

# A Study on Maternal Knowledge and Practices Related to Weaning Foods

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**Abstract** Adequate nutrition in infancy and early childhood is crucial for promoting health, growth, development, and overall well-being in children. This research aimed to assess mothers' knowledge and practices about weaning foods for children under two, exploring links to demographics like age, education, and socioeconomic status. It undertaken to inform future interventions for promoting healthy feeding habits. This research was conducted as a cross-sectional descriptive study, focusing on a sample of 385 mothers at the Shaheed Ahsan Ullah Master General Hospital located in Tongi, Gazipur, Bangladesh. Data collection was carried out using a meticulously designed structured questionnaire, which facilitated the systematic gathering of information from the participants. The study reveals that only 5.14% of the participants reported having a sufficient family income, with a higher rate of 32.0% in rural regions with low educational attainment: 41.7% completed only secondary education, 1.1% had no formal education, and 13.7% had just primary education. Despite 67.4% of educated mothers being aware of weaning, they still struggled with low family income due to high living costs in urban (43.4%) and suburban (24.6%) areas. The present research underscores a significant link among education, economic stability, and child nutrition, indicating that while families may possess basic knowledge of weaning practices, financial constraints significantly impede their capacity to ensure proper nutrition for their children. These findings emphasize the need for focused interventions that improve educational resources related to child nutrition while simultaneously tackling the economic challenges encountered by families in these communities.

**Keywords:** Maternal, Weaning Food, Infant, Knowledge, Children

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## 1. Introduction

The mother plays a crucial role in a baby's life, influencing both physical and psychosocial development from birth. Interaction between mother and baby begins immediately after birth, establishing a foundational bond. Breastfeeding typically commences within one to two hours post-delivery, providing essential nourishment. In many cultures, breastfeeding continues to be significant for child nutrition for 18 months or longer. It is widely recognized that breastfeeding is vital for optimal infant nutrition until the child reaches two years of age. The World Health Organization advises a gradual weaning process from six months to two years [1], allowing children to benefit from breastfeeding while also obtaining essential nutrients from complementary foods. Proper preparation for weaning is crucial, ensuring that the foods provided are nutritionally adequate and have appropriate texture and temperature [2]. Weaning refers to the initiation of foods and liquids other than breast milk, marking the transition to a solid diet alongside continued

breastfeeding [3]. This term typically describes the process of discontinuing breastfeeding after a successful period of nursing. It often entails the incorporation of additional foods into an infant's diet or substituting breast milk with alternative types of milk or food [4]. The transition from exclusive breastfeeding to the consumption of semisolid foods represents a critical phase, as it is during this time that many infants become susceptible to malnutrition, which significantly contributes to the high rates of malnutrition and infections among children under five globally [5]. In Bangladesh, around 87.90% of children face various levels of malnutrition, underscoring a major health concern in developing countries [6]. Malnutrition is a pressing issue, especially in nations like Bangladesh, where proper weaning practices are crucial for lowering infant illness and death rates linked to malnutrition and obesity [6,7,8]. Delayed weaning can lead to significant health problems, as breast milk alone becomes insufficient after six months, lacking essential nutrients like iron, zinc, and vitamin A that growing infants need [1,2]. Considering this, it is crucial for nurses and other healthcare professionals to consider various characteristics, such as the educational levels of mothers,

the experiences of first-time mothers, and the initiation of weaning [9,10]. This awareness can play a significant role in preventing infant mortality and morbidity related to weaning practices in Bangladesh and elsewhere. The present study seeks to assess the knowledge and practices of mothers concerning infant feeding and weaning, emphasizing their vital contribution to enhancing child health at Shaheed Ahsan Ullah Master General Hospital in Tongi, Gazipur, Bangladesh. The purpose of this research was to assess the existing knowledge and practices related to weaning foods among mothers of children under the age of two, while also exploring possible demographic correlations. The study undertaken to uncover any patterns or trends that might be affected by demographic variables such as age, education level, and socioeconomic status. By analyzing these factors, the research aimed to enhance the understanding of maternal weaning practices, which could guide future interventions and educational initiatives aimed at promoting healthy feeding habits for young children.

## 2. Methods & Materials

### 2.1. Description of Study Locations and Research Design

The research employed a descriptive correlational design and was carried out at Shaheed Ahsan Ullah Master General Hospital in Tongi, Gazipur, Bangladesh.

