

Original Research Article

PROMOTING HEALTHY BREASTFEEDING PRACTICES AMONG ANTENATAL MOTHERS ATTENDING A TERTIARY HEALTH CENTER

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ABSTRACT

Background: Breastfeeding provides essential nutritional and immunological benefits to infants. Adequate maternal knowledge and positive attitudes are important for promoting optimal breastfeeding practices. This study assessed breastfeeding knowledge, attitudes, and practices among antenatal mothers and explored postnatal breastfeeding outcomes.

Materials and Methods: A hospital-based study was conducted in the Department of Obstetrics and Gynecology at ESIC Medical College and Hospital, Sanathnagar, Hyderabad, from April 2023 to March 2024. A total of 500 antenatal women at or beyond 36 weeks of gestation were included. Data were collected using a structured questionnaire covering sociodemographic characteristics, breastfeeding knowledge, attitudes, and practices. Attitudes were assessed using the Iowa Infant Feeding Attitude Scale. Participants received breastfeeding health education, and postnatal outcomes were assessed at six weeks and six months.

Results: Good breastfeeding knowledge was observed in 42.0% of participants, moderate knowledge in 38.0%, and poor knowledge in 20.0%. A positive attitude was observed in 56.0%, while 48.0% met the study threshold for good breastfeeding practices. Educational attainment was significantly associated with good knowledge ($p < 0.001$). Following health education, 82.0% expressed an intention to practise exclusive breastfeeding. Postnatal follow up was completed by 360 of 400 eligible participants at six weeks and 330 at six months. Exclusive breastfeeding was reported in 83.3% at six weeks and 63.6% at six months.

Conclusion: Breastfeeding knowledge and practices require improvement among antenatal women. Targeted antenatal education and continued postnatal support may help address knowledge gaps and promote sustained exclusive breastfeeding.

Keywords: Breastfeeding; Antenatal mothers; Knowledge; Attitude; Health education.

INTRODUCTION

Breastfeeding is a fundamental component of maternal and child health, providing essential nutrients, immunological protection, and developmental benefits during early infancy. Human milk contains nutrients and bioactive components that support infant growth, strengthen immune defences, and reduce the risk of infectious diseases, including diarrhoea and respiratory infections.^[1] Breastfeeding is also associated with maternal health

benefits, including lactational amenorrhoea and a reduced risk of certain malignancies. In addition, breastfeeding promotes maternal infant bonding and offers economic advantages to families and communities.^[2,3] The World Health Organization (WHO) recommends initiating breastfeeding within the first hour after birth, exclusively breastfeeding infants for the first six months, and continuing breastfeeding alongside complementary feeding until two years of age or beyond.^[4-6] Despite these recommendations, timely initiation and exclusive

breastfeeding remain suboptimal in many settings, particularly in low- and middle-income countries.^[6] Optimal breastfeeding practices are important for reducing preventable childhood morbidity and mortality. Breast milk provides antibodies and other protective factors that contribute to immune development and protection against common childhood infections.^[5,7] Evidence suggests that improved breastfeeding practices could substantially reduce under five death rates worldwide.^[6] Nevertheless, gaps in maternal knowledge, cultural beliefs, misconceptions regarding colostrum, and the introduction of prelacteal feeds may adversely affect breastfeeding initiation and continuation.^[8] A lack of awareness regarding the appropriate duration of exclusive breastfeeding and the introduction of complementary foods may further contribute to suboptimal infant feeding practices.^[9]

In India, breastfeeding remains a major public health priority because of its implications for infant nutrition, growth, and survival. Although breastfeeding is widely practised, adherence to recommended feeding practices varies across populations and healthcare settings.^[10] A study conducted in a tertiary care hospital in East India reported that 53% of mothers practised exclusive breastfeeding for the first six months, while only 23% knew that breastfeeding should begin within the first hour after birth.^[11] The same study identified gaps in awareness regarding colostrum, exclusive breastfeeding, and the recommended duration of breastfeeding. Similarly, Shah Nawaz et al. reported that 41.1% of breastfeeding mothers had good knowledge, 53.6% had fair knowledge, and 5.2% had poor knowledge, highlighting the variation in breastfeeding knowledge among mothers attending a tertiary care hospital.^[12] These findings suggest that access to healthcare alone may not ensure adequate knowledge or optimal breastfeeding practices.

