



Feeding Practices among Infants and Young Children of Female Workers in Urban Bangladesh: A Cross-sectional Study in Dhaka and Gazipur

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Authors' contributions

This work was carried out in collaboration among all authors. Author MRK collected the raw data and performed the statistical analysis. Author MAH organized the data and wrote the first draft of the manuscript. Author NHMRM designed the protocol, wrote the manuscript and revised the final draft of the manuscript. All authors read and approved the final manuscript.

Article Information

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc. are available here: <https://www.sdiarticle5.com/review-history/122819>

Original Research Article

Received: 30/07/2024

Accepted: 01/10/2024

Published: 04/10/2024

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Cite as: Karim, Md. Rezaul, Md Akram Hossain, Erfan Ahmed, Md. Hassan Shahid Suhrawardy, and N. H. M. Rubel Mozumder. 2024. "Feeding Practices Among Infants and Young Children of Female Workers in Urban Bangladesh: A Cross-sectional Study in Dhaka and Gazipur". *Asian Journal of Food Research and Nutrition* 3 (4):889-903. <https://www.journalajfrn.com/index.php/AJFRN/article/view/184>.

ABSTRACT

Aims: This study aims to investigate the feeding practices of infants and young children among female workers in Dhaka and Gazipur cities, Bangladesh, exploring the prevalence and determinants of these practices considering socio-demographic factors and maternal occupations.

Study Design: The study employs a cross-sectional design to analyze the feeding practices of female workers.

Place and Duration of Study: The research was conducted in Dhaka and Gazipur cities, Bangladesh, over a specified period from July to October 2019.

Methodology: Data were collected from 378 working mothers, with 225 participants from Dhaka and 153 from Gazipur, using structured questionnaires. Information on maternal age, education, occupation, family income, health consultancy support, iron tablet consumption, delivery type, and caregivers' support were gathered. Feeding practices were assessed based on breastfeeding initiation, exclusive breastfeeding duration, complementary feeding initiation, and adherence to recommended feeding guidelines.

Results: Significant disparities were found between Dhaka and Gazipur. In Dhaka, a higher percentage of mothers were aged 21-30 years (43.7%) compared to Gazipur (29.4%). Maternal education levels were generally higher in Dhaka, with secondary education attainment notably different (18.5% in Dhaka vs. 7.4% in Gazipur). RMG (Ready-Made Garments) employment was predominant in Dhaka (33.6%), while Gazipur had a diverse occupational profile with a higher proportion of small business owners (7.1%). Healthcare utilization varied, with more mothers consulting doctors in Dhaka (16.1%) compared to Gazipur (9%). Iron tablet consumption was higher in Dhaka (46.6%) than in Gazipur (29.6%). Delivery types differed significantly, with higher rates of normal delivery in Dhaka (47.6%) compared to Gazipur (35.2%). Knowledge regarding feeding practices was generally lower in Gazipur, with only 13.8% of mothers reporting awareness compared to 26.2% in Dhaka. Sources of knowledge also varied, with healthcare personnel being a more significant source in Dhaka.

Conclusion: This study highlights significant regional disparities in infant feeding practices among female workers in Dhaka and Gazipur. It underscores the need for tailored interventions to improve these practices, considering the socio-economic contexts of each region. Addressing these disparities is crucial for enhancing maternal and child health outcomes in urban settings like Dhaka and Gazipur, thereby contributing to the overall well-being of the population.

Keywords: Feeding practices; infants; young children; female workers; Dhaka; Gazipur; IYCF.

1. INTRODUCTION

Infant and young child feeding (IYCF) practices in the first two years play a key role in promoting the good health and development of the child [1]. Several guidelines from the World Health Organization (WHO) outline the recommended feeding practices. These guidelines emphasize that breastfeeding should be initiated right after birth and continued exclusively until the age of six months. Complementary feeding can be introduced after six months, and breastfeeding should continue until the child turns two years [2]. The adoption and adherence to these recommended practices vary significantly, influenced by factors such as the country, region, maternal education, nutritional status, household food security, wealth, birth weight, as well as biological factors like age and gender, among others. [3,4]. As well-documented, the risk of not adhering to the recommended practices of IYCF

is associated with malnutrition and high mortality in children [5,6]. Globally, malpractices related to IYCF lead to 2.7 million deaths, accounting for 45% of all deaths among children under 5 years annually. Two-thirds of these deaths are linked to suboptimal IYCF practices, contributing to undernutrition, chronic diseases, and impaired cognitive development [7,8]. According to [9] a key indicator for optimal IYCF practice is breastfeeding (infants aged 0–5 months exclusively breastfed), with a global average of 48%, whereas in South Asia, it is 60%. This roughly indicates the current status of adherence to IYCF practices worldwide.

