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# Knowledge on Breastfeeding, Breastmilk Expression and Preservation among Antenatal Mothers Visiting Antenatal Clinic in Selected Hospital, Mangaluru

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## Abstract

Breast milk is the most natural and complete source of nutrition for infants, while also strengthening the bond between mother and child. Breastfeeding, defined as feeding the baby directly from the breast rather than through bottles or substitutes, plays a vital role in infant health and survival[1]. Without breast milk, infants face reduced chances of survival and a higher risk of developing life-threatening conditions[2]. These considerations emphasize the importance of understanding breastfeeding practices and their benefits for both mother and child. The present study aimed to assess the knowledge of antenatal mothers regarding breastfeeding, breast milk expression, and preservation. A descriptive study design was adopted, and 176 antenatal mothers attending the Antenatal Clinic at Father Muller Medical College Hospital, Mangaluru, were selected through simple random sampling. Data were collected using a structured knowledge questionnaire. The findings revealed that 58.5% of participants had moderate knowledge, 38.6% had adequate knowledge, and 2.8% had inadequate knowledge. Knowledge scores were highest in the area of breast milk expression, followed by preservation, and lowest in breastfeeding. Statistical analysis showed no significant association between knowledge levels and selected demographic variables, except for monthly family income ($p = 0.015$) and source of information ($p = 0.014$). The study highlights the need for strengthening health education programs for antenatal mothers, with a focus on breastfeeding and breast milk preservation practices, to ensure optimal nutrition and improved health outcomes for infants.

**Keywords:** Breastfeeding, Breastmilk expression, Breastmilk preservation, Antenatal mothers, Knowledge

## 1 Introduction

***Breast feeding is a mother's gift to herself, her baby and the Earth***

***-Pamela K Wiggins***

Breastfeeding is widely recognized as the most natural and beneficial method of infant feeding, providing essential nutrients and immune protection during the critical first year of life when growth and development are most rapid[1]. It is a cornerstone of early postnatal care and contributes significantly to reducing infant morbidity and mortality[2]. In line with global health recommendations, exclusive breastfeeding for the first 24 weeks postpartum is considered

the gold standard for optimal growth, development, and nourishment[3].

Despite its benefits, exclusive breastfeeding presents challenges, particularly for working mothers or those separated from their infants[4]. Expression and proper storage of breast milk provide an effective solution to sustain breastfeeding under such circumstances. Adoption of this practice, however, relies heavily on adequate maternal knowledge and a positive attitude[5]. In many regions, expressing breast milk remains uncommon and sometimes culturally unacceptable. Barriers such as limited education, time constraints, and societal perceptions contribute to hesitancy among mothers. Earlier studies reported that a considerable proportion of mothers demonstrated inadequate knowledge and inappropriate practices related to milk expression and storage[6].

Furthermore, research emphasizes the importance of education and digital health interventions. A 2024 study in Assam, India, revealed that while most antenatal mothers had only average knowledge, a majority demonstrated favorable attitudes toward expression and storage[7]. Similarly, structured educational programs have been shown to significantly improve both knowledge and practice scores among mothers[8]. Mobile applications, such as the "Breast Milk Mother" app (2025), have also proven effective in enhancing maternal knowledge, attitudes, and breastfeeding behaviors[9]. Postnatal counseling interventions continue to show strong associations with timely initiation of breastfeeding across diverse settings[10].

At the same time, challenges persist. A 2025 report from Trichy, India, noted declining breast milk bank donations despite increasing demand in neonatal intensive care units, with stigma, misinformation, and lack of awareness identified as major barriers[11]. These findings highlight the need for continuous education, culturally sensitive counseling, and supportive community interventions to ensure that mothers are empowered to adopt and sustain safe breast milk expression and storage practices.

In this context, the present study was designed to assess the knowledge of antenatal mothers regarding breastfeeding, breast milk expression, and storage. Given the changing maternal roles, evolving guidelines, and emerging technological and educational interventions, the study holds significant relevance for advancing maternal and child health outcomes.

## 2 Materials and Methods

A descriptive study design was adopted for the present study. A total of 176 antenatal mothers were selected using simple random sampling (lottery method) technique from those attending the Antenatal Clinic of selected Hospital, Mangaluru.

