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Research Article

"To Assess the Nutritional Status of Fewer than Five Children on a Slum of Dhaka City, Bangladesh"

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Abstract: ***Background:*** Malnutrition is widely recognized as a major health problem in children in developing country. Malnutrition is a serious public health problem that has been linked to increase the risk of morbidity and mortality. Many factors can cause malnutrition, most of which are related to poor diet, family size, family income repeated infections, particularly in the underprivileged populations. ***Objective:*** To observe the nutritional status of under five children of Co-operative slum in Dhaka city. ***Methodology:*** This is a descriptive cross sectional study and conducted among 250 under five children. They were randomly selected from Co-operative slum in Dhaka city, Bangladesh. It was carried out during March-2018 to June-2019. Anthropometric measurements were taken using standard methods. These were weight, height, MUAC, age was recorded from parents or birth certificate, or from hospital records. Data were analyzed using SPSS windows programs. ***Results:*** Two hundred and fifty under five children were selected randomly. According to MUAC classification 36% of children had mild/ moderate malnutrition and 07% had severe malnutrition. According to weight for height Z-score, 39% were wasted (mild/moderate) and 14% were severe wasted. According to height for age Z-score, it was found that 41% of children were stunted (mild/moderate) and 16% children were severely stunted. According to weight for age Z-score, it was found that 30% of children were underweight (mild/moderate) and 22% children were severely underweight. ***Conclusions:*** Overall, nutritional status of under five children in co-operative slum was not satisfactory. Nutritional intervention program needs to be administered in slum area.

Keywords: Under five slum children, Nutritional status, Anthropometry, Z-score, MUAC.

INTRODUCTION

Malnutrition is a man made disease. It is a disease of human societies. It begins quite commonly in the womb and ends in the grave. The effects of malnutrition on the community are both direct and indirect. Human health, disease, productivity, socio-economic development and quality of life are directly related to nutrition [1]. Malnutrition is a serious public health problem that has been linked to increase the risk of morbidity and mortality. Many factors can cause malnutrition, most of which are related to poor diet or severe and repeated infections, particularly in underprivileged populations. Overpopulation undermines food production, which leads to inadequate food intake and consumption of non-nutritious food, and thus to malnutrition. On the other hand, malnutrition itself has impacts on the environment, and can induce a cycle leading to additional health problems and deprivation. A good percentage of the population of Dhaka city is living in the slums [2]. The uncontrollable rapid growth of urban slum population, accompanied by poor nutritional status is a devastating problem. In slum areas of Dhaka city there is very high prevalence of malnutrition. The prevalence of malnutrition is higher in Dhaka slums than the national average which is 49% for stunting, 17.5% for wasting and 56% for underweight, and indicates exceptionally high levels of malnutrition as judged against World Health Organization criteria [1]. Malnutrition is increasing rapidly among socio-economically deprived population of the developing countries where poverty,

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unemployment, illiteracy and ignorance are rampant [3]. It was found that more than a third of the world's children are affected by protein energy malnutrition (PEM), and the highest frequency of the indicators is wasting, stunting, and underweight. It has been seen that 80% of the affected children are from Asia [4]. The nutritional problem in Bangladesh is well known where 69% of children are victim of different form of PEM and 12% children are severely undernourished [5]. PEM is a major cause for childhood mortality and morbidity in underdeveloped countries. Eighty percent of children below 5 years of age suffer from 2nd and 3rd degree PEM. PEM may be regarded as a disorder affecting the structure and function of the entire body. Biochemical changes like serum total protein, albumin, globulin and iron are invariable accompaniment in PEM [6]. The prevalence of stunting, wasting and underweight were 57.0%, 53.0% and 52.0%, respectively.

