Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: www.saspublishers.com

OPEN ACCESS

Paediatrics

The Risk Factor of Malnutrition among Bangladeshi Children

Dr. Zahangir Alam[1*], Dr. Khondaker Zahirul Hasan[2], Dr. A N M Shahidul Islam bhuiyan[3], Dr. Md. Nasir Hossain[4]

[1,2]Junior Consultant (Paediatrics), 250Bed General Hospital, Feni, Bangladesh
[3]Junior Consultant (Paediatrics), Upazilla Health Complex, Chauddagram Comilla, Bangladesh
[4]Associate Professor, Department of Paediatrics, Nephrology, Sir Salimullah Medical College, Dhaka, Bangladesh

DOI: 10.36347/sjams.2019.v07i12.064 | **Received:** 30.11.2019 | **Accepted:** 07.12.2019 | **Published:** 30.12.2019

***Corresponding author:** Dr. Zahangir Alam

Abstract **Original Research Article**

Objective: In this study our main goal is to evaluate the risk factor of malnutrition among Bangladeshi children. ***Method:*** This cross-sectional study was conducted at the secondary level hospital in the 250 Bed General Hospital, Feni, Bangladesh from July 2011 to June 2012 among selected 100 children between one to 10 years. Data was collected in preformed data collection sheet by interviewing the patient's attendants during the study. ***Results:*** In this experiment (39%) were within 1year, (30%) were between1 to 5 years, (13%) were 6 to 10years, (18%) was above 10 years of age. In the study population 30% of the children were underweight, 41% were stunted and 10% were wasted. 96% child had chronic infection and 66% had poor appetite. ***Conclusion:*** From our study, we can conclude that, considering the modifiable factors, the nutritional level can be improved. There should be some training or education about nutritional knowledge, environmental sanitation and personal hygiene, breastfeeding and weaning practices, nutritional deficiency diseases, the nutritional value of food and dietary practices to increase the awareness of rural parents to feed their children with a balanced diet, so that they can easily overcome the problems of malnutrition.

Keywords: Malnutrition, nutritional level, personal hygiene, breastfeeding.

INTRODUCTION

Childhood malnutrition is one of the leading causes of the global burden of disease in low- and middle-income countries including Bangladesh. Malnutrition is the underlying causes of around 3.5 million deaths and 35% of the disease burden in children of below 5 years of age. As malnutrition is pervasive in developing world, it has been estimated that nearly one-half of all children in South Asia are malnourished.

Bangladesh, a developing country, is the worst victim of malnutrition where child malnutrition is very high. According to the Bangladesh Demographic Health Survey (BDHS) Report 2014, all three indicators of malnutrition showed large number of malnourished children (33% children were underweight, 36% were stunted and 14% were wasted). Bangladesh is trying very hard to reduce child.

World Health Organization (WHO) defines malnutrition as "the cellular imbalance between the supply of nutrients and energy and the body's demand for them to ensure growth, maintenance and specific functions". The term malnutrition refers to both under nutrition as well as over nutrition. However, in maximum cases, the terms malnutrition is used interchangeably with under nutrition. Nutrition includes processes leading to and involved with the utilization of nutrients for growth, development, maintenance and activity [1-4].

Malnutrition rates have seen a marked decline in Bangladesh throughout the 1990's but remained high at the turn of the decade. In this study our main goal is to evaluate the risk factor of malnutrition among Bangladeshi children.

OBJECTIVE

General objective

- To evaluate the risk factor of malnutrition among Bangladeshi children.

Specific objective

- To identify the prevalence of malnutrition in terms of underweight, stunting and wasting.
- To detect child related risk factors for malnutrition

METHODOLOGY

Study type

- This study was a cross-sectional study.

Place and period of the study

- This was conducted at the secondary level hospital in the 250 Bed General Hospital, Feni, Bangladesh from July 2011 to June 2012.

Sampling method

- During the study Purposive sampling method was used.