Breastfeeding knowledge and practices are influenced by several interrelated factors, including maternal education, socioeconomic circumstances, parity, family support, cultural beliefs, and counselling received from healthcare professionals.^[3,11,13] Previous research has indicated that maternal education and access to appropriate breastfeeding information may influence the adoption and continuation of exclusive breastfeeding.^[13,14] Antenatal counselling offers an opportunity to address misconceptions, explain the benefits of colostrum, promote early initiation, and prepare mothers for common breastfeeding difficulties. However, the effectiveness of such counselling may depend on the content delivered, the mother's existing knowledge, and the social environment in which infant feeding decisions are made.^[14]

Assessing breastfeeding knowledge, attitudes, and practices among antenatal mothers is therefore important for identifying educational needs before childbirth. Such assessment can help healthcare professionals develop targeted counselling strategies

and strengthen breastfeeding promotion within routine antenatal services. Furthermore, examining the relationship between maternal characteristics and breastfeeding knowledge may help identify groups requiring additional support.^[15,16]

The present study aims to assess breastfeeding knowledge, attitudes, and practices among antenatal mothers attending a tertiary care health centre. It also seeks to examine the association of selected sociodemographic and obstetric characteristics with breastfeeding knowledge and to identify potential gaps that may be addressed through structured antenatal breastfeeding education. The findings may contribute to the development of context specific educational interventions to promote early initiation, exclusive breastfeeding, and continued breastfeeding in accordance with recommended guidelines.

MATERIALS AND METHODS

Study Design and Setting: A hospital-based study was conducted in the Department of Obstetrics and Gynecology at Employees' State Insurance Corporation (ESIC) Medical College and Hospital, Sanathnagar, Hyderabad, Telangana, India. The study was conducted between April 2023 to March 2024 after approval from institute ethics committee (Ref No. 799/U/IEC/ESICMC/F527/03/2023).

Inclusion and Exclusion Criteria

The study population comprised pregnant women attending the Obstetrics and Gynecology outpatient department. Total 500 participants were recruited from the antenatal outpatient department during the study period. Pregnant women at or beyond 36 weeks of gestation attending the Obstetrics and Gynecology outpatient department who were willing to participate were eligible for inclusion. Women with a gestational age below 36 weeks, those considered mentally unstable, and those unwilling to participate were excluded.

Data Collection Instrument: Data were collected using a self-designed questionnaire and interview guide developed following a review of the literature. The instrument was intended to undergo peer review and validation before use. It comprised four domains: sociodemographic characteristics, breastfeeding knowledge, breastfeeding attitudes, and breastfeeding practices and experiences. The sociodemographic variables included age, religion, educational status, occupation, type of family, age at marriage, and gestational age at the time of interview.

Assessment of Breastfeeding Knowledge: Breastfeeding knowledge was assessed using 13 items with binary responses of yes or no. Each correct response was assigned one point, whereas incorrect responses received zero points. The maximum possible score was 13. Knowledge scores were expressed as percentages and classified as good knowledge (80% to 100%), moderate knowledge (60% to 79%), or poor knowledge (below 60%), according to the study protocol.

Assessment of Breastfeeding Attitudes: Attitudes towards infant feeding were assessed using the 17-item Iowa Infant Feeding Attitude Scale (IIFAS). Each item was scored on a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). Negatively worded items were reverse scored according to the scoring instructions. Total scores ranged from 17 to 85, with scores of 70 to 85 classified as positive attitudes towards breastfeeding and scores of 17 to 48 classified as negative attitudes. Scores between 49 and 69 were reported separately because the study protocol did not assign a specific category to this range.

Assessment of Breastfeeding Practices:

Breastfeeding practices were assessed using 10 items. Each correct practice was assigned one point and each incorrect practice zero points, yielding a maximum score of 10. A score above 8 was considered indicative of good breastfeeding practice. Health Education Intervention: Following the initial assessment of knowledge, attitudes, and practices, all participants received health education regarding recommended breastfeeding practices and their benefits. The educational programme aimed to address identified knowledge gaps, misconceptions, and barriers to appropriate breastfeeding. Participants' reflections on the programme were also obtained.

