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Feeding Pattern, Nutritional Status and Common Diseases of under 2 Years' Children in Outpatient Department of a Tertiary Care Hospital, Rajshahi, Bangladesh

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Abstract | **Original Research Article**

This was a descriptive study was conducted in the outpatient department of Rajshahi medical college hospital, Rajshahi, Bangladesh. From April 2017 to 2018 April. The main objective of the study was to observe the Feeding Pattern, Nutritional Status and Common Diseases of under 2 years' old children in outpatient department of a tertiary care hospital, Rajshahi, Bangladesh. For the study purpose 467 children were investigated to see the Nutritional Status and Common Diseases of under 2 years, where 52.03% are boys and 47.97% are girls. Mean age of the respondents are 12.62 months. Among them, 54.82 %(256) respondents received exclusive breastfeeding, 45.18 %(211) respondents no to exclusive breastfeeding. 61.24% of the respondents are from lower class, 23.98% from middle class and 14.78% from upper class. At the time of study, 68.52% continue breast feeding up to two years. 83.08 % respondents have claimed that they have fed their colostrum milk to their children. Moreover, 63.6% respondents have positive feedback on early initiation of breast milk within 1 hours. Initiation of breast milk within 1 hour 63.6% and after one hour 36.41%.. Type of complement feeding appropriate 42.82% and inappropriate 57.17%. Majority 89% of the studied children's mid arm circumference were >12.5cm which reflects their good nutritional status. Study shows, severe acute malnutrition (SAM) 3%, moderate acute malnutrition (MAM) 8 % and normal nutritional status 89%. The study recorded the frequency of some common diseases like Common Cold (61.24%), Pneumonia (21.2%), Diarrhoea (10.06%), Viral Fever (3.43%) and others (1.93%) among the study children. Nutritional status is improving in this study. Early initiation of breast feeding and exclusive breast feeding are also satisfactory but complementary feeding practice is not up to the satisfactory level.

Key Word: Nutritional status, Breastfeeding, Complementary feeding.

INTRODUCTION

Breast feeding plays an important role for the mental and physical development of the children. So in this study we tried to observe the frequency of breast feeding to the children. According to the 'Jean Piaget's theory of cognitive development' of children, among four steps of child`s development 'birth to 2 years' period is the first stage which is called Sensorimotor Stage [1]. In this stage the infant knows the world through their movements and sensations, learn about the world through basic actions such as sucking, grasping, looking, and listening; learn that things continue to exist even though they cannot be seen, separate several beings from the people and objects around them and they realize that their actions can cause things to happen in the world around them [2]. So this stage is considered as the most important stage for the physical and mental growth of children. In this stage, proper feeding plays the most vital role in their total development. 'Healthy feeding behaviors by infants and toddlers are needed for healthy growth as well as social, emotional, and cognitive development. This is a crucial time period because food preferences, dietary patterns, and the risk of obesity are rapidly [3]'. Noted that, as from birth to 6 months` period a child is basically depending on breast feeding so it is also a major part of this stage. Besides these, in this first 2 years` age children face some infectious and non-infectious diseases which may hamper their development of this Sensorimotor Stage. Some children suffer in malnutrition also which may cause repeated infection or