METHODOLOGY

This is a descriptive cross sectional study. It was carried out during March-2018 to June-2019 at the Co-operative slum of Dhaka city, Bangladesh. A total 250 under five children constituted the study population. Exclusion criteria:-seriously ill, mentally retarded children and parents unwilling to participate in the study were excluded from the study. Inclusion criteria:-those babies living in the slum at least for 6 months, willing to participate in the study and 6 months to 5 years old children were included. For determination of nutritional status: following parameters were studied: (1) Length: 6 months to 2 years of age by infantometer in lying position and after 2 years up to 5 years height was recorded in standing position by stadiometer. Height was recorded in standing position without footwear, foot together, knees straight. Heels, buttocks and shoulder were in contact with the vertical wall. The children were held firmly with eyes looking straight forward and the body was held as straight as possible with the knees were kept straight. The height was measured to the nearest millimeter. (2) Weight: weight was taken by electronic weighing machine. The children were asked to stand on the weighing machine with minimum clothing and without shoes and no weight in hands or touching or catching other things. Weight was recorded to the nearest grams. (3) Age was recorded asking with parents about age or using birth certificate or hospital records. **(**4) Mid Upper Arm Circumference (MUAC): MUAC is an easy and useful measurement. It was recorded by measuring tape. The middle of the left arm was detected by the midpoint of a line between the tip of the acromion process of scapula and olecranon process of ulna. Then at the midpoint the measuring tape was wrapped round gently but firmly avoiding compression of soft tissue keeping the arm in hanging and extended position at the side of the body, then the reading was taken to the nearest 0.1 cm. Severe malnutrition is defined when MUAC is less than 115 mm. Severe wasted is defined when weight for height Z score <-3 SD. Severe stunted is defined height for age Z score <-3SD. Severe under weight is defined weight for age Z score <-3 SD. A questionnaire was ready for data collection. Each questionnaire was minutely checked, verified and corrected on the spot following the interview. After completion of data collection, the data were consolidated, processed and edited to reduce the errors. The data were entered into the computer and analyzed with the help of SPSS (Statistical package for social science) windows programs 21.

RESULTS

A total 250 under five children were studied. Data were collected with the help of a structured questionnaire by questioning the mother and measuring height, weight and MUAC. After completion of data collection all the data were compiled, tabulated and then analyzed according to the objectives of this study. Anthropometric measurements were analyzed according to Z-score of weight for age, height for age, weight for height, and MUAC. National Center for Health Statistics (NCHS) of USA standard was considered in this study for classification of malnutrition. In distribution of malnutrition, severe malnourished 13%, mild/moderate malnutrition 33% and no malnourished 54% (Fig-1).

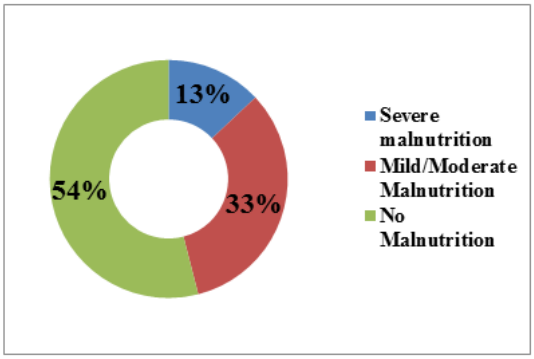

Fig- 1: Distribution of the children by malnutrition

Table-1: Distribution of the children by age group

Age in months	Frequency	Percentage
06-12	48	19.0
13-24	58	23.0
25-36	66	26.0
37-48	44	18.0
49-60	34	14.0
Total	250	100.0

Table-1 shows that, age of children were ranging from 06 to 60 months. Among them 19% of the children were in 06-12 month age group, 23% were in 13-024 month age group, 26% were in 25-36 months age group, 18% were in 37-48 months age group and 14% in 49-60 months age group.

Table-2: Distribution of the children by sex

Age in months	Frequency	Percentage
Male	132	53.0
Female	118	47.0
Total	250	100.0

Tabla-2 shows it was evident from the study that 53.0% study children were male and 47% were female.

Table-3: Distribution of the children by MUAC classification

Age in months	Frequency	Percentage
Severe malnutrition	18	07.0
Mild/Moderate malnutrition	90	36.0
No Malnutrition	142	57.0
Total	250	100.0

Table-3 shows according to MUAC classification, 07.0% had severe malnutrition 36.0% of study children had mild/moderate malnutrition and 57.0% had no malnutrition.

