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## PATTERN OF BREAST FEEDING, WEANING AND NUTRITIONAL STATUS OF UNDER FIVE CHILDREN OF WORKING MOTHERS OF BANGLADESH ARMED FORCES

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### ABSTRACT

**Background:** Adequate nutrition is essential in early childhood to ensure healthy growth, proper organ formation and function, a strong immune system, and neurological and cognitive development. The objective of the study is to assess the pattern of breast feeding, weaning and dietary behavior of under-five children of working mothers attended Child Welfare Centre (CWC), Malobika and Combined Military Hospital (CMH), Dhaka.

**Methods:** This cross sectional study was conducted at CWC, Malobika and Combined Military Hospital, Dhaka over a period of six months from July 2017 to December 2017. All under-five years old sick children of employed mothers of Bangladesh Armed Forces attended CWC Malobika and CMH, Dhaka were included in the study and mothers were the respondents. Total 130 children were selected purposively for the study. Data were analyzed by using SPSS (statistical package for social sciences), version 25.0. The level of significance was set at 5% and  $p < 0.05$  was considered statistically significant.

**Results:** Majority (92.3%) of the children was nutritionally normal in terms Mid Upper Arm Circumference (MUAC). Only 10(7.7%) children was malnourished; of them 6(4.6%) were severely malnourished and 4(3.1%) were moderately malnourished. In terms of Weight for Age Z score (WAZ) 3.1% were severe underweight and another 3.1% were moderate underweight. In terms of Height for Age Z score (HAZ), 5.4% were severely stunted and 6.2% were moderately stunted, while with respect to Weight for Height Z score (WHZ), 2.3% were severely wasted and 7.7% were moderately wasted.

**Conclusion:** Nutritional status in children of working mothers of Armed Forces at Dhaka Garrison was high compared to the national figure.

**Keywords:** Breast feeding, weaning, nutritional status.

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### INTRODUCTION

One of the world's poorest developing nations, Bangladesh is highly populated, with almost three-fifths of its citizens living below the poverty line. Infectious diseases and malnutrition are widespread in this community as a result of overpopulation, unemployment, poverty, and limited access to enough food and health services.<sup>1</sup> One of the misfortunes on human existence that affects millions of people globally is malnutrition.

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Only seven nations have a greater rate of childhood stunting than Bangladesh, which has one of the highest rates of childhood underweight among all of them.<sup>2</sup>

Malnutrition is a man-made disease of human societies. Malnutrition has both direct and indirect consequences on the community. The direct effect is occurrence of sub clinical nutritional disease and indirect effect are high morbidity and mortality among children, retarded physical and mental growth and development, lowered vitality of the people leading to lowered productivity and reduced life expectancy.<sup>3</sup> The consequences of malnutrition are diverse and include decreased quality of life, delayed wound healing, fatigue and weakness, increased mortality, length of hospital stay, risk of infection and other complications, rate of physicians visits, prescription rates, hospital admissions and need for nursing home admission or home healthcare; and lower rates of return to independent living.<sup>4-9</sup>

It is commonly acknowledged that a mother's employment level has a significant impact on her child's health and nutritional status.<sup>10</sup> Working outside the home is a typical way for low-income women to make a significant contribution to the family income. Evidence suggests that there is a detrimental impact on their children's nutritional state.<sup>11</sup>

The army population is a selective group of people in the country. They get better treatment facilities, rations and living conditions. Lack of knowledge of working mothers regarding the nutritive value of food, inadequate breast feeding, lack of knowledge about proper and adequate care, improper weaning and various social and cultural influences led to the development of various types of nutritional

deficiency diseases of their children. The present study enriched our knowledge about the prevalence of malnutrition among the under-five children of employed mothers attended Combined Military Hospital, Dhaka and CWC Malobika, Dhaka Cantonment.

