



Daffodil
International
University

**"ASSESSMENT OF KNOWLEDGE, ATTITUDES, AND PRACTICES
RELATED TO BREASTFEEDING AMONG MOTHERS IN
NORTHERN AREAS OF BANGLADESH: A CROSS SECTIONAL
STUDY"**

A PROJECT REPORT

BY

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Submitted to the Department of Nutrition and Food Engineering in the partial fulfillment of
B.Sc. in Nutrition and Food Engineering

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APPROVAL

The project titled “**Assessment of the knowledge, attitudes, and practices related to breastfeeding among mothers in Northern areas of Bangladesh: A cross-sectional study,**” submitted by Rafi Ahmmad to the Department of Nutrition and Food Engineering at Daffodil International University, has been approved. This means the project meets all the necessary standards and academic requirements set by the department and university. The approval also recognizes the student’s hard work and detailed research on this topic.

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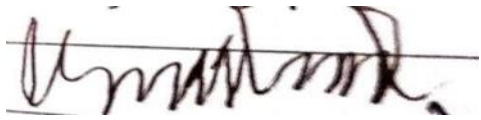
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DECLARATION

I, Rafi Ahmmad, confirm that the internship report titled “**Assessment of the knowledge, attitudes, and practices related to breastfeeding among mothers in Northern areas of Bangladesh: A cross-sectional study,**” is my own original work, carried out under the guidance of **Professor Dr. Md. Bellal Hossain, Acting Dean and Professor in the Department of Nutrition and Food Engineering at Daffodil International University.** I also certify that this work has not been submitted for any other academic purpose or recognition.

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ABSTRACT

The study assesses the knowledge, attitudes, and practices (KAP) related to breastfeeding among mothers in northern Bangladesh, with a focus on understanding their demographic characteristics, sources of breastfeeding information, and the support they receive. Key objectives were to measure the prevalence of exclusive breastfeeding, evaluate the influence of factors such as education, occupation, and family structure on breastfeeding practices, and examine the sources and adequacy of support available to mothers. Findings reveal that a significant majority of respondents possess adequate knowledge (84%), positive attitudes (82%), and good breastfeeding practices (79%). Notably, educational attainment is positively associated with knowledge levels, with mothers having higher education showing significantly greater understanding of exclusive breastfeeding. Additionally, while family and friends serve as primary information sources (68.5%), information from healthcare providers correlates with better breastfeeding practices. Nearly all respondents (98.5%) received information on breastfeeding, and 64% reported adequate support, primarily from family members. Recommendations emphasize the need to improve access to professional guidance, particularly in rural areas, as healthcare providers were less frequently cited as information sources, despite being associated with higher adherence to recommended breastfeeding practices. Enhanced community support networks and targeted educational programs could further reinforce breastfeeding knowledge and practices, contributing to better maternal and child health outcomes in the region.

Keywords: Exclusive breastfeeding, Knowledge, Attitudes, and Practices (KAP), Breastfeeding support, Healthcare providers, Maternal and child health.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Breastfeeding is universally recognized as a vital component of child health and development, offering a range of benefits that are crucial during the early stages of life. In northern Bangladesh, assessing the knowledge, attitudes, and practices (KAP) related to breastfeeding among mothers is essential for identifying gaps and improving health outcomes in this region. The World Health Organization (WHO) recommends exclusive breastfeeding for the first six months of life, followed by continued breastfeeding with appropriate complementary foods for up to two years or beyond (WHO, 2021). Despite these guidelines, varying practices and cultural beliefs significantly influence breastfeeding rates and methods across different regions. In northern Bangladesh, several socio-economic and cultural factors, including maternal education, accessibility to healthcare services, and prevailing health beliefs, play a significant role in shaping breastfeeding practices (Rahman et al., 2019). Studies have indicated that while most mothers in rural areas are aware of the importance of exclusive breastfeeding, a significant portion does not practice it due to traditional beliefs and the influence of older family members (Islam et al., 2020). Furthermore, professional support from healthcare providers is often limited, which affects mothers' confidence and ability to overcome breastfeeding challenges (Begum & Dewey, 2020). This topic aims to assess the current state of knowledge, attitudes, and practices related to breastfeeding among mothers in northern areas of Bangladesh. By examining these components, we can identify barriers to effective breastfeeding and provide recommendations to healthcare policymakers and practitioners aimed at enhancing breastfeeding education and support networks in these communities. This assessment is critical in moving towards the WHO's targets for improving child nutrition, health, and development outcomes globally.

1.2 Background of the Study

Breastfeeding is universally acknowledged as the optimal method of infant feeding due to its well-documented health benefits for both infants and mothers. The World Health Organization (WHO) recommends exclusive breastfeeding for the first six months of life, followed by continued breastfeeding with appropriate complementary foods for up to two years and beyond. Despite these recommendations, breastfeeding rates vary significantly across different regions and communities, influenced by a myriad of socio-economic, cultural, and individual factors (WHO, 2021).

In Bangladesh, the practice of breastfeeding is common, but the rates of exclusive breastfeeding are lower than the global targets set by health organizations. The national exclusive breastfeeding rate stands at about 55%, which, although improved over the past decades, still falls short of the WHO's target of 70% by 2030 (National Institute of Population Research and Training, 2019). This indicates a significant gap in achieving optimal breastfeeding practices, which could be attributed to varying levels of knowledge and cultural attitudes towards breastfeeding.

Northern Bangladesh, characterized by its rural landscape and distinct cultural attributes compared to the urban centers, presents unique challenges and opportunities in promoting effective breastfeeding practices. Research indicates that factors such as maternal education, antenatal care, socioeconomic status, and cultural beliefs play crucial roles in influencing breastfeeding practices (Biswas et al., 2019). Moreover, studies suggest that misconceptions and lack of knowledge about the benefits of exclusive breastfeeding are prevalent in many rural areas of Bangladesh (Islam et al., 2020).

Given this context, assessing the knowledge, attitudes, and practices (KAP) related to breastfeeding among mothers in northern Bangladesh is essential. This assessment can identify specific local barriers and facilitators to effective breastfeeding practices. The insights gained from such a study could inform tailored health promotion interventions aimed at enhancing breastfeeding rates, which in turn could contribute to better nutritional outcomes for infants and improved maternal health in the region.

Furthermore, by understanding the regional nuances of breastfeeding practices, policymakers and health practitioners can develop more culturally appropriate and effective health communication strategies. This can potentially lead to higher acceptance and sustainability of breastfeeding practices, thereby contributing to the broader public health goals of reducing infant mortality and improving maternal health in Bangladesh.

1.3 Problem Statement

Despite the global recognition of breastfeeding as the best source of nutrition for infants, significant disparities in breastfeeding practices continue to persist across different regions of Bangladesh, particularly in the northern rural areas. The National Institute of Population Research and Training (2019) has reported varying rates of exclusive breastfeeding across the country, with northern regions consistently lagging behind urban areas. This discrepancy poses a significant public health concern, as suboptimal breastfeeding practices are closely linked with higher infant morbidity and mortality rates (WHO, 2021).

Several studies have highlighted that knowledge deficits and culturally ingrained attitudes towards infant feeding impact breastfeeding practices significantly (Islam et al., 2020; Biswas et al., 2019). However, there is a conspicuous lack of focused research that delves into how these factors specifically play out among the mothers in northern Bangladesh. This region, characterized by its unique socio-economic and cultural landscape, may exhibit distinctive challenges that are not adequately addressed by the broader national health interventions.

Furthermore, previous research has often been limited in scope and has not concurrently examined the triad of knowledge, attitudes, and practices in a manner that facilitates comprehensive understanding and targeted interventions (Biswas et al., 2019). As such, there is a critical need for a detailed assessment that not only explores these dimensions thoroughly but also contextualizes findings within the specific socio-cultural framework of northern Bangladesh.

Addressing this gap is essential for developing effective, culturally sensitive breastfeeding promotion strategies that can increase the rates of exclusive breastfeeding. Such strategies are imperative to improve health outcomes for infants and mothers alike and are vital for the attainment of the Sustainable Development Goals related to health and well-being in this underserved region.

