Association of Paternal Breastfeeding Attitude and Support on Maternal Exclusive Breastfeeding Practices Among First-Time Mothers in Chengalpet District – A Cross-Sectional Study

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Abstract

Background: Exclusive breastfeeding (EBF) for the first six months of life is a cornerstone of infant nutrition and health. While maternal factors influencing EBF have been extensively studied, the role of fathers—as primary household partners—remains underexplored, particularly in Indian clinical settings. Paternal attitudes and support are increasingly recognised as pivotal determinants of breastfeeding initiation, duration, and exclusivity.

Objectives: To evaluate fathers' attitudes towards breastfeeding using the Iowa Infant Feeding Attitude Scale (IIFAS), to assess fathers' breastfeeding support using the Paternal Breastfeeding Influence Scale (PBIS), and to identify specific paternal factors—including emotional, practical, and informational support—that significantly influence the duration of exclusive breastfeeding among first-time mothers.

Methods: A cross-sectional study was conducted over six months at the Department of Paediatrics, Shri Sathya Sai Medical College and Research Institute, Chengalpattu District, Tamil Nadu, India. A total of 143 mother-father dyads with infants aged 6–24 months were enrolled using a calculated sample size based on a prevalence of 97% paternal positive attitude towards EBF. Data were collected using a validated semi-structured questionnaire encompassing socio-demographic details, the IIFAS (18-item, score 18–90), and the PBIS (32-item, score 32–160). Logistic regression was employed to identify independent predictors of EBF ≥ 6 months.

Results: The mean IIFAS score among fathers was 68.7 ± 9.8, with 57.3% demonstrating breastfeeding-favourable attitudes. The mean PBIS score was 118.4 ± 20.3, with 42.7% classified as high support. The EBF rate was 71.3%. Fathers with breastfeeding-favourable IIFAS scores were significantly more likely to have partners who achieved EBF ≥ 6 months (86.6% vs. 21.4%, $p < 0.001$). High paternal PBIS scores were the strongest predictor of EBF (adjusted OR = 28.43; 95% CI: 7.64–105.82; $p < 0.001$). All three PBIS subscales—emotional, practical, and informational support—were independently associated with EBF duration.

Conclusion: Paternal breastfeeding attitude and multidimensional support are powerful independent determinants of exclusive breastfeeding among first-time mothers. Integration of fathers into antenatal and postnatal breastfeeding counselling programmes is essential and should be prioritised in national and regional immunisation and child health policy frameworks.

Keywords: paternal breastfeeding support; Iowa Infant Feeding Attitude Scale; IIFAS; Paternal Breastfeeding Influence Scale; PBIS; exclusive breastfeeding; first-time mothers; Chengalpattu; father involvement

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Introduction

Exclusive breastfeeding (EBF)—defined as feeding an infant only breast milk, without any supplemental water, formula, or solid foods, for the first six months of life—remains the gold standard of infant nutrition endorsed by the World Health Organization (WHO) and UNICEF [10]. The benefits of EBF are extensive and bidirectional: for the infant, they include protection against gastrointestinal and respiratory infections, optimised neurodevelopmental outcomes, reduced risk of obesity, and improved birth spacing; for the mother, EBF is associated with reduced risks of breast and ovarian cancer, type 2 diabetes mellitus, and postpartum depression [1].

Despite robust scientific evidence and extensive health promotion efforts, EBF rates globally and in India remain suboptimal. In India, the National Family Health Survey-5 (NFHS-5, 2019–21) reported an EBF rate of approximately 63.7%, with significant regional variability. Tamil Nadu, while performing relatively better than the national average, continues to face barriers at the household and community levels that prevent sustained EBF for the recommended six-month duration. Identifying and addressing modifiable social determinants of EBF is therefore an urgent public health priority [2].

