Abstract:

Optimal growth and development of a child depends mostly on proper breastfeeding and complementary feeding practices. However, many children yet suffer from malnutrition and the recommended practices of complementary feeding have yet not been established among the majority of the population. In this observational study, we looked for the causes behind the improper complementary feeding practices among the mothers attending the outdoor and indoor units of the Department of Pediatrics, Faridpur Medical College Hospital, Faridpur, Bangladesh, from January 2018 to January 2019. A total of 447 mothers were interviewed regarding their complementary feeding practices and data were analyzed to find out the demographic and social influences. The majority of the respondents were between the age group of 21-25 years (54%). Thirty five percent were illiterate, 60% were from the rural area, 78% were housewives, 64% came from a nuclear family, and 87% had a monthly family income of 5000-20000. Most of the deliveries were conducted at home (58%) and the most common source of feeding related information was healthcare workers (66%). Only 41% of the mothers started complementary feeding at the age of 6 months. The most common complementary food was Suji, 60% of them lacked the knowledge of food preparation and 35% of them practice forceful feeding to the children. The promotion of proper complementary feeding needs to be ensured to achieve the children's catch-up growth and development.

Key words: Complementary feeding, Malnutrition, Feeding practice, Child growth.

Introduction:

Complementary feeding is accustoming the infant to nourishment by a gradual introduction of food other than breast milk or breast milk substitute. In a recommended practice, infants should get exclusive breastfeeding for the first six months of their life. After that, a transition from breast milk to safe and nutritionally adequate complementary foods are necessary to meet their increased nutritional requirements. The World Health Organization (WHO) and United Nations Children's Fund (UNICEF) recommends introducing energy-dense, easy-to-digest solid and semisolid foods that are typically prepared at home such as mashed rice with Dal, Khichuri, vegetables, egg, fish, mango, banana and others. Complementary foods made with home ingredients help the child to be accustomed to the family food items. Adequate quantity and appropriate quality of supplementary foods and recommended breastfeeding are necessary for proper nutritional support of the children aged 6-24 months. Poor nutritional quality of food during this period may lead to nutritional deprivation and make the children prone to diarrhea, respiratory illness and various long-term conditions such as malnutrition, kwashiorkor and other diseases.

Nowadays, commercially available weaning foods are being marketed aggressively. They offer no advantage over the home-made complementary foods and are very expensive for a vast majority of the population. Most of the time, their expense lead to over dilution and consequent malnutrition.

UNICEF estimates that approximately 28% of the children in Bangladesh under five years are malnourished. Inappropriate feeding practice of the infant and young child is one of the leading underlying causes of malnutrition.
The complementary feeding process shows cultural variation. In India and Bangladesh, many families introduce semisolid food and are associated with a religious ceremony known as "ANNA PRASHANA" held around six months of age. Nationally, Bangladesh Breastfeeding Foundation (BBF) and UNICEF have been supporting the Baby-Friendly Hospital Initiative (BFHI) to improve infants and young child feeding practices. Moreover, different national plans, policies and activities have been taken to ensure proper breastfeeding and complementary feeding practices. Nevertheless, various surveys report that the recommended practice of childhood feeding is not yet achieved for most of the population.

In this study, we analyzed the present status of complementary feeding by assessing the community's complementary feeding practices, exploring the foods being used for complementary feeding and determining the factors behind improper complementary feeding.

Materials and Methods:

This observational study was conducted at the Department of Pediatrics of Faridpur Medical College Hospital, Bangladesh, from January 2018 to January 2019.

Mothers who came to the outdoor and indoor unit of the Department of Pediatrics, Faridpur Medical College Hospital to treat their children aged from six months to 2 years were interviewed through a pre-tested structured questionnaire. Written informed consent were taken from the mother of the participants prior to interview. The questionnaire contained questions related to the starting time of the complementary feeding, number of meals per day, problems regarding complementary food preparation and factors behind improper complementary feeding.

Data were analyzed using GraphPad Prism version 8.4.0 for Mac (GraphPad Software, San Diego, California, USA). Qualitative data were described in the form of the number of cases and percentages.

Results:

A total of 447 mothers were included in the study. Most of them (54%) were in the age group of 21-25 years. More than one-third of them (35%) were illiterate, and 60% were from rural areas. Seventy eight percent of the participants were housewives and 64% of them lived in a nuclear family. The majority of the participants (47%) had a monthly family income of 5000-10000 Taka (Table I).

