



ORIGINAL RESEARCH PAPER

Nutritional Science

IMPACT OF COLOSTRUM AND EXCLUSIVE BREAST FEEDING PRACTICE ON HEALTH AMONG UNDER TWO YEARS CHILDREN IN THE RURAL AREAS OF BANGLADESH

KEY WORDS: Colostrum, Exclusive Breast Feeding, Underweight, and Stunting

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ABSTRACT

The feeding practices during infancy are of critical importance for the growth and development of children. Recent studies have reported that wrong feeding practices are widely prevalent in the rural area. With this background, A cross sectional study was carried out to determine infant feeding practices and nutritional status of under-2 year's children. The study variables were mother's occupation, education, sex and age of the baby, colostrum feeding, breast feeding and weaning practices. Most of the Respondents were little bit literate but 23% were totally illiterate. Almost 99% respondents were housewife. However, 67% respondent have the knowledge on colostrum but only 30 respondents started breast feeding within one hour after birth. Only 40% respondent provided exclusive breast feeding for six months or above and 20% mother initiate extra food from one month. Using the indicator weight for age (W/A-Z score) and height for age (H/A-Z score) the growth performance of the children was measured. About 21.0%, 10.5% and 20.0% of the children were severely (-3 SD), moderately and mildly underweight respectively. The prevalence of severe stunting (<-3 SD) were found to be 39.0%, while the prevalence of moderate, mild stunting and well-nourished were 22.0%, 15.0% and 24.0% respectively. About 81% colostrum feeding and 80% exclusively breast feeder babies were well nourished. The P value of the correlation between colostrum feeding and under nutrition status of the children was 0.001, between colostrum feeding and stunting status was 0.003.

1. INTRODUCTION

Although the living condition has developed tremendously in Bangladesh recently, still the country is thriving to improve health and nutrition status of rural children (Aftab et al., 2017). Infant feeding practices is a strong determinant of child health and nutrition (Sankar et al. and Katepa-Bwalya et al., 2015). Despite having considerable literacy rate, many people are unconscious about their health even many of them have no enough knowledge about the colostrum and exclusive breast feeding and its benefits to the children. Moreover, they have no idea about appropriate weaning practices.

Colostrum is a form of milk produced by the mammary glands of mammals in late pregnancy and just after birth. It contains antibodies such as IgA, IgG, and IgM to protect the newborn against disease (Sangild, 2017). Colostrum is very rich in proteins, vitamin A, and sodium chloride. The most pertinent bioactive components in colostrum are growth factors and antimicrobial factors. The antibodies in colostrum provide passive immunity, while growth factors stimulate the development of the gut (Lee et al., 2015). They are passed to the neonate and provide the first protection against pathogens. Maximum mother of the rural areas has no enough knowledge about the appropriate initiation of breast feeding and how long it should be continued without any supplements to ensure good health of the children. Making delay in initiating breastfeeding increases the risk of postnatal death (Edmond et al., 2006).

Breast milk is uniquely superior for infant feeding. It has just the right amount of fat, sugar, water, and protein that is needed for a baby's growth and development. Exclusive breastfeeding is defined as "an infant's consumption of human milk with no supplementation of any type (no water, no juice, formula milk, market milk etc.) except vitamins, minerals, and medications. National and international guidelines recommend that all infants be breastfed exclusively for the first six months of life (WHO, 2001). Exclusive breastfeeding appears to have many benefits to the children including stronger immunity which has been proven by expertise research but very few people are feeding their children exclusively (Haider et al., 2000). According to Kramer et al. (2004), infants who are exclusively breastfed for 6 months showed less

morbidity from gastrointestinal tract infection than infants who started other foods from 3 or 4 months of age.

Though government is integrating different program to promote breast feeding, the rural people is still not practicing proper feeding practice. As a result, most of under-five rural children are suffering from different infectious diseases and nutritional deficiencies (Rayhan and Khan, 2006). Therefore, it is necessary to determine the exact scenario of infant feeding practices in the rural areas of Bangladesh to design an efficient program which can promote breast feeding practices. Thus, it was intended to exaggerate information about colostrum and infant feeding practice and their impact on the nutritional status of less than two years children so that appropriate strategy can be taken to prevent child malnutrition.

2. MATERIAL AND METHODOLOGY

2.1. Type of Study

A cross sectional study was carried out to determine infant feeding practices and nutritional status of under-2 year's children in the Rural Areas of Tangail District, Bangladesh.

2.2. Basis for Selection of Study Place

The place was well communicated from the university where the study was performed. The rural areas were good representative of rural Bangladesh. They were committed to give full cooperation to conduct this study. The authorities of the areas were well known about the study and its implication.

2.3. Study population and Sample size

The study population was considered the mothers who have under 2 years aged children of rural areas in Tangail of Bangladesh. Among 500 households, 100 households were randomly selected for the study. A total 100 mothers were interviewed, and their children were examined to collect anthropometric data.

