Original Article

Nutritional Status of Under Five Children in Selected Villages of Faridpur, Bangladesh

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Abstract

Introduction: Malnutrition is an alarming cause of infant and under 5 years mortality in developing country like Bangladesh for the last few centuries. **Objectives:** To assess the nutritional status of under-5 children in the selected villages of Faridpur. **Methods:** A descriptive cross-sectional study was conducted among 184 purposively selected under five children of Kharagpur and Vajondanga village for a period of four months (November-2021 to February-2022). After obtaining verbal consent from respondants data were collected by face-to-face interview through a pre-tested questionnaire as well as anthropometric profile also measured and noted down in checklist. Then data were checked, cleaned and analyzed accordingly. **Results:** Among the children 54 were female and 46 were male. More than one third (34.2%) were belonging to 48-60 months age group and 9.2% were below one years of age. Highest (35.9%) number of respondents had weight between 10 to 15 kg. Among the total respondents 70.7% had a height of equal or below 100 cm and no child showed the signs of edema. According to Welcomes classification most (82.0%) of the children were found normal, 9.8% had Marasmus, 8.2% were in undernutrition group. According to MUAC, majority (83.0%) of the respondents were normal and 1% had severe malnutrition and the rest 6% had mild to moderate malnutrition. Birth orders of more than two, more than 2 siblings, low monthly family income, maternal illiteracy, maternal occupation and inappropriate feeding habit were associated factors of malnutrition($p<0.001$). **Conclusion:** From this result it is evidenced that, the nutritional status of under 5 years children is which is a positive sign of health status for a developing country like Bangladesh.

Key Words: *Malnutrition, Under-5 children, Faridpur villages, Anthropometric profile, Nutritional status.*

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Introduction

Malnutrition is a health condition that arises when the body experiences either a deficiency or an excess of essential nutrients. It is one of the most serious threats to children's growth, health, and cognitive development. Beyond increasing vulnerability to illness and death, malnutrition has been linked to lower educational achievement, delayed mental development, and reduced intellectual and physical capacity later in life.[1,2]

A lack of adequate food, limited family resources, and cultural practices or taboos around infant feeding often result in unbalanced diets, which contribute to malnutrition. Studies estimate that nearly 45% of children who die before the age of five suffer from malnutrition as an underlying factor.[1] The relationship between infection and malnutrition is cyclical: malnourished children are more prone to infections, recover more slowly, and face higher mortality risks. In early childhood, malnutrition leads to stunted growth and visible signs of vitamin and micronutrient deficiencies.[1]

Globally, malnutrition remains a major public health challenge.[3] Around 800 million people are thought to experience calorie deficiency, including at least 450 million children.[4] UNICEF data from 2000 showed that 33.1% of under five children were stunted or wasted. By 2020, these rates had declined to 22% for stunting and 6.7% for wasting, reflecting progress likely driven by improved sanitation, immunization, and healthcare services.[3]

In Bangladesh, malnutrition has long been a pressing issue. UNICEF reports show significant progress between 1996 and 2011: stunting rates fell from about

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60% to 41%, while underweight prevalence dropped from 53% to 36%.[3] According to USAID's nutrition profile, stunting is most severe in Sylhet division (50%) and lowest in Khulna (28%).[5] It is particularly common among children aged 18–23 months, suggesting that poor complementary feeding and hygiene practices play a role. Wasting remains high at 14% among children under five, and disparities persist based on maternal education, household wealth, and rural versus urban residence.[6]

Malnutrition is often described as an "iceberg phenomenon," with much of its burden hidden beneath the surface.[7] In Bangladesh, where nearly 165 million people live, about 22.6% are children. Among preschoolers, more than half are stunted, 56% are underweight, and 17% are wasted.[5] Poverty and food insecurity are the most significant drivers of this crisis.[8]

