphanage in Dhaka City, Bangladesh

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ABSTRACT

Malnutrition continues to be a severe public health and development concern in developing countries and the whole world. The majority of the children (60.3%) in the orphanage were malnourished, with mild, moderate, and severe malnourished being 43.1%, 16.8%, and 0.4%, respectively. More than half (52%) of children were (mild) underweight, Stunting & wasting in this study. This result indicates that the majority of the children living in the orphanage suffered food insecurity. The objectives of the study were to assess nutritional status & other determinants of orphanage children. A cross-sectional study was conducted among In this study found six months to 5 years age range of children was carried out among the resident orphans of the selected government orphanage named as Chotomoni Nibas at Azimpur, Dhaka. The selection of the target population was based on excellent communication and full co-operation from the orphanage authority. They are deprived of a balanced diet, absolute care. The majority of the orphan children are suffering from fever, cold, diarrhea, and hygiene practice was moderately well. The rate of chronic undernutrition became more prevalent with long duration of stay in the orphanage. These results provide initial evidence of nutritional status using z-score, food intake pattern & others condition was associated.

Keywords: Orphan; Nutritional Status; Undernutrition; Z-Score; MUAC; Stunting

Introduction

An orphan is a child whose parents are dead, who has been deprived of parental care, one that lacks support, supervision, or care, and who lost his/her home or address [1]. A lack of parents creates characters that are self-contained and introspective and strive for affection [2]. The number of children who are left orphaned in the world due to their parents' loss has increased in recent years. An estimated 153 million children in the world are orphans [3] with more than one in seven children orphaned in sub- Saharan Africa [4]. The orphan child population in Ghana has been estimated to be over 1.1 million [5]. Although having one or both parents alive, there are children in Turkey and elsewhere who need protection. A child who has an unknown parent, a child abandoned by one or both parents, and vulnerable against the risks such as begging gangs, substance abuse, and organ mafia are under this category. These children are defined as "children in need of protection" by Social Welfare Services and the Society for the Protection of Children [6]. When one of the parents is missing or abandons the child or is estranged from the child due to divorce, the child can be judicially considered an orphan [7]. This concept, which is used in some Muslim countries, coincides with a "child in need of protection." That is because many children, although not orphans, are without their parents' protection and need to be protected.

Children are the most vulnerable individuals getting the harmful effects of crises and conflicts happening around the world. Many children are orphaned due to war, invasion, natural disasters, chronic poverty, diseases etc. Child population makes up 2.2 billion of 7 billion world populations [8] & And 143 to 210 million of 2.2 billion child population are orphaned. It is estimated that the orphan population of the world will reach 400 million in 2015. For as much as one child loses a parent every 2 seconds [9]. Asia, Africa, Latin America, and the Middle East are the regions where the largest orphan populations reside. A significant part of the world's orphan population lives in underdeveloped or developing countries. Only India has 31 million orphans [10]. On the other hand, illegitimate children, disabled children, children whose parents divorced are also abandoned in the streets. The world map gives an idea about the situation of orphan children with regards to their rights. The regions highlighted in red and black have the most significant orphan population living in callous conditions. As is shown above, the orphan population of the world is estimated above 200 million.

Nutritional status is commonly assessed by anthropometric measurement, clinical examinations for ascertaining nutritional deficiencies & also biochemical assessment [11]. Results also show that women and children are the primary victims of malnutrition [12]. Malnutrition has many adverse consequences; in young children, prolonged malnutrition retards growth, increases illness, and delays learning. It is often argued that a malnourished is mentally and physically fatigued [13]. Malnutrition and undernutrition are also the major cause of morbidity and mortality among children [14]. Promoting healthy diets and lifestyles require a multi-spectral approach involving the various relevant sectors. The agriculture and food sector figures prominently in this enterprise and must be given due importance in any consideration of healthy diets for individuals and population groups. Food strategies must not merely be directed at ensuring food security for all but also achieve adequate quantities of safe and right quality foods that make up a healthy diet. The dietary changes include both quantitative and qualitative changes in the diet. The study aims to assess the nutritional status of the orphans living in the Government chromone nibas, azimpur, and explore the nutritional status's associate factors.