Postnatal Follow Up and Qualitative Interviews:

Postnatal follow up was planned at six weeks and six months after delivery. In depth interviews explored mothers' breastfeeding experiences, infant feeding

practices, difficulties encountered, and factors influencing breastfeeding continuation. Qualitative data were analysed thematically, with themes and subthemes developed from the interview material. The numbers eligible for follow up, successfully interviewed, and lost to follow up were recorded separately for each time point.

Statistical Analysis: Data were analysed using IBM SPSS Statistics, version 27.0. Categorical variables were expressed as frequencies and percentages, and continuous variables as mean $\pm$ standard deviation or median with interquartile range. Associations were assessed using the chi square or Fisher's exact test, as appropriate. A two-sided p value <0.05 was considered statistically significant.

RESULTS

The study included 500 participants, with a mean age of 25.8 ± 4.2 years. Most participants were aged ≤ 25 years (54.0%) and belonged to the Hindu religion (68.0%). Regarding education, 36.0% had secondary education, followed by higher secondary education (24.0%) and graduation or above (20.0%). Most participants were homemakers (84.0%), while 16.0% were employed. Nuclear families were reported by 60.0% of participants, compared with 40.0% from joint families. Most women were between 36 and 38 weeks of gestation (64.0%), while 36.0% were beyond 38 weeks. The mean age at marriage was 22.1 ± 3.1 years [Table 1].

Table 1: Sociodemographic and obstetric characteristics of study participants (N = 500).

Characteristic	Category	n (%)
Age (years)	Mean $\pm$ SD	25.8 ± 4.2
Age group	≤ 25 years	270 (54.0)
	>25 years	230 (46.0)
Religion	Hindu	340 (68.0)
	Muslim	140 (28.0)
	Other	20 (4.0)
Educational status	No formal education	35 (7.0)
	Primary	65 (13.0)
	Secondary	180 (36.0)
	Higher secondary	120 (24.0)
	Graduate or above	100 (20.0)
Occupation	Homemaker	420 (84.0)
	Employed	80 (16.0)
Type of family	Nuclear	300 (60.0)
	Joint	200 (40.0)
Gestational age	36 to 38 weeks	320 (64.0)
	Above 38 weeks	180 (36.0)
Age at marriage (years)	Mean $\pm$ SD	22.1 ± 3.1

Among the 500 participants, knowledge was highest regarding the benefits of breastfeeding for infants (86.0%) and the benefits of colostrum (82.0%). Knowledge of exclusive breastfeeding was 78.0%, while 73.0% correctly identified early initiation and 72.0% understood continued breastfeeding. The recommended duration of exclusive breastfeeding was correctly identified by 70.0% of participants.

Knowledge gaps were observed regarding correct attachment and latch (57.0% correct), breastfeeding during maternal illness (55.0%), and correct positioning (60.0%). Additionally, 38.0% lacked knowledge of the risks of prelacteal feeding, while 34.0% were unaware of the risks associated with inappropriate bottle feeding [Table 2].

Table 2: Knowledge regarding breastfeeding among antenatal mothers.

Knowledge domain	Correct response, n (%)	Incorrect response, n (%)
Early initiation of breastfeeding	365 (73.0)	135 (27.0)
Benefits of colostrum	410 (82.0)	90 (18.0)
Exclusive breastfeeding	390 (78.0)	110 (22.0)
Recommended duration of exclusive breastfeeding	350 (70.0)	150 (30.0)
Breastfeeding frequency	325 (65.0)	175 (35.0)
Correct positioning	300 (60.0)	200 (40.0)
Correct attachment and latch	285 (57.0)	215 (43.0)
Benefits for the infant	430 (86.0)	70 (14.0)
Benefits for the mother	340 (68.0)	160 (32.0)
Risks of prelacteal feeding	310 (62.0)	190 (38.0)
Risks associated with inappropriate bottle feeding	330 (66.0)	170 (34.0)
Breastfeeding during maternal illness	275 (55.0)	225 (45.0)
Continued breastfeeding	360 (72.0)	140 (28.0)

Among the 500 participants, 42.0% had good breastfeeding knowledge, 38.0% had moderate knowledge, and 20.0% had poor knowledge. The mean knowledge score was 9.4 ± 2.1 , with scores

ranging from 2 to 13. Overall, 80.0% had moderate to good knowledge, indicating a need for targeted educational interventions to address existing knowledge gaps [Table 3].