Knowledge regarding breastfeeding, breast milk expression, and preservation was assessed using a Self-structured Knowledge questionnaire consisting of 28 items. The tool was initially developed in English and subsequently translated into Kannada with the assistance of four language experts. To establish content validity, the tool, along with the problem statement, objectives, and blueprint, was reviewed by seven subject experts. Most items achieved 100% agreement, and appropriate modifications were incorporated before finalization.

Reliability testing of the instrument was conducted on 18 antenatal mothers attending the clinic between 1/11/2023 and 3/11/2023. Internal consistency, measured using Cronbach's alpha, yielded a score of 0.80, confirming the tool's reliability.

Data collection was carried out over a two-week period, from 1/12/2023 to 14/12/2023. Prior to data collection, formal written permission was obtained from the hospital administrator. The data obtained were analyzed using descriptive and inferential statistics.

## 3 Results

Table. 1 indicates that the majority (45.5%) of mothers were aged between 26 and 30 years, (47.7%) had secondary education, and (58%) were unemployed, most (41.5%) participants reported a monthly family income between ₹5,000 and ₹15,000, (72.7%) belonged to nuclear families, and (54%) lived in urban areas. In terms of parity, (40.3%) had one child, and more than half (56.8%) had no prior knowledge of the topic.

Table. 2 shows that most mothers (72.2%) possessed a moderate level of knowledge regarding breastfeeding, breast milk expression, and preservation. About (16.5%) demonstrated inadequate knowledge, while only (11.4%) had adequate knowledge.

As shown in Table. 3, the mean knowledge score was 17.34 ± 3.81 (61.93%), indicating that antenatal mothers had a moderate level of knowledge.

Table. 4 reveals a significant association between knowledge scores and both monthly family income ($p = 0.015$) and source of information ($p = 0.014$). No significant associations were found with other demographic variables. Hence, the research hypothesis was partially supported.

**Table 1: Frequency and percentage distribution of antenatal mothers according to their demographic proforma (N=176)**

| Variables | f | % |
|---|---|---|
| **Age in years** | | |
| 21-25 | 58 | 33.0 |
| 26-30 | **80** | **45.5** |
| 31-35 | 33 | 18.8 |
| 36-40 | 5 | 2.8 |
| **Educational level of the mother** | | |
| No formal education | 0 | 0 |
| Primary education | 21 | 11.9 |
| Secondary education | **84** | **47.7** |
| Graduate and Post-graduate | 71 | 40.3 |
| **Occupational status of the mother** | | |
| Employed | 74 | 42 |
| Unemployed | **102** | **58** |
| **Monthly family income in rupees** | | |
| 5000-15000 | **73** | **41.5** |
| 15001-25000 | 48 | 27.3 |
| 25001-35000 | 30 | 17.0 |
| 35001 and above | 25 | 14.2 |
| **Type of family** | | |
| Nuclear | **128** | **72.7** |
| Joint | 47 | 26.7 |
| Extended | 1 | 0.6 |
| **Area of residence** | | |
| Rural | **95** | **54.0** |
| Urban | 81 | 46.0 |
| **Number of children** | | |
| Nil | 66 | 37.5 |
| One | **71** | **40.3** |
| More than one | 39 | 22.2 |
| **Source of information** | | |
| Yes | 76 | 43.2 |
| No | **100** | **56.8** |

**Table 2: Knowledge level of samples on breastfeeding, breast milk expression and preservation in terms of frequency and percentage (N=176)**

| Level of knowledge | f | % |
|---|---|---|
| Inadequate (<50%) | 29 | 16.5 |
| Moderate (50-75%) | **127** | **72.2** |
| Adequate (>75%) | 20 | 11.4 |

**Table 3: Knowledge level of samples on breastfeeding, breastmilk expression and preservation in terms of Mean, Mean percentage and Standard Deviation**

| Level of knowledge | Minimum Score | Maximum Score | Mean ± SD | Mean % |
|---|---|---|---|---|
| Inadequate (<50%)<br>Moderate (50-75%)<br>Adequate (>75%) | 5 | 27 | 17.34 ± 3.81 | 61.93 |

*Note: Maximum possible score is 28.*

## 4 Discussion

The first objective of the study was to assess knowledge on breastfeeding, breastmilk expression and preservation among antenatal mothers.

The current study showed that 58.5% of the mothers had moderate knowledge and 38.6% had adequate knowledge and 2.8% of them had inadequate knowledge regarding breastfeeding, breastmilk expression and preservation. The reason for poor knowledge is lack of information provided during the antenatal visits and limited knowledge found in primigravid mothers.