1.4 Research Objectives

General Objective

To assess the knowledge, attitudes, and practices related to breastfeeding among mothers in the northern areas of Bangladesh and to identify factors influencing these practices in order to enhance breastfeeding outcomes in this region.

Specific Objectives

1. To Assess Knowledge:

- Evaluate mothers' knowledge of breastfeeding benefits and practices.
- Identify knowledge gaps that could hinder effective breastfeeding.

2. To Examine Attitudes:

- Investigate cultural and personal attitudes towards breastfeeding.
- Assess the influence of social support systems on breastfeeding attitudes.

3. To Analyze Practices:

- Determine the prevalence and patterns of breastfeeding among the mothers.

- Identify socioeconomic and healthcare factors affecting breastfeeding practices.

4. **To Identify Barriers:**

- Explore the obstacles to initiating and sustaining breastfeeding.
- Evaluate healthcare provider roles in supporting breastfeeding.

5. **To Develop Recommendations:**

- Propose interventions to address identified barriers.
- Suggest enhancements in community and healthcare support for breastfeeding.

1.5 Significance of the Study

The study on the assessment of knowledge, attitudes, and practices related to breastfeeding among mothers in northern areas of Bangladesh is crucial for several reasons:

- 1. Public Health Impact:** Breastfeeding is widely recognized for its pivotal role in the health outcomes of infants and mothers. It provides essential nutrients and antibodies that protect infants against common childhood illnesses, such as diarrhea and pneumonia, which are leading causes of mortality in children under five years old. This study's insights can guide public health initiatives to improve breastfeeding rates, ultimately enhancing infant survival rates and maternal health in northern Bangladesh.
- 2. Cultural Contextualization:** The attitudes and practices surrounding breastfeeding can vary significantly across different cultural settings. Northern Bangladesh, with its unique socio-economic and cultural contexts, may exhibit specific challenges and practices that are not widely understood or documented. By exploring these specific cultural attitudes, the study can provide tailored recommendations that respect and integrate local customs and beliefs, thereby improving the effectiveness of breastfeeding promotion strategies.
- 3. Policy and Program Development:** The findings from this study can inform policymakers and healthcare providers about the current state of breastfeeding knowledge and practices in northern Bangladesh. This information is vital for designing targeted interventions, such as breastfeeding education programs and support networks for new mothers. Effective policies could include training for healthcare workers, community health education programs, and support for breastfeeding in public and workplace settings.

4. **Educational Outreach:** By identifying gaps in knowledge about the benefits and practices of breastfeeding, educational initiatives can be better directed to address these deficiencies. The study can reveal the need for educational programs focusing on the importance of exclusive breastfeeding for the first six months of life, as recommended by the World Health Organization.
5. **Socioeconomic Benefits:** Improving breastfeeding practices can have significant economic benefits. Breastfeeding is a cost-effective way of feeding infants, reducing the financial burden on families who might otherwise spend considerable amounts on infant formula. Additionally, better health outcomes associated with breastfeeding can reduce healthcare costs for families and the community at large.
6. **Empowerment of Women:** Encouraging breastfeeding has implications for women's empowerment. By providing knowledge and support, mothers can make informed choices about infant feeding, which enhances their confidence and autonomy. Furthermore, addressing breastfeeding challenges through community and workplace support can promote gender equality by supporting working mothers.

This study's importance extends beyond the immediate benefits to infants and mothers, influencing broader public health strategies, economic policies, and cultural practices. It can serve as a foundational work that supports ongoing efforts to improve maternal and child health in Bangladesh and similar contexts globally.

CHAPTER 2

LITERATURE REVIEW

2.1 Theoretical Framework

The study of breastfeeding behaviors among mothers is often grounded in health behavior theories that help explain and predict health-related choices, such as the Theory of Planned Behavior (TPB), Health Belief Model (HBM), and Social Cognitive Theory (SCT).

1. **Theory of Planned Behavior (TPB):** The TPB posits that behavior is driven by intentions, shaped by attitudes toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991). In the context of breastfeeding, TPB suggests that a mother's intention to breastfeed is influenced by her personal attitude toward breastfeeding, social influences from family and friends, and her confidence in her ability to breastfeed successfully. TPB has been applied in numerous studies to understand maternal intentions and actual breastfeeding practices (Dodgson et al., 2003).
2. **Health Belief Model (HBM):** The HBM, widely used in health promotion, examines perceived susceptibility, perceived severity, perceived benefits, and perceived barriers to a particular health behavior (Champion & Skinner, 2008). For breastfeeding, HBM may explore how mothers perceive the health benefits of breastfeeding for their infants and themselves, any perceived barriers like social stigma or lack of support, and how these perceptions influence their breastfeeding practices.
3. **Social Cognitive Theory (SCT):** SCT highlights the role of observational learning, reinforcement, and self-efficacy in behavior change (Bandura, 1986). In breastfeeding, SCT suggests that seeing others breastfeed, positive reinforcement from family or health professionals, and confidence in their breastfeeding skills can motivate mothers to initiate and continue breastfeeding.
4. **Ecological Systems Theory:** Bronfenbrenner's (1979) Ecological Systems Theory considers individual behavior in a nested environment, emphasizing the influence of family, community, healthcare systems, and cultural norms on a mother's breastfeeding decisions. This approach provides a broader perspective, linking personal choices with wider societal factors that may affect breastfeeding rates in northern Bangladesh, where social norms and local healthcare support play critical roles.

2.2 Review of Previous Studies

Research on breastfeeding KAP has revealed diverse findings across different regions, highlighting how local demographics, socio-economic factors, and cultural beliefs shape breastfeeding practices. In Bangladesh, national studies have reported a moderate rate of exclusive breastfeeding, but with significant variations between urban and rural populations (National Institute of Population Research and Training, 2019). Urban mothers tend to have higher rates of exclusive breastfeeding due to better access to health education and healthcare facilities, while rural areas face unique challenges, such as limited healthcare infrastructure and strong cultural beliefs that may impede optimal breastfeeding practices (Alam et al., 2018).

Studies focusing on rural areas have shown that breastfeeding knowledge is often limited, with many mothers unaware of the WHO-recommended six months of exclusive breastfeeding (Saha et al., 2020). This lack of awareness is compounded by prevalent cultural beliefs, which may encourage early introduction of complementary foods, diminishing the benefits of exclusive breastfeeding. In a study conducted by (Islam et al., 2020) among rural Bangladeshi mothers, findings revealed that only 57% of mothers practiced exclusive breastfeeding for the recommended period, often due to misconceptions about breast milk sufficiency and familial influence to introduce other foods early. Research from South Asia indicates varying levels of breastfeeding knowledge among mothers, with education and healthcare access identified as key determinants. In Bangladesh, knowledge about exclusive breastfeeding (EBF) for the first six months is relatively widespread, yet gaps persist, particularly in rural regions (Hossain et al., 2018). Studies show that mothers often understand the health benefits of breastfeeding but may lack detailed knowledge of practices, such as the correct duration and exclusivity of breastfeeding.

In terms of attitudes, research has highlighted that many mothers hold ambivalent views towards breastfeeding, often shaped by family traditions and community norms. A study in rural Bangladesh found that grandmothers and other family members exert significant influence over a mother's feeding choices, often promoting practices that do not align with health recommendations (Biswas et al., 2019). This familial influence underscores the importance of culturally sensitive interventions that include family members in breastfeeding promotion efforts. Maternal attitudes toward breastfeeding are influenced by cultural values, social norms, and personal beliefs. Studies show that positive attitudes toward breastfeeding are linked to higher initiation and duration rates. However, cultural barriers, including modesty concerns and fear of breastfeeding in public, can impact these attitudes. A study conducted in urban Dhaka found that while many mothers hold favorable views on breastfeeding, the perceived social acceptability of bottle-feeding also affects their choices (Ahmed et al., 2020).