Table 3: Distribution of participants according to breastfeeding knowledge score.

Knowledge category	Score	n (%)
Good knowledge	80% to 100%	210 (42.0)
Moderate knowledge	60% to 79%	190 (38.0)
Poor knowledge	Below 60%	100 (20.0)
Total		500 (100)
Knowledge score	Mean $\pm$ SD	9.4 ± 2.1
Knowledge score	Range	2 to 13

Among the 500 participants, 56.0% demonstrated a positive attitude towards breastfeeding, while 36.0% had intermediate scores and 8.0% had a negative attitude. The mean attitude score was 67.2 ± 8.6 , with scores ranging from 38 to 84. Overall, most

participants showed a positive attitude towards breastfeeding, although 44.0% had intermediate or negative attitudes, highlighting the need for continued counselling and breastfeeding education [Table 4].

Table 4: Attitude towards breastfeeding according to the Iowa Infant Feeding Attitude Scale.

Attitude category	Score	n (%)
Positive attitude	70 to 85	280 (56.0)
Intermediate score category	49 to 69	180 (36.0)
Negative attitude	17 to 48	40 (8.0)
Total		500 (100)
Attitude score	Mean $\pm$ SD	67.2 ± 8.6
Attitude score	Range	38 to 84

Among the 500 participants, 48.0% demonstrated good breastfeeding practices, while 52.0% scored 8 or below. The mean practice score was 7.8 ± 1.8 , with scores ranging from 2 to 10. These findings indicate

that slightly more than half of the participants did not meet the threshold for good practice, highlighting the need for focused breastfeeding education and practical counselling [Table 5].

Table 5: Breastfeeding practice score among study participants.

Practice category	Score	n (%)
Good practice	9 to 10	240 (48.0)
Score of 8 or below	0 to 8	260 (52.0)
Total		500 (100)
Practice score	Mean $\pm$ SD	7.8 ± 1.8
Practice score	Range	2 to 10

Good knowledge was observed in 44.3% of participants aged >25 years compared with 40.0% among those aged ≤ 25 years; this association was not statistically significant ($p = 0.316$). Educational status was significantly associated with knowledge, with 60.0% of graduates or above demonstrating good knowledge compared with 37.5% of

participants educated below the graduate level ($p < 0.001$). Good knowledge was observed in 50.0% of employed women and 40.5% of homemakers, although the association was not significant ($p = 0.162$). Similarly, knowledge did not differ significantly between participants from nuclear and joint families (43.3% vs 40.0%, $p = 0.435$) [Table 6].

Table 6: Association between sociodemographic characteristics and breastfeeding knowledge.

Characteristic	Good knowledge, n (%)	Moderate or poor knowledge, n (%)	p value
Age ≤25 years	108 (40.0)	162 (60.0)	0.316
Age >25 years	102 (44.3)	128 (55.7)	
Education below graduate level	150 (37.5)	250 (62.5)	<0.001
Graduate or above	60 (60.0)	40 (40.0)	
Homemaker	170 (40.5)	250 (59.5)	0.162
Employed	40 (50.0)	40 (50.0)	
Nuclear family	130 (43.3)	170 (56.7)	0.435
Joint family	80 (40.0)	120 (60.0)	

Among the participants, 30.0% had both good breastfeeding knowledge and a positive attitude, while 12.0% had good knowledge without a positive attitude. Among those with moderate or poor knowledge, 26.0% demonstrated a positive attitude and 32.0% did not. Regarding practice, 28.0% had

both good knowledge and good practices, whereas 14.0% had good knowledge but a practice score ≤8. Among participants with moderate or poor knowledge, 20.0% demonstrated good practices, while 38.0% had a practice score ≤8 [Table 7].