Research by Prasanta Rajak *et al.* on Knowledge and Practice of breastfeeding among 400 mothers showed, 68% of them knew breastfeeding exclusively was appropriate, 23% knew that breastfeeding would start within an hour of delivery, 9% knew from media, 29% from elders, and 62% from healthcare providers. 28% of mothers were unsure, 45% of mothers thought babies should be breastfed for the first six months of their lives[12].

To support the current study findings, a similar study conducted by Ester Mary (2017), Chennai, on assessing knowledge on collection and storage of expressed breastmilk among 100 mothers showed, 65% of them had adequate knowledge, 25% had moderate knowledge and 10% of them had inadequate understanding, and the mean value was 25.96 with standard deviation of 0.98[13].

The second objective of the study was to find the association between the knowledge of antenatal mothers on breastfeeding, breastmilk expression and preservation with the selected demographic variables.

The current study showed p value of 0.015 for monthly family income and p value of 0.014 for source of information. In similar to this study, a study conducted by Ulfat Amin on handling, storage and use of expressed breastmilk among 50 employed mothers of infants, Anantnag, there was an association with previous knowledge level of mothers and parity through their past experiences with expression and storage, which was not found in this study[14].

**Table 4: Association of knowledge on breastfeeding, breastmilk expression and preservation with demographic variables (N=176)**

| Baseline variables | Knowledge score | | $\chi^2$ | p value |
|---|---|---|---|---|
| | (<18) | Above Median (≥ 18) | | |
| **Age in years** | | | | |
| 21-25 | 30 | 28 | | |
| 26-30 | 37 | 43 | | |
| 31-35 | 11 | 22 | 3.338 | 0.333 |
| 36-40 | 3 | 2 | | |
| **Education level of the mother** | | | | |
| No formal education | 0 | 0 | | |
| Primary education | 14 | 7 | 4.848 | 0.089 |
| Secondary education | 39 | 45 | | |
| Graduates and Post-graduates | 28 | 43 | | |
| **Occupational status of the mother** | | | | |
| Employed | 28 | 46 | 3.443 | 0.064 |
| Unemployed | 53 | 49 | | |
| **Monthly family income in rupees** | | | | |
| 5000-15000 | 44 | 29 | | |
| 15001-25000 | 17 | 31 | | |
| 25001-35000 | 10 | 20 | 10.451 | **0.015* (significant)** |
| 35001 and above | 10 | 15 | | |
| **Type of family** | | | | |
| Nuclear | 53 | 75 | | |
| Joint | 27 | 20 | | |
| Extended | 1 | 0 | 4.645 | 0.061 |
| **Area of Residence** | | | | |
| Rural | 46 | 49 | 0.478 | 0.489 |
| Urban | 35 | 46 | | |
| **Number of Children** | | | | |
| Nil | 34 | 32 | | |
| One | 31 | 40 | 1.353 | 0.508 |
| More than one | 16 | 23 | | |
| **Source of Information** | | | | |
| Yes | 43 | 33 | 6.000 | **0.014* (significant)** |
| No | 38 | 62 | | |

*Note: *p value < 0.05 (Statistically Significant)*

## 5 Conclusion

The study aimed to assess antenatal mothers' knowledge regarding breastfeeding, breastmilk expression, and

preservation. The findings indicated variability in knowledge levels across different domains: mothers demonstrated poor understanding of breastfeeding practices, moderate knowledge of breastmilk preservation techniques, and good knowledge regarding breastmilk expression. These results highlighted a critical gap in education on breastfeeding, which is foundational for ensuring optimal infant nutrition and maternal confidence.

To mitigate the identified knowledge deficiencies, it is imperative to implement comprehensive breastfeeding education programs during antenatal visits. These programs should encompass the benefits of exclusive breastfeeding, proper techniques, and the importance of early initiation. Additionally, training healthcare providers to deliver consistent and evidence-based counseling can further support mothers in making informed decisions about infant feeding.

In conclusion, enhancing antenatal education on breastfeeding, breastmilk expression, and preservation is vital for improving maternal and child health outcomes. By addressing the existing knowledge gaps, healthcare systems can empower mothers to adopt optimal feeding practices, thereby contributing to the overall well-being of both mother and child.

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