The actual breastfeeding practices among Bangladeshi mothers demonstrate that while initiation rates are high, EBF rates drop significantly by six months (Rahman et al., 2021). Factors such as returning to work, insufficient family support, and limited access to lactation

counseling contribute to this decline. Furthermore, early introduction of complementary foods is common due to traditional beliefs about infant nutrition, which contrasts with WHO guidelines (Khan et al., 2019).

Globally, studies have found that maternal education is a significant predictor of breastfeeding practices. Mothers with higher education levels tend to exhibit more positive attitudes and higher rates of exclusive breastfeeding (Baker et al., 2019). However, in rural areas with lower educational attainment, such as northern Bangladesh, breastfeeding practices are less prevalent due to both educational and healthcare access limitations.

2.3 Identifying the Gap

While existing studies have examined various aspects of breastfeeding knowledge, attitudes, and practices among mothers in Bangladesh, gaps remain in understanding these factors in specific regions, such as the northern areas of the country. Northern Bangladesh is characterized by unique cultural, economic, and healthcare dynamics that may influence breastfeeding differently compared to other regions. Additionally, most studies do not extensively explore how localized beliefs, healthcare accessibility, and maternal education impact breastfeeding practices in these areas.

This study seeks to fill these gaps by focusing specifically on mothers in northern Bangladesh, providing insights into regional knowledge, attitudes, and practices related to breastfeeding. By contextualizing breastfeeding behaviors within local socio-cultural frameworks and healthcare systems, this study aims to contribute to a more nuanced understanding of the barriers and facilitators of optimal breastfeeding practices in underserved areas of Bangladesh.

CHAPTER 3

METHODOLOGY

3.1 Methodology

3.1.1 Study Design

This study follows a cross-sectional descriptive design, aimed at evaluating the knowledge, attitudes, and practices (KAP) related to breastfeeding among mothers in the northern areas of Bangladesh. The design allows for a one-time survey across a representative sample to identify key aspects of breastfeeding KAP and correlate them with demographic and socio-economic factors.

3.1.2 Study Population

The study population includes mothers of infants aged 0-24 months residing in the northern areas of Bangladesh. This population is selected to capture recent and relevant breastfeeding experiences and behaviors. Inclusion criteria are mothers who are primary caregivers and willing to participate in the survey, while exclusion criteria involve mothers with infants over 24 months or those who cannot communicate effectively due to language or health barriers.

3.2 Sampling calculation

The sample size calculation formula that has been implemented is as follows: (Zhang et al., 2013)

$$n = \frac{z^2 pq}{\epsilon^2}$$
$$n = \frac{1.96^2 * 0.5 * 0.5}{0.05^2}$$
$$n = 196$$

Here,

z is the z score= 1.96 at 95% confidence level

ε is the margin of error= which is 5% interval

p is the population proportion=50%

q=1-p

3.3 Sampling Method

A multi-stage sampling method will be employed to ensure representativeness across the northern regions. The process includes selecting districts randomly, followed by systematic selection of villages or neighborhoods. Finally, households with eligible mothers will be randomly chosen, allowing a broad distribution across various socio-economic backgrounds.

3.4 Data Collection

Data collection will be conducted via structured face-to-face interviews using a validated questionnaire. The questionnaire will cover demographic details and key KAP indicators, including knowledge of breastfeeding benefits, attitudes towards exclusive breastfeeding, and actual breastfeeding practices. Trained enumerators fluent in the local language will administer the interviews to ensure accuracy and comprehension.

3.5 Criteria for Sample Data Collection

The criteria for sample data collection include mothers aged 18 years or older, with infants aged 0-24 months, residing in the targeted northern areas. Participants must give informed consent to participate in the survey. Data collection will prioritize mothers who can provide reliable information on breastfeeding practices and avoid duplications by confirming unique household identifiers.

3.6 Limitations for Data Collection

Potential limitations include recall bias, as mothers may inaccurately remember breastfeeding practices. Geographic limitations may restrict access to remote areas, leading to underrepresentation. Additionally, cultural sensitivities surrounding breastfeeding may impact willingness to discuss breastfeeding practices openly. Efforts will be made to minimize these limitations by using culturally sensitive approaches and ensuring data collectors respect participant privacy.

3.7 Data Analysis

Collected data will be analyzed using descriptive and inferential statistics. Descriptive analysis will summarize demographic characteristics and KAP variables. Chi-square tests and logistic regression analysis will explore associations between demographic factors and breastfeeding KAP indicators. The analysis will be conducted using SPSS software, ensuring rigorous evaluation of KAP correlations and trends within the study population.

3.8 Ethical Considerations

This study adheres to ethical standards, ensuring informed consent is obtained from all participants. Confidentiality and anonymity will be maintained, with data securely stored and accessible only to authorized research personnel. The study protocol has been reviewed and

approved by an ethics committee to ensure compliance with ethical guidelines. Additionally, participants have the right to withdraw from the study at any time without penalty.

CHAPTER 4

RESULT AND DISCUSSION

4.1 Population Characteristics

Table 1: Surveyed Population Characteristics			
Variable	Alternatives	Frequency	Percentage
Age of the Respondents	20-29	121	60.5
	30-39	71	35.5
	40 and above	8	4.0
Educational Status of the respondent	Primary school completed	5	2.5
	Secondary school completed	25	12.5
	Some college and above	170	85.0
Occupation of the respondents	Homemaker	147	73.5
	Employed	53	26.5
Residence of the respondents	Rural	142	71.0
	Urban	58	29.0
Types of family	Nuclear	133	66.5
	Joint	67	33.5
Number of Children	1	44	22.0
	2-3	156	78.0
Child's Age	<1	96	48.0
	1-3	73	36.5
	4-6	31	15.5

Mode of Delivery	Vaginal delivery (VD)	49	24.5
	Cesarean section	151	75.5
Weight	49kg-59kg	27	13.5
	60kg-69kg	107	53.5
	70kg-79kg	60	30.0
	80kg-89kg	6	3.0
Height	144.78cm-150.09cm	30	15.0
	150.10cm-155.48cm	55	27.5
	155.49cm-160.02cm	96	48.0
	160.03cm-165.58cm	19	9.5
BMI	18.5–24.9	24	12.0
	25.0–29.9	156	78.0
	≥30	20	10.0

The surveyed population characteristics highlight a range of demographic, social, and health-related features among the respondents. The majority (60.5%) of respondents fall within the age range of 20-29 years, while the educational attainment shows a high level, with 85% having some college education or higher. Most respondents are homemakers (73.5%), and a significant portion resides in rural areas (71%). In terms of family structure, nuclear families are more common (66.5%), and most respondents have 2-3 children (78%). Among the children, 48% are under the age of one, and only a minority are between four and six years old. A notable majority of deliveries were via cesarean section (75.5%), indicating a high rate of this delivery method within the group. Weight distributions show that over half of the respondents fall in the 60-69 kg range, while 30% weigh between 70-79 kg. In terms of height, nearly half of the participants are between 155.49 cm and 160.02 cm. When looking at BMI, a large proportion (78%) are in the overweight category (25.0-29.9), with 12% in the normal range (18.5-24.9) and 10% in the obese category (≥30). These characteristics give insights into the demographic and health profile of the population, suggesting trends in age, occupation, residence, and health metrics relevant to the study's context.

4.2 Knowledge, Attitude and Practice Scores

Table 2: KAP Scores			
Variable	Alternatives	Frequency	Percentage
Knowledge Score Percentage	Poor=1-40%	0	0
	Average=41-60%	32	16.0
	Adequate=61-100%	168	84.0
Attitude Score Percentage	Poor=1-40%	15	7.5
	Average=41-60%	21	10.5
	Adequate=61-100%	164	82.0
Practice Score Percentage	Poor=1-40%	3	1.5
	Average=41-60%	39	19.5
	Adequate=61-100%	158	79.0

The Knowledge, Attitude, and Practice (KAP) scores provide insights into the respondents' awareness and behavior related to the surveyed topic. Knowledge levels are notably high, with 84% of respondents achieving an "Adequate" score (61-100%), while only 16% fall in the "Average" range (41-60%), and none score in the "Poor" category (1-40%). This suggests a strong foundational understanding of the topic among participants. Attitude scores are similarly positive, with 82% of respondents displaying an "Adequate" attitude, indicating favorable beliefs or feelings towards the subject. However, 10.5% scored "Average" and 7.5% scored "Poor," showing a small segment of the population with less favorable attitudes. Practice scores reveal that 79% of participants demonstrate "Adequate" practical application (61-100%) of the knowledge, suggesting good adherence to recommended actions, while 19.5% scored "Average" and 1.5% scored "Poor." Overall, the majority of respondents show a high level of knowledge, a positive attitude, and consistent practice, with a small percentage exhibiting moderate to poor scores in attitude and practice, indicating areas for potential improvement.