Bangladesh, as a developing nation, has achieved commendable success compared to previous years in implementing recommended IYCF practices, with 55% of children under six months being exclusively breastfed and 29% of children aged 6-23 months following ideal

complementary feeding practices [10]. However, there is still much room for improvement, as in Bangladesh, 24% of children under the age of 5 are stunted, 22% are underweight, and 11% are wasted [11]. The country is undergoing rapid urbanization and economic development, with female workers consistently joining the workforce. According to [12], the current female-to-male labor participation ratio stands at 42.77%. The women workforce has been a key driving force for healthcare systems globally, contributing almost US\$3.052 trillion worth of paid work [13]. Women comprise 67% of the total healthcare workforce globally, though it is less than 40% in Bangladesh [14]. However, there is a positive trend as the number of women in the healthcare system is on the rise. Government and non-government organizations are actively considering girls and women as recipients of healthcare facilities, leading to an increase in the employment of women in the healthcare sector [15]. These working healthcare professionals are also mothers and primary caregivers for their children. Balancing the roles of a professional healthcare provider and a caregiver often impacts their ability to follow ideal IYCF practices with their children, similar to challenges faced in other professions [16].

The intersection of maternal employment and caregiving responsibilities poses unique challenges for female workers, particularly in dynamic urban settings like in Dhaka and Gazipur. Research revealed the protective impact of exclusive breastfeeding under 6 months against wasting, emphasizing the importance of dietary diversity for children aged 6–23 months, and highlighting associations between IYCF indicators and child growth in the context of Bangladesh [17]. This underscores the ongoing necessity for nationwide monitoring of these indicators to comprehend child nutrition trends. However, another study found suboptimal IYCF practices in Cox's Bazar [18], and [19] reported similar findings in rural areas of Bangladesh. While various studies have explored different facets of IYCF in the country, focusing on the impact and causes of ideal practices, none have been conducted in a specific region or targeted a particular cohort of working mothers [20-27]. Thus, the primary objectives of this study are to identify sociodemographic factors influencing infant feeding practices among female workers, evaluate the level of knowledge regarding recommended feeding practices, examine the actual feeding practices focusing on

breastfeeding initiation, duration, and complementary feeding, and explore the role of family members in supporting infant and young child feeding practices when working mothers are away. As female workers struggle to balance their professional and maternal roles, understanding the sociodemographic influences, assessing maternal knowledge, and examining the family support is of paramount importance. This understanding is crucial if the government or NGOs were to take any action or formulate policies for the betterment of working mothers and their surroundings.

2. METHODOLOGY

2.1 Study Design

This study employed a cross-sectional design to assess and analyze infant and young child feeding (IYCF) practices among female workers in Dhaka and Gazipur, Bangladesh. Cross-sectional studies are particularly suitable for capturing a snapshot of feeding practices and associated factors at a specific point in time, allowing for the exploration of various socio-demographic determinants and their influence on feeding behaviors.

2.2 Study Setting

The study was conducted in Dhaka and Gazipur, two major urban centers in Bangladesh known for their diverse economic activities, including the Ready-Made Garments (RMG) sector, small businesses, agriculture, and service industries. These cities were selected due to their significant concentration of female workers across various sectors, providing a representative sample of urban working mothers in Bangladesh.

2.3 Sampling Strategy

A multi-stage sampling technique was employed to recruit study participants. In the first stage, Dhaka and Gazipur were purposively selected based on their economic significance and concentration of female workforce. Within each city, clusters of workplaces (e.g., RMG factories, small businesses, agricultural settings) were identified.

In the second stage, workplaces were randomly selected from each cluster to ensure diversity in occupational profiles. Female workers employed in these selected workplaces were then

approached to participate in the study. Eligibility criteria included being a female worker aged 18 years or older, currently employed, and having at least one child under the age of five years.

2.4 Sample Size Calculation

The sample size was calculated based on the estimated proportion of female workers in each city and an assumed prevalence of optimal IYCF practices. Considering a confidence level of 95% and a margin of error of 5%, a total sample size of 378 mothers was determined to be adequate for robust statistical analysis and generalization of findings to the target population.

$$n = \frac{z^2 \times p \times q}{d^2}$$

$$n = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} = 378$$

Here, $q = 1-p$; $d = 0.05$; $z =$ Confidence level of interest (for 95% = 1.96); $p = 0.50$ (To get the maximum sample size, here it is considered as 50%); $n =$ Sample size and $N =$ Target population.

2.5 Data Collection

Data collection was carried out using structured questionnaires administered face-to-face by trained interviewers fluent in Bengali. The questionnaire was developed based on established guidelines from the World Health Organization (WHO) and UNICEF on IYCF practices, adapted to capture socio-demographic information, maternal characteristics, feeding practices, health consultancy support, and family dynamics related to child feeding.

2.6 Variables Assessed

- **Socio-demographic Characteristics:** Maternal age, education level, occupation, family income.
- **Maternal Characteristics:** Parity, breastfeeding practices (initiation, duration), iron tablets consumption.
- **Health Consultancy Support:** Sources of healthcare advice (e.g., doctors, nurses, family members), frequency of consultations.
- **Feeding Practices:** Breastfeeding initiation, exclusive breastfeeding duration,

complementary feeding practices (timing, diversity).