2.4. Data collection

A pre-coded well-designed questionnaire was developed to obtain relevant information from the respondents regarding socio-demographic status, health condition of children, feeding pattern, etc. The questionnaire was pre-tested before finalization. Finally,

the children of the respondent were measured for anthropometric indices.

2.5. Nutritional assessment

Anthropometric indices (age, weight and height) were used to evaluate the nutritional status of the children. For measurement of height, the child stood erect, without shoes touching the vertical board and looking straight ahead. Height was recorded to the nearest 0.1 cm. Body weight was measured on a leveled platform scale. The child, in minimum clothing and without shoes, stood with weight evenly distributed on both feet. Weight was recorded to the nearest 100 g. Both the measurements were taken by trained personnel and same instruments were used to reduce measurement errors.

2.6. Data Analysis

All the data were transferred in SPSS (statistical package for social science) and analyzed according to objectives. In the computation of indicators of malnutrition i.e. stunting, wasting and underweight, the reference population defined by the World Health Organization (WHO) of the United States was used, as local reference standards are not available. The procedure of transforming the anthropometric data into Standard Deviation scores (SD) usually mentioned as Z - scores was adopted. The cut-off points used for the indicators are, (-1 to -1.99) SD for mild state, “(-2, -2.99)” SD for moderate and “-3SD and below” for severe state .

3. RESULTS AND DISCUSSION

Almost all the people are well known about the benefits of breast feeding. It is a common practice among Bangladeshi people. Even the rural people are more habituated to breast feeding than urban. But the rural people have not proper knowledge about the initiation time of feeding and the duration of breast feeding. Figure 1 showed that 67% respondent had knowledge about colostrum and 33% did not have knowledge about colostrum though the literacy rate appreciable (Richards and Islam, 2018). Some rural people know about the colostrum or first milk, but they do not use this milk to feed their infants because of yellowish color. Though 67% rural people know about the benefits of colostrum feeding but they do not know when to start to feed it.

About 65% of the studied children were given colostrum within 5 hours of birth and 5% of them were started within 1 hour (figure 2). By 30 hours of birth 18% of children were also given colostrum whereas 17% of the children were not given colostrum. It could be due to have some taboos or misconception in the rural areas. Still many people think that it is harmful substances and should be discarded. Sometimes the women are forced not to initiate colostrum feeding by their relatives even if they wish to feed their children (Odent, 2011). There was an study indicated that, only 36% women practiced colostrum feeding though 92% women were well known about the benefits of it to the newborn (Joshi et al., 2012). Rizvi, 2010 studied a number of women and said that almost 30% of the infants were started feeding within 24 hours of birth and about half of this group started breastfeeding within 12 hours after delivery.

Though breast feeding is a common practice in the rural areas, only 28% of the children were given exclusive breast feeding for 5-6 month whereas 6% of the children were not given breast feed (figure 3). The people said that they were seriously injured or breast milk was not available to feed their infant due to sickness or surgery. About 40% infants were given only breast feed for 3-4 months and 13% of infants were given less than 2 months though WHO guidelines recommend exclusive breast feeding for six months (WHO, 2011). Hackett et al. (2015) observed that many of the young mothers are not aware about appropriate feeding practices even they do not know when to start breast feeding.

Nutritional status of the children according to weight for age was assessed. The study showed that about 34 out of 100 children was nutritional well-nourished whereas 66% was malnourished (table 1). About 12 children were found to be overweight and 54 children were underweight where 22 children were severely underweight. There were some children were overweight, it could be due to feeding formula milk or introducing excess food

early to the children (Rahman et al., 2015). There is a strong correlation ($P < 0.001$) exists between undernutrition and non-colostrum feeding children. It has also been observed that a strong relation also existed between undernutrition and exclusive breastfeeding children ($P < 0.002$). According to height for age about 24% of the children was well nourished whereas 76% were stunted even 39% were severe stunting (table 2) which showed an alarming situation of rural areas. There was also a relation between colostrum feeding and stunting status ($P < .003$). Gandhi et al. (2014) studied and observed that there is a strong association between malnutrition, perinatal care and infant feeding practice. Early cessation of breast feeding, delayed initiation, deprivation from colostrum, and improper weaning practices play a vital role for undernutrition among infants and children (Kumar et al., 2006). Ruel and Menon (2002) studied the health outcomes of children and infant feeding practices. They also observed that infant feeding practices have strong impact on the stunting status of the children.

The study showed the children were suffered from different diseases including cold, fever, diarrhea, pneumonia, skin disease etc. About 63% of the studied children were suffered from cold and fever and 21 % of the children were suffered from fever, 8% were suffered from cold, fever and diarrhea (table 3). Very few children were suffered from all the above diseases. It was also observed that almost all the children who were not given colostrum and exclusive breast feed, were suffered from disease. About 78% of non-exclusive breast feeding and 90% non-colostrum feeding children were having disease (table 6). It could be due to weaker immunity. Colostrum helps to make stronger immunity among infants and children to avoid diseases and infections. Hua et al. (2016) said that colostrum feeding may have potential protective effects to the infants from different infection during the first 4 months of life.