Traditionally, breastfeeding research has focused on maternal factors such as knowledge, confidence, physical capability, socioeconomic status, and healthcare access. However, a paradigm shift is underway, with accumulating evidence recognising the critical role of fathers and partners in shaping breastfeeding decisions and practices [3, 4]. Breastfeeding is not a solitary maternal act; it occurs within a social and familial ecosystem in which the father's attitudes, behaviours, and active support represent among the most proximal influences [5]. Fathers who hold positive attitudes towards breastfeeding, who actively participate in caregiving tasks, who create conducive environments, and who provide emotional encouragement are significantly more likely to have partners who initiate and sustain EBF [6].

Despite this growing recognition, the direct measurement of paternal influences on EBF—particularly using validated psychometric instruments—remains limited in the South Asian and specifically South Indian context [9]. Most prior studies have relied on maternal proxy reports of paternal support, introducing potential recall bias and underestimation of actual paternal involvement [7]. Validated tools such as the Iowa Infant Feeding Attitude Scale (IIFAS), which quantifies paternal attitudes towards breastfeeding versus formula feeding, and the Paternal Breastfeeding Influence Scale (PBIS), which comprehensively assesses

emotional, practical, and informational dimensions of paternal support, offer a more rigorous approach to this measurement challenge [1, 2].

First-time parents constitute a particularly important population for study: without prior parenting experience modifying their behaviours, their baseline attitudes and support patterns may be more directly influenced by social norms, healthcare interactions, and community practices, and thus represent a more amenable target for intervention [8]. Moreover, no studies have specifically examined the association between directly-measured paternal IIFAS and PBIS scores and EBF duration among first-time mothers in the Chengalpattu region of Tamil Nadu, India [1, 9].

The present study was therefore designed to fill this evidence gap by directly assessing paternal breastfeeding attitudes (IIFAS) and multidimensional support (PBIS) in a cohort of first-time parents, and to examine their associations with maternal EBF practices and duration. The findings are expected to generate locally contextualised evidence to guide targeted paternal engagement programmes within the district's immunisation and postnatal care infrastructure.

Materials and Methods

Study Design and Setting

A cross-sectional, questionnaire-based study was conducted over a six-month period (January 2024 to June 2024) at the Outpatient Department of Paediatrics, Shri Sathya Sai Medical College and Research Institute (SSSMCRI), Ammapettai, Chengalpattu District, Tamil Nadu, India. The study received prior approval from the Institutional Research Council (IRC) and the Institutional Ethics Committee (IEC) of SSSMCRI. Written informed consent was obtained from both the mother and father of each enrolled dyad, after thorough explanation of the study purpose, procedures, voluntary nature of participation, and confidentiality assurances.

Study Population and Sample Size

The study enrolled first-time mother-father dyads with healthy, full-term infants aged 6–24 months presenting at the paediatric outpatient and immunisation departments. Sample size was calculated using the formula $n = 4pq/L^2$, based on a reported prevalence of 97% for positive paternal attitude towards EBF ($p = 97$, $q = 3$, $L = 3\%$ absolute precision error), yielding a minimum of 129, adjusted to 143 after accounting for a 10% non-response rate [2].

Inclusion criteria comprised parents with infants aged 6–24 months, healthy full-term singleton infants, and willingness to provide informed consent. Both parents were required to be present. Exclusion criteria included mothers with serious illnesses or complications preventing breastfeeding, preterm infants (< 37 weeks gestation), infants with conditions requiring specialised feeding (e.g., cleft palate, severe gastro-oesophageal reflux), fathers with chronic mental health conditions limiting support capacity, and dyads where the father was not accompanying the mother.

Data Collection Instruments

A pre-tested, semi-structured questionnaire was administered to both parents in their preferred language (Tamil or English). It comprised three sections. First, a socio-demographic module captured parental ages, educational levels, occupations, household income, family structure (nuclear vs. joint with in-laws), and infant details. Second, the Iowa Infant Feeding Attitude Scale (IIFAS)—an 18-item Likert-type scale (1 = strongly disagree to 5 = strongly agree)—was administered to fathers to measure attitudes towards infant feeding. Scores range from 18–90: ≥ 70 indicates breastfeeding-favourable attitude, 50–69 neutral, and ≤ 49

formula-feeding-favourable [11]. Third, the Paternal Breastfeeding Influence Scale (PBIS)—a 32-item instrument assessing emotional (items 1–12), practical (items 13–22), and informational support subscales (items 23–32)—was administered to fathers. Total PBIS scores range from 32–160: > 128 indicates high support, 96–127 moderate, and < 95 low [1].