- **Role of Family Support:** Involvement of family members in childcare and feeding practices.

2.7 Data Analysis

Quantitative data were entered into a secure database and analyzed using statistical software (e.g., SPSS). Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize socio-demographic characteristics, feeding practices, and other variables of interest.

3. RESULTS

This study aims to provide a comprehensive analysis of socio-demographic factors, maternal characteristics, health consultancy support, feeding practices, and the role of family support in shaping IYCF practices among female workers in Dhaka and Gazipur. By examining these factors, the study seeks to inform targeted interventions and policy recommendations aimed at improving child nutrition and health outcomes in urban Bangladesh

3.1 Socio-Demographic Characteristics of Mothers

The study surveyed a total of 378 mothers, with 225 participants from Dhaka and 153 from Gazipur, to capture variations in IYCF practices across these urban centers, presented in Table 1.

3.1.1 Maternal characteristics and feeding practices

3.1.1.1 Maternal age and education

The distribution of maternal age and educational attainment highlights significant differences between Dhaka and Gazipur. In Dhaka, a larger proportion of mothers were above 20 years (82.2%) compared below 20 years (17.7%). The similar age profiles were also identical for Gazipur city. This age distribution is indicative of the youthful demographic in both cities, potentially influencing maternal knowledge and health-seeking behaviors related to IYCF practices [3].

Table 1. Socio-Demographic Characteristics of Mothers (n = 378)

Characteristic	Dhaka (n =225)	Gazipur (n = 153)
Maternal Age (years)		
Below 20 years	40 (17.7%)	32 (21.0%)
Above 20 years	185 (82.2%)	121(79.0%)
Maternal Education		
No Institutional Education	23 (6.1%)	13 (3.4%)
Primary (5 and below)	113 (29.9%)	105 (27.8%)
Secondary (10 and below)	70 (18.5%)	28 (7.4%)
Higher Secondary and Above	19 (5%)	7 (1.9%)
Maternal Occupation		
Day Labor	43 (11.4%)	33 (8.7%)
Farmer	4 (1.1%)	2 (0.5%)
Small Business Owner	20 (5.3%)	27 (7.1%)
RMG Employee	127 (33.6%)	56 (14.8%)
Rickshaw Puller/CNG Driver	4 (1.1%)	20 (5.3%)
Car Driver	8 (2.1%)	4 (1.1%)
Employed Overseas	10 (2.6%)	2 (0.5%)
Tailor	2 (0.5%)	2 (0.5%)
Others	10 (2.6%)	4 (1.1%)
Family Income (Monthly)		
Below 7000	2 (0.5%)	6 (1.6%)
10000 and below	15 (4%)	6 (1.6%)
15000 and below	55 (14.6%)	39 (10.3%)
20000 and below	96 (25.4%)	81 (21.4%)
30000 and below	49 (13%)	19 (5%)
45000 and below	10 (2.6%)	0 (0%)

Education levels also varied, with a higher percentage of mothers in Dhaka having attained secondary education (18.5%) compared to Gazipur (7.4%). Maternal education is a known determinant of IYCF practices, influencing awareness of feeding guidelines and nutritional requirements during infancy and early childhood [4].

3.1.1.2 Maternal occupation

The RMG sector emerged as a predominant source of employment for mothers in Dhaka, with 33.6% employed in this industry compared to 14.8% in Gazipur. The RMG sector's prevalence in Dhaka reflects its role as a major economic driver and employer of female workers, potentially impacting maternal working conditions and opportunities for breastfeeding support [10]. Other occupations such as day laborers and small business owners were more evenly distributed between the two cities, highlighting the diverse occupational profiles of female workers in urban Bangladesh. Occupational factors, including workplace policies on maternity

leave and support for breastfeeding mothers, can significantly influence maternal ability to practice optimal IYCF behaviors [21].

3.1.1.3 Family income

Variations in family income levels also underscore socio-economic disparities that may influence access to healthcare services, nutritional resources, and support systems for working mothers. In Dhaka, a higher proportion of families reported incomes below 30000 (25.4%) compared to Gazipur (21.4%), suggesting differential economic conditions that could impact dietary diversity and nutritional adequacy in child feeding practices [23].

3.1.2 Health Consultancy Support and Feeding Practices

The Table 2 presents the findings of the study, highlighting key aspects of infant and young child feeding (IYCF) practices and related factors among female workers in Dhaka and Gazipur.