Sample Size

- The study was conducted among 100 children between one to 10 years, attending tertiary hospital and their mothers

Method

Data was collected in preformed data collection sheet by interviewing the patient's attendants. After obtaining informed consent from the mothers, anthropometric measurements of the children were assessed using standard calibrated instruments. Mothers of selected children were contacted at their residence to collect the information on risk factors. Initial rapport was developed with the mothers. They were asked to fill up the questionnaire. Information pertaining to risk factors such as childbirth history, illness history, environmental factors, and feeding practices of the child were obtained using a semi-structured risk factors questionnaire. The average time taken by each mother to respond to the questionnaires is 25 min.

DATA ANALYSIS

Statistical analyses of the results were obtained by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-15). Suitable table and figure were used to present observation and result of the study. During analysis frequency distribution for all the variables was worked out and produced in tabular form. After compilation the data were presented in the form of tables. Student's't' test, Chi-square (x2) test and correlation- coefficient (r) test were used for determining the difference and relationship. P value <0.05 was taken as minimum level of significance.

RESULTS

In figure-1 shows gender distribution of the patients was among 100 patients (60%) were male and (40%) were female. The following figure is given below in detail:

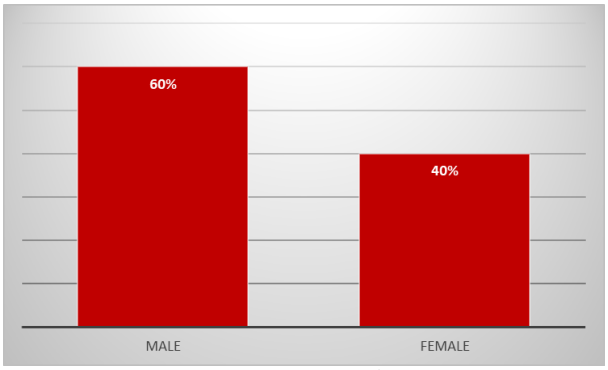

Fig-1: Gender distribution of the patients

In table-1 shows age distribution of the patients where (39%) were within 1year, (30%) were between1 to 5 years, (13%) were 6 to 10years, (18%) was above 10 years of age. The following table is given below in detail:

Table-1: Age distribution of the patients

Age group (years)	%
< 1	39%
1-5	30%
6-10	13%
>10	18%

In figure-2 shows residential area of the patients where most of the patients where rural, 82%. The following figure is given below in detail:

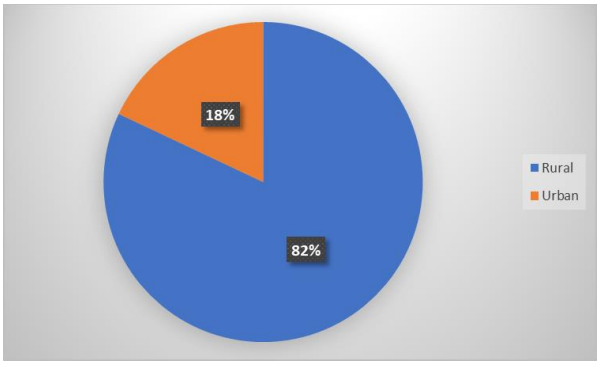

Fig-2: Residential area of the patients

In table-2 shows sociodemographic characteristics of the patientswhere most of the patients toilet quality was unimproved, 58% and 40% patients parents were illiterate. The following table is given below in detail:

Table-2: Sociodemographic characteristics of the patients

Family income (BDT/per month):	
<4000	60%
4000-5000	21%
>5000	19%
Parents education:	
Illiterate	40%
Primary	36%
Secondary or higher	23%
Family size:	
<5	52%
≥5	48%
Toilet Quality:	
Improved	42%
Unimproved	58%
Type of Cooking:	
Electricity/Gas	40%
Wood or others	60%

In figure-3 shows the prevalence of malnutrition in terms of underweight, stunting and wasting. In the study population 30% of the children were underweight, 41% were stunted and 10% were wasted. The following figure is given below in detail:

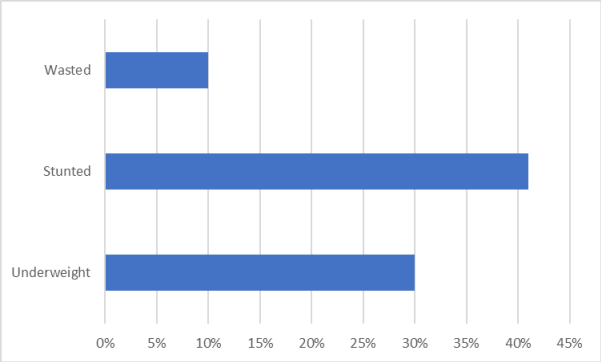

Fig-3: The prevalence of malnutrition in terms of underweight, stunting and wasting

In table-3 shows distribution of the patients according to diarrhea where, 61% had diarrhea in last two weeks. The following table is given below in detail:

Table-3: Distribution of the patients according to diarrhea

Diarrhea in Last Two Weeks	%
Yes	61%
No	39%

In table-4 shows child related risk factors for malnutritionwhere 96% child had chronic infection and 66% had poor appetite. The following table is given below in detail:

Table-4: Child related risk factors for malnutrition

Variable	%
Child born:	
Preterm	20%
Full term	80%
History of present Illness of the child:	
Yes	5%
No	95%
Had Chronic infection (past:	
Yes	96%
No	4%
Recurrent cold and cough:	
Yes	60%
No	40%
Poor appetite:	
Yes	66%
No	34%
Had worm infestation in the past:	
Yes	82%
No	18%

In table-5 shows association of infant feeding and dietary practices with malnutrition where among cases, 60% of the mothers gave a prelacteal feed (either plain water, sugar water or glucose water) to their children and 70% children were bottle feed. The following table is given below in detail:

Table-5: Association of infant feeding and dietary practices with malnutrition

Variable	%
Pre-lacteal feed	
Yes	60%
No	40%
Exclusive breast feed given	
Up to 6 months	55%
6 and more than 6 months	45%
Type of weaning food	
Rice	25%
Rice, milk, veg/pulses	52%
Rice, milk	23%
Type of complimentary food given :	
Veg/pulses	8.4%
Veg/pulses, egg/fish and meat	62.6%
Veg/pulses and egg/fish/ chicken	28.9%
Bottle feed:	
Yes	70%
No	30%
Frequency of candies/chocolate given	
Daily/alternative days	75%
Once/twice week	25%

DISCUSSION

In one study found that, the prevalence of malnutrition among tribal children aged 24-59 months was very high and it varied insignificantly across gender and ethnicity. There was an association between child ethnicity and malnutrition status to some extent. In our study we found, 39% were within 1year, (30%) were between1 to 5 years, (13%) were 6 to 10years, (18%) was above 10 years of age [5].

In our study we found that, Very strong association between family income and child malnutrition has been found and the association remained strong across ethnicity. One study reported that, the multivariate logistic regression analysis showed that having a family income below 4000BDT (US ~$50) significantly increased the risk for underweight, stunting and wasting. Furthermore, children with a family income below 5000 BDT/month (~$ 60 US) increased the risk for underweight as compared with children with a family income of 5000 BDT/month or more[5, 6].

Another article result showed that, mother‟s age also significantly affected child malnutrition. Younger mothers (< 20 years) were more prone to have underweight and wasted child compared to older mothers (≥30 years). It showed child with a mother younger than 20 years had three times higher risk of being underweight than child with a mother equal or older than 30 years[7, 8].

In our study population 30% of the children were underweight, 41% were stunted and 10% were wasted. One study said that, two out of three children were underweight, half were stunted and more than one-third were wasted if the familyincome was less than 4000 BDT (~$50 US). A study in Bangladesh suggested that malnutrition was strongly associated with poor socio-economic status. Several studies in Bangladesh found that child malnutrition rates were associated with household living standards e.g. family income, family [8-10].

According to United Nations Children‟s Fund (UNICEF), the prevalence of malnutrition in Bangladesh was amongst the highest in the world as malnutrition passes from one generation to the next because malnourished mothers give birth to infants who struggle to thrive or grow well. In addition, one half of child deaths attribute to malnutrition due to weakening immunity as survivors of malnutrition were left vulnerable to illness, stunted and intellectually impaired.