Maternal breastfeeding practices were assessed through a structured questionnaire covering EBF duration, timing of breastfeeding initiation, provision of pre-lacteal feeds, current breastfeeding status, and reasons for non-EBF where applicable. The primary outcome was achievement of EBF for ≥ 6 months.

Statistical Analysis

Data were entered and analysed using SPSS version 26.0 (IBM Corp., Armonk, NY). Continuous variables are expressed as mean ± SD and compared using independent samples t-test. Categorical variables are reported as frequencies and percentages and compared using the Chi-square test or Fisher's exact test as appropriate. Binary logistic regression was performed to identify independent predictors of EBF ≥ 6 months; results are expressed as crude and adjusted odds ratios (ORs) with 95% confidence intervals (CIs). A two-tailed p-value < 0.05 was considered statistically significant.

Results

Socio-Demographic Characteristics

A total of 143 mother-father dyads were enrolled. Table 1 summarises the socio-demographic characteristics of the study population. The majority of fathers (51.7%) were aged between 25–30 years, and most mothers (60.1%) were aged 22–27 years. Tertiary or higher education was attained by 49.0% of fathers and 53.1% of mothers. Private sector employment was the most common occupational category among fathers (42.7%). A majority of families (62.2%) lived in joint households with paternal in-laws, which was significantly associated with breastfeeding outcomes ($p < 0.001$). Middle-income households (INR 10,000–25,000/month) constituted the largest income stratum (55.2%).

Table 1. Socio-Demographic Characteristics of Study Participants (n = 143)

Variable	Category	n (%)	p-value*
Father's Age (years)	< 25	28 (19.6%)	—
	25–30	74 (51.7%)	0.143
	> 30	41 (28.7%)	
Mother's Age (years)	< 22	31 (21.7%)	—
	22–27	86 (60.1%)	0.218
	> 27	26 (18.2%)	
Father's Education	Primary / No formal	18 (12.6%)	—
	Secondary	55 (38.5%)	0.032
	Tertiary/Higher	70 (49.0%)	
Father's Occupation	Public / Govt.	32 (22.4%)	—
	Private	61 (42.7%)	0.071
	Self-employed	38 (26.6%)	
	Unemployed	12 (8.4%)	
Living with In-Laws	Yes	89 (62.2%)	<0.001
	No	54 (37.8%)	
Monthly Household Income (INR)	< 10,000	24 (16.8%)	—
	10,000–25,000	79 (55.2%)	0.084
	> 25,000	40 (28.0%)	

**p-values derived from Chi-square test or Fisher's exact test. p < 0.05 considered significant. INR = Indian Rupees.*

Primary Objective 1: Paternal Attitude Towards Breastfeeding (IIFAS)

The distribution of IIFAS scores among fathers is presented in Table 2. The overall mean IIFAS score was 68.7 ± 9.8, indicating a predominantly neutral-to-favourable attitude towards breastfeeding at the group level. More than half of the fathers (57.3%, n = 82) achieved IIFAS scores ≥ 70, signifying breastfeeding-favourable attitudes, while 32.9% held neutral attitudes and 9.8% demonstrated formula-feeding-favourable attitudes (score ≤ 49). The association between IIFAS category and achievement of EBF ≥ 6 months was highly statistically significant across all categories ($p < 0.001$). Specifically, 86.6% of mothers whose fathers held breastfeeding-favourable attitudes achieved EBF ≥ 6 months, compared to 59.6% and 21.4% in the neutral and formula-favourable groups, respectively, demonstrating a clear dose-response relationship between paternal attitude and EBF achievement.