Table 2. Health consultancy support and feeding practices (n = 378)

Characteristic	Dhaka	Gazipur
Health Consultancy Support		
NGO	17 (4.5%)	7 (1.9%)
Relatives	14 (3.7%)	6 (1.6%)
Neighbors	5 (1.3%)	5 (1.3%)
Doctor	61 (16.1%)	34 (9%)
Others	2 (0.5%)	0 (0%)
No Consultancy	149 (39.4%)	78 (20.6%)
Iron Tablets Consumption		
Yes	176 (46.6%)	112 (29.6%)
No	49 (13%)	41 (10.8%)
Delivery Type		
Normal	180 (47.6%)	133 (35.2%)
C-Section/Surgically Assisted	45 (11.9%)	20 (5.3%)
Delivery Aid		
Doctor	67 (17.7%)	31 (8.2%)
Traditional birth attendant (TBA)	25 (6.6%)	16 (4.2%)
Non TBA	72 (19%)	37 (9.8%)
NGO Health Facility Staff	1 (0.3%)	0 (0%)
Neighbor/Relatives	8 (2.1%)	3 (0.8%)
Nurse	52 (13.8%)	66 (17.5%)
Doctor		
Supporting Caregivers		
Family Members	154 (40.7%)	149 (39.4%)
Neighbors	5 (1.3%)	0 (0%)
Paid Caregivers	61 (16.1%)	0 (0%)
Can be taken to Workplace	5 (1.3%)	4 (1.1%)
Mothers Knowledge on Importance of Feeding Practice		
Yes	99 (26.2%)	52 (13.8%)
No	126 (33.3%)	101 (26.7%)
Source of Mothers Knowledge on Importance of Feeding Practice		
A family member	36 (9.5%)	20 (5.3%)
A neighbor	20 (5.3%)	4 (1.1%)
Health personnel (Doctor, Nurse, Health promoter, etc.)	26 (6.9%)	4 (1.1%)
Colleagues	2 (0.5%)	0 (0%)
Others	10 (2.6%)	2 (0.5%)
Does not know/remember/answer	18 (4.8%)	9 (2.4%)
None	165 (43.7%)	62 (16.4%)

3.1.2.1 Health consultancy support

Access to health consultancy support varied between Dhaka and Gazipur, with implications for maternal knowledge and adherence to recommended IYCF practices. In Dhaka, 16.1% of mothers consulted healthcare professionals such as doctors, compared to 9% in Gazipur. This difference reflects urban-rural disparities in healthcare access and maternal health-seeking behaviors, which are critical for promoting breastfeeding initiation and appropriate complementary feeding practices [1].

3.1.2.2 Iron tablet consumption

Iron tablets consumption, indicative of maternal health and nutritional status, was more prevalent

among mothers in Dhaka (46.6%) compared to Gazipur (29.6%). Adequate maternal nutrition is essential for supporting breastfeeding and ensuring the availability of essential nutrients for both maternal and child health [6].

3.1.2.3 Delivery type and aid

The type of delivery also varied between Dhaka and Gazipur. In Dhaka, 47.6% of mothers had normal deliveries compared to 35.2% in Gazipur. The rate of C-sections or surgically assisted deliveries was higher in Dhaka (11.9%) than in Gazipur (5.3%). This discrepancy may reflect differences in healthcare facilities, maternal health conditions, and the availability of medical interventions in the two regions.

The study also examined the types of delivery aid received by mothers. In Dhaka, a higher percentage of mothers (17.7%) were assisted by doctors during delivery compared to 8.2% in Gazipur. Traditional birth attendants (TBAs) assisted 6.6% of mothers in Dhaka and 4.2% in Gazipur. Non-TBA aid was more common in Dhaka (19%) than in Gazipur (9.8%). Additionally, only one mother in Dhaka received assistance from NGO health facility staff, with none reported in Gazipur. Neighbor and relative assistance was minimal in both regions, as well as nurse assistance, which was somewhat higher in Gazipur (17.5%) compared to Dhaka (13.8%).

3.1.2.4 Supporting caregivers

Support from caregivers while mothers were at work showed some regional differences. In Dhaka, 40.7% of mothers relied on family members as caregivers, which was almost equal to the 39.4% in Gazipur. Paid caregivers were used by 16.1% of mothers in Dhaka, whereas none were reported in Gazipur. The ability to take children to the workplace was limited in both regions, with 1.3% of mothers in Dhaka and 1.1% in Gazipur utilizing this option.

3.1.2.5 Mothers' knowledge on the importance of feeding practices

Knowledge about the importance of feeding practices was assessed among the mothers. In Dhaka, 26.2% of mothers had knowledge about recommended feeding practices compared to 13.8% in Gazipur. Conversely, a significant number of mothers lacked this knowledge, with 33.3% in Dhaka and 26.7% in Gazipur not being aware of the importance of proper feeding practices.

3.1.2.6 Source of mothers' knowledge on feeding practices

The sources from which mothers gained knowledge about feeding practices varied. In Dhaka, 9.5% of mothers cited family members as their source of information, while 5.3% did so in Gazipur. Neighbors were a source of information for 5.3% of mothers in Dhaka and 1.1% in Gazipur. Health personnel, such as doctors and nurses, were cited by 6.9% of mothers in Dhaka and only 1.1% in Gazipur. Additionally, a small number of mothers reported colleagues and other sources as their information providers, with a higher number of

mothers in Dhaka (43.7%) and Gazipur (16.4%) reporting that they did not know or remember their source of information, or they had no source at all.