### 2.2. Study Population and Sample Size

The study period was November 2023 to April 2024. A purposive sampling technique was used to recruit 385 mothers who have 6-24 months of aged baby. The sample size will be calculated using Cochran Formula, which are following,

$$\begin{aligned}\text{Sample size, } n &= z^2 pq / d^2 \\ &= (1.96)^2 \times 0.5 \times 0.5 / (0.05)^2 \\ &= 3.8416 \times 0.5 \times 0.5 / 0.0025 \\ &= 384.16 \text{ or } 385\end{aligned}$$

Here,  $n$  refers to the minimum sample size,  $z$  is the standard normal deviate, which is conventionally set at 1.96 for a 95% confidence interval (CI),  $p$  represents the estimated proportion of the target population with a specific characteristic, assumed to be 50% (0.5) due to the lack of a more precise estimate,  $q$  is calculated as  $1 - p$ , and  $d$  denotes the margin of error (precision), typically set at 5%.

Therefore, 385 respondents were chosen as a suitable sample size for the research.

### 2.3. Data Collection Tools, Technique & Analysis

A structured questionnaire was developed through a comprehensive review of relevant literature pertaining to the study's objectives. It was crafted in the language that best facilitates understanding among the study population to ensure the collection of essential data, with Bengali language (ISO 639-2/ bn-BD) being the preferred language for interviews. The questionnaire was

systematically organized into three subscales, comprising a total of 20 items. These subscales encompassed socio-demographic information, knowledge of infant weaning, and practices related to infant weaning. The items included inquiries about demographic characteristics, knowledge regarding infant weaning, and actual practices in this area. Participants were classified based on their knowledge scores: those scoring below 50% were deemed to have poor knowledge, scores ranging from 50% to 70% indicated average knowledge, and scores exceeding 70% were classified as adequate knowledge. Similarly, practice scores were categorized, with scores below 50% indicating low practice levels, scores between 50% and 70% reflecting moderate practice levels, and scores above 70% denoting high practice levels. The reliability and validity of the questionnaire was assessed, yielding Cronbach's alpha coefficient of 0.8.

### 2.4. Ethical Consideration

Approval from the United College of Nursing, Dhaka, Bangladesh have been obtained for ethical clearance. Furthermore, permission have been requested from Shaheed Ahsan Ullah Master General Hospital, Tongi, Gazipur, Bangladesh. Participants have provided written consent to participate in the study. To ensure confidentiality and anonymity, a coding system has been utilized. Participation was voluntary, allowing individuals to withdraw from the study at any time without any associated risks.

### 2.5. Pilot Study

Prior to the main study, a pilot study was carried out involving 10 mothers at United Medical College Hospital. The participants in the pilot study were not included in the main study. The pilot study proceeded without any significant issues.

## 3. Results

As detailed in Table 1, a total of 385 mothers of infants participated in the study, offering valuable insights into their demographics and socio-economic status.

The mean age of the infants was recorded at 13.2 months, with a standard deviation of 11 months, while the mothers had an average age of 27.83 years, accompanied by a standard deviation of 4.95 years. Regarding educational attainment, 41.7% of mothers had completed secondary education, 1.1% had no formal education, 13.7% had attained primary education, 23.4% held undergraduate degrees, and 20.0% had completed graduate studies or higher. In terms of occupational status, the largest group among the respondents were housewives, comprising 60.6% of the sample, followed by professionals at 22.3%. A minor portion of respondents were engaged as garment workers (1.7%), while 15.4% identified as students. Notably, only 5.14% of respondents indicated that their family income was adequate, whereas 67.4% reported that their income was inadequate when considering the living expenses associated with the area. Most respondents resided in urban areas, accounting for

43.4% of the sample, followed by rural areas at 32.0%, and suburban regions at 24.6%. Family structure analysis revealed that nearly 60% of the respondents belonged to nuclear families, while 37.1% came from joint family systems. A very small percentage of respondents were part of broken families (1.1%) or extended families (1.1%), highlighting the predominance of nuclear family arrangements within this demographic.

As shown in Table 2, the correlation of knowledge scores among participants is outlined, indicating the mean score and standard deviation (SD) in relation to weaning. The overall mean knowledge score stands at 17.93, with a standard deviation of 3.44. In terms of knowledge levels, 67.27% of mothers holding undergraduate or graduate degrees exhibit adequate knowledge, 13.76% show average knowledge with primary and secondary education, and 18.96% reflect poor knowledge regarding weaning foods with no formal education.

## 4. Discussion

Weaning practices in infancy significantly impact physical and mental health. Globally, inadequate weaning practices with low nutritional value and excessive bulk present major challenges. This study surveys 385 mothers from rural, urban, and suburban areas during their visits to Shaheed Ahsan Ullah Master General Hospital in Tongi,

Gazipur, Bangladesh. The aim is to explore variations in weaning practices and their effects on infant health, growth and development by analyzing demographic trends and issues related to weaning food.

In this research, the researcher proposes a model that captures the current situation in Tongi, Gazipur, Bangladesh, focusing on two critical factors that influence child growth, health and development as shown in Figure 1.