Materials & methods: A descriptive type of cross-sectional study was conducted for about four months from November 2021 to February 2022 at Khararpar and Vajondanga villages in Faridpur district, among the 184 under-5 children, whose informant were willing to participate. One hundred and eighty-four purposively selected children under 5 years residing in two randomly selected villages were the study sample. Interviewer administered semi-structured questionnaire and check-list were used for collection of data. Data were collected from the respondents of under five children by face to face interview after obtaining verbal consent. The demographic, socio-economic, nutrition and vaccine related data were collected from informants. Then height, weight and mid-upper arm circumference of the respondents were measured and noted down in check list. After completing interview, each questionnaire was checked for completion and consistency. In case of incompetence and inconsistency, necessary correction was made. Edited data were coded and entered into Scientific Package for Social Science (SPSS ver.27). Descriptive statistics were done and presented in tables and figures accordingly.

Results:

Sociodemographic characteristics:

A descriptive cross- sectional study was carried out at Khararpar and Vajondanga villages in Faridpur district, with a view to find out the nutritional status of under 5 children with a 184 purposively selected children in the study area.-About 34% children were between 48 - 60 months old with a mean age of 34.6 months (range 4 to 59 months), while majority 100(54%) were female and 84% were Muslim. An overwhelming number 124(67.4%) of children had 1 or 2 siblings and 90(48.9%) of them were first child . More than half (94,51%) of the children belonged to nuclear family ,75(40.8%) had 5 to six family members and at least 80(43.5%) respondents had semi-pucca house. Mother of 89(48.4%) children and father of 47(25.5%) children completed secondary level of education (Fig.No.1).

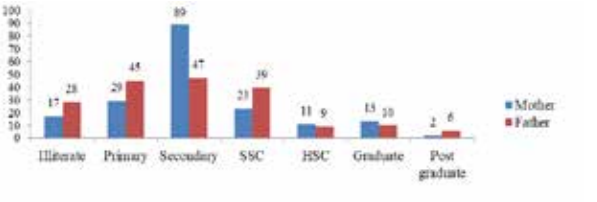

Figure No.1: Distribution of respondents regarding parents' educational status

An overwhelming number 155(84.2%) of mother of the children were housewives, while 55(29.9%) fathers were daylabor. About 48% families had income between ten to twenty thousand BDT.

Table No. 1: Sociodemographic characteristics of under 5 children(n=184)

Variables	Frequency	Percentage
Age of respondents(in completed months)		
≤ 12	17	9.2
12-23	41	22.3
24-35	39	21.2
36-47	24	13
48-60	63	34.2
Gender of children		
Male	84	46
Female	100	54
Religion		
Islam	155	84
Hinduism	29	16
Number of siblings		
1-2	124	67.4
2-4	47	25.5
4-6	13	7.1
Position of the child among siblings		
First	90	48.9
Second	64	34.8
Third	17	9.2
Fourth	8	4.3
Fifth	1	0.5
Sixth	4	2.2
Family type		
Nuclear	94	51.0
joint	90	49.0
Number of family member		
≤ 4	52	28.2
5-6	75	40.8
7-8	22	12.0
>8	35	19.0
Housing status		
Kacha	75	40.8
Semi pucca	80	43.5
Pucca	29	15.7

Monthly family income(in BDT)		
<10000	35	19.0
10000-20000	89	48.4
20000-30000	36	19.6
30000-40000	18	9.8
≥40000	6	3.3

Nutrition related variables:

Table No. 2: Nutritional characteristics of under 5 children(n=184)

Variables	Frequency	Percentage
Was/is the child in exclusive breast feeding?		
Yes	137	74.5
No	47	25.5
Was the child started weaning at 6 month of age?(if applicable)		
Yes	127	92.7
No	10	7.3
History of major illness within last one month		
Present	132	72.0
Absent	52	28.0
Weight of the child (in kg)		
≤ 5	8	4.3
5-10	43	23.4
10-15	66	35.9
15-20	52	28.3
20-25	12	6.5
25-30	3	1.6
Height/Length of child (in cm.)		
≤ 100	130	70.7
101-150	52	28.3
151-200	2	1.0