Methods and Materials

A cross-sectional study was conducted among orphanage having nutritional status subjects from an attending in selected Institution. The study was carried out among the selected government orphanage resident orphans named Chotomoni Nibas at Azimpur, Dhaka. The study subjects were resident orphans of the selected orphanage aged between 6 months to 5 years. A sample of 50 orphans was included in the study. The study duration was from June 2018 to January 2019. The study was started with protocol preparation and finished with final report submission. A standard semi-structured presented questionnaire was used to collect personal data on the 50 orphanage infants; it was capture data on specific variables including Sex, Age-month, weight(kg), height(cm), MUAC(cm), and activities performed. The anthropometric data were collected based on standard methods were using Bathroom scale for weight measurement, Modified tape for height measurement, Baby length measurement scale, MUAC tape for assessing acute energy deficiency during the famine. Nutritional status detected by z-score. A pilot study to test and evaluate the ease of content, wording, and expression, the topical sequence of questions and duration of the interview, and the reliability, suitability, clarity, and value of the measuring instruments, was conducted among 05 students of the Bangladesh University of Health

Sciences (BUHS) two weeks before the actual fieldwork. After the pretest, the individual questionnaire used for quantitative data collection was improved and reformed to ensure content coverage, reliability, and validity of the study.

The study's purpose and nature were explained to the orphanage's authority, and after having permission from the authority, a questionnaire for each respondent was filled up by asking questions to the respondent's/caregiver. The Respondents were recruited in the study after getting informed consent. Questions were asked to the Respondents passively and cautiously not to influence the respondents. To estimate the dietary intake, a QFFQ was filled by asking the Respondents about how frequently they consume the foods enlisted in the questionnaire. Informed consent was taken from each subject. The Ethical Review Committee approved the protocol of the Bangladesh University of Health Sciences (BUHS). Data were analyzed using SPSS 16.0.

Results

The number of males & females in the study subject was 54% & 46%. Anthropometric characteristics of the study subjects were Weight (kg) & Height (cm) M±SD11.972±4.0757 & 86.392±15.3636. By calculating mid-upper arm circumference (MUAC) cm M±SD of the study subject were 13.130± .8257. Nutritional status using z-score of the children according to the (WHO), z-score (underweight) was found Mild underweight 62%, Moderate underweight 10% & severe underweight was 6%. (Stunting) Mild Stunting 48%, Moderate Stunting 26% & severe Stunting was 6%. Z-score (Wasting) was also found Mild wasting 46%, normal wasting 38% & Severe wasting was 8% (Table 1).

Characteristics	Mean (±SD)	Percentage%
Children by sex		
Male 54		
Female 46		
Anthropometric		
Weight (kg)	11.972±4.0757	
Height (cm) 86.392±15.3636		
MUAC (cm) 13.130± 0.8257		
Nutritional status by z-score		
Under weight		
Severe 6.0		
Moderate 10.0		
Mild 62.0		
Normal 22.0		
Stunting		
Severe 6.0		
Moderate 26.0		
Mild 48.0		
Normal 16.0		
Wasting		
Severe 8.0		
Moderate 6.0		
Mild 46.0		
Normal 38.0		

Table 1: General characteristics of the respondents (n=50)

Information regarding the mean & std. deviation of age-month among the respondents were presented in (Figure 1). Age-month M±SD of the study subject was 33.120±18.5974. All of the respondents was 6 month to 60 months, respectively.