Table 7: Association between breastfeeding knowledge, attitude and practices.

Comparison	Category	n (%)
Knowledge and attitude	Good knowledge with positive attitude	150 (30.0)
	Good knowledge without positive attitude	60 (12.0)
	Moderate or poor knowledge with positive attitude	130 (26.0)
	Moderate or poor knowledge without positive attitude	160 (32.0)
Knowledge and practice	Good knowledge with good practice	140 (28.0)
	Good knowledge with practice score ≤8	70 (14.0)
	Moderate or poor knowledge with good practice	100 (20.0)
	Moderate or poor knowledge with practice score ≤8	190 (38.0)

Following breastfeeding health education, 88.0% of participants reported a better understanding of colostrum, followed by improved understanding of exclusive breastfeeding (85.0%) and overall

breastfeeding knowledge (84.0%). Additionally, 82.0% expressed an intention to practise exclusive breastfeeding, while 78.0% reported increased confidence regarding breastfeeding [Table 8].

Table 8: Feedback following breastfeeding health education.

Feedback domain	Positive response, n (%)	Other response, n (%)
Improved breastfeeding knowledge	420 (84.0)	80 (16.0)
Better understanding of colostrum	440 (88.0)	60 (12.0)
Better understanding of exclusive breastfeeding	425 (85.0)	75 (15.0)
Increased confidence regarding breastfeeding	390 (78.0)	110 (22.0)
Intention to practise exclusive breastfeeding	410 (82.0)	90 (18.0)

Of the 500 participants enrolled antenatally, 400 were eligible for postnatal follow up. Follow up was completed by 360 participants (90.0%) at six weeks and 330 (82.5%) at six months. Exclusive breastfeeding decreased from 300 participants (83.3%) at 6 weeks to 210 (63.6%) at 6 months. Any breastfeeding was reported by 350 (97.2%) and 310

(93.9%), respectively. Breastfeeding difficulties were reported by 100 (27.8%) at 6 weeks and 80 (24.2%) at 6 months. Formula or other feeds increased from 60 (16.7%) to 120 (36.4%). Overall, follow up completion declined by 7.5 percentage points between 6 weeks and 6 months.

Table 9: Breastfeeding outcomes at postnatal follow up.

Outcome	At 6 weeks, n (%)	At 6 months, n/N (%)
Exclusive breastfeeding	300 (83.3)	210 (63.6)
Any breastfeeding	350 (97.2)	310 (93.9)
Breastfeeding difficulties reported	100 (27.8)	80 (24.2)
Formula or other feeds reported	60 (16.7)	120 (36.4)

DISCUSSION

The present study assessed breastfeeding knowledge, attitudes, and practices among 500 antenatal women, with additional postnatal follow up. Good knowledge was observed in 42.0% of participants, while 38.0% had moderate knowledge and 20.0% had poor knowledge. A positive attitude was observed in

56.0%, whereas only 48.0% met the study threshold for good breastfeeding practices. These findings indicate that favourable attitudes and awareness do not necessarily translate into adequate practical knowledge or feeding practices.

The knowledge findings were comparable to those reported by Shahnawaz et al.,^[12] in a cross-sectional study of 384 breastfeeding mothers in Karachi, Pakistan. They reported good knowledge in 41.1%,

fair knowledge in 53.6%, and poor knowledge in 5.2% of participants. The proportion with good knowledge was similar to the 42.0% observed in the present study, although poor knowledge was more frequent in our population (20.0% versus 5.2%). Differences in participant characteristics, questionnaire scoring, and the timing of assessment may explain this variation. Rajak et al.^[11] in a study of 400 mothers attending a rural tertiary care centre in West Bengal, reported good knowledge in 49.0%, fair knowledge in 36.0%, and poor knowledge in 15.0%. Compared with their findings, the present study had a lower proportion of participants with good knowledge and a higher proportion with poor knowledge, suggesting that knowledge gaps remain important in antenatal populations.

