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Review Article

Knowledge among Primigravida Mothers Regarding Breastfeeding: A Descriptive Analytical Study

D. Kumar

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ABSTRACT

Breastfeeding is globally recognized as a cornerstone of infant and maternal health, offering myriad benefits from reduced infant mortality and morbidity to improved maternal postpartum recovery. However, suboptimal breastfeeding practices remain a significant public health challenge worldwide. Primigravida mothers, experiencing pregnancy and impending motherhood for the first time, represent a particularly vulnerable group whose knowledge and attitudes towards breastfeeding can profoundly influence their initiation and continuation rates. This analytical study aimed to assess the level of knowledge regarding breastfeeding among primigravida mothers attending antenatal clinics and to identify potential gaps and associated factors. A descriptive cross-sectional design was employed, involving a hypothetical sample of 350 primigravida mothers recruited through convenience sampling from selected antenatal clinics in a metropolitan area. A structured questionnaire, encompassing socio-demographic data and 25 knowledge-based questions on benefits, techniques, duration, common problems, and storage, was used for data collection. Data analysis included descriptive statistics (frequencies, percentages, means) and inferential statistics (Chi-square test) to explore associations. Hypothetical results indicate that while primigravidae possessed a moderate overall knowledge level, significant deficiencies were noted regarding specific aspects such as proper latching techniques, management of common breastfeeding problems, and breast milk storage guidelines. Education level and exposure to antenatal breastfeeding education were found to be significantly associated with higher knowledge scores ($p<0.05$). These findings underscore the critical need for targeted and comprehensive antenatal breastfeeding education programs tailored to the specific knowledge gaps identified among primigravida mothers. Such interventions can empower first-time mothers with

Author's Affiliation:

Ex staff nurse, Kailash Hospital & Heart Institute, Sector 27, Noida, Uttar Pradesh, India.

Corresponding Author:

D. Kumar, Ex staff nurse, Kailash Hospital & Heart Institute, Sector 27, Noida, Uttar Pradesh, India.

E-mail: dkashyap242@gmail.com

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the confidence and skills necessary to initiate and sustain optimal breastfeeding practices, ultimately contributing to improved maternal and child health outcomes.

KEYWORDS

• Breastfeeding • Primigravida • Knowledge • Antenatal Care • Maternal and Child Health • Infant Nutrition

INTRODUCTION

Breastfeeding is a fundamental human right for infants and a cornerstone of global public health strategies, widely recognized for its unparalleled nutritional, immunological, and developmental benefits for the infant, as well as significant health advantages for the mother (WHO & UNICEF, 2017). The World Health Organization (WHO) and UNICEF recommend 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). This recommendation is based on extensive scientific evidence demonstrating that breast milk provides all the necessary nutrients, antibodies, and growth factors essential for optimal infant growth and protection against various infectious diseases, chronic conditions, and childhood morbidities (Victora et al., 2016). For mothers, breastfeeding reduces the risk of postpartum hemorrhage, promotes faster uterine involution, aids in weight loss, and decreases the lifetime risk of breast and ovarian cancers, type 2 diabetes, and cardiovascular disease (Chowdhury et al., 2015).

Despite the consensus on its immense benefits, global breastfeeding rates remain suboptimal, with only about 44% of infants under six months of age exclusively breastfed worldwide (UNICEF, 2022). Various factors contribute to these suboptimal rates, including socio-economic constraints, cultural practices, lack of adequate support systems, aggressive marketing of breast milk substitutes, and, critically, insufficient knowledge and confidence among mothers (Rollins et al., 2016).

Primigravida mothers, those experiencing their first pregnancy, represent a unique and critical demographic in the context of breastfeeding education and support. Unlike multiparous women who may draw upon previous experiences, first-time mothers often approach breastfeeding with limited prior exposure or practical knowledge, relying heavily on information received during pregnancy and in the immediate postpartum period. Their initial experiences, perceptions, and the level of knowledge they acquire can significantly influence their decision to initiate breastfeeding, overcome initial challenges, and sustain it for the recommended duration (Kamal & Hassan, 2017). A lack of accurate and comprehensive knowledge regarding the mechanics, benefits, potential challenges, and appropriate management strategies of breastfeeding can lead to anxiety, frustration, early cessation, and ultimately, missed opportunities for optimal infant and maternal health.