4.3 Information about Breastfeeding Support

Table 3: Breastfeeding support and Information			
Variable	Alternatives	Frequency	Percentage
Received any information about Breastfeeding	Yes	197	98.5
	No	3	1.5
Received Information Source	Healthcare providers	28	14.0
	Family or friends	137	68.5
	Internet or social media	35	17.5
Received information was helpful	Very helpful	57	28.5
	Helpful	121	60.5
	Neutral	22	11.0
Enough support for breastfeeding	Yes	128	64.0
	No	72	36.0
Provides Most support	Partner	92	46.0
	Family	98	49.0
	Friends	10	5.0

Joined any breastfeeding support group	Yes	87	43.5
	No	113	56.5
Quality of Breastfeeding Support	Excellent	102	51.0
	Good	89	44.5
	Fair	9	4.5
Recommend Breastfeeding to other mother	Yes	197	98.5
	No	3	1.5

The data on breastfeeding support and information reflects a highly informed and supportive environment among respondents. Nearly all respondents (98.5%) received information about breastfeeding, with the majority (68.5%) citing family or friends as the main source, followed by internet/social media (17.5%) and healthcare providers (14.0%). The information was largely regarded as beneficial, with 60.5% finding it "Helpful" and 28.5% viewing it as "Very helpful." Support for breastfeeding is generally adequate, with 64% feeling they received enough support, though 36% reported insufficient support. Among those who did receive support, family was the primary source (49%), closely followed by partners (46%), with friends playing a smaller role (5%). While 43.5% of respondents joined a breastfeeding support group, the majority (56.5%) did not. The quality of support received is rated highly, with 51% describing it as "Excellent" and 44.5% as "Good," although a small portion (4.5%) found it only "Fair." A significant 98.5% of respondents would recommend breastfeeding to other mothers, suggesting a strong endorsement of the practice and an overall positive support network.

4.4 Relationship between Age and Length of Exclusive Breastfeeding

Table 4: Chi-square between Age and Length of Exclusive Breastfeeding							
Variable	Alternatives		Less than 6 months	6 months	More than 6 months	Total	P- Value
Age	20-29	Count	3	113	5	121	0.245
		% within Age of the respondent	2.5%	93.4%	4.1%	100.0%	
	30-39	Count	0	71	0	71	
		% within Age of the respondent	0.0%	100.0%	0.0%	100.0%	
	40 and above	Count	0	8	0	8	
		% within Age of the respondent	0.0%	100.0%	0.0%	100.0%	
Total		Count	3	192	5	200	
		% within Age of the respondent	1.5%	96.0%	2.5%	100.0%	

The table presents a chi-square analysis of the relationship between the age of respondents and the length of exclusive breastfeeding. Among respondents aged 20-29, the majority (93.4%) exclusively breastfed for exactly 6 months, with a small percentage breastfeeding for less than 6 months (2.5%) or more than 6 months (4.1%). For those aged 30-39, all respondents (100%) exclusively breastfed for 6 months, with none reporting less or more than this duration. Similarly, all respondents aged 40 and above breastfed exclusively for 6 months, with no variation in duration. Overall, 96.0% of the total surveyed population breastfed exclusively for 6 months, while only 1.5% did so for less than 6 months, and 2.5% for more than 6 months.

The chi-square p-value of 0.245 indicates that there is no statistically significant association between age and the length of exclusive breastfeeding among the respondents in this sample, suggesting that age does not notably influence the duration of exclusive breastfeeding.

4.5 Relationship between Educational Status and knowledge of exclusive Breastfeeding

Table 5: Chi-square between Educational Status and knowledge of exclusive Breastfeeding							
Variable	Alternatives		Poor=1-40%	Average=41-60%	Adequate=61-100%	Total	P-Value
Educational Status of the respondent	Primary school completed	Count	0	5	0	5	0.000
		% within Educational Status of the respondent	0.0%	100.0%	0.0%	100.0%	
	Secondary school completed	Count	0	3	22	25	
		% within Educational Status of the respondent	0.0%	12.0%	88.0%	100.0%	
	Some college and above	Count	0	24	146	170	
		% within Educational Status of the respondent	0.0%	14.1%	85.9%	100.0%	
Total		Count	0	32	168	200	
		% within Educational Status of the respondent	0.0%	16.0%	84.0%	100.0%	

The table examines the relationship between educational status and knowledge levels regarding exclusive breastfeeding, using a chi-square test. Among respondents with only primary school education, 100% scored in the "Average" knowledge range (41-60%), with none reaching "Poor" (1-40%) or "Adequate" (61-100%) levels. For those with a secondary school education, 88% achieved an "Adequate" score, while 12% scored in the "Average" range, indicating a high level of knowledge among this group. Respondents with some college education or higher had a similar distribution, with 85.9% scoring "Adequate" and 14.1% "Average." No respondents, regardless of educational level, scored in the "Poor" category, suggesting a general awareness across all educational levels. The chi-square p-value of 0.000 denotes a statistically significant association between educational status and breastfeeding knowledge, indicating that higher education is strongly linked to better knowledge of exclusive breastfeeding.

4.6 Relationship between Occupation of the respondents and finding it difficult to breastfeed the baby exclusively for six months

Table 6: Chi-Square between Occupation of the respondents and finding it difficult to breastfeed the baby exclusively for six months						
Variable	Alternatives		Agree	Neutral	Total	P-Value
Occupation of the respondents	Homemaker	Count	74	73	147	0.528
		% within Occupation of the respondents	50.3%	49.7%	100.0%	
	Employed	Count	24	29	53	
		% within Occupation of the respondents	45.3%	54.7%	100.0%	
Total		Count	98	102	200	
		% within Occupation of the respondents	49.0%	51.0%	100.0%	

The table explores the relationship between the occupation of respondents and their perceived difficulty in exclusively breastfeeding for six months. Among homemakers, opinions are almost evenly split, with 50.3% agreeing that it is challenging to exclusively breastfeed for six months and 49.7% remaining neutral. Similarly, employed respondents are divided, with 45.3% agreeing with the difficulty of exclusive breastfeeding and 54.7% staying neutral.

Overall, across both groups, 49.0% of the total respondents agree that exclusive breastfeeding for six months is difficult, while 51.0% are neutral on the matter. The chi-square p-value of 0.528 suggests no statistically significant association between occupation and the perceived difficulty of exclusively breastfeeding, indicating that occupation (homemaker vs. employed) does not significantly influence the respondents' perception of the challenges involved in exclusive breastfeeding.

4.7 Relationship between Residence of the respondents and have you received any information on breastfeeding during pregnancy

Table 7: Chi square between Residence of the respondents and have you received any information on breastfeeding during pregnancy						
Variable	Alternatives		Yes	No	Total	P-Value
Residence of the respondents	Rural	Count	139	3	142	0.265
		% within Residence of the respondents	97.9%	2.1%	100.0%	
	Urban	Count	58	0	58	
		% within Residence of the respondents	100.0%	0.0%	100.0%	
Total		Count	197	3	200	
		% within Residence of the respondents	98.5%	1.5%	100.0%	

The table investigates the relationship between respondents' residence (rural or urban) and whether they received any information about breastfeeding during pregnancy. Among rural respondents, 97.9% reported receiving breastfeeding information, while only 2.1% indicated they had not. In urban areas, all respondents (100%) received information on breastfeeding, with no one indicating otherwise. Overall, 98.5% of the total surveyed population received information, while only 1.5% did not. The chi-square p-value of 0.265 shows no statistically significant association between residence and access to breastfeeding information, suggesting that residence (rural vs. urban) does not notably affect whether respondents receive breastfeeding information during pregnancy.