## MATERIALS AND METHODS

This was a cross sectional study conducted at CWC, Malobika and Combined Military Hospital, Dhaka during the period of July 2017 to December 2017. All under-five years old sick children of employed mothers of Bangladesh Armed Forces attended CWC Malobika and CMH, Dhaka were included in the study and mothers were the respondents. Purposive sampling technique was used to include the required number of patients. Having obtained ethical clearance from the Armed Forces Medical Institute, Dhaka and obtaining informed written consent from mothers' of the patients, the data collections commenced. Weight for age Z-score (WAZ), Height for age Z-score (HAZ) and Weight for Height Z-score (WHZ) were calculated by using following formula:

WAZ = Less than or equal to -3.0: Severe underweight, WAZ = -2.0 to -2.99: Moderate underweight, WAZ = Greater than -2.0: Normal, HAZ = Less than or equal to -3.0: Severe stunted, HAZ = -2.0 to -2.99: Moderate stunted, HAZ = Greater than -2.0: Normal, WHZ = Less than or equal to -3.0: Severe wasted, WHZ = Greater than -2.0: Normal.

Data analysis were done using SPSS (statistical package for social sciences), version 25.0. The level of significance was set at 5% and  $p < 0.05$  was considered statistically significant.

**RESULTS**

The present study aimed at determining the nutritional status of under-five children of working mothers at Dhaka Garrison included a total of 130 children. Mothers of the participating children were the respondents. The nutritional status was measured in terms of weight for age, height for age and weight for height. The findings obtained from data analyses documented below:

Table-I: Distribution of the children by age (n=130)

Age(months)	Frequency	Percent
6-24	64	49.2
25-36	23	17.7
>36	43	33.1
Mean(±SD): 28.6±17.1 Range:6-59		

The mean(±SD) age of the children was 28.6±17.1 months with youngest and the oldest children being 6 and 59 months old respectively. The highest percentage (49.9%) of age group was 6 -24 months.

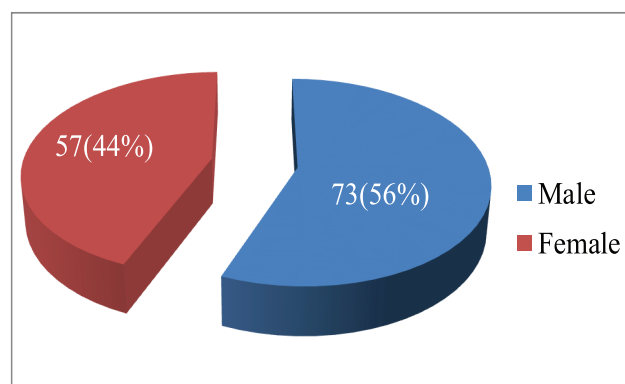


Fig-1: Distribution of children by sex (n=130)

Fig-1 depicts that maximum 73(56%) children were male.

Table-II: Demographic characteristics of the children (n=130)

Demographic characteristics	Frequency	Percent
<b>Religion of parents</b>		
Islam	119	91.5
Hindu and others	11	8.5
<b>Mothers' educational qualification</b>		
Primary & secondary	9	6.9
SSC	10	7.7
HSC and/or Diploma	39	30.0
Graduation and above	72	55.4
<b>Fathers' educational qualification</b>		
SSC	19	14.6
HSC	17	13.1
Graduate	83	63.8
Postgraduate	10	7.7
<b>Fathers' occupation</b>		
Government Service	47	36.2
Non-government service	61	46.9
Business	14	10.8
Others	8	6.2
<b>Monthly family income (Taka)</b>		
<40000	50	38.5
40000-50000	13	10.0
>50000	67	51.5
Mean±SD: 60000 ± 4500 Tk.		

Majority (91.5%) of the children belonged to Muslim family. Majority (55.4%) of the mothers were graduate. In terms of fathers education maximum (63.8%) were graduate, (46.9%) were non-government service holder and 51.5% respondents monthly family income were more than Tk. 50000 and mean±SD income was Tk. 60000 ± 4500.