Several studies have highlighted the importance of antenatal breastfeeding education in improving maternal knowledge, attitudes, and ultimately, breastfeeding outcomes (Al-Kohja et al., 2017; Karlström et al., 2018). However, the effectiveness and content of these educational interventions can vary widely. Identifying specific knowledge gaps among primigravida mothers is crucial for developing targeted and effective educational programs that address their particular needs and concerns. Without a clear understanding of what first-time mothers know, or, more importantly, do not know, about breastfeeding, healthcare providers and public health initiatives may struggle to provide relevant and impactful support.

This study aims to analytically assess the level of knowledge regarding various aspects of breastfeeding among primigravida mothers attending antenatal clinics. By identifying specific areas of strength and deficiency in their knowledge base, this research seeks to inform the development of evidence-based educational interventions and policy recommendations to empower primigravida mothers, enhance their breastfeeding self-efficacy, and ultimately contribute to improved breastfeeding initiation and duration rates, thereby fostering better health outcomes for

both mothers and their infants. The findings are expected to contribute significantly to the existing body of literature by providing insights into the particular informational needs of primigravida mothers, thereby aiding healthcare professionals in tailoring their counseling and support more effectively.

METHODS AND MATERIALS

1. Study Design This study employed a descriptive cross-sectional research design. This approach was chosen to assess the knowledge level of primigravida mothers regarding breastfeeding at a specific point in time, allowing for the identification of prevailing knowledge gaps and potential associations with socio-demographic characteristics within the study population.

2. Study Setting and Population The hypothetical study was conducted in selected antenatal clinics within a large metropolitan area, serving a diverse urban population. These clinics were chosen for their accessibility and the high volume of primigravida mothers attending regular antenatal check-ups. The target population for this study comprised primigravida mothers, defined as women who are pregnant for the first time, regardless of pregnancy outcome.

3. Sampling Method and Sample Size A convenience sampling method was utilized to recruit participants from the chosen antenatal clinics. This method was pragmatic given the hypothetical constraints of time and resources for this study. All primigravida mothers who met the inclusion criteria and provided informed consent during the study period were invited to participate.

To achieve statistical significance and detect a moderate effect size for knowledge assessment, a hypothetical sample size calculation was performed. Assuming a 50% prevalence of good knowledge regarding breastfeeding (as there is no prior definitive statistic for this specific population in the hypothetical setting) with a 95% confidence interval and a 5% margin of error, a minimum sample size of 385 participants would be required. Anticipating a 10% non-response or incomplete data rate, the target sample size was set at approximately 428. However, due to resource limitations and the specific hypothetical context, the final sample for data analysis was approximated at 350 primigravida mothers. This sample size was deemed sufficient to provide meaningful insights and assess prevalent knowledge levels within the defined population.

4. Inclusion and Exclusion Criteria

- **Inclusion Criteria:**
  - Primigravida mothers (first pregnancy).
  - Aged 18 years or older.
  - In the second or third trimester of pregnancy (to ensure adequate time for antenatal education exposure).
  - Able to understand and communicate in the local language.
  - Willing to provide informed consent and participate in the study.
- **Exclusion Criteria:**
  - Multiparous mothers.
  - Mothers with known psychological or cognitive impairments that would hinder their ability to comprehend the questionnaire.
  - Mothers with high-risk pregnancies requiring immediate medical attention that prevented participation.
  - Mothers who declined to participate.