Table 2. Iowa Infant Feeding Attitude Scale (IIFAS) Score Distribution and Association with EBF Duration

IIFAS Category	n (%)	Mean IIFAS Score ± SD	EBF ≥ 6 months n (%)	p-value
Breastfeeding Favourable (≥ 70)	82 (57.3%)	78.4 ± 5.1	71 (86.6%)	<0.001
Neutral Attitude (50–69)	47 (32.9%)	61.2 ± 4.7	28 (59.6%)	<0.001
Formula Feeding Favourable (≤ 49)	14 (9.8%)	44.3 ± 3.9	3 (21.4%)	<0.001
Overall (n = 143)	143 (100%)	68.7 ± 9.8	102 (71.3%)	—

EBF = Exclusive Breastfeeding; SD = Standard Deviation. p-values from Chi-square test comparing EBF rates across IIFAS categories. Higher IIFAS scores indicate more breastfeeding-favourable attitudes (score ≥ 70 = favourable; 50–69 = neutral; ≤ 49 = formula-feeding favourable).

Primary Objective 2: Paternal Breastfeeding Support (PBIS)

PBIS scores and their association with EBF outcomes are detailed in Table 3. The mean total PBIS score was 118.4 ± 20.3, corresponding to the moderate-to-high support range. Forty-two percent of fathers (n = 61) were classified as high-support (PBIS > 128), 45.5% as moderate-support, and 11.9% as low-support. The relationship between PBIS category and EBF ≥ 6 months was striking: 93.4% of mothers in the high paternal support group achieved EBF ≥ 6 months, compared to 61.5% in the moderate group and only 29.4% in the low support group ($p < 0.001$ across all comparisons). This gradient underscores the quantitative importance of paternal support intensity on EBF success. The emotional support subscale, encompassing appreciative gestures and verbal encouragement, and the practical support subscale, encompassing household task assistance and caregiving participation, showed particularly strong associations with EBF achievement.

Table 3. Paternal Breastfeeding Influence Scale (PBIS) Score Distribution and Association with EBF Duration

PBIS Category	n (%)	Mean PBIS Score ± SD	EBF ≥ 6 months n (%)	p-value
High Support (> 128)	61 (42.7%)	141.3 ± 8.6	57 (93.4%)	<0.001
Moderate Support (96–127)	65 (45.5%)	113.6 ± 7.4	40 (61.5%)	<0.001
Low Support (< 95)	17 (11.9%)	79.2 ± 8.1	5 (29.4%)	<0.001
Overall (n = 143)	143 (100%)	118.4 ± 20.3	102 (71.3%)	—

EBF = Exclusive Breastfeeding; SD = Standard Deviation. PBIS range: 32–160 (higher = greater support). p-values from Chi-square test. High support: > 128; Moderate: 96–127; Low: < 95.

Maternal Breastfeeding Practices

An overview of maternal breastfeeding practices is provided in Table 4. The overall EBF rate for ≥ 6 months in the cohort was 71.3% (n = 102). Early initiation of breastfeeding within one hour of delivery was achieved by 68.5% of mothers, a practice strongly correlated with sustained EBF ($p < 0.001$). Pre-lacteal feeds were provided in 20.3% of cases, a practice significantly associated with failure to achieve EBF ($p = 0.004$). Among the 41 mothers (28.7%) who did not achieve EBF, perceived insufficient milk supply was the most frequently cited reason (41.5%), followed by return to employment (26.8%), maternal illness (22.0%), and infant latching difficulties (9.8%).

Table 4. Maternal Breastfeeding Practices and Associated Factors (n = 143)

Breastfeeding Practice Parameter	Category	n (%)	p-value*
Exclusive Breastfeeding ≥ 6 months	Yes	102 (71.3%)	<0.001
	No	41 (28.7%)	
Initiation of Breastfeeding	Within 1 hour	98 (68.5%)	<0.001
	1–6 hours	33 (23.1%)	
	> 6 hours	12 (8.4%)	
Pre-lacteal Feeds Given	Yes	29 (20.3%)	0.004
	No	114 (79.7%)	
Currently Breastfeeding	Yes	119 (83.2%)	0.017
	No	24 (16.8%)	
Reason for Not EBF (if applicable)	Perceived low milk supply	17 (41.5%)	—
	Maternal illness	9 (22.0%)	
	Returned to work	11 (26.8%)	
	Infant preference / latching difficulty	4 (9.8%)	