3.2 Breastfeeding and Complementary Feeding Practices

The initiation of breastfeeding within the first hour after birth was observed in 20.4% of mothers in Dhaka and 24.2% in Gazipur (Table 3). The majority of mothers in both locations-initiated breastfeeding between 1 to 3 hours after birth, with 48.4% in Dhaka and 58.2% in Gazipur. A small percentage of mothers delayed breastfeeding initiation until after the first day, with 11.1% in both cities. The introduction of additional food following breastfeeding initiation was similar in both locations, with 64.9% of mothers in Dhaka and 64.7% in Gazipur doing so. Among these mothers, sugar water or honey was the most common additional food, provided by 61.0% in Dhaka and 75.8% in Gazipur.

Regarding the first liquid introduced in the child's mouth after birth, breast milk/colostrum was provided by 44.9% of mothers in Dhaka compared to 27.5% in Gazipur. Sugar water/honey was given by 38.7% of mothers in Dhaka and a significant 64.7% in Gazipur. The frequency of meals introduced after six months of age varied, with mothers in Gazipur more frequently introducing meals twice a day (44.7%) compared to Dhaka (41.3%). Initiation of the basic four food items showed that a higher percentage of mothers in Dhaka (28.9%) introduced all four food items compared to Gazipur (14.5%)

3.3 Complementary Feeding Practices after 6 Months

The types of complementary foods provided to children after six months showed considerable variation (Table 4). In Dhaka, rice was fed to 69.4% of children, while in Gazipur, this figure was higher at 89.5%. Other common foods included fish (33.9% in Dhaka and 26.3% in Gazipur), eggs (27.3% in Dhaka and 17.1% in Gazipur), and khichuri (42.1% in Dhaka and 19.7% in Gazipur). Breast milk continued to be a significant part of the diet, with 58.7% of mothers in Dhaka and 71.1% in Gazipur still providing it. Other milk was also commonly given, with 82.6% in Dhaka and 89.5% in Gazipur.

Table 3. Breastfeeding and complementary feeding practices among mothers (N = 378)

Characteristic	Dhaka	Gazipur
First breastfeeding initiation after 1-hour (n = 378)		
Within 1 hour of birth.	46 (20.4%)	37 (24.2%)
From 1 to 3 hours after birth.	109 (48.4%)	89 (58.2%)
After 1 day	25 (11.1%)	17 (11.1%)
After 2-3 days	38 (16.9%)	9 (5.9%)
Does not know/remember/ answer	7 (3.1%)	1 (0.7%)
Addition food provided after breastfeed initiation (n = 378)		
Yes	146 (64.9%)	99 (64.7%)
No	79 (35.1%)	54 (35.3%)
If yes, what types of food provided (n = 245)		
Water	9 (6.2%)	0 (0.0%)
Sugar water/honey	89 (61.0%)	75 (75.8%)
Other milk	40 (27.4%)	22 (22.2%)
Medicine syrup	7 (4.8%)	0 (0.0%)
Other	1 (0.7%)	2 (2.0%)
The first liquid introduced in the child's mouth after birth (n = 378)		
Breast milk/colostrum	101 (44.9%)	42 (27.5%)
Water	1 (0.4%)	1 (0.7%)
Sugar water/honey	87 (38.7%)	99 (64.7%)
Other milk	19 (8.4%)	0 (0.0%)
Oil	2 (0.9%)	8 (5.2%)
Cow/Goat milk	7 (3.1%)	2 (1.3%)
Other	5 (1.3%)	0 (0.0%)
Does not know/remember	3 (2.2%)	0 (0.7%)
Frequency of meal introduced after 6 months of age (n = 197)		
Never	17 (14.0%)	5 (6.6%)
Once	31 (25.6%)	32 (42.1%)
Twice	50 (41.3%)	34 (44.7%)
Thrice	23 (19.0%)	5 (6.6%)
Initiation of basic 4 food items		
Not at all	6 (5.0%)	2 (2.6%)
One	21 (17.4%)	19 (25.0%)
Two	30 (24.8%)	23 (30.3%)
Three	29 (24.0%)	21 (27.6%)
Four	35 (28.9%)	11 (14.5%)

Table 4. Typical food items fed on complementary feeding practices after 6 months (n = 197)

Food Items	Dhaka	Gazipur
Rice	84(69.4%)	68(89.5%)
Suji	28(23.1%)	12(15.8%)
Bread	18(14.9%)	12(15.8%)
Dall	35(28.9%)	22(28.9%)
Meat (chicken/beef)	5(4.1%)	0(0%)
Fish	41(33.9%)	20(26.3%)
Egg	33(27.3%)	13(17.1%)
Food cooked with milk	7(5.8%)	3(3.9%)
Khichuri	51(42.1%)	15(19.7%)
Liver	3(2.5%)	4(5.3%)
Breastmilk	71(58.7%)	54(71.1%)
Others milk	100(82.6%)	68(89.5%)
Pumkin/carrot	15(12.4%)	12(15.8%)
Potato	32(26.4%)	38(50%)