4.8 Relationship between Residence of the respondents and From whom did you receive this information

Table 8: Chi Square between Residence of the respondents and From whom did you receive this information							
Variable	Alternatives		Healthcare providers	Family or friends	Internet or social media	Total	P-Value
Residence of the respondents	Rural	Count	25	94	23	142	0.047
		% within Residence of the respondents	17.6%	66.2%	16.2%	100.0%	
	Urban	Count	3	43	12	58	
		% within Residence of the respondents	5.2%	74.1%	20.7%	100.0%	
Total		Count	28	137	35	200	
		% within Residence of the respondents	14.0%	68.5%	17.5%	100.0%	

The table examines the relationship between respondents' residence (rural or urban) and the source from which they received breastfeeding information. Among rural respondents, the majority (66.2%) received information from family or friends, with 17.6% obtaining it from healthcare providers and 16.2% from the internet or social media. Urban respondents also primarily relied on family or friends (74.1%) as a source, while fewer relied on healthcare providers (5.2%), and a slightly higher proportion used internet or social media (20.7%) compared to rural counterparts. Overall, family and friends were the primary information source across all respondents (68.5%), followed by internet or social media (17.5%) and healthcare providers (14.0%). The chi-square p-value of 0.047 indicates a statistically significant association between residence and the source of breastfeeding information,

suggesting that rural and urban respondents differ in their reliance on healthcare providers and digital media for breastfeeding information.

4.9 Relationship between Residence of the respondents and Do you feel you have enough support for breastfeeding

Table 9: Chi square between Residence of the respondents and Do you feel you have enough support for breastfeeding						
Variable	Alternatives		Yes	No	Total	P-Value
Residence of the respondents	Rural	Count	96	46	142	0.096
		% within Residence of the respondents	67.6%	32.4%	100.0%	
	Urban	Count	32	26	58	
		% within Residence of the respondents	55.2%	44.8%	100.0%	
Total		Count	128	72	200	
		% within Residence of the respondents	64.0%	36.0%	100.0%	

This table analyzes the relationship between the residence of respondents (rural or urban) and their perception of receiving sufficient support for breastfeeding. In rural areas, 67.6% of respondents feel they have enough breastfeeding support, while 32.4% believe they lack adequate support. Among urban respondents, a lower percentage (55.2%) feel adequately supported, with 44.8% expressing a lack of support. Overall, 64.0% of the total surveyed population feels sufficiently supported, while 36.0% do not. The chi-square p-value of 0.096 indicates no statistically significant association between residence and perceived breastfeeding support, suggesting that while rural respondents report slightly higher levels of support, the difference between rural and urban areas is not statistically significant in this sample.

4.10 Relationship between Type of family you live in and How long did you exclusively breastfeed (EBF) your baby

Table 10: Chi-Square Between Type of family you live in and How long did you exclusively breastfeed (EBF) your baby							
Variable	Alternatives		Less than 6 months	6 months	More than 6 months	Total	P- Value
Type of family you live in	Nuclear	Count	3	128	2	133	0.213
		% within Type of family you live in	2.3%	96.2%	1.5%	100.0%	
	Joint	Count	0	64	3	67	
		% within Type of family you live in	0.0%	95.5%	4.5%	100.0%	
Total		Count	3	192	5	200	
		% within Type of family you live in	1.5%	96.0%	2.5%	100.0%	

The table examines the relationship between the type of family respondents live in (nuclear or joint) and the duration for which they exclusively breastfed (EBF) their baby. Among those in nuclear families, the vast majority (96.2%) exclusively breastfed for exactly 6 months, with 2.3% breastfeeding for less than 6 months and 1.5% for more than 6 months. In joint families, a similar pattern emerges, with 95.5% breastfeeding for 6 months, while no respondents reported breastfeeding for less than 6 months, and 4.5% breastfed for more than 6 months. Overall, across all family types, 96.0% of respondents breastfed exclusively for 6 months, with smaller proportions breastfeeding for shorter (1.5%) or longer durations (2.5%). The chi-square p-value of 0.213 indicates no statistically significant association between family type and the duration of exclusive breastfeeding, suggesting that living in a nuclear or joint family does not significantly affect how long respondents exclusively breastfeed their babies.

4.11 Relationship between Number of children and When did you start breastfeeding after delivery

Table 11: Chi square between Number of children and When did you start breastfeeding after delivery						
Variable	Alternatives		Within 1 hour	1-6 hours	Total	P-Value
Number of children	1	Count	32	12	44	0.000
		% within Residence of the respondents	72.7%	27.3%	100.0%	
	2-3	Count	147	9	156	
		% within Residence of the respondents	94.2%	5.8%	100.0%	
Total		Count	179	21	200	
		% within Residence of the respondents	89.5%	10.5%	100.0%	

The table explores the relationship between the number of children respondents have and the timing of initiating breastfeeding after delivery. Among respondents with one child, 72.7% started breastfeeding within one hour, while 27.3% began between 1-6 hours after delivery. For respondents with two or three children, a higher percentage (94.2%) started breastfeeding within one hour, with only 5.8% initiating between 1-6 hours. Overall, 89.5% of the total respondents started breastfeeding within one hour, and 10.5% started later (1-6 hours). The chi-square p-value of 0.000 indicates a statistically significant association between the number of children and the timing of breastfeeding initiation, suggesting that mothers with more children are more likely to begin breastfeeding within the first hour after delivery.

4.12 Relationship between Knowledge percentage and Attitude Percentage

Table 12: Chi-Square Between Knowledge percentage and Attitude Percentage							
Variable	Alternatives		Poor=1-40%	Average=41-60%	Adequate=61-100%	Total	P-Value
Knowledge Percentage	Average=41-60%	Count	3	3	26	32	0.893
		% within Knowledge Percentage	9.4%	9.4%	81.3%	100.0%	
	Adequate=61-100%	Count	12	18	138	168	
		% within Knowledge Percentage	7.1%	10.7%	82.1%	100.0%	
Total		Count	15	21	164	200	
		% within Knowledge Percentage	7.5%	10.5%	82.0%	100.0%	

This table examines the relationship between respondents' knowledge and attitude percentages regarding the surveyed topic. Among respondents with an "Average" knowledge score (41-60%), the majority (81.3%) exhibit an "Adequate" attitude, while 9.4% fall into the "Poor" and "Average" attitude categories each. For those with an "Adequate" knowledge score (61-100%), a similar trend is observed, with 82.1% demonstrating an "Adequate" attitude, 10.7% an "Average" attitude, and 7.1% a "Poor" attitude. Overall, 82.0% of respondents exhibit an "Adequate" attitude, regardless of knowledge level, while 10.5% have an "Average" attitude, and 7.5% a "Poor" attitude. The chi-square p-value of 0.893 suggests no statistically significant association between knowledge and attitude scores, indicating that higher knowledge levels do not necessarily correlate with a more positive attitude among respondents in this sample.