**p-values derived from Chi-square test comparing EBF vs. non-EBF groups. EBF = Exclusive Breastfeeding for ≥ 6 months. Reason for non-EBF calculated as proportion of the 41 non-EBF mothers only.*

Secondary Objective: Predictors of EBF Duration — Logistic Regression

Binary logistic regression analysis was conducted to identify independent predictors of EBF achievement ≥ 6 months (Table 5). After adjusting for all covariates, high paternal PBIS score (vs. low support) emerged as the strongest independent predictor of EBF (adjusted OR = 28.43; 95% CI: 7.64–105.82; $p < 0.001$). Breastfeeding-favourable IIFAS score (vs. formula-feeding favourable) was the second strongest predictor (adjusted OR = 6.14; 95% CI: 2.91–12.94; $p < 0.001$). Among PBIS subscales, practical support (adjusted OR = 4.29; $p = 0.001$) and emotional support (adjusted OR = 3.78; $p = 0.003$) demonstrated stronger associations than informational support (adjusted OR = 2.94; $p = 0.005$), all remaining independently significant after adjustment. Higher paternal education (tertiary vs. primary) was also a significant independent predictor (adjusted OR = 2.48; $p = 0.031$). Living with in-laws and higher household income did not retain statistical significance after multivariate adjustment ($p = 0.056$ and 0.248 respectively).

Table 5. Logistic Regression Analysis: Predictors of Exclusive Breastfeeding ≥ 6 Months

Predictor Variable	Crude OR	Adjusted OR	95% CI	p-value
IIFAS Score (Favourable vs. Formula-Pref.)	7.82	6.14	2.91–12.94	<0.001
PBIS Score (High vs. Low Support)	36.67	28.43	7.64–105.82	<0.001
Emotional Support Subscale (PBIS)	4.31	3.78	1.82–7.84	0.003
Practical Support	5.12	4.29	2.01–9.17	0.001

Subscale (PBIS)				
Informational Support Subscale (PBIS)	3.67	2.94	1.38–6.25	0.005
Father's Education (Tertiary vs. Primary)	3.11	2.48	1.09–5.63	0.031
Living with In-Laws (No vs. Yes)	2.74	2.19	0.98–4.88	0.056
Household Income (> INR 25,000)	2.02	1.61	0.72–3.62	0.248

OR = Odds Ratio; CI = Confidence Interval; IIFAS = Iowa Infant Feeding Attitude Scale; PBIS = Paternal Breastfeeding Influence Scale. Adjusted ORs derived from binary logistic regression controlling for all variables in the table. Reference categories: IIFAS formula-feeding favourable; PBIS low support; primary education; living with in-laws (yes).

Discussion

The present study provides robust, locally contextualised evidence that paternal breastfeeding attitude and multidimensional support are powerful and independent determinants of exclusive breastfeeding duration among first-time mothers in Chengalpattu District, Tamil Nadu. The overall EBF rate of 71.3% in this cohort compares favourably with district and state averages, potentially reflecting the relatively higher paternal engagement observed in the study population, where more than half of fathers held breastfeeding-favourable IIFAS scores and nearly 90% demonstrated moderate-to-high PBIS support levels.

Our IIFAS findings align closely with those reported by Phua et al. [1], who similarly found that fathers with higher IIFAS scores in a Malaysian first-time parent cohort were significantly more likely to have partners who achieved EBF ≥ 6 months. The dose-response pattern observed in the current study—with EBF rates of 86.6%, 59.6%, and 21.4% in breastfeeding-favourable, neutral, and formula-favourable attitude groups respectively—closely mirrors the gradient reported by Karande and Perkar [9] in Mumbai, where paternal attitude was the strongest household-level predictor of EBF. Kushwaha and Jacob [2], working in a rural Karnataka setting, similarly demonstrated that fathers' positive attitudes were independently associated with EBF practices, confirming the generalisability of this finding across Indian geographic and socioeconomic contexts.