Food Items	Dhaka	Gazipur
Green leafy Vegetable	26(21.5%)	23(30.3%)
Other food	6(5.0%)	8(10.5%)
Biscuit	26(21.5%)	20(26.3%)
Tea	4(3.3)	14(18.4%)
Malta	15(12.4%)	7(9.2%)
Grapes	19(15.7%)	5(6.6%)
Apple	4(3.3%)	6(7.9%)
Pomegranate	6(5.0%)	1(1.3%)
Banana	4(3.3%)	5(6.6%)
Any Fruit	35(28.9%)	16(21.1%)

Table 5. Time of Cessation of Breastfeeding (N = 80)

Time	Dhaka	Gazipur
<1 Month	5(8.6%)	1(4.5%)
2 Months	18(31.0%)	0(0%)
3 Months	13(22.4%)	2(9.1%)
4 Months	2(3.4%)	6(27.3%)
5 Months	9(15.5%)	6(27.3%)
6 Months	7(12.1%)	0(0%)
7 Months	1(1.7%)	0(0%)
8 Months	1(1.7%)	3(13.6%)
9 Months	2(3.4%)	4(18.2%)

3.4 Time of Cessation of Breastfeeding

The cessation of breastfeeding varied between the two cities. In Dhaka, 31.0% of mothers stopped breastfeeding at two months, while in Gazipur, the highest percentages were at four months (27.3%) and five months (27.3%) (Table 5). The trend in Dhaka showed a higher percentage of early cessation within the first three months, while in Gazipur, there was a more staggered pattern of cessation over a longer period.

4. DISCUSSION

Infant and young child feeding (IYCF) practices are crucial determinants of child health and development, significantly influencing growth, immunity, and cognitive abilities [1]. The World Health Organization (WHO) recommends exclusive breastfeeding for the first six months, followed by continued breastfeeding alongside appropriate complementary foods until the child reaches two years of age [2]. Optimal IYCF practices are essential in Bangladesh, a country grappling with high rates of childhood malnutrition despite recent improvements in certain indicators [10].

The urban centers of Dhaka and Gazipur present unique contexts for studying IYCF practices

among female workers. These cities are hubs of economic activity, attracting a diverse workforce including women employed in industries such as the Ready-Made Garments (RMG) sector, small businesses, and agriculture [12]. Balancing work responsibilities with maternal duties poses significant challenges for these women, influencing their ability to adhere to recommended feeding practices [21].

4.1 Socio-demographic Influences on Feeding Practices

The socio-demographic characteristics of mothers play a pivotal role in shaping IYCF practices. In this study, the age, education, and profession of mothers significantly influenced their feeding practices and access to healthcare.

4.1.1 Mother's age

The majority of mothers in both Dhaka and Gazipur were aged between 21 to 30 years, which is the most common reproductive age. Younger mothers (<20 years) were less prevalent, indicating a possibly higher level of awareness and family planning practices in these urban settings. However, younger mothers in both regions may still face challenges due to limited experience and support, affecting their adherence to recommended feeding practices [3].

4.1.2 Mother's education

Education level showed a strong correlation with IYCF practices. Mothers with higher education levels in Dhaka had better knowledge and practices related to infant feeding compared to those in Gazipur. For instance, a higher percentage of mothers in Dhaka had received secondary and higher education, which is associated with better health literacy and proactive health-seeking behaviors [4]. This educational disparity likely contributes to the differences in healthcare access and feeding practices observed between the two regions.

4.1.3 Maternal occupation and workplace factors

The predominance of the RMG sector in Dhaka highlights occupational factors that significantly influence IYCF practices among female workers. Working conditions in the RMG sector often involve long hours and limited breaks, which can pose challenges to breastfeeding initiation and continuation [27]. Workplace policies that support lactation breaks and provide childcare facilities are crucial for enabling working mothers to adhere to recommended feeding practices [21].

In Gazipur, where a diverse range of occupations such as small business ownership and agriculture are prevalent, challenges may differ. Small business owners, for instance, may have more flexibility in managing their time compared to RMG workers but may still face barriers related to access to healthcare and support for breastfeeding at work [10].

4.2 Health Consultancy Support

Health consultancy support plays a crucial role in guiding mothers on proper feeding practices. The study found that a higher percentage of mothers in Dhaka (16.1%) consulted doctors compared to Gazipur (9%). This disparity suggests better access to healthcare facilities and possibly higher healthcare awareness in Dhaka. Studies have shown that regular consultations with healthcare professionals can significantly improve maternal knowledge and adherence to optimal feeding practices, thereby enhancing child health outcomes [6].

In Dhaka, 4.5% of mothers received support from NGOs, compared to 1.9% in Gazipur. This indicates that NGO initiatives in Dhaka may be

more active or accessible. The reliance on relatives and neighbors for health advice was relatively low in both regions but slightly higher in Dhaka. Notably, a significant proportion of mothers received no consultancy support, with 39.4% in Dhaka and 20.6% in Gazipur. This highlights a critical gap in healthcare access, particularly in Gazipur, which needs to be addressed through targeted health education and support programs.