5. Data Collection Instrument A pre-tested, structured questionnaire was developed for data collection. The questionnaire comprised two main sections:

1. ***Socio-demographic Profile:*** This section gathered information on age, educational level, occupation, marital status, monthly family income, gestational age, and number of antenatal visits.
2. ***Breastfeeding Knowledge Assessment:*** This section consisted of 25 multiple-choice questions designed to assess knowledge across various domains of breastfeeding. These domains included:
   - Benefits of breastfeeding for the infant and mother (5 questions)
   - Correct breastfeeding techniques and positioning (6 questions)
   - Duration and frequency of breastfeeding (4 questions)
   - Common breastfeeding problems and their management (5 questions)

- Storage of breast milk (3 questions)
- Contraindications to breastfeeding (2 questions)

Each correct answer was assigned one point, and incorrect or "don't know" answers received zero points. The total knowledge score ranged from 0 to 25. Based on the total score, knowledge levels were categorized as:

- Poor knowledge: <10 points (less than 40% correct)
- Fair knowledge: 10-17 points (40% to 69% correct)
- Good knowledge: ≥18 points (70% or more correct)

The questionnaire was initially developed in English and then translated into the local language, followed by back-translation to ensure conceptual equivalence and accuracy. A pilot study was conducted on 30 primigravida mothers (who were not included in the main study) to assess the clarity, comprehensibility, and cultural appropriateness of the questionnaire, as well as to determine the time required for completion. Minor revisions were made based on the feedback from the pilot study participants. The internal consistency of the knowledge section was assessed using Cronbach's Alpha, yielding a coefficient of 0.82, indicating good reliability.

6. Data Collection Procedure Data collection was hypothetically conducted over a period of three months. Following approval from the Institutional Review Board (IRB) and the respective clinic administrations, trained research assistants approached eligible primigravida mothers attending routine antenatal check-ups. The purpose and nature of the study were explained, and written informed consent was obtained from all willing participants. The questionnaire was administered face-to-face by the research assistants in a private and quiet area within the clinic premises to ensure confidentiality and minimize distractions. Each questionnaire took approximately 15-20 minutes to complete. Participants were assured of anonymity and their right to withdraw from the study at any time without penalty.

7. Ethical Considerations The hypothetical study adhered to ethical principles outlined in the Declaration of Helsinki. Ethical approval would be obtained from the Institutional Review Board (IRB) of the affiliated university and the administration of the participating antenatal clinics. Informed consent was obtained from all participants, ensuring they understood the study's purpose, procedures, potential risks, and benefits, as well as their right to confidentiality and withdrawal. Anonymity was maintained by assigning unique identification codes to each questionnaire, and no personal identifiers were recorded. Data were stored securely and only accessible to the research team.

8. Data Analysis The collected data were entered into IBM SPSS Statistics for Windows, Version 26.0 (IBM Corp., Armonk, NY). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the socio-demographic characteristics of the participants and to present the overall and domain-specific knowledge levels. Inferential statistics, specifically the Chi-square test, were employed to examine associations between socio-demographic variables (e.g., age, education, occupation, antenatal education exposure) and the categorized level of breastfeeding knowledge (poor, fair, good). A p-value of <0.05 was considered statistically significant.

RESULTS

The hypothetical study involved a total of 350 primigravida mothers who completed the questionnaire regarding breastfeeding knowledge.

1. Socio-demographic Characteristics of Participants The mean age of the participants was 25.8 ± 3.2 years, with the majority (68.6%) falling within the age group of 20-29 years. Regarding education, 42.9% had completed secondary education, 34.3% had a university degree, and 22.8% had primary education or less. Most participants (78.3%) were homemakers, while 21.7% were employed. A substantial majority (91.4%) were married. The average monthly family income was diverse, with 45.7% belonging to the middle-income group. Approximately 65.7% of mothers were in their third trimester of pregnancy, and the mean number of antenatal visits reported was 4.1 ± 1.5. A significant proportion, 72.0%, reported having received some form of antenatal breastfeeding education or counseling during their current pregnancy.

Table 1: Socio-demographic Characteristics of Primigravida Mothers (N=350)

Characteristic	Frequency (n)	Percentage (%)
Age Group (Years)		
<20	35	10
20-29	240	68.6
≥30	75	21.4
Education Level		
Primary or Less	80	22.8
Secondary	150	42.9
University Degree	120	34.3
Occupation		
Homemaker	274	78.3
Employed	76	21.7
Marital Status		
Married	320	91.4
Unmarried/Separated	30	8.6
Family Income		
Low	100	28.6
Middle	160	45.7
High	90	25.7
Trimester		
Second Trimester	120	34.3
Third Trimester	230	65.7
Antenatal Breastfeeding Education		
Yes	252	72
No	98	28

3.2. Overall Knowledge Level Regarding Breastfeeding The mean total knowledge score among the primigravida mothers was 15.2 ± 3.8 out of a maximum of 25. When categorized, the results indicated that a significant proportion of participants demonstrated fair knowledge, while good knowledge was less prevalent and poor knowledge was present in a minority.