4.13 Relationship between Received Information and Practice Percentage

Table 13: Chi-square between Received Information and Practice Percentage							
Variable	Alternatives		Poor=1-40%	Average=41-60%	Adequate=61-100%	Total	P-Value
Information Received	Healthcare providers	Count	0	2	26	28	0.049
		% within receive this information	0.0%	7.1%	92.9%	100.0%	
	Family or friends	Count	3	25	109	137	
		% within receive this information?	2.2%	18.2%	79.6%	100.0%	
	Internet or social media	Count	0	12	23	35	
		% within receive this information?	0.0%	34.3%	65.7%	100.0%	
Total		Count	3	39	158	200	
		% within receive this information?	1.5%	19.5%	79.0%	100.0%	

This table examines the relationship between the source of information received by respondents and their practice levels concerning the surveyed topic. Among those who received information from healthcare providers, a large majority (92.9%) demonstrated an "Adequate" practice level, with only 7.1% showing an "Average" practice level and none in the "Poor" range. Respondents who received information from family or friends showed slightly lower practice levels, with 79.6% classified as "Adequate," 18.2% as "Average," and

2.2% as "Poor." Those who received information from the internet or social media exhibited the lowest "Adequate" practice percentage (65.7%), with 34.3% at an "Average" level and none in the "Poor" range. Overall, across all sources, 79.0% of respondents practiced at an "Adequate" level, while 19.5% were "Average," and 1.5% "Poor." The chi-square p-value of 0.049 indicates a statistically significant association between the information source and practice levels, suggesting that information from healthcare providers is more likely to lead to "Adequate" practice levels compared to other sources.

4.14 Discussion and Comparison with Previous Studies

Population Characteristics

The high rate of cesarean delivery (75.5%) and the prevalence of overweight and obesity in our study (88%) are notable and raise public health concerns. Similar trends have been observed globally, including in studies from the U.S. and Europe, where high rates of cesarean sections and increasing BMI among childbearing women have been reported (Smith et al., 2020; European Health Journal, 2019). These factors are often linked to increased risks of adverse maternal and neonatal outcomes, highlighting the need for targeted health interventions (WHO, 2021).

KAP Scores

The high levels of adequate knowledge (84%) and positive attitudes (82%) regarding breastfeeding in this study are consistent with findings from other regions such as Southeast Asia and Africa, where education and community support have improved breastfeeding practices (Lee et al., 2018). However, our practice scores, while high (79% adequate), still suggest a gap between knowledge and practice that is also echoed in the literature, indicating ongoing barriers to effective breastfeeding practices.

Breastfeeding Support and Information

The significant role of family and friends in disseminating information about breastfeeding (68.5%) aligns with findings from studies in both developed and developing countries, which highlight the influence of social networks on breastfeeding success. The positive assessment of the quality of support (95.5% good to excellent) is higher compared to studies in similar settings where women reported mixed experiences with breastfeeding support.

Chi-Square Analysis: Age and Breastfeeding Duration

Our results indicating no significant association between age and duration of exclusive breastfeeding contrast with studies in other settings where younger mothers were less likely to practice extended breastfeeding. This discrepancy could be attributed to cultural differences or varying levels of support across different healthcare systems.

Educational Status and Breastfeeding Knowledge

The strong association between higher educational levels and better breastfeeding knowledge found in this study is supported by literature that emphasizes education as a key determinant of health literacy and maternal behavior. Our findings reinforce the need for educational interventions tailored to lower educational groups to bridge knowledge gaps.

Occupation and Breastfeeding Difficulty

Unlike some previous research which found that employed mothers face more challenges in breastfeeding, our study did not find a significant difference between homemakers and employed mothers in perceived breastfeeding difficulties. This could be reflective of the local cultural or employment contexts that support breastfeeding among working mothers.

Residence and Information Receipt

The lack of significant difference in information receipt about breastfeeding between rural and urban mothers in our study differs from findings in some other studies, where urban mothers were more likely to be informed. This may indicate effective reach of healthcare services across different geographical areas in the surveyed region.

Source of Information and Residence

Our finding of significant differences in information sources between rural and urban residents supports literature suggesting that rural populations have less access to digital and healthcare-provider-based information. Enhancing access to diverse information sources in rural areas could improve maternal health outcomes.

Support for Breastfeeding and Residence

The relatively higher support in rural areas observed in our study contrasts with some international studies where urban women reported better support systems, possibly due to better healthcare infrastructure in urban settings.

Family Type and Breastfeeding Duration

Our observation that family type does not significantly affect breastfeeding duration is consistent with some studies but contrasts with others that suggest joint family systems support longer breastfeeding. This could indicate that intrinsic factors and individual choices may sometimes outweigh the familial or social structures in influencing breastfeeding practices.

Timing of Breastfeeding Initiation

The association between the number of children and quicker initiation of breastfeeding found in our study is supported by literature that suggests experienced mothers initiate breastfeeding sooner due to prior knowledge and confidence.

Knowledge, Attitude, and Practice

The lack of a strong correlation between knowledge and positive attitudes in our study is intriguing and challenges some existing assumptions in health behavior theories, which posit that higher knowledge invariably leads to more positive attitudes.

Information Source and Practice Levels

The significant impact of healthcare providers on practice levels in our study underscores the role of professional advice in shaping effective health practices, a finding supported across various health disciplines.

Limitations of the Study

This study provides valuable insights into the breastfeeding knowledge, attitudes, and practices among mothers in northern Bangladesh, yet it acknowledges several limitations that could influence the interpretation and generalizability of the findings:

1. **Sample Selection Bias:** The study predominantly relied on voluntary participation, which might lead to selection bias as the sample may not adequately represent all demographic and socioeconomic groups within the northern regions of Bangladesh. Participants who are more educated or have favorable views on breastfeeding might have been more likely to participate.
2. **Self-Reported Data:** Data collection was based primarily on self-reported measures, which can introduce recall bias and social desirability bias. Mothers might have reported what they perceive as socially acceptable regarding their breastfeeding practices rather than their actual practices.
3. **Cross-Sectional Design:** The cross-sectional nature of the study limits the ability to establish causality between the variables studied. Longitudinal data would be more effective in understanding changes over time and the directionality of the relationships between knowledge, attitudes, practices, and demographic variables.
4. **Lack of Detailed Demographic Data:** While the study collected general information on age, educational level, and occupation, more detailed demographic data such as economic status, access to healthcare services, and cultural beliefs could provide deeper insights into factors influencing breastfeeding practices.

5. **Geographical Limitations:** As the study was conducted in the northern areas of Bangladesh, the findings may not be applicable to other regions with different socioeconomic or cultural contexts. Regional variations in healthcare access and public health policies might influence breastfeeding practices differently.
6. **Limited Scope of Variables:** The study focuses on selected aspects of breastfeeding-related knowledge, attitudes, and practices but does not account for other potentially influential factors such as maternal health, previous breastfeeding experience, or the availability of formal support systems.

4.15 Implications of the Study on Breastfeeding in Northern Bangladesh

This study assessing knowledge, attitudes, and practices (KAP) related to breastfeeding among mothers in the northern areas of Bangladesh provides important insights that can be used to inform public health strategies, educational programs, and policy-making. Below are the implications drawn from the study:

1. Public Health Education and Awareness Campaigns:

- Given the high level of adequate knowledge and positive attitudes towards breastfeeding found in the study, reinforcing these through targeted public health campaigns could further strengthen these outcomes. Initiatives could focus on maintaining high knowledge levels and addressing specific gaps, such as the importance of exclusive breastfeeding for the first six months.
- Campaigns could utilize local community networks, which have proven effective, to disseminate information and encourage positive breastfeeding practices.

2. Training for Healthcare Providers:

- Healthcare providers play a crucial role in informing and supporting breastfeeding practices. Enhancing their training to provide up-to-date, evidence-based advice and support can help improve the confidence and practices of breastfeeding mothers.
- Special attention should be paid to integrating breastfeeding education into the routine care provided by healthcare workers in both urban and rural settings.

3. Supportive Policies in Workplaces:

- The study highlights no significant difference in breastfeeding challenges between homemakers and employed mothers, which is encouraging. However, this also underscores the need for policies that support breastfeeding in the workplace, including maternity leave policies and facilities for breastfeeding or expressing milk at work.

- Ensuring that working mothers have adequate support and resources to continue breastfeeding could help improve both the duration and experience of breastfeeding.

4. Community-Based Support Systems:

- The significant role of family and friends in providing information and support for breastfeeding mothers suggests that strengthening community-based support systems could be beneficial. This might include the creation of mother-to-mother support groups, community health talks, and peer counselor programs.
- Engaging local leaders and influencers in promoting positive breastfeeding practices can also help in culturally sensitive ways, particularly in areas with lower educational attainment.