Types of Diseases among the Respondents were suffered from fever 10%, cold (10%), diarrhea (8%), other diseases (Jaundice, pneumonia, epilepsy etc.) were 22% & 50% respondents had no disease (Table 2).
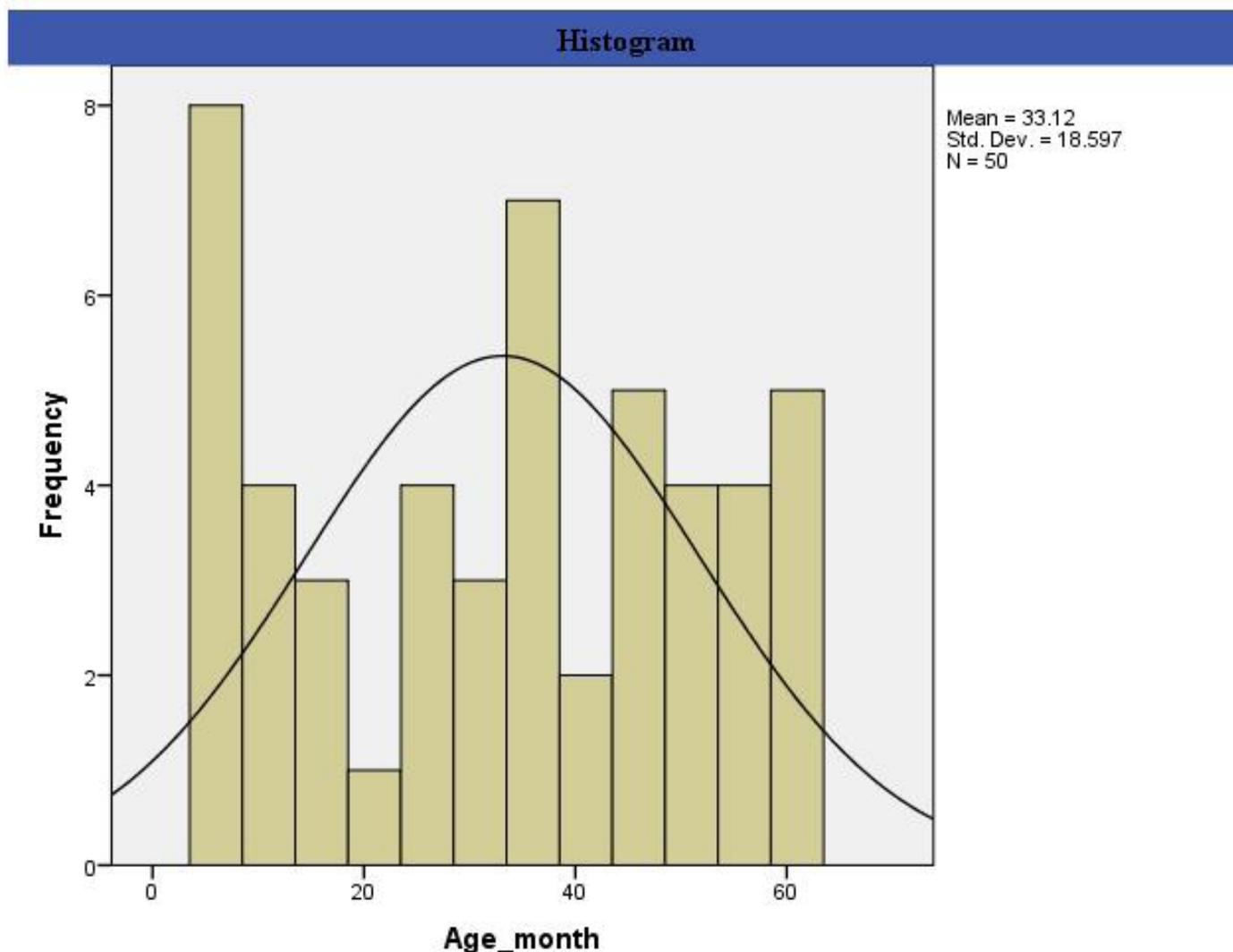
Figure 1: The study subject orphanage children by Age-month of the histogram graph

Name of Disease	Number (N)	Percent (%)
Diarrhea	4	8.0
Fever	5	10.0
Cold	5	10.0
Others (Jaundice, pneumonia, epilepsy etc.)	11	22.0
No diseases	25	50.0
Total	50	100.0

Table 2: Types of Diseases among the Respondents (n=50)

Food intake pattern majority (68%) of the study subjects were taking rice & vegetable in 2-3 times/days. The majority (70%) of the study subjects were taking pulses and chicken 2-3 times /week. Egg & milk were consume (72%) & (66%) in 2-3times/week. Fish were consuming the majority (70%) in 1times/day (Table 3).