chronic illness. According to WHO, 'World-wide about 30% of children under five are stunted as a consequence of poor feeding and repeated infections [4]'. For the betterment of children health WHO recently set a guideline and recommends continue frequent, on-demand breastfeeding until 2 years of age or beyond of a child. Besides this, around the age of 6 months, an infant's need for energy and nutrients starts to exceed what is provided by breast milk, and complementary foods are necessary to meet those needs. Parents have to increase the number of times that the child is fed: 2–3 meals per day for infants 6–8 months of age and 3–4 meals per day for infants 9–23 months of age, with 1–2 additional snacks as required and during illness, increase fluid intake including more breastfeeding, and offer soft, favorite foods [5]. To ensure the status of complementary feed introduction after 6 months of age of the toddles we collected some data regarding the introducing months. We collected those on 7th, before 6 months and after seven month basis. There are some relation between complementary feeds and diseases. The following three indices are commonly used in assessing the nutritional status of children: First one is 'Length-for-age or Height-for-age'. The second one is 'Weight-for-length or Weight-for-height' and the third is 'Weight-for-age'. The above three indices are used to identify three nutritional conditions such as (i) Stunting (low height for age), (ii) Wasting (low weight for height) and (iii) Underweight (low weight for age). Stunting is an indicator of past growth failure. It is associated with a number of long-term factors including chronic insufficient protein and energy intake, frequent infection, sustained inappropriate feeding practices and poverty. Wasting describes current nutritional status or short-term changes in nutritional status. This index helps to identify children suffering from current or acute malnutrition [6]. Underweight, based on weight-for-age, is a composite measure of stunting and wasting and is recommended as the indicator to assess changes in the magnitude of malnutrition over time. Anthropometric indicators may be developed based on an internal standard within a specific study, from a local growth reference, or from the international growth reference. Irrespective of the reference population used, an anthropometric indicator provides a measure of an individual's growth status in relation to the reference median, expressed either as a percentile, a percentage of the reference median, or as a proportion of the standard deviation often referred to as a Z score. The use of a reference population makes it possible to compare the growth status of children of different ages and makes it feasible to assess anthropometric status in population studies and in surveillance programs. The nutritional status of children in the survey population is compared with the World Health Organization (WHO) Child Growth Standards, which are based on an international sample (from Brazil, Ghana, India, Norway, Oman, and the United States) of ethnically, culturally, and genetically diverse healthy children living under optimum conditions conducive to achieving a child's full genetic growth potential. The Z-score or Standard deviation (SD) is defined as the difference between the value for an individual and the median value of the reference population for the same age or height, divided by the standard deviation of the reference population. In measuring nutritional status we took 100 samples on first come first selection basis. During the study we found some diseases as common for the babies such as common cold, diarrhea and pneumonia .There are some studies regarding those diseases and disorders. Toddler's diarrhea is also known as chronic nonspecific diarrhea of childhood, and it affects children from 6 months to 5 years of age. Children with toddler's diarrhea will have 3-10 loose stools per day [7]. There are lots of studies regarding nutritional status of under 2 children in Bangladesh ,overall scenario is not so standard but behind this which factors are related is not reflected properly. Children are suffering lots of diseases and attending outpatient department of medical college regularly, we do not have enough data regarding their nutritional status in association with common diseases and breast feeding pattern in early childhood. In this study an attempt will be done to correlate all of these issues under a same umbrella.

OBJECTIVES

- **General objective**
  - To evaluate feeding pattern, nutritional status and common diseases in children under two years in Bangladesh.

- **Specific objectives**
  - To evaluate feeding practices among under two year's children in Bangladesh.
  - To assess the common diseases among under two year's children in Bangladesh.

METHODOLOGY AND MATERIALS

It was a descriptive study was conducted in Rajshahi Medical College Hospital, Rajshahi, Bangladesh during the period from April 2017 to April 2018. The aim of the study was to evaluate the feeding pattern, nutritional status and common diseases of fewer than two years of children attending at outpatient department of Rajshahi Medical College Hospital. The total number of children was 467. Data were collected via standard questionnaire, mother interview and anthropometric measurements such as- weight, height, MUAC and dietary history of both mother and children. Data was coded and entered into a computer database, summarized and presented descriptively. Z-scores were calculated for height-for-age (H/A), weight–for–height (W/H) and weight-for-age (W/A) using Epi-Info software. Prevalence of stunting, wasting and underweight was determined using<-3 to <-2 and <-3 of H/A, W/H and W/A, respectively of the National Centre for Health Statistics (NCHS) reference standards. The figures therefore represent malnutrition, prevalence and frequency of several diseases in each category.

Relationships among nutritional variables, birth weight and parental education etc. were analyzed using Spearman's Chi square test using SPSS software. To evaluate the full required tenure we collected data from the hospital register also. In measuring nutritional status we took 100 samples on first come first selection basis.

- **Inclusion Criteria**
  - Mothers who already delivered their baby and those with a child who is below 2 years old were considered in this survey.
- **Exclusion Criteria**
  - Mothers having a child with any kind of malformations, chronic diseases and mothers with children who are above 2 years old.