Table-III: Child feeding practice of 6-24 months children

Feeding practice related variables	Frequency	Percent
Colostrum given	63	98.4
Exclusive breastfeeding (1 <sup>st</sup> 6 months)	14	21.9
Formula fed	37	57.8
Cow's milk	00	0.0
Weaning started at (months)		
Before 6 months	38	59.4
6 months	24	37.4
7-9 months	2	3.2
1 <sup>st</sup> weaning food (n =64)		
Khuchuri	19	29.7
Suzi	15	23.4
Cerelac	16	25.0
Soft rice	5	7.8
Egg	5	7.8
Fruit juice	2	3.1
Banana	2	3.1

Majority (98.4%) of the children was given colostrum. Nearly one quarter (21.9%) of the children was exclusively breastfed up to 1st 6 months, 57.8% were formula fed and none was fed with Cow's milk in addition to breast feeding. About 60% of the children were weaned before 6 months, 37.5% after completion of 6 months and only 3.2% between 7-9 months. First weaning food given to the babies was khichuri (29.7%), followed by suzi (23.4%) and cerelac (25%), soft-rice and egg (each 7.8%), fruit-juice (3.1%) and banana (3.1%).

Table-IV: Child feeding practice of 25-59 months children (n = 66)

Feeding practice related variables	Frequency	Percent
<b>Egg consumption (weekly)</b>		
3 - 4 days	8	11.1
5-7 days	58	88.9
<b>Fish consumption (weekly)</b>		
No	5	7.6
1-3 days	39	59.1
4-5 days	21	31.8
7 days	1	1.5
<b>Meat consumption (weekly)</b>		
2-4 days	50	75.8
5-6 days	10	15.1
7 days	6	9.1
<b>Milk consumption (weekly)</b>		
No	7	10.5
4 - 5 days	8	12.2
7 days	51	77.3
<b>Fruits (no of servings daily)</b>		
No	12	18.2
2-3	15	22.7
4-5	22	33.4
7	17	25.7
<b>Vegetables (weekly)</b>		
No	6	9.1
3-5 days	14	21.2
6-7 days	46	69.7

Nearly 90% of the children used to take egg 5-7 days in a week and 11.1% 3-4 days in a week. About 60% took fish 1-3 days and 31.8% 4-5 days in a week. Some 7.6% did not take fish at all. Over three-quarters (75.8%) have had meat 2-4 days in a week. Majority (77.3%) used to take milk 7 days in week. One-third (32.3%) took 4-5 servings of fruits in a day, 25.7% 7 servings and 22.7% 2-3 servings a day. About 70% of children used to have vegetables 6-7 days and 21.2% 3-5 days in a week and 9.1% do not take vegetables.

Table-V: Distribution of the children by their nutritional status (n =130)

Types of nutritional assessment (measures)	Frequency	Percent
<b>MUAC (cm)</b>		
< 11.5 (severe)	6	4.6
11.5 – 12.5 (moderate)	4	3.1
≥ 12.5 (normal)	120	92.3
<b>WAZ</b>		
< -3 (severe underweight)	4	3.1
-3.0 – <-2.0 (moderate underweight)	4	3.1
≥-2.0 (normal)	122	93.8
<b>HAZ</b>		
< -3 (severe stunted)	7	5.4
-3.0 – <-2.0 (moderate stunted)	8	6.2
≥-2.0 (mild & normal)	115	88.4
<b>WHZ</b>		
< -3 (severe wasting)	3	2.3
-3.0 – <-2.0 (moderate wasting)	10	7.7
≥-2.0 (mild & normal)	117	90.0

Majority (92.3%) of children was nutritionally normal in terms MUAC. Only 10(7.7%) children was malnourished; of them 6(4.6%) were severely malnourished and 4(3.1%) were moderately malnourished. In terms of WAZ 3.1% were severe underweight and another 3.1% were moderate underweight. In terms of HAZ, 5.4% were severely stunted and 6.2% were moderately stunted, while with respect to WHZ, 2.3% were severely wasted and 7.7% were moderately wasted.