The study also showed a comparison of nutritional status. Only 18.59% children of colostrum feeding group were malnourished whilst around 85% children who were not given colostrum, were malnourished (table 4). Although few children of non-colostrum feeding group are well nourished but it is very alarming compared to colostrum feeding group. On the other hand, the same picture also observed among non-exclusive breast feeding children. Table 5 showed that about 66% of non-exclusive breast feeding children were malnourished whereas only 20% of the exclusive breast feeding children was malnourished. The nutritional status of the children is strongly associated with infant feeding practice (Ruel and Menon, 2002). Ramji (2009) studied the nutritional status of children in India and reported that persistent under nutrition among children is prevalent and caused by inadequate feeding practices.

4. CONCLUSION

Improvement in infant feeding practices specially colostrum and exclusively breast feeding practice could have progressive impact on the child nutrition status. This study will help to realize the exact picture of infant feeding practices in the rural area of Bangladesh which will help decision makers to develop new intervention. Though the rural mothers are not educated and financially solvent enough, they have appreciable knowledge, attitude and beliefs about infant feeding practices and health of children. Therefore it is necessary to take community based intervention about nutrition education, infant feeding practice and initiation of breast feeding targeting the rural mothers for promoting infant feeding practices.

5. TABLES AND FIGURES

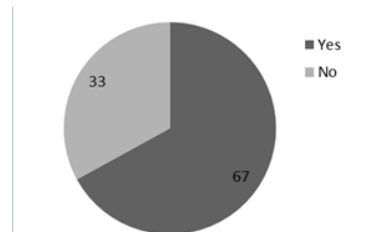


Figure 1: The percentage of respondent has knowledge about colostrum feeding

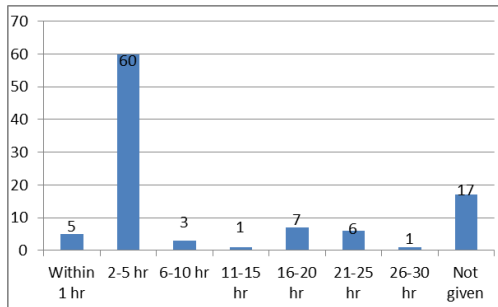


Figure 2: percentage of children was given colostrum

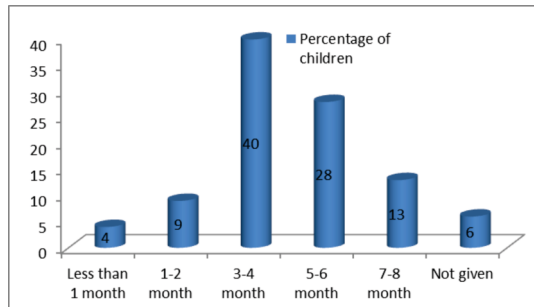


Figure 3: Duration of exclusive breast feeding in month

Age category	Normal	Severe underweight	Moderate underweight	Mild underweight	Overweight
1-4 month	4	2	3	1	1
5-8 month	2	10	2	3	2
9-12 month	9	6	3	5	2
13-16 month	3	2	0	4	2
17-20 month	9	1	2	1	3
21-24 month	7	1	1	7	2
Total children	34	22	11	21	12

Table 2: Nutritional status of the studied children (< 2 years) according to height for age

Age category	Normal	Severe stunting	Moderate stunting	Mild stunting
1-4 month	2	5	4	0
5-8 month	0	12	5	2
9-12 month	7	11	5	2
13-16 month	2	3	2	4
17-20 month	7	5	2	2
21-24 month	6	3	4	5
Total children	24	39	22	15

Table 3: Types of disease occurred in children

Types of disease	Percentage (%) of children
Cold, fever, diarrhoea, pneumonia, skin disease	3
Cold, fever, diarrhoea, pneumonia,	5
Cold, fever, diarrhoea,	8
Cold, fever,	63
fever,	21
Total	100

Table 4: Comparison of nutritional status between colostrum feeding and non-colostrum feeding children.

Colostrum feeding children ^a			Non-colostrum feeding children ^b		
Total	Normal (%)	Malnourished (%)	Total	Normal (%)	Malnourished (%)
81	66 (81.41)	15 (18.59)	19	3 (15.79)	16 (84.21)

^a and ^b denotes a significant difference

Table 5: Comparison of nutritional status between exclusive breast feeding (6 months) and non-exclusive breast feeding children.

Exclusive breast feeding children ^a			Non-exclusive breast feeding children ^b		
Total	Normal (%)	Malnourished (%)	Total	Normal (%)	Malnourished (%)
40	32 (32)	8 (20.00)	60	14 (34.29)	46 (65.71)

^a and ^b denotes a significant difference

Table 6: Health condition of non-colostrum feeding and non-exclusive breast feeding children

Non-colostrum feeding children			Non-exclusive breast feeding children		
Total	Disease free (%)	Diseased child (%)	Total	Disease free (%)	Diseased child (%)
19	2 (10.53)	17 (89.47)	60	6 (22.86)	54 (77.14)

6. References

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