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FACTORS ASSOCIATED WITH CESSATION OF EXCLUSIVE BREASTFEEDING UNDER 6 MONTHS OF AGE OF CHILDREN

Original Research

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ABSTRACT

Background: Exclusive breastfeeding during the first six months of life is universally recognized as essential for optimal infant growth, development, and immunity. Despite its well-documented benefits, exclusive breastfeeding rates continue to decline across diverse populations due to maternal, social, and cultural barriers. Insufficient milk supply, maternal employment, and poor maternal health are among the most frequently cited reasons for early cessation. Understanding these factors is vital to designing effective strategies to promote sustained breastfeeding and improve maternal and child health outcomes.

Objective: To determine the frequency of factors influencing the cessation of exclusive breastfeeding among infants younger than six months.

Methods: This descriptive cross-sectional study was conducted in the Department of Paediatrics, Foundation University Medical College (FUMC) / Fauji Foundation Hospital, Rawalpindi, from 26th January 2025 to 20th May 2025. A total of 150 mothers of infants under six months who had ceased exclusive breastfeeding were enrolled using consecutive non-probability sampling. Inclusion criteria were mothers reporting cessation of exclusive breastfeeding, while infants with congenital anomalies, prematurity, or maternal postpartum death were excluded. Data on maternal employment, breast milk insufficiency, poor maternal health, and social issues were collected through structured interviews using a pre-designed questionnaire and validated Likert scales. Anthropometric measurements were recorded. Data were analyzed using SPSS v.26, applying descriptive statistics and chi-square or Fisher's exact test where appropriate.

Results: The mean age of infants was 3.20 ± 1.26 months, with 84 (56.0%) aged three months or below. Males comprised 90 (60.0%) participants, and 78 (52.0%) resided in rural areas. Breast milk insufficiency was the most frequent cause of cessation, reported in 66 (44.0%) cases. Maternal employment was documented in 57 (38.0%), social issues in 48 (32.0%), and poor maternal health in 42 (28.0%). Maternal employment was significantly higher in urban mothers (73.7% vs. 26.3%; p = 0.000). No significant associations were observed between age, gender, and other cessation factors.

Conclusion: Exclusive breastfeeding among infants under six months is compromised predominantly by breast milk insufficiency, maternal employment, social challenges, and poor maternal health. Strengthening prenatal education, workplace breastfeeding support, and maternal healthcare can improve exclusive breastfeeding practices and enhance infant health outcomes.

Keywords: Breast Feeding, Cessation, Infants, Maternal Employment, Maternal Health, Milk Insufficiency, Social Factors.

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INTRODUCTION

Exclusive breastfeeding (EBF) is universally acknowledged as the cornerstone of optimal infant nutrition and health, particularly during the first six months of life (1). The World Health Organization (WHO) and other global health bodies consistently emphasize its role in safeguarding growth, immunity, and neurodevelopment, while simultaneously protecting maternal health by reducing the risk of breast and ovarian cancers and fostering maternal–infant bonding (2). By definition, EBF entails providing infants with breast milk alone, without additional fluids or solids, not even water, throughout this critical early life period (3). Despite these strong recommendations, maintaining EBF beyond the initial months remains challenging in many populations, with marked declines observed as infants approach the one-year milestone (4). The barriers to sustaining EBF are multifaceted, reflecting an interplay of socio-economic, cultural, and health-related determinants. Maternal education, employment demands, and family income strongly influence adherence to breastfeeding practices, with working mothers often struggling to balance occupational responsibilities with the demands of breastfeeding (5). Cultural beliefs and traditions may also dictate infant feeding norms, sometimes conflicting with medical recommendations, while social pressures and inadequate family support further undermine sustained EBF (6). Maternal health conditions such as mastitis or perceived inadequate milk supply frequently contribute to premature cessation, while infant-related challenges, including poor latch, recurrent illness, or feeding difficulties, may add further obstacles (7). Evidence also suggests that inadequate access to professional support, such as lactation counseling and breastfeeding-friendly workplaces, exacerbates these challenges (8).

The introduction of complementary foods presents another critical transition point. While solid foods are essential after six months, parental uncertainty and conflicting advice can accelerate the decline of breastfeeding, leading to early cessation (9). A study that, maternal employment (50%), poor maternal health (33.33%), insufficient milk supply (29%), mother–infant separation (12.9%), and maternal fatigue (18.2%) were among the leading causes for discontinuation of EBF (10). These findings highlight how practical, social, and biological factors converge to shorten the duration of breastfeeding, despite mothers' initial intentions and the known benefits for both infant and maternal well-being. Given these challenges, there remains a critical need to investigate the determinants that influence the cessation of exclusive breastfeeding by six months of age. Understanding these factors is essential for informing health policies, designing culturally appropriate interventions, and strengthening support systems for mothers. The objective of this study is to explore and analyze the socio-economic, cultural, and health-related factors contributing to the cessation of EBF by six months, with the aim of developing targeted strategies to promote and sustain breastfeeding practices.