(Table No. 2:) Out of 184 children, it was observed that 47 (25.5%) children were not in exclusive breast-feeding practice. Most of the children 127(92.75%) started their weaning at due time while only 52(28%) had history of major illness within last one months of data collection. Regarding weight at least one fourth 66(35.9%) had weight between 10- 15 Kg and only 3(1.6%) of the respondent had weighted between 25-30 Kg. Maximum 130(70.7%) were measured equal or above 100 cm and only 2(1%) of respondent were measured between 151-200 cm. Majority151(82%) of the children were found normal regarding Welcomes classification while 18(9.8%) had Marasmus and the rest 15(8.2%) were in the category of undernutrition (Table No. 3).

Table No 3: Distribution of the respondents according to nutritional status category through Welcome classification (n= 184)

Nutritional status (Welcome classification)	Frequency	Percentage
Normal	151	82.0
*Kwashiorkor	0	0.0
*Marasmic Kwashiorkor	0	0.0
Marasmus	18	9.8
Under nutrition	15	8.2
Total	184	100

Regarding nutritional status by MUAC majority 152(83%) were normal, about 20(11%) had severe malnutrition and rest 12(6%) had mild to moderate malnutrition (Tab IV). Birth order more than third, more than two siblings, low monthly family income, maternal illeteracy, maternal occupation and inappropriate feeding habit were associating factors of malnutrition (Tab.IV)

Table No. 4: Bivariate analysis of factors associated with child nutrition(n=184)

Variable	Normal nutritional status	Mild to moderate malnutrition	Severe malnutrition	Total	P value
Birth order					
1st and second	145	8	1	154	<0.001
Third or more	7	4	19	30	
Number of siblings					
≤2	112	10	2	124	<0.001
3 or more	40	2	18	60	
Monthly family income in BDT					
≤20,000	92	12	20	124	<0.001
Maternal education					
Illiterate	0	2	15	17	<0.001
Literate	152	10	5	167	
Maternal occupation					
Homemaker	144	8	3	155	<0.001
Outside worker	8	4	17	29	
Feeding					
EBF and weaning	131	6	0	137	<0.001
No EBF and weaning	21	6	20	47	
Total	152	12	20	184	

Discussion: The survey was conducted to assess the nutritional status of under-5 children among selected villages of Faridpur Sadar. Data were collected from the respondents and analyzed according to objectives. Among the total respondents 84% belonged to Islam,16% belonged to Hinduism. This was almost similar to another rural study where 89.1% Muslim, 10.0% were Hinduism and 0.3% were from other religions.[9] Another survey in Dhaka shows that about 87.5% respondents belonged to Islam and about 12.5% belonged to Hinduism.[10] All the findings except India are similar with this study.

The result shows that the family type of the respondents 51% were in nuclear family,49% were in joint family. In India 69.4% were in nuclear family and 30.6% were joint family.[11] All the findings are similar with this study. The result shows that housing condition of the respondents were 43.5% lived in semi pucca house, 40.8% lived in kacha house 15.7% lived in pucca house. This is lower than findings of Rahman A and Biswas SC where 54.5% were semi pucca house, 33.7% were kacha house and 11.8% were in pucca house.[9] Another survey shows that 78.6% were pucca house and 21.4% were semi pucca house.[10] In India 85.5% were kacca house and 14.5% were semi pucca house.[11]

This survey revealed that 54% were female and 46% were male, mean age of under five children was 34.6 months (range 4 to 59 months) About 34.2% children were between 48 - 60 months old. This finding was coherent with previous studies held in Bangladesh where mean age of the under 5 children was 34.61±5.4 months, male was 50.7% and female was 49.3%.[12]