This table shows that a significant association was found between nutritional status using z score (underweight, Stunting & over-weight) and food intake of this study population (Table 4). There is no significant association was found between nutritional status using z score in terms of egg, rice, and khichuri (.p<0.01).

Results were expressed as number (%), χ^2 was performed and $p < 0.05$ was level of significance

Food item	Never	2/3 days	1 day	2 to3 dys /week
Rice	15	34	1	
Vegetable	15	34	1	
Pulses	15			5
Fish	15		35	
Fruits	1			9
Egg	14			6
Milk	1	15	1	3
Chicken	15			5
Khichuri	34		15	1

Table 3: Weekly Food intake pattern of the study subjects (n=50)

Variable	χ^2			P-value		
	Underweight	Stunting	Overweight	Underweight	Stunting	Overweight
Egg	6.801	2.757	1.987	0.061	0.839	0.851
Fish	8.430	43.04	4.386	0.019	0.529	0.326
Rice	10.866	12.763	9.590	0.066	0.460	0.474
Khichuri	10.866	12.763	9.590	0.066	0.460	0.474

Results were expressed as number (%), χ^2 was performed and $p<0.05$ was level of significance

Table 4: Relationship between food intake patterns with nutritional status using z score among the respondents

Discussion

The majority of the children (60.3%) in the orphanage were malnourished, with mild, moderate, and severe malnourished being 43.1%, 16.8%, and 0.4%, respectively [15]. In this study, more than half (52%) of children were (**mild**) underweight, Stunting & wasting. This result indicates that the majority of the children living in the orphanage suffered food insecurity. Similar findings were reported in India [16], where more than half of the children living in orphanages were malnourished, irrespective of their age and gender. Further, in Bangladesh's case, the study by [15] reported 50 % of children less than five years of age are mild underweight largely. This study found 6 months to 5 years age range of children, where more than half of the children were mild underweight. Both studies were similar too. However, according to world bank data, underweight (z-score) is very high compared to the general population, which is not expected [17].

Another study revealed that the two orphanages' clinical presentations of nutritional deficiency disorders were not good at all. 88.3%, 52.5%, 40%, 27.9%, 17.9% of orphans were suffered from RTI, glossitis, anemia, cheilosis, and angular stomatitis, respectively. Only 9.5% had signs and symptoms of other deficiency diseases [18]. In this study was found fever (10%), cold (10%) & (8%) were diarrhea, respectively. Only 22% had other diseases, which is not expected.

The nutritional status and dietary diversity of orphans and non- orphans under 5 years in the Brong Ahafo region of Ghana. The main finding was that there was no significant difference in orphans' nutritional status in orphanages and non-orphans in households [19]. In this study, no significant difference has been noticed in the food intake pattern among the respondents in **p-value** (0.460). Regarding the food intake pattern of the orphans, rice, egg, pulse, and vegetables were reported, whereas similar findings were found in other studies.

Conclusion

All of the respondents were orphanage. There lived in Chotomoni Nibas, Azimpur. It is an orphanage home under the department of social welfare. The majority of the study subject did not bear a normal nutritional status. More than half of children were (**mild**) underweight, Stunting & wasting. All of the respondents were taking food more than three times a day (rice, fish, Vegetables, Milk, & eggs); most of the children were suffering from fever, cold, diarrhea & other diseases. These results provide initial evidence of nutritional status using z-score, food intake pattern & others condition was associated.

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