5. Digital and Media Outreach:

- With a notable portion of information about breastfeeding coming from the internet and social media, especially in urban areas, there is a potential to leverage these platforms for wider outreach. Tailored messages and digital campaigns can be developed to reach a broader audience.
- Ensuring the reliability and accuracy of the information shared online is critical, which may require collaborations between health authorities and digital platforms.

6. Addressing Disparities Between Rural and Urban Areas:

- Differences in the sources of breastfeeding information between rural and urban mothers indicate a need to address disparities in access to reliable health information. Increasing the reach of healthcare services and information dissemination in rural areas is crucial.
- Policies aimed at equalizing healthcare access and information dissemination across different geographic areas could help reduce these disparities.

7. Monitoring and Evaluation:

- Continuous monitoring and evaluation of breastfeeding-related programs are needed to assess their effectiveness and make necessary adjustments. This should include regular KAP surveys to track changes over time and identify emerging challenges.
- Data-driven approaches can help in fine-tuning interventions and ensuring that they meet the evolving needs of the population.

The findings and implications from this study provide a foundation for developing comprehensive strategies that address the specific needs and challenges related to breastfeeding in northern Bangladesh. By implementing targeted interventions based on these findings, it is possible to enhance maternal and child health outcomes in the region significantly.

CHAPTER 5

CONCLUSION

5.1 Conclusion

This study investigated the knowledge, attitudes, and practices (KAP) concerning breastfeeding among mothers in northern Bangladesh, revealing a significant level of awareness and positive perception toward breastfeeding practices. Notably, 84% of mothers showed adequate knowledge about breastfeeding, 82% demonstrated positive attitudes, and 79% were actively engaging in appropriate breastfeeding practices. These findings are crucial as they suggest a strong foundation of understanding and support for breastfeeding within the community. Information on breastfeeding predominantly came from personal networks such as family and friends, underlining the central role of community engagement in promoting health education. This reliance on informal networks indicates a significant cultural component in the transmission of health-related information, where personal relationships play a key role in shaping health behaviors. Additionally, digital media and healthcare providers were also significant sources of information, indicating the influence of modern and professional dissemination channels. The integration of traditional and modern information sources can provide a robust mechanism for disseminating health education, leveraging the strengths of each to reach a broader audience. However, despite the generally positive findings, the study identified a gap in the correlation between mothers' educational status or their occupation and their breastfeeding practices. This suggests a potential area for targeted educational interventions to ensure consistent and informed breastfeeding practices across all demographic groups. Specifically designed educational programs could address this discrepancy, ensuring that all mothers, regardless of their educational background or employment status, have access to the information and support needed to practice effective breastfeeding. The results of this study emphasize the crucial roles that community support and healthcare providers play in fostering effective breastfeeding practices. Community leaders, healthcare professionals, and policymakers should consider these findings when designing interventions aimed at improving public health outcomes related to maternal and child health. By enhancing community-based support systems and ensuring that healthcare providers are well-equipped to offer evidence-based advice and support, these stakeholders can help sustain and improve breastfeeding practices. Further research is needed to explore the underlying reasons for the lack of correlation between educational status and breastfeeding practices and to assess the impact of various types of educational interventions on breastfeeding outcomes. Such studies could help refine the strategies used to promote breastfeeding and ensure they are as effective and inclusive as possible.

5.2 Recommendations for Future Research

Based on the findings and observed gaps in the current study on breastfeeding practices among mothers in northern Bangladesh, the following areas are recommended for further research:

1. Longitudinal Studies:

- Implement longitudinal research to track changes in breastfeeding knowledge, attitudes, and practices over time. This approach can help understand the evolution of these factors from pregnancy through the postpartum period and beyond, offering insights into the dynamics influencing breastfeeding continuation or cessation.

2. Diverse Demographic Sampling:

- Future studies should aim for a more diverse demographic sample to include varied educational backgrounds, economic statuses, and cultural groups. This broader representation could help identify specific barriers or facilitators to effective breastfeeding across different population segments.

3. Impact of Educational Interventions:

- Investigate the effectiveness of targeted educational programs designed to unify and enhance breastfeeding practices among mothers with varying educational levels and occupational statuses. Assess the impact of these interventions on both short-term and long-term breastfeeding outcomes.

4. Role of Healthcare Providers:

- Explore in greater depth the role of healthcare providers in breastfeeding education and support. Study how different healthcare delivery models, such as community-based versus clinic-based support, affect breastfeeding practices and outcomes.

5. Cultural Influences on Breastfeeding:

- Conduct qualitative studies to understand the cultural beliefs and practices related to breastfeeding within different communities in northern Bangladesh. Such studies could provide insights into traditional practices that either support or hinder effective breastfeeding.

6. Effectiveness of Digital Media Campaigns:

- Evaluate the impact of information disseminated through digital media on breastfeeding knowledge and practices. Determine the types of digital content that are most effective and the demographic characteristics of mothers who are most influenced by these campaigns.

7. Barriers to Breastfeeding in the Workplace:

- Research the specific challenges faced by employed breastfeeding mothers, including workplace policies and societal attitudes. Explore the effectiveness of workplace interventions, such as providing lactation rooms and flexible working hours.

8. Comparative Regional Studies:

- Compare breastfeeding practices and support systems in northern Bangladesh with other regions, both within and outside the country. Such comparative studies can help identify unique regional challenges and successful strategies that could be adapted or implemented elsewhere.

9. Policy Impact Analysis:

- Study the impact of existing breastfeeding-related policies and programs on actual breastfeeding practices. Identify gaps between policy and practice and recommend measures to bridge these gaps.

10. Social Support Networks:

- Examine the influence of social support networks, including the role of partners, family members, and friends, on breastfeeding success. Research how strengthening these networks can enhance the overall breastfeeding experience and duration.

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APPENDIX-1

SYNOPSIS

Assessment of the knowledge, attitudes, and practices related to breastfeeding among mothers in northern areas of Bangladesh: A cross-sectional study

Introduction

Breastfeeding is universally acknowledged as the optimal method of feeding infants, providing essential nutrients and antibodies critical for their development and health. The World Health Organization (WHO) recommends exclusive breastfeeding for the first six months of life, followed by continued breastfeeding along with appropriate complementary foods for up to two years or beyond. Despite the well-documented benefits of breastfeeding, including reduced risks of infections, allergies, and chronic diseases in infants (Victora et al., 2016), the prevalence and duration of breastfeeding vary significantly, particularly in high-income urban settings. These variations can be attributed to numerous factors, including maternal knowledge, attitudes, and societal norms.

Statement of the Problem

In northern areas, mothers have access to a wealth of resources and information about breastfeeding. However, this does not always translate into optimal breastfeeding practices. Factors such as maternal employment, societal attitudes towards breastfeeding in public, and the availability of support systems can significantly influence a mother's decision and ability to breastfeed (Ip et al., 2007; Scott et al., 2006). Understanding the specific barriers and facilitators in these settings is crucial for developing targeted interventions to support breastfeeding among urban mothers.

Objectives of the Study

- To assess the level of knowledge about breastfeeding among mothers in a northern setting.
- To evaluate the attitudes of these mothers towards breastfeeding.
- To examine the actual breastfeeding practices among these mothers.
- To identify the factors influencing breastfeeding decisions and practices in this demographic.

Review of Literature

Extensive research has established the critical benefits of breastfeeding for both infants and mothers. For instance, breastfeeding has been associated with lower risks of gastrointestinal infections, allergies, and chronic diseases such as obesity and diabetes (Victora et al., 2016) . In high-income settings, factors such as maternal education, professional commitments, and socio-cultural influences significantly impact breastfeeding practices (Ip et al., 2007) . Studies indicate that while knowledge about breastfeeding benefits is generally high, practical challenges and societal pressures often hinder optimal breastfeeding practices (Scott et al., 2006) . Furthermore, maternal employment is a notable factor affecting breastfeeding duration, as work-related constraints can limit breastfeeding opportunities (Hawkins et al., 2007).