The survey revealed that 48.4% mothers of the respondents were qualified up to secondary education only 1% mothers of the respondents were post graduates whereas 25.5% fathers of the respondents had secondary educational qualification and 3% fathers of the respondents had post-graduation qualification. This is in line with another rural study where 45.5% mothers are qualified secondary education, 30.53% mothers were qualified primary education. 50.45% fathers were qualified secondary education and 20.6% qualified to primary education.[9] But in urban slum area 49.7% mothers are qualified primary education, and 43.6% fathers were qualified to primary education.[10] The result revealed the occupational status of the mother of the respondents 84.2% were housewives, 1.1% belonged to the category business, 9.2% were belonged to service and o.5 % belonged to day labor activities. This is almost reflects findings of Bashar MA, et.al. where 86.8% were housewives,12.0% were service holder and 0.2% were in other occupation.[12]

Most of the respondents (48.4%) family income were 10,000-20,000 and 3.3% had earnings of equal or more than 40,000 taka per month. Another survey in slum of Dhaka shows that 55.7% of the respondents family income were up to 10000 taka , 47.8% had earnings 10001-15000 taka ,15% respondents had earnings above 20000 tk.[10] Another survey in India shows that 57.3% of the respondents family income was less or equal 1537.15 USD and 42.7% family income were more than 1537.15 USD.[11] All those findings are not similar with this study due to socio- economic differentiation.

The result shows that 74.5% were in exclusive breast feeding and the rest of 25.5% of the respondents were not in exclusive breast feeding. This result is higher than findings of India[11] but lower from study findings of Hossain AKMA et,al. where 90% had a history of exclusive breastfeeding.[13] The result shows that 92.7% had started weaning in 6 months and the rest of 7.3% respondents were not in so. It is higher from another survey of rural community where 79.4% start weaning in 6 months and the rest of respondents starts weaning early age or were not in weaning.[9]

Results shows that majority of the respondents 83% were normal, 11% had severe malnutrition and the rest 6% had mild to moderate malnutrition. The findings is higher than a study in Narayanganj where 51% were normal, 14% had severe malnutrition, 19.20% had moderate malnutrition and 15.80% had mild malnutrition.[7]. This may be due to community level nutritional support programme in study area. Another survey shows that 40.4% children were found malnourished and 32.3% were normal.[12]

The results shows that according to Welcome classification the majority of the child 82.0% were found normal, 9.8% had marasmus and rest 8.2% were in the category of under nutrition. Das and Gulshan found 16% of the children were severely stunted and 25% were moderately stunted. Among the children under five years of age 3% were severely wasted and 14% were moderately wasted. Furthermore, 11% of the children were severely underweight and 28% were moderately underweight.14 In a multilevel national data analysis revealed that 11% of the children were severely underweight and 28% were moderately underweight. 15

Birth order more than third, more than two siblings, low monthly family income, maternal illeteracy, maternal occupation and inappropriate feeding habit were associating factors of malnutrition. This study indicated that proportion of malnourished children is higher among children whose mothers are occupied in physical labor related works compared to the children of mothers in household work. The study also indicated that both the parents' education are significantly associated with nutritional status of their children. This finding was coherent with previous studies held in Bangladesh and other countries.[11,14,15] A multivariate analysis found that mother's education, poor socio-economic status and associated diseases had significant association with nutritional status of under 5 children.[14] However, occupational status of child's mother found no significant association on nutritional status in another study.[12]In

a multilevel analysis the main contributing factors for under-five malnutrition were found to be child's age, mother's education, father's education, father's occupation, family wealth index, currently breast-feeding, place of delivery and division. Significant community-level variations were found in the analyses.[15]

Conclusion: Based on study findings, it can be concluded that the number of malnourished children is low among under five children. For better management more attention should be paid to accurate implementation of supplementary nutrition, fortification and supplementation programs for children and mothers. Women education can be a great initiative to combat against child malnutrition.

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