In the present study, knowledge was strongest regarding the benefits of breastfeeding for infants (86.0%) and the benefits of colostrum (82.0%). However, knowledge of correct attachment and latch (57.0%), breastfeeding during maternal illness (55.0%), and correct positioning (60.0%) was comparatively limited. Rajak et al.^[11] similarly identified gaps in knowledge of colostrum and exclusive breastfeeding. In their study, 67.0% of mothers had not heard about colostrum, and only 45.0% knew that exclusive breastfeeding should continue for six months. These findings support the need to address both general awareness and practical aspects of breastfeeding during antenatal counselling. Colostrum contains immunological and antimicrobial components that contribute to infant protection, as discussed by Bagwe Parab et al.^[17] Educational interventions should therefore explain its benefits and discourage its rejection.

Educational attainment was significantly associated with breastfeeding knowledge in the present study. Good knowledge was observed in 60.0% of graduates or above compared with 37.5% of women educated below graduate level ($p < 0.001$). Age, occupation, and family type were not significantly associated with knowledge. Rajak et al.^[11] also reported associations between breastfeeding knowledge and maternal education, age, occupation, and parity, although their population and outcome measures differed. Shahnawaz et al.^[12] found differences in selected breastfeeding responses according to socioeconomic status and parity. Collectively, these findings suggest that educational attainment may influence breastfeeding awareness, although the role of other sociodemographic factors may vary across settings.

A positive attitude was present in 56.0% of participants, while 36.0% had intermediate scores and 8.0% had negative attitudes. Nevertheless, good practices were reported in only 48.0%. The cross classification also showed that 14.0% of participants had good knowledge but did not meet the threshold for good practice. This difference highlights the potential influence of practical skills, family support, cultural beliefs, and access to professional guidance. Evidence reviewed by Victora et al.^[6] emphasises

that breastfeeding practices are influenced by individual, health system, and social factors. Antenatal education should therefore combine information with practical demonstrations and opportunities to discuss concerns.

Following breastfeeding education, 84.0% of participants reported improved knowledge, 88.0% reported better understanding of colostrum, and 85.0% reported better understanding of exclusive breastfeeding. Furthermore, 82.0% expressed an intention to practise exclusive breastfeeding. These responses suggest that structured education was well received. However, reported intention should not be interpreted as proof of sustained breastfeeding behaviour. The Cochrane review by Lumbiganon et al.^[14] examined antenatal breastfeeding education and breastfeeding duration, supporting the importance of evaluating educational interventions through actual feeding outcomes rather than knowledge or intention alone.

Postnatal follow up was completed by 360 of 400 participants (90.0%) at six weeks and 330 of 400 (82.5%) at six months. Exclusive breastfeeding decreased from 83.3% at six weeks to 63.6% at six months, while any breastfeeding remained high, decreasing from 97.2% to 93.9%. Breastfeeding difficulties were reported by 27.8% and 24.2%, respectively, while formula or other feeds increased from 16.7% to 36.4%. Rajak et al.^[11] reported that 53.0% of mothers exclusively breastfed for six months, providing a broadly comparable reference point, although their retrospective assessment and study population differed from the present follow up. These results emphasise the importance of continued postnatal support to address difficulties and help mothers sustain exclusive breastfeeding.

Overall, the findings suggest that antenatal breastfeeding education should prioritise practical skills, clarify misconceptions, and provide continued postnatal counselling. Interpretation should account for differences in study populations and measurement methods, as well as the reduction in follow up at six months.

CONCLUSION

The study revealed that although many antenatal mothers had adequate knowledge of breastfeeding benefits, considerable gaps remained in overall knowledge, attitudes, and reported practices. Only 42% of participants demonstrated good knowledge, 56% had a positive attitude, and 48% achieved good practice scores. Educational attainment was significantly associated with good knowledge. Breastfeeding education improved participants' self-reported understanding and confidence, while follow up findings indicated a decline in exclusive breastfeeding from 83.3% at six weeks to 63.6% at six months. These findings highlight the need for structured antenatal counselling, practical breastfeeding guidance, and sustained postnatal

support to promote exclusive breastfeeding and address feeding difficulties.

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