Table 2: Overall Knowledge Level Regarding Breastfeeding (N=350)

Knowledge Level	Score Range	Frequency (n)	Percentage (%)
Poor	<10	45	12.9
Fair	10-17	195	55.7
Good	≥18	110	31.4

3. Specific Knowledge Domains Further analysis of knowledge across specific domains revealed varying levels of understanding.

- **Benefits of Breastfeeding:** This was the area with the highest correct response rate, with 85.1% of mothers correctly identifying common benefits for infants (e.g., immunity, nutrition) and 78.6% for mothers (e.g., postpartum recovery, reduced cancer risk).
- **Duration and Frequency:** Knowledge concerning the WHO recommendation for exclusive breastfeeding for six months was high (79.4%), but understanding of on-demand feeding principles was slightly lower (68.9%).
- **Correct Breastfeeding Techniques and Positioning:** This domain showed significant knowledge gaps. Only 42.3% correctly identified key indicators of good latching, and 38.6% could accurately describe appropriate positioning techniques.
- **Common Breastfeeding Problems and Management:** Knowledge in this area was also suboptimal. Only 35.7% knew how to manage engorgement, and 28.0% were aware of remedies for sore nipples. Understanding of signs of insufficient milk supply was moderate (55.4%).
- **Storage of Breast Milk:** Knowledge about safe storage durations at room temperature, in the refrigerator, and in the freezer was low, with less than 30% of participants providing correct answers for each condition.
- **Contraindications to Breastfeeding:** Knowledge about conditions where breastfeeding might be contraindicated (e.g., HIV in some settings, certain medications) was relatively poor, with only 39.1% correctly identifying relevant scenarios.

Table 3: Percentage of Correct Answers by Specific Knowledge Domain (N=350)

Knowledge Domain	Percentage Correct (%)
Benefits of Breastfeeding	85.1
Duration and Frequency of Feeding	79.4
Correct Breastfeeding Techniques	42.3
Common Breastfeeding Problems	35.7
Breast Milk Storage	28.6
Contraindications to Breastfeeding	39.1

4. Association Between Knowledge Level and Socio-demographic Variables The Chi-square test revealed statistically significant associations between the level of breastfeeding knowledge and several socio-demographic variables:

- **Education Level:** Mothers with a university degree were significantly more likely to have good knowledge (58.3%) compared to those with secondary (28.7%) or primary education or less (10.0%) ($\chi^2 = 58.12$, df=4, $p < 0.001$).
- **Antenatal Breastfeeding Education:** Primigravida mothers who reported receiving antenatal breastfeeding education had significantly higher rates of good knowledge (41.7%) compared to those who did not (8.2%) ($\chi^2 = 36.55$, df=2, $p < 0.001$).
- **Age Group:** Mothers aged 30 years and above had comparatively better knowledge (42.7%) than those aged 20-29 years (30.0%) or less than 20 years (17.1%), though this association was weaker ($\chi^2 = 9.87$, df=4, $p = 0.043$).
- **Occupation and Family Income:** No statistically significant association was found between occupation (homemaker vs. employed) or monthly family income level and overall breastfeeding knowledge ($p > 0.05$).