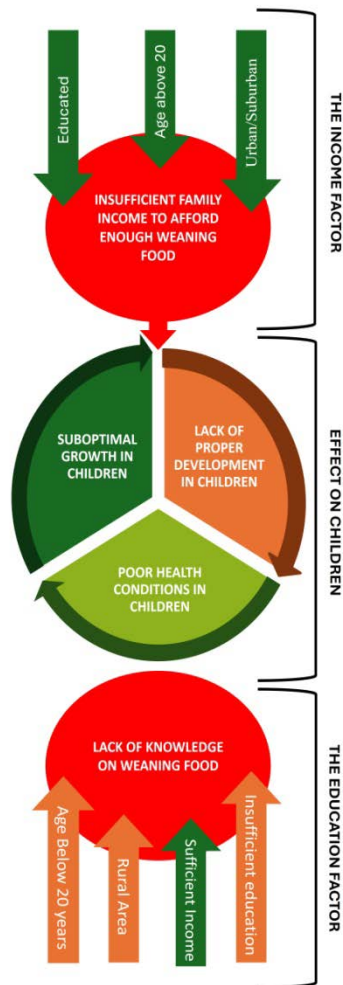
The study underscores the compounded difficulties faced by mothers in both urban (43.4%) and suburban (24.6%) areas, specifically “the education factor” regarding appropriate weaning foods and “the income factor”. A mere 5.14% of participants reported having sufficient family income, predominantly among those residing in rural areas (32.0%). However, educational attainment among these mothers was notably low, with 41.7% having completed only secondary education, 1.1% lacking any formal education, and 13.7% achieving only primary education. This educational gap correlates with a significant deficiency in knowledge and practical skills related to weaning foods. Furthermore, the findings reveal that 67.27% of mothers who are educated and possess adequate knowledge about weaning foods still reported insufficient family income, particularly when accounting for the high living costs in urban (43.4%) and suburban (24.6%) regions, which is a clear manifestation of earlier studies (11-17).

**Table 1. Socio Demographic Information of Respondents**

| Respondents (n=385) | Categories          | Frequency | Percentages |
|---------------------|---------------------|-----------|-------------|
| Age (Years)         | Below 20            | 13        | 3.43        |
|                     | 20-25               | 185       | 48.00       |
|                     | 25-35               | 172       | 44.57       |
|                     | Above 35            | 15        | 4.00        |
| Area                | Rural               | 123       | 32.00       |
|                     | Urban               | 167       | 43.43       |
|                     | Suburban            | 95        | 24.57       |
| Education           | No formal education | 4         | 1.14        |
|                     | Primary education   | 53        | 13.71       |
|                     | Secondary Education | 161       | 41.71       |
|                     | Undergraduate,      | 90        | 23.43       |
|                     | Graduate & more     | 77        | 20.00       |
| Occupation          | No formal education | 4         | 1.14        |
|                     | Housewife           | 233       | 60.57       |
|                     | Labor               | 7         | 1.71        |
|                     | Professional        | 86        | 22.29       |
|                     | Student             | 59        | 15.43       |
| Family Type         | Nuclear             | 231       | 60.00       |
|                     | Joint               | 143       | 37.14       |
|                     | Broken              | 7         | 1.71        |
|                     | Extended            | 2         | 0.57        |
| Family Income       | Low                 | <30000    | 67.43       |
|                     | Average             | <40000    | 27.53       |
|                     | Adequate            | >40000    | 5.14        |

**Table 2. The correlation between maternal knowledge and education concerning weaning foods (Population Number, n=385)**

| Level of Knowledge (score) | Population Number (n) | Percentage (%) | Level of Education             | Level of Practice | Family Income | Mean knowledge score $\pm$ SD |
|----------------------------|-----------------------|----------------|--------------------------------|-------------------|---------------|-------------------------------|
| Poor (0-11)                | 73                    | 18.96          | No formal education            | Low               | Adequate      | 17.93 $\pm$ 3.44              |
| Average (12-17)            | 53                    | 13.76          | Primary & Secondary education  | Low               | Average       |                               |
| Adequate (18-20)           | 259                   | 67.27          | Undergraduate, Graduate & more | Low               | Average       |                               |



**Figure 1.** A model illustrating the correlation between education, financial status, age, and residential area influences child growth, health, and development in relation to maternal knowledge and practices regarding weaning foods

## 5. Conclusions

The current study highlights the correlation between education, economic stability, and child nutrition, suggesting that even with a foundational understanding of weaning practices, financial limitations severely hinder the ability of families to provide adequate nutrition for their children. The implications of these findings call for targeted interventions that not only enhance educational resources regarding child nutrition but also address the economic barriers that families face in these communities.

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## Statement of Competing Interests

The authors have no competing interests.

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