RESULTS

Data analysis from the study, those 467 children aged under 2 years of age where 52.03% are boys and 47.97% are girls. Mean age of the respondents are 12.62 months. 61.24% of the respondents are from lower class, 23.98% from middle class and 14.78% from upper class. Among 467 respondents, 60.81% have monthly income less than 10000 BDT, 24.2% have monthly 10-20 thousand and 15% have monthly more than 20,000 BDT. Initiation of breast milk within 1 hour 63.6% and after one hour 36.41%. Continued breast feeding positive 83.3% and negative 16.70%. Exclusive Breast feeding Up to 6 Months 54.82%, Continued Breast feeding Up to 2 Years 68.52% and not Breastfed 6.85%. Wearing practice 60.6% respondents have completed at the proper time of weaning (6-7 months). Before 6 months 21.2% & After 7 months 18.2%. Type of complement feeding appropriate 42.82% and inappropriate 57.17%. During data collection, 96.79% have normal physical conditions. As per National Guideline of definition of SAM (Severe Acute Malnutrition) and our selective sample, Mid Upper Arm Circumference (MUAC) measure <11.5 cm indicates severe acute malnutrition, measure >11.5 to <12.5 cm indicates moderate acute malnutrition and measure >12.5 cm indicates normal with other conditions. Among the respondents MUAC, only 3% less than 11.5 cm 8 % >11.5 to <12.5 cm and others 89% seems to be normal. We have recorded the frequency of some common diseases and disorder in this study. In this study we found, 286 (61.24), 47 (10.06%), 99 (21.2%), 10 (2.14%) and 16 (3.43%), 9 (1.93) suffered at least one time from common cold, diarrhea, pneumonia, Dysentery, Viral fever & others respectively. The study suggested that children who continuously exclusive breastfeeding and complementary feeding, they have improved nutritional status as well as they have protected.

Table-I: Socio-demographic pattern of study children. (n=467)

Indictors	n	%	Cum.
Sex			
Male	243	52.03%	52.03426
Female	224	47.97%	47.96574
Socio-economic status			
Lowest class	286	61.24	61.24
Middle class	112	23.98	85.22
Upper class	69	14.78	100
Monthly Income			
10-20000	113	24.197	24.197
10000	284	60.81	85.007
20000	70	14.99	100
Total	467	100%	100

Table-II: Distribution of initiation of breast milk, breast feeding pattern, time of wearing practice and complementary feeding of the children (n=467)

	n	%
Initiation of breast milk		
Within 1 hour	297	63.60
After 1 hour	170	36.41
Total	467	100
Exclusive Breast feeding Up to 6 Months		
Yes	256	54.82
No	211	45.18
Continued Breast feeding Up to 2 Years		
Yes	320	68.52
No	147	31.47
Not Breast feeding	32	6.85
Time of wearing practice		
	283	60.60
6-7 months	99	21.20
Before 6 months	85	18.20
After 7 months	467	100
Type of complement feeding		
Appropriate	200	42.82
Inappropriate	267	57.17
Total	467	100

Table-III: Frequency distribution of the child by mid-arm circumference. (n=467)

Mid-arm circumference	n	%
<11.5 cm (Red)	14	3.00
11.5- 12.5 cm (Yellow)	37	8.00
>12.5 cm (Green)	415	89.0
Total	467	100.0

Table-IV: Disease pattern of the study children. (n=467)

Type of illness	Freq.	Percent	Cum.
Common cold	286	61.24	61.24
Pneumonia	99	21.2	82.44
Diarrhea	47	10.06	92.51
Dysentery	10	2.14	93.36
Viral Fever	16	3.43	96.79
Others	9	1.93	98.72
Total	467	100	

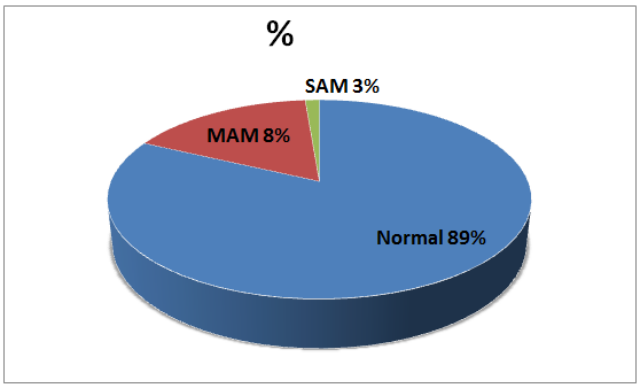

Fig-I: Nutritional Status (NS) of participants (n=467)

Here MAM means moderate acute malnutrition, SAM means severe acute malnutrition, p=0.0046 (p≤0.05); Significant