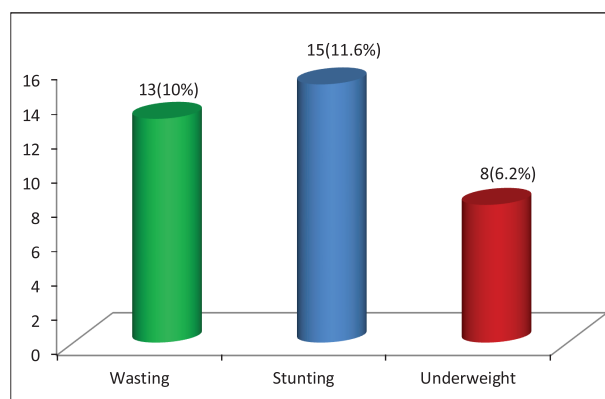


Fig-2: Distribution of children by under-weight, wasted and stunted (n = 130)

Fig-2 shows that most of the children were stunted.

### DISCUSSION

The mother's employment situation has a significant impact on the health and nutritional status of her child. Depending on whether and to what extent mothers work outside the home, it may affect the standard of the children's nutrition, care, and eventual physical and mental health. On the other hand, the additional income they bring into the household may help to ensure a stable supply of high quality food. Malnutrition leads to underweight, stunted, wasted growth. The purpose of this study is to assess the nutritional status of under-five children of working mothers in Dhaka garrison.

In this study the prevalence of different types of malnutrition were found to be 6.2%, 11.6% and 10% in terms of underweight, stunting and wasting respectively. Bangladesh Health and Demographic Survey 2014 reported prevalence of underweight, stunting and wasting among a cross-section of under-five population to be 33%, 36.2% and 15% respectively.<sup>12</sup> The reason of low prevalence of malnutrition in the present study might be that the study population was selected from a defined community (Armed

Forces Community) who, in true sense, does not represent a cross-section of all population both in rural and urban area. The selected population was economically solvent with mean monthly family income of Taka 60000/-. Besides this the population is provided with many social and economic facilities. So the low prevalence of malnutrition among under-five children of this population stands to reason.

In this study, the mean( $\pm$ SD) age of children was  $28.6 \pm 17.1$  months. Out of 130 children, 73 (56.2%) were male and 57(43.8%) were female. These findings are similar to the findings of another study conducted by Yazdani among children of Armed Forces personnel of Dhaka cantonment living with their parents.<sup>13</sup>

In the present study, although majority (94.6%) of the children was given colostrum, the rate of giving breast milk exclusively for 1st 6 months was only 23.1%, formula feeding 57.8%, weaning started before 6 months was 59.4%. A nutritional survey was conducted by Hossain et al to determine the duration of exclusive breast feeding in Bangladesh where the prevalence was 35.9%.<sup>14</sup> Another study conducted by Eshete et al where approximately 60% of the children were weaned before 6 months and 58% of the children started taking exclusive formula-feeding before 6 month. Eshete et al also demonstrated that two-thirds (66.7%) of the employed mothers started complementary feeding for their children at 6th month of age.<sup>15</sup>

In the present study about 90% of the children used to take egg 5-7 days in a week and 11.1% of the children 3-4 days in a week. About 60% took fish 1-3 days and 31.8% 4-5 days in a week. Some 7.6% did not take fish at all. Over three-quarters (75.8%) have had meat 2-4 days in a week. Majority (77.3%) used to take milk 7 days in week. One-third (32.3%) took 4-5 servings of fruits in a day, 25.7% 7 servings and 22.7% 2-3 servings a day. About 70% of

children used to have vegetables 6-7 days and 21.2% 3-5 days in a week and 9.1% didn't take vegetables. As they are getting adequate complementary food, so the rate of malnourished children is lower. A similar finding was also reported in a study carried out by Smith LC and Haddad LJ in 2000.<sup>16</sup>

## CONCLUSION

Summarizing from the findings of the study it is evident that nutritional status (in terms of underweight, stunting and wasting) in children of working mothers of Armed Forces at Dhaka Garrison is higher compared to the National statistics of our country.

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