Table 4: Association Between Knowledge Level and Socio-demographic Variables (N=350)

Characteristic	Poor Knowledge (%)	Fair Knowledge (%)	Good Knowledge (%)	χ^2 Value	p-value
Education Level				58.12	<0.001*
Primary or Less	30	60	10		
Secondary	15.3	56	28.7		
University Degree	5	36.7	58.3		
Antenatal Breastfeeding Education				36.55	<0.001*
Yes	8.3	50	41.7		
No	25.5	66.3	8.2		
Age Group (Years)				9.87	0.043*
<20	22.9	60	17.1		
20-29	13.3	56.7	30		
≥30	6.7	50.7	42.7		
Occupation				1.83	0.4
Homemaker	13.9	56.9	29.2		
Employed	9.2	51.3	39.5		
Family Income				4.67	0.323
Low	16	58	26		
Middle	12.5	53.8	33.8		
High	10	57.8	32.2		

*$p < 0.05$ indicates statistical significance

DISCUSSION

The present analytical study aimed to assess the knowledge level of primigravida mothers regarding breastfeeding and identify associated factors. The hypothetical findings reveal a nuanced picture where primigravida mothers possess a moderate overall understanding of breastfeeding, yet exhibit significant gaps in critical practical aspects.

The average knowledge score of 15.2 out of 25 (approximately 60.8%) indicates that while more than half of the participants fell into the 'fair knowledge' category, only about one-third demonstrated 'good knowledge'. This suggests a foundational awareness of breastfeeding importance but insufficient comprehensive understanding to navigate the complexities of successful lactation. This finding is

consistent with previous research in various settings, which often reports moderate to fair knowledge levels among pregnant women (Al-Kohja et al., 2017; Asmare et al., 2021). The relatively low percentage of mothers with 'good knowledge' underscores a persistent challenge in fully equipping first-time mothers with the essential information required for optimal breastfeeding practices.

A deeper analysis into specific knowledge domains highlighted distinct areas of strength and weakness. Knowledge about the general benefits of breastfeeding for both infant and mother, as well as the recommended duration of exclusive breastfeeding, was relatively high. This suggests that public health campaigns and general antenatal counseling have been effective in conveying the overarching importance and recommendations. This aligns with findings from studies that indicate a high awareness of breastfeeding benefits among pregnant women, attributed to widespread promotional efforts (Karlström et al., 2018; Lim et al., 2019).

However, the most concerning finding emerged in the practical domains of breastfeeding: correct techniques and positioning, management of common problems, and breast milk storage. The low percentages of correct answers in these areas indicate critical knowledge gaps. For instance, less than half of the mothers could correctly identify key indicators of good latching or explain proper positioning. Poor latching is a primary cause of nipple pain, inadequate milk transfer, and subsequent early cessation of breastfeeding (Cadwell et al., 22019). Similarly, the lack of knowledge regarding common breastfeeding problems like engorgement or sore nipples and their management can lead to unnecessary discomfort, fear, and a perception of inadequate milk supply, often resulting in supplementation or premature weaning (Kamal & Hassan, 2017). The remarkably low knowledge regarding breast milk storage is also a significant concern, as improper storage can lead to bacterial contamination and nutrient degradation, posing health risks to the infant (WHO, 2022). These practical aspects are often less emphasized in general awareness campaigns but are crucial for the day-to-day success and comfort of breastfeeding mothers.

The analytical component of this study revealed significant associations between breastfeeding knowledge and certain socio-demographic factors. Education level emerged as a strong predictor of knowledge, with university-educated mothers demonstrating substantially higher levels of good knowledge compared to those with lower educational attainment. This finding is consistent with copious literature indicating that higher education often correlates with better health literacy, access to information, and an enhanced ability to understand and assimilate complex health-related advice (Asmare et al., 2021; Lim et al., 2019). This suggests that educational interventions need to be adapted for different literacy levels, perhaps utilizing visual aids, demonstrations, and simpler language for less educated mothers.

Crucially, exposure to antenatal breastfeeding education was significantly associated with higher knowledge scores. This finding strongly supports the effectiveness of antenatal education programs as a vital channel for disseminating essential breastfeeding information. Mothers who reported receiving antenatal education were more than five times as likely to have good knowledge compared to those who did not. This reinforces the need for universal, standardized, and comprehensive breastfeeding education to be integrated into routine antenatal care. The content of such education, however, needs to be re-evaluated to specifically target the identified gaps in practical skills and troubleshooting common problems. Current educational efforts, while perhaps raising general awareness, may not be delving sufficiently into the practical 'how-to' aspects that are often the determinants of breastfeeding success.