DISCUSSION

The total number of children was 467. In our study we found 297(63.6%) initiate breast milk within 1hour and the remaining 170(36.41%) initiate after 1hour of birth, which higher than the rate (45%) in a study by Akhtar K. Haque ME *et al*. [8,9] and report 2014. Early initiation of breast feeding was more common in infant delivery by normal vaginal delivery (72%) than infant delivery by caesarian section (68.2%). It can be compared with the rate found by Aparajita D, Sourav N *et al*. [10] where early initiation was nil in case of caesarian section. After that, we found 256 (54.82%) babies up to 6 months and 192 (41.11%) babies up to 1 years got breastfeeding. We got 32 (6.85%) babies who did not take breastfeed at all. This is dissimilar to another study of Bangladesh. On that study they showed a reference of WHO of 2007. They claimed, 'In Bangladesh, only 43 per cent of infants were exclusively breastfed up to 6 months [11]. It indicates, the situation of breast feeding to the toddles is developing. Another study, According to Bangladesh demographic and health survey, 2014[12], Exclusive breast feeding 55% up to 6 months is nearly similar to our study. In these study 60.6% children were introduced complimentary food at appropriation age (6 month completed) early weaning practice before 6 month of age was 21.2% and 18.2% children were introduced complementary feeding after completion of seven months of age. A study by Salim M, Mita SA *et al*. [13] rural Bangladesh found 24% children had weaning at appropriate time where early weaning was prominent 50.4%. About 42.82% children start complementary feeding appropriately where as 57.17% fed inappropriately. They took only suji, rice grual, cow's milk other than any protein food. According to [12], children age 6-23 months are fed appropriately according to recommended IYCF practice are 21% and 23%. About malnutrition: among the respondents we found, only 3% less than 11.5 cm 8% >11.5 to <12.5 cm and others 89% seems to be normal. This indicates now a day in Bangladesh malnutrition problem is not a burning issue at least for toddles. During the study we found some diseases as common for the babies such as common cold, diarrhea and pneumonia. There are some studies regarding those diseases and disorders. Toddler's diarrhea is also known as chronic nonspecific diarrhea of childhood, and it affects children from 6 months to 5 years of age. Children with toddler's diarrhea will have 3-10 loose stools per day [7]. In this study we found, 286 (61.24), 47 (10.06%), 99 (21.2%), 10 (2.14%) and 16 (3.43%), 9 (1.93) suffered at least one time from common cold, diarrhea, pneumonia, Dysentery, Viral fever & others respectively. It indicates we should ensure more concentration on some infectious diseases like diarrhea and pneumonia for the betterment of toddles health. Although the breast

feeding situation is not alarming but we will have to ensure it within the shortest possible time after baby's birth. In this arena developed countries are also to the beyond than necessity. Breastfeeding is positively related to the socioeconomic status in most developed countries, but there is an inverse relation in developing countries [14]. Besides we will have to work more to maximize the period of breast feeding. Breastfeeding is of considerable importance in the context of childhood nutrition. Nutritional requirements of an infant can be obtained solely from breast milk for the first six months of life [15] . About malnutrition although we did not found any alarming things but according to other studies we should care more. In a study they claimed '13 million children under age 5 years have SAM, and the disorder is associated with 1 million to 2 million preventable child deaths each year [16]'. In another study they claimed, Malnutrition is a major public-health problem throughout the developing world and is an underlying factor in over 50% of the 10–11 million children under 5 years of age who die each year of preventable causes [17, 18]. This study was conducted within a tiny area. So we think we should arrange more related study in more places to know more about these factors.

LIMITATIONS OF THE STUDY

This was a descriptive study in a single community with comparatively small number of sample size. So, the study result may not reflect the exact scenarios of the whole country.

CONCLUSION AND RECOMMENDATIONS

Results show decreased trend of under nutrition in the study population. Despite improving trend of nutrition states, still under neutrinos in young children must be considered as a public problem because of its major effect on morbidity and mortality of children and improvement of intellectual and physical development in long term. Regarding Feeding Pattern early initiation of breast feeding and exclusive breast feeding is satisfactory among study group. But complementary feeding practice is not satisfactory. Three is lack of knowledge about the type of complementary feeding. Most of the mother/caregiver practice inappropriate complementary feeding which is not in satisfactory level.

- Awareness on child health is considered as the basic awareness of national health. It was a descriptive study with multifactor. So our recommendations to conduct more study on specific factor which will helpful to all together more knowledge about toddler health problem.
- The necessity of regular arrangement of community neutrino and public health intervention program to increase proper health practice such as early initiation of colostrum feeding, exclusive breast feeding up to six months of child age, weaning practices, knowledge about nutritional value of food and nutritional deficiency disease.
- Extra attention should be provided by the ministry of health toward awareness building programs about child care and feeding practices which must be included in antenatal care, postnatal care and also during well baby visit to convey the right message about proper feeding practice.

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