METHODS

This descriptive cross-sectional study was conducted in the Department of Paediatrics, Foundation University Medical College (FUMC) / Fauji Foundation Hospital, Rawalpindi, over the period from 26th January 2025 to 20th May 2025. A total of 150 mothers with infants younger than six months who had discontinued exclusive breastfeeding were enrolled. The sample size was calculated using the WHO sample size calculator, with a confidence level of 95%, a desired precision of 8%, and an estimated prevalence of maternal employment as a major influencing factor of 50% taken from the parent study (8). Participants were recruited through consecutive non-probability sampling. Eligibility criteria were clearly defined. Mothers of infants aged less than six months who had ceased exclusive breastfeeding were included. Infants with congenital anomalies, those born prematurely, and cases where the mother had died in the postpartum period were excluded. Exclusive breastfeeding was defined according to the World Health Organization as the provision of breast milk alone without the addition of water, teas, herbal preparations, other foods, or liquids, with the exception of prescribed vitamins, mineral supplements, or medicines (11). Factors leading to cessation of exclusive breastfeeding were assessed under four domains: breast milk insufficiency, social issues, maternal employment, and poor maternal health. Breast milk insufficiency was defined as a mother's inability to produce sufficient milk to meet the infant's needs. This was evaluated clinically and recorded on a Likert scale, where a response of "unsatisfied" indicated significant insufficiency. Social issues referred to barriers such as difficulty feeding in public or gatherings, which were also evaluated using a Likert scale; a response of "unsatisfied" was considered significant (12,13). Maternal employment was defined as mothers resuming work after maternity leave or being employed during the breastfeeding period, based on maternal history. Poor maternal health included chronic or severe physical illnesses (e.g., diabetes, hypertension, cardiovascular disease),

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mental health disorders (e.g., depression, anxiety), insufficient prenatal or postnatal care, nutritional deficiencies, extreme fatigue, or reduced functional capacity. These were identified through medical records, clinical assessments, healthcare provider evaluations, and self-reported symptoms.

After approval of the synopsis by the College of Physicians and Surgeons Pakistan (CPSP) and the institutional ethical review committee eligible participants were approached in outpatient clinics, inpatient wards, and the emergency department. Written informed consent was obtained from all mothers prior to enrollment. Data were collected using a pre-designed questionnaire through face-to-face structured interviews. Additional clinical information such as anthropometric measurements was recorded, including infant weight (measured using a Camry analog weighing scale), length (measured with a stadiometer), and fronto-occipital circumference (measured with a Seca 212 tape). Socioeconomic and demographic data were also obtained, including family type, husband's occupation, and residence. Information regarding reduced inter-pregnancy intervals was collected by maternal history, as closely spaced pregnancies were considered a potential influencing factor. All data were entered into a database using SPSS version 26.0 for Windows. Quantitative variables such as maternal and infant age, infant weight, length, and head circumference were presented as mean and standard deviation, with normality assessed by the Shapiro-Wilk test. Qualitative variables, including place of residence (urban/rural), infant gender, family type (nuclear/extended), husband's employment status, nature of employment, and the four major factors influencing cessation of breastfeeding, were presented as frequencies and percentages. Effect modifiers such as infant age, gender, socioeconomic status, and place of residence were controlled through stratification. Post-stratification analysis was conducted using the chi-square test or Fisher's exact test when any cell frequency was ≤5. A p-value ≤0.05 was considered statistically significant.

RESULTS

The mean age of the infants was 3.20 ± 1.26 months, while the mean weight was 3.60 ± 0.66 kg. A total of 84 infants (56.0%) were aged three months or below, whereas 66 (44.0%) were older than three months. The cohort comprised 90 male participants (60.0%) and 60 female participants (40.0%). More than half of the participants resided in rural areas (52.0%), while 48.0% belonged to urban settings. Maternal education was limited, with 32.0% of mothers having no formal schooling, 44.0% educated up to matric or below, and only 24.0% having education above matric. Regarding socioeconomic status, 38.0% of the families were classified as poor and 62.0% as fair. Family structure showed that 68.0% of infants lived in a two-parent household, 22.0% in extended families, and 10.0% with a single parent. Breast milk insufficiency was identified as the most frequent factor for cessation of exclusive breastfeeding, reported in 44.0% of the participants. Maternal employment was the second most common factor, affecting 38.0% of mothers. Social issues accounted for 32.0%, while poor maternal health was the least common, reported in 28.0% of cases. Stratification by infant age revealed that breast milk insufficiency was slightly more prevalent among those aged three months or below (54.5%) compared to those older than three months (45.5%), though the association was statistically insignificant ($p = 0.750$). Maternal employment was reported by 52.6% of mothers of infants older than three months compared to 47.4% of mothers with younger infants, with no significant difference ($p = 0.095$). Social issues and poor maternal health also showed no significant associations with infant age.

When stratified by gender, 63.6% of male infants and 36.4% of female infants experienced cessation due to breast milk insufficiency, while maternal employment contributed in 63.2% of male and 36.8% of female cases. Social issues were more frequent in males (62.5%) than females (37.5%). Poor maternal health was reported for 64.3% of male infants and 35.7% of females. None of these differences reached statistical significance ($p > 0.05$). A significant relationship was observed with place of residence. Maternal employment was markedly higher among urban participants (73.7%) compared to rural participants (26.3%), with statistical significance ($p = 0.000$). No significant association was found between residence and breast milk insufficiency, social issues, or poor maternal health. Socioeconomic status showed a statistically significant association with social issues, which were more frequent among poor participants (50.0%) compared to those with fair socioeconomic status (32.4%) ($p = 0.038$). Associations of socioeconomic status with breast milk insufficiency, maternal employment, and poor maternal health did not reach significance. Additional analysis demonstrated that maternal education and family type also contributed to variations in exclusive breastfeeding cessation, although these were not fully stratified in the main results. Among the participants, 32.0% of mothers had no formal schooling, 44.0% had education up to matric level or below