Methodology

This cross-sectional study will be conducted in a northern area, targeting mothers with children under the age of two. Data will be collected using a structured questionnaire that includes sections on demographics, breastfeeding knowledge, attitudes towards breastfeeding, and actual breastfeeding practices. The questionnaire will be administered in-person at pediatric clinics and community centers. Statistical analyses, including descriptive statistics and Chi-square test, will be used to identify key factors influencing breastfeeding practices and to determine correlations between knowledge, attitudes, and practices.

Expected Outcome

The study is expected to reveal that while knowledge about breastfeeding benefits is high among mothers in northern settings, there are significant variations in attitudes and practices. Factors such as employment status, societal norms, and support systems are anticipated to play critical roles in influencing breastfeeding behavior. The findings will provide insights that can help healthcare providers and policymakers design targeted interventions to promote and support breastfeeding among urban mothers.

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APPENDIX-2

Assessment of the knowledge, attitudes, and practices related to breastfeeding among mothers in Northern areas of Bangladesh: A cross-sectional study

Questionnaire

Section A: Socio-Demographic and Related Characteristics

1. What is your age?
 - a) Under 20
 - b) 20-29
 - c) 30-39
 - d) 40 and above
2. **Educational Status**
 - a) No formal schooling
 - b) Primary school completed
 - c) Secondary school completed
 - d) Some college and above
3. What is your occupation?
 - a) Homemaker
 - b) Employed
4. **Residence**
 - a) Rural
 - b) Urban
5. What type of family do you live in?
 - a) Nuclear
 - b) Joint
6. **Parity (number of children)**
 - a) 1
 - b) 2–3

- c) 4–5
- 7. **Child's Age (months)**
 - a) <1
 - b) 1–3
 - c) 4–6
- 8. What was your mode of delivery?
 - a) Vaginal delivery (VD)
 - b) Cesarean section
- 9. Your Weight kg
- 10. Your Height Cm
- 11. **BMI (kg/m²)**
 - a) <18.5
 - b) 18.5–24.9
 - c) 25.0–29.9
 - d) ≥30

Section B: Mothers' Knowledge of Exclusive Breastfeeding

- 12. **Breastmilk is the only first food for the newborn.**
 - a) Yes
 - b) No
 - c) Not sure
- 13. **Exclusive breastfeeding means giving an infant no liquid or solid foods except breastmilk for the first six months.**
 - a) Yes
 - b) No
 - c) Not sure
- 14. How long did you exclusively breastfeed (EBF) your baby?
 - a) Less than 6 months
 - b) 6 months

- c) More than 6 months
15. Do you believe that frequent sucking improves milk production?
- a) Yes
 - b) No
 - c) No idea
16. How can you tell if your baby is satisfied after feeding?
- a) Leaves breast
 - b) Sleeps during breastfeeding
 - c) Stops crying
 - d) Multiple indicators
17. **Babies should receive only breastmilk from birth to six months of their life.**
- a) Yes
 - b) No
 - c) Not sure
18. **Breastmilk is recommended from birth to six months.**
- a) Yes
 - b) No
 - c) Not sure
19. **A baby younger than six months should receive breastmilk on demand.**
- a) Yes
 - b) No
 - c) Not sure
20. **Has knowledge of the benefits of exclusive breastfeeding for babies.**
- a) Yes
 - b) No
 - c) Not sure
21. **Has knowledge of the benefits of exclusive breastfeeding for mothers.**
- a) Yes
 - b) No
 - c) Not sure
22. **Has knowledge of maintaining breastmilk supply.**

- a) Yes
 - b) No
 - c) Not sure
23. **In absence, babies can continue to be exclusively breastfed by expressing breastmilk, storing, and asking someone to give to the baby.**
- a) Yes
 - b) No
 - c) Not sure
24. **Seeking help from health personnel in overcoming breastfeeding difficulties.**
- a) Yes
 - b) No
 - c) Not sure
25. Do formula-fed babies gain more weight than breastfed babies?
- a) Yes
 - b) No
 - c) No idea
26. Is breastfeeding the ideal choice for infant feeding?
- a) Yes
 - b) No
 - c) No idea
27. Is breastfeeding cheaper than formula feeding?
- a) Yes
 - b) No
 - c) No idea
28. Is formula feeding better for working mothers?
- a) Yes
 - b) No
 - c) No idea
29. Does breastfeeding increase bonding between mother and baby?
- a) Yes
 - b) No

Section C: Mothers' Attitudes Towards Exclusive Breastfeeding

30. Feeling good to breastfeed the baby exclusively for six months.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

31. Finding it difficult to breastfeed the baby exclusively for six months.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

32. Feeling good to breastfeed the baby on demand.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

33. Should colostrum be discarded?

- a) Yes
- b) No
- c) No idea

34. What do you want to feed your baby in the first 6 months?

- a) Only breastfeed
- b) Breastfeeding and other foods

35. Is a comfortable position for the mother necessary for breastfeeding?

- a) Yes
- b) No
- c) No idea

36. Is eye contact necessary during breastfeeding?

- a) Yes
- b) No
- c) No idea

37. Should you wake the baby if they sleep during breastfeeding?

- a) Yes
- b) No
- c) No idea

Section D: Breastfeeding Practices

38. When did you start breastfeeding after delivery?

- a) Within 1 hour
- b) 1-6 hours
- c) 6-24 hours
- d) 24-48 hours

39. If there was a delay in starting breastfeeding, what was the reason?

- a) No delay
- b) There was no milk
- c) Mother was having pain
- d) Baby slept
- e) Mother was inside labor room for procedure
- f) Baby did not accept
- g) Mother was exhausted

40. Did you give prelacteal feeds (any food or drink before breastfeeding)?

- a) Nothing
 - b) Sugar water
 - c) Honey
 - d) Cow's/buffalo milk
 - e) Formula
 - f) Tea
41. Should breastfeeding be continued if the mother is having diarrhea?
- a) Yes
 - b) No
 - c) No idea
42. Can breastfeeding be done in a public place?
- a) Yes
 - b) No
43. **Breastfeeding the baby yesterday during the day or at night.**
- a) Yes
 - b) No
44. **Feeding breastmilk to baby by spoon, cup or bottle, or breastfeeding by another woman yesterday during the day or night.**
- a) Yes
 - b) No
45. **Father/grandmother feeding breastmilk when the mother is absent or cannot feed the baby.**
- a) Yes
 - b) No
46. **Feeding infant formula to the baby yesterday during the day or at night.**
- a) Yes

- b) No
- 47. **Feeding tinned, powdered or fresh animal milk to the baby yesterday during the day or at night.**
 - a) Yes
 - b) No

Section E: Breastfeeding Support and Information

- 48. **Have you received any information on breastfeeding during pregnancy?**
 - a) Yes
 - b) No
- 49. **From whom did you receive this information?** (You can choose more than one)
 - a) Healthcare providers
 - b) Family or friends
 - c) Internet or social media
 - d) Books or magazines
 - e) Other (please specify)
- 50. **How helpful was the information you received?**
 - a) Very helpful
 - b) Helpful
 - c) Neutral
 - d) Not helpful
- 51. **Do you feel you have enough support for breastfeeding?**
 - a) Yes
 - b) No
- 52. **Who provides you with the most support for breastfeeding?** (You can choose more than one)
 - a) Partner
 - b) Family
 - c) Friends

- d) Healthcare providers
- e) Support groups
- f) Other (please specify)

53. Have you ever joined any breastfeeding support groups?

- a) Yes
- b) No

54. How do you rate the quality of breastfeeding support you receive?

- a) Excellent
- b) Good
- c) Fair
- d) Poor

55. Would you recommend breastfeeding to other mothers?

- a) Yes
- b) No

APPENDIX-3
PLAGIARISM REPORT

ASSESSMENT OF KNOWLEDGE, ATTITUDES, AND PRACTICES
RELATED TO BREASTFEEDING AMONG MOTHERS IN
NORTHERN AREAS OF BANGLADESH: A CROSS SECTIONAL
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