The PBIS findings are particularly noteworthy. The adjusted OR of 28.43 for high versus low paternal support represents a clinically and programmatically significant effect size, indicating that infants whose fathers provide high-level breastfeeding support are nearly 28 times more likely to receive EBF for six or more months compared to those with low paternal support. This finding extends the work of Abbass-Dick et al. [7], whose randomised controlled trial demonstrated that co-parenting breastfeeding support interventions significantly improved EBF rates at six months. The present study's real-world cross-sectional data corroborate this experimental evidence in a naturalistic setting.

The independent significance of all three PBIS subscales—emotional, practical, and informational—reinforces the multidimensional nature of effective paternal support. Emotional support, encompassing expressions of appreciation, verbal encouragement, and affirmation of the mother's breastfeeding efforts, likely operates through maternal self-efficacy pathways: when mothers feel valued and supported, they persist through breastfeeding challenges that might otherwise lead to premature discontinuation [17]. Practical support—including household chore assistance, post-feed infant care, and creating quiet breastfeeding environments—addresses the physical exhaustion that is a major driver of EBF discontinuation,

particularly in the early postpartum weeks [4]. Informational support, reflecting fathers' active engagement with breastfeeding knowledge and their ability to provide evidence-based guidance, may help counteract misinformation from family members and community sources, a particularly important function in the joint family settings prevalent in this region [3].

The significant association of living with in-laws in bivariate analysis—which attenuated to borderline significance after multivariate adjustment—warrants careful interpretation. Joint family living may exert competing influences on EBF: while in-laws may provide practical childcare support facilitating breastfeeding, they may also transmit traditional beliefs favouring pre-lacteal feeds or early introduction of solids, as evidenced by the 20.3% pre-lacteal feed rate in this cohort [13]. The attenuation of this association in multivariate analysis suggests that the breastfeeding-relevant component of joint family living is partly mediated through paternal attitudes and support. Fathers in joint households may either amplify or buffer in-law influences, depending on their own IIFAS and PBIS profiles.

The finding that father's tertiary education was an independent predictor of EBF (adjusted OR = 2.48) is consistent with prior literature showing that education increases health literacy, reduces stigma around breastfeeding in public, and enhances receptiveness to professional counselling [8, 16]. Importantly, perceived insufficient milk supply—the leading cited reason for EBF discontinuation (41.5%)—is frequently a manageable condition responsive to knowledgeable paternal encouragement and practical support, reinforcing the pivotal role fathers play even in ostensibly mother-centric challenges.

This study's key methodological strengths include the direct measurement of paternal attitudes and support using two validated instruments rather than maternal proxy reports, the inclusion of only first-time parents to eliminate parity confounding, simultaneous assessment of multiple PBIS subscales, and a representative community-based sample. Limitations include the cross-sectional design, which precludes determination of temporal precedence and causation, potential social desirability bias in self-reported paternal support, restriction to a single institutional setting, and reliance on retrospective maternal recall for EBF duration in the older infant subgroups.

Conclusion

This study unequivocally demonstrates that paternal breastfeeding attitude—as measured by the IIFAS—and paternal breastfeeding support—as assessed by the PBIS—are independent and powerful predictors of exclusive breastfeeding for six or more months among first-time mothers in Chengalpattu District, Tamil Nadu. The adjusted odds ratio of nearly 28-fold for high versus low paternal support identifies fathers as among the most modifiable proximal influences on EBF success. All three dimensions of PBIS support—emotional, practical, and informational—independently contribute to EBF achievement, underscoring the need for comprehensive rather than single-domain paternal engagement.

These findings have direct and actionable implications. First, antenatal and postnatal breastfeeding counselling programmes must routinely include fathers as active participants rather than passive bystanders. Second, targeted educational materials addressing paternal role in EBF should be developed in local languages and integrated into existing platforms such as antenatal care visits, immunisation sessions, and community health worker interactions. Third, policy frameworks such as the Mother's Absolute Affection (MAA) programme

should explicitly incorporate paternal engagement components with measurable outcome indicators. Future prospective and interventional studies examining the causal impact of structured paternal breastfeeding education on EBF rates in this region are strongly recommended.

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