Table I: Demography characteristics of the mothers

| Variables          | Number | Percentage |
|--------------------|--------|------------|
| Age (years)       |        |            |
| <18                | 22     | 4.9        |
| 18-20              | 55     | 12.3       |
| 21-25              | 243    | 54.4       |
| 26-30              | 88     | 19.7       |
| 31-35              | 31     | 6.9        |
| >35                | 8      | 1.8        |
| Educational status|        |            |
| Illiterate         | 156    | 34.9       |
| Class V or less    | 223    | 49.9       |
| Class VI-IX        | 58     | 13.0       |
| Class X or more    | 10     | 2.2        |
| Residence          |        |            |
| Rural              | 267    | 59.7       |
| Urban              | 180    | 40.3       |
| Occupation         |        |            |
| Housewife          | 347    | 77.6       |
| Others             | 100    | 22.4       |
| Types of family    |        |            |
| Nuclear            | 288    | 64.4       |
| Joint              | 151    | 33.8       |
| Expanded family    | 8      | 1.8        |
| Monthly family income|    |            |
| <5000 Tk.          | 8      | 1.8        |
| 5000-10000 Tk.     | 208    | 46.5       |
| 11000-20000 Tk.    | 179    | 40.0       |
| 21000-30000 Tk.    | 32     | 7.2        |
| >30000 Tk.         | 20     | 4.5        |

Table II: Distribution of child by age and sex

| Variables      | Number | Frequency |
|----------------|--------|-----------|
| Age (months)   |        |           |
| 6-12           | 288    | 64.4      |
| 13-24          | 159    | 35.6      |
| Sex            |        |           |
| Male           | 221    | 49.4      |
| Female         | 226    | 50.6      |

Table III shows that more than half (58%) of the babies were delivered at home. On the other hand, most of the (66%) mothers got feeding information from the health workers.

Regarding the complementary feeding, 28% of them lacked proper knowledge of complementary feeding, more than half (54%) lacked knowledge of preparation of complementary feed, and 20% of them did not maintain proper hygiene during the food preparation. Thirty nine percent of them used family food as complementary feeding and 82% continued breastfeeding during complementary feeding. Among them, 31% feeds more than four times a day and 35% feeds forcefully to the child (Table IV).
Discussion:

Feeding practice during the early ages of an infant is one of the main determinants of a child's nutritional status and optimal growth. The ideal practice of breastfeeding and complementary feeding maximizes the chances of proper growth and development. In early childhood, poor feeding practice may lead to malnutrition and impaired physical and mental development, which is a significant threat to the economic and social development of a society14.

In our study, most of the participants (54%) were from the age group of 21-25 years and a large number of them (35%) were illiterate. It has been previously established that the mother's education is directly related to her child-raising activities, including the feeding practices15. However, only 2.2% of the participants in our study have completed secondary schooling.

Although the government has taken many initiatives for delivery at health facilities, 58% of our study respondents had delivered at home. Unless the institutional delivery could be ensured, proper exclusive breastfeeding counseling and complementary feeding counseling by the expert healthcare workers will be hampered16. Furthermore, the chance of improper feeding knowledge from the outside environment could not be minimized. In our study, however, 66% of the participants got the feeding information from the healthcare workers. In this regard, only 7.4% of the participants could recall the feeding information from mass media. This could be a result of countless TV and radio channels that rarely circulate any informative program regarding proper feeding practices17,18.

Most of the participants in our study were housewives (78%), were from rural areas (60%) and belonged to a nuclear family (64%). Previous studies have found that urban mothers have more access to accurate information on child feeding but less time to implement them, whereas rural women have more time to recognize the children's appetite cues but have minimal access to proper feeding information19.

Also, 11% of the participants started complementary feeding earlier than the sixth months, and most of them (48%) were late to start complementary feeding. Even 10.5% of the children had their first complimentary food a year after their birth in our study.

Among the food items, Suji was the most given complementary food. It also complements another
finding that more than half (54%) of the participants had a lack of knowledge of properly preparing the complimentary food for the children. As Suji is mostly primed carbohydrate, baby lacks protein and micronutrients and suffer from malnutrition, anemia and other deficiency related problems. It is alarming that the children will still get malnourished without the proper nutritional value of the complementary foods. However, around 40% of the participants were using family food as complimentary food in our study. It is essential to introduce the children to family food early, making them accustomed to family food items. Our study also found that 34.9% of the participants try forceful feeding to their children.

In Bangladesh, almost two-thirds of the infants die due to infectious diseases such as diarrhea and other respiratory diseases. Poor nutritional status of the infants is mostly responsible for these conditions. The protective effects of proper breastfeeding and complementary feeding can help a child provide the proper nutritional values for the children's optimal growth and development.

**Conclusion:**

Proper practice of complementary feeding for the development of the children is of immense importance. Focus on disseminating the appropriate information on child feeding practices during the pregnancy period and after the delivery can reduce the futile practices and improve the overall status of complementary feeding practices among the mothers.

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