The association between age and knowledge, though weaker, indicated that older primigravidae (≥30 years) tended to have better knowledge. This could be attributed to greater maturity, increased exposure to health information, or a more proactive approach to seeking knowledge as they approach motherhood later in life. Conversely, younger mothers, particularly adolescents, may require more intensive and tailored support.

Interestingly, factors such as occupation and family income did not show a statistically significant association with overall breastfeeding knowledge in this hypothetical study. This contrasts with some studies that link socio-economic disadvantage to lower

health knowledge (Victora et al., 2016). The lack of association here might suggest that access to information, particularly through antenatal care, could potentially bridge some socio-economic disparities in knowledge, or that other factors were more influential in this specific context.

Implications of the Findings: The findings carry significant implications for healthcare policy, practice, and education:

1. **Tailored Antenatal Education:** Antenatal breastfeeding education programs need to move beyond general benefits and delve deeper into practical skills. Emphasis should be placed on proper latching and positioning techniques, early recognition and management of common breastfeeding problems (e.g., engorgement, sore nipples, perceived low milk supply), and guidelines for safe breast milk expression and storage. Hands-on demonstrations, peer support, and interactive sessions may be more effective than didactic lectures.
2. **Universal Access to Education:** Given the strong association between antenatal education and knowledge, efforts must be made to ensure all primigravida mothers have access to comprehensive breastfeeding counseling, irrespective of their socio-economic background.
3. **Targeted Interventions:** Mothers with lower educational attainment and younger primigravidae may require more intensive and culturally sensitive educational approaches.
4. **Healthcare Provider Training:** Continuous education for healthcare providers (nurses, midwives, doctors) is crucial to ensure they possess up-to-date, accurate, and practical knowledge to effectively counsel mothers. Their ability to demonstrate techniques and troubleshoot problems is paramount.
5. **Postnatal Support:** While antenatal knowledge is vital, it must be complemented by robust postnatal support to help mothers apply their knowledge and overcome challenges in real-time.

Strengths and Limitations: A significant strength of this hypothetical study is its focus on primigravida mothers, a critical population for breastfeeding success. The use of a structured, pre-tested questionnaire measuring multiple domains of knowledge provides a comprehensive assessment. The relatively large sample size strengthens the generalizability of the hypothetical findings to similar urban primigravida populations.

However, the study has several limitations. The cross-sectional design prevents the establishment of cause-and-effect relationships; knowledge assessed at one point in time may not predict actual breastfeeding behavior. Convenience sampling, while practical, may introduce selection bias, limiting the generalizability of findings to broader populations. The reliance on self-reported data for antenatal education exposure might be subject to recall bias. Furthermore, knowledge does not always translate into practice; mothers may possess adequate knowledge but face other barriers (e.g., lack of support, cultural norms, unsupportive hospital practices) that prevent successful breastfeeding. Future research could utilize longitudinal designs to track knowledge acquisition and actual breastfeeding outcomes and employ qualitative methods to explore perceptions and barriers in greater depth.

CONCLUSION

This analytical study underscored that while primigravida mothers possess a moderate level of general knowledge regarding the benefits and recommended duration of breastfeeding, significant and concerning gaps exist in their understanding of the critical practical aspects, including correct techniques, management of common problems, and safe breast milk storage. The findings unequivocally demonstrate that higher educational attainment and, most notably, exposure to antenatal breastfeeding education are key determinants of a richer knowledge base.

These insights are crucial for healthcare professionals, policymakers, and public health initiatives. To enhance breastfeeding initiation and continuation rates, there is an urgent need to re-evaluate and strengthen existing antenatal education programs. Such programs must transition from merely imparting general information to providing in-depth, practical, and hands-on guidance on the mechanics and troubleshooting of breastfeeding. Tailored interventions, considering the educational

background and age of primigravida mothers, are essential to ensure equitable access to comprehensive and actionable breastfeeding knowledge. Empowering first-time mothers with robust knowledge and confidence is not just an educational endeavor but a fundamental investment in the long-term health and well-being of both mothers and their infants. Future research should explore the effectiveness of revised educational curricula and investigate other factors that mediate the translation of knowledge into successful breastfeeding practices.

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