Malnourishment is also associated with pre-lacteal feeding. In the one study reported that the risk of developing malnutrition is 3.64 times higher ($p = 0.001$) among the children who were given pre-lacteal feeds. Many studies conducted in India also reported higher percentage of infants was given pre-lacteal feeds [11, 12].

There is an increased risk of malnutrition, either with an early introduction or with delayed initiation of complementary feeding. Independent association of malnutrition with the consistency of complementary feeds was found in studies from other parts of India [12].

Our study showed that the type of weaning and the complementary feeding highly influenced the nutritional status of the children. But the study failed to show any association between the time of introduction of weaning and the time complementary feeding with the nutritional status of the children. Similar findings were reported in another study the study also found an association between food restrictions and special food fed and malnutrition among the children [13].

A higher percentage of sweets and candies/chocolate consumption among the children was observed among malnourished children. The higher risk of malnutrition among children who ate more sweets or candies might be due to the lack of intake of nutritious food which is required for growth of the child.

CONCLUSION

From our study, we can conclude that, considering the modifiable factors, the nutritional level can be improved. There should be some training or education about nutritional knowledge, environmental sanitation and personal hygiene, breastfeeding and weaning practices, nutritional deficiency diseases, the

nutritional value of food and dietary practices to increase the awareness of rural parents to feed their children with a balanced diet, so that they can easily overcome the problems of malnutrition.

REFERENCES

1. Ahmed T, Ahmed AS. Reducing the burden of malnutrition in Bangladesh. Bmj. 2009 Nov 4;339:b4490.
2. BBS. Bangladesh Population Census: District Tables, Bangladesh Bureau of Statistics, Dhaka Division, Dhaka. 1991.
3. Black RE, LH Allen, ZA Bhutta, LE Caulfield, M de Onis, M Ezzati, C Mathers and J Rivera. Maternal and child undernutrition: global and regional exposures and health consequences. Lancet.2008; 371: 243-260.
4. Chowdhury KAN. Residence, gender and power in the Garo Society of Bangladesh, Dhaka: University of Dhaka. Doctoral Thesis. 2007.
5. Deolalikar AB. Poverty and child Malnutrition in Bangladesh. J. Dev. Soc.2005; 21.
6. Faruque ASG, AMS Ahmed, T Ahmed, MM Islam, MI Hossain, SK Roy, N Alam, I Kabir and DA Sack. Nutrition: basis for healthy children and mothers in Bangladesh. J. Health Popul. Nutr, 2008; 26: 325-339.
7. Fotso J-C and B Kuate-Defo. Measuring socioeconomic status in health research in developing countries: should we be focusing on households, communities or both? Soc. Indic. Res. 2005; 72: 189–237.
8. Jesmin A, SS Yamamoto, AA Malik and MA Haque. Prevalence and determinants of chronic malnutrition among preschool children: a cross-sectional study in Dhaka city, Bangladesh. J. Health Popul. Nutr, 2011; 29: 494-499.
9. Millennium Development Goals, Bangladesh Progress Report 2012, 2013. General Economics Division (GED), Bangladesh Planning Commission, Government of Bangladesh.
10. Kumar A, Kamath VG, Kamath A, Rao CR, Pattanshetty S, Sagir A. Nutritional status assessment of under-five beneficiaries of ICDS program in rural Karnataka. Australian Medial Journal AMJ. 2010;3:8.
11. Chakravarthy KB, Soans S, Hanumanth N. Nutritional status of under-three children in South India- a cross-sectional study. International journal of medical science and clinical inventions. 2015;2:3.
12. Prabhat A, Influence MS. Of socio-economic status on grades of malnutrition. International journal of home science. 2015; 1:52–55.
13. Basit A, Nair S, Chakraborthy KB, Darshan BB, Risk KA. Factors for under-nutrition among children aged one to five years in Udupi taluk of Karnataka, India: a case control study. Australasian Medical Journal. 2012;5(3):163–167.