4.2.1 Iron tablets consumption

Iron supplementation is essential for preventing maternal anemia and ensuring adequate iron stores in infants. The study found that 46.6% of mothers in Dhaka reported taking iron tablets, compared to 29.6% in Gazipur. The higher consumption in Dhaka could be attributed to better healthcare services and nutritional awareness. Conversely, the lower rate in Gazipur may reflect gaps in healthcare delivery and maternal education. Iron deficiency during pregnancy can lead to adverse outcomes, including low birth weight and impaired cognitive development in children [1].

4.2.2 Delivery type and aid

The type of delivery and the assistance received during delivery are critical for maternal and neonatal health. In Dhaka, 47.6% of mothers had normal deliveries, compared to 35.2% in Gazipur. The higher rate of normal deliveries in Dhaka could indicate better prenatal care and maternal health services. Additionally, 11.9% of mothers in Dhaka had C-sections, compared to 5.3% in Gazipur, suggesting more readily available surgical interventions in Dhaka.

The types of delivery aid also varied significantly. In Dhaka, 17.7% of mothers were assisted by doctors during delivery, compared to 8.2% in Gazipur. This again points to better access to medical professionals in Dhaka. The use of traditional birth attendants (TBAs) was slightly higher in Dhaka (6.6%) than in Gazipur (4.2%). Non-TBA assistance was more common in Dhaka (19%) than in Gazipur (9.8%). These differences highlight the need for improved maternal health services in Gazipur to ensure safer delivery practices.

4.2.3 Supporting caregivers

Family support emerged as a critical factor influencing IYCF practices when mothers were

away from work. The reliance on family members for caregiving underscores the importance of familial networks in maintaining feeding routines and ensuring continuity in childcare responsibilities [21]. However, challenges such as limited knowledge among family members about optimal feeding practices or conflicting beliefs about child nutrition may impact the quality of support provided to working mothers. Support from caregivers while mothers are at work is crucial for maintaining optimal IYCF practices. The study found that 40.7% of mothers in Dhaka relied on family members as caregivers, which was similar to the 39.4% in Gazipur. This indicates the significant role of family support in both regions. However, 16.1% of mothers in Dhaka used paid caregivers, while none did in Gazipur. This suggests economic differences and varying access to paid caregiving services. The ability to take children to the workplace was limited in both regions, with only 1.3% in Dhaka and 1.1% in Gazipur utilizing this option. This highlights the need for workplace policies that support maternal responsibilities.

4.2.4 Mothers' knowledge on the importance of feeding practices

Maternal knowledge about feeding practices is essential for ensuring proper child nutrition. In Dhaka, 26.2% of mothers had knowledge about recommended feeding practices, compared to 13.8% in Gazipur. The higher knowledge level in Dhaka may be due to better health education and information dissemination. Conversely, a significant number of mothers lacked this knowledge, with 33.3% in Dhaka and 26.7% in Gazipur being unaware of the importance of proper feeding practices. This gap underscores the need for targeted educational programs to improve maternal knowledge in both regions.

4.2.5 Source of mothers' knowledge on feeding practices

The sources from which mothers gain knowledge about feeding practices varied between the two regions. In Dhaka, 9.5% of mothers cited family members as their source of information, compared to 5.3% in Gazipur. Neighbors were a source of information for 5.3% of mothers in Dhaka and 1.1% in Gazipur. Health personnel, such as doctors and nurses, were cited by 6.9% of mothers in Dhaka and only 1.1% in Gazipur. These figures indicate that in Dhaka, there is more diversified access to information sources, including healthcare professionals, which can contribute to better knowledge and practices.

A notable number of mothers in both regions reported that they did not know or remember their source of information or had no source at all, with 43.7% in Dhaka and 16.4% in Gazipur. This significant gap in information sources points to the need for more structured and accessible health education initiatives, particularly in Gazipur, to ensure that mothers receive accurate and reliable information on IYCF practices.

4.3 Breastfeeding and Complementary Feeding Practices

The timing of breastfeeding initiation is a critical determinant of neonatal health. The slightly higher percentage of mothers initiating breastfeeding within one hour in Gazipur could indicate better awareness or practices compared to Dhaka. However, the delay in breastfeeding initiation beyond one day in both locations underscores the need for educational interventions to promote immediate breastfeeding following birth [1,2].

The high prevalence of sugar water and honey as supplementary food immediately after birth, especially in Gazipur, aligns with traditional practices but contradicts global guidelines that advocate exclusive breastfeeding for the first six months [3,4]. This practice may be influenced by cultural beliefs and a lack of awareness regarding the benefits of colostrum and exclusive breastfeeding. Health education campaigns are essential to address these misconceptions and promote the benefits of breastfeeding [5,6].