Table-4: Distribution of the children by Weight for Height Z-score

Weight for Height Z-score	Frequency	Percentage
Severe wasted	36	14.0
Mild/Moderate wasted	98	39.0
Not wasted	116	47.0
Total	250	100.0

Table-4 shows according to Weight for Height Z-score, it was found that 14% of children severe wasted, 39% mild/moderate wasted and 47% not wasted.

Table-5: Distribution of the children by Height for Age Z-score

Height for Age Z- score	Frequency	Percentage
Severe stunted	40	16.0
Stunted(mild/moderate)	102	41.0
Not stunted	108	43.0
Total	250	100.0

Table-5 shows according to Height for Age Z-score, it was found that 16% of children severe stunted, 41% mild/moderate stunted and 43% children not stunted.

Table-6: Distribution of the children by Weight for Age Z-score

Weight for age Z- score	Frequency	Percentage
Severe underweight	54	22.0
Underweight (mild/moderate)	76	30.0
Not underweight	120	48.0
Total	250	100.0

Table-6 shows according to weight for Age Z-score, it was found 22.0% children severely underweight, 30% of children mild/moderate under weight and 48.0% children not underweight.

DISCUSSION

Children are considered as the leader of tomorrow. But they are the most vulnerable group of the society**.** Monday *et al.* [7] conducted a descriptive cross-sectional survey. A total of 300 mothers with their children were selected using a multi-stage sampling technique, Prevalence of stunting, wasting and underweight among the under-fives were 48.6%, 45.3%, and 29.5% respectively. Dasgupta *et al*. [8] assessed anthropometric indices on 100 under-five children with standard anthropometric indices such as weight for age, weight for height, height for age, and mid upper arm circumference prevalence of malnutrition were 48% (underweight), 30% (wasting), 28% (stunting) respectively. Zaman SU *et al.* [9] Conducted a study on malnutrition on children of 18 months. The prevalence of underweight, stunting and wasting was 24%, 36% and 48% respectively. Popat *et al.* [10] conducted a cross sectional study and found prevalence of underweight, stunting and wasting was 42.4%, 49.1% and 17.2% respectively. In the study of Halder B [11] male and female were 59% and 41%. According to statistical pocked Book of Bangladesh-2004, the male and female ratio was 51.2% and 48.8%, which was almost similar to male and female ratio of the present study. In the study of Yasmeen S [12], conducted in Bangladesh male and female ratio was found 44% and 56%. According to Z-score, it was found in the present study that, 39% children were wasted (mild/moderate), 13% severely wasted 47% stunted (mild/moderate) and 14% severely stunted, 46% under weight (mild/moderate) and 16% severely under weight. (Child Nutrition SURVEY-2000) (Ages 6-71 months) [13, 14] found in their survey that 51% of the children were moderately underweight and 13%

severely underweight, 49% moderately stunted and 19% severely stunted, 12% moderately wasted and 1%severely wasted. According to Demographic and Health Survey- 1990-2000(ages 0-59 months) [15, 16] it was found that 48% of the children were moderately underweight and 13% severely underweight, 45% moderately stunted and 18% severely and 10% moderately wasted and 1% severely wasted. These findings are similar with the current study findings. This description cross sectional study was conducted with a view to determine the nutritional status of fewer than five children of Co-operative slum. A total 250 children were studied. The age of the children ranged between 06 and 60 months. . According to MUAC classification 43% of children had mild/ moderate malnutrition and 16% had severe malnutrition. Male and female ratio was 53: 47. In case of wasting simillar findings were stated- Monday *et al*., Zaman SU *et al*., For stunting simillar findings were observed- Monday *et al.*, Popat *et al*., Child Nutrition SURVEY-2000(ages6-71 months), Demographic and Health Survey1990-2000(ages 0-59 months). In case of underweight simillar studies were- Dasgupta *et al*., Popat *et al.*, (Child Nutrition SURVEY-2000) (ages6-71 months), Demographic and Health Survey1990-2000(ages 0-59 months).

CONCLUSION

In this study severe wasting, stunting and under nutrition were 14%, 16% and 22% respectively and mild/moderate wasted, stunted and underweight were 39%, 41% and 30% respectively. Those children who are not properly grown they will be the future burden of the nation.

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