The introduction of complementary foods after six months reflects inconsistent practices across the two regions. The higher incidence of mothers in Dhaka who never introduced complementary foods suggests a significant gap in knowledge or resources. The varied initiation of complementary foods, with a substantial percentage starting once or twice in Gazipur, highlights the need for structured feeding programs and parental guidance to ensure a balanced diet for infants [1,7]. This variability points to the importance of localized nutritional education tailored to the specific needs and practices of each community.

4.4 Typical Food Items Fed During Complementary Feeding Practices after 6 Months

The reliance on rice and fish as staple foods aligns with local dietary practices but may not

provide the nutritional diversity needed for optimal child growth [1, 2]. The high consumption of khichuri in Dhaka is noteworthy, reflecting its popularity as a weaning food. However, the low inclusion of protein-rich foods like meat and legumes in the diets of both cities raises concerns about the adequacy of complementary feeding practices [3, 4]. This gap indicates a need for interventions aimed at increasing the diversity of complementary foods to enhance nutritional intake. The high consumption of tea and biscuits, particularly in Gazipur, is alarming given their low nutritional value and potential impact on the child's health. These practices may stem from socio-economic factors and a lack of awareness about healthy feeding practices [5, 6]. Educational programs that emphasize the importance of nutrient-rich foods and the risks associated with certain feeding practices are essential to improve dietary quality.

4.5 Time of Cessation of Breastfeeding

The early cessation of breastfeeding, particularly in Dhaka, could be attributed to the demanding work conditions and the lack of maternity support in the RMG sector [1,7]. This trend is concerning as early weaning can increase the risk of malnutrition and infections in children. The variation in cessation times between Dhaka and Gazipur may also reflect differences in maternal education, employment conditions, and socio-economic status [3,4].

The higher rate of cessation at four months in Gazipur compared to Dhaka suggests regional differences in breastfeeding practices and support systems. This underscores the need for region-specific strategies to support breastfeeding mothers, such as extended maternity leave, breastfeeding rooms at workplaces, and community-based support groups [5, 6]. Additionally, targeted breastfeeding education and support can help extend breastfeeding duration, thereby enhancing child health outcomes.

4.6 Implications for Policy and Practice

The findings from this study highlight several areas that require targeted policy interventions to improve infant and young child feeding (IYCF) practices among female workers in urban settings like Dhaka and Gazipur.

- **Promotion of Early Breastfeeding Initiation:** Despite awareness, a significant proportion of mothers delay breastfeeding

initiation. Policies should focus on enhancing awareness campaigns about the benefits of early breastfeeding initiation. Hospitals and maternity clinics should be equipped to support mothers in initiating breastfeeding within the first hour of birth.

- **Education on Exclusive Breastfeeding:** There is a need for comprehensive educational programs to counter traditional practices of providing sugar water or honey to newborns. Health workers and community leaders should be trained to educate mothers about the benefits of exclusive breastfeeding for the first six months.
- **Support for Complementary Feeding Practices:** The study indicates variability in complementary feeding practices. Policymakers should develop guidelines and community-based programs to ensure mothers have access to information and resources on appropriate complementary foods that provide nutritional diversity. This could include distributing educational materials and organizing cook demonstrations.
- **Extended Maternity Leave and Workplace Support:** Early cessation of breastfeeding is often due to work-related pressures. Policies advocating for extended maternity leave, provision of breastfeeding rooms, and flexible working hours for lactating mothers can help extend the duration of breastfeeding.
- **Community and Family Support:** Encouraging family and community involvement in supporting breastfeeding mothers can significantly improve adherence to IYCF practices. Programs aimed at involving fathers, grandparents, and other family members in caregiving and supporting breastfeeding can be beneficial.
- **Monitoring and Evaluation:** Regular monitoring and evaluation of IYCF practices are essential to assess the effectiveness of policies and programs. Data collection and analysis should be conducted periodically to identify gaps and areas needing improvement.

5. CONCLUSION

This study provides a comprehensive overview of the current infant and young child feeding practices among female workers in Dhaka and

Gazipur. The results indicate that while there is some adherence to recommended IYCF practices, significant gaps remain. Early initiation of breastfeeding, exclusive breastfeeding, and appropriate complementary feeding are critical areas needing attention. Socio-economic factors, cultural practices, and workplace pressures significantly influence these practices.

Addressing these issues through targeted policy interventions, educational programs, and support systems can improve the nutritional status and overall health of infants and young children. It is crucial for policymakers, healthcare providers, and community leaders to work collaboratively to create an environment that supports optimal feeding practices for the well-being of future generations.

6. LIMITATIONS

Limitations of this study include its cross-sectional nature, which precludes establishment of causal relationships between variables. Additionally, reliance on self-reported data may introduce recall bias, particularly regarding infant feeding practices and healthcare consultations.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

ETHICAL CONSIDERATIONS

Ethical approval for this study was obtained from the Dissertation Review Committee of the Department of Nutrition and Food Science, University of South Asia, Bangladesh. Informed consent was obtained from all participants after explaining the study objectives, procedures, and potential risks and benefits. Confidentiality of participant information was strictly maintained throughout the study process.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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The peer review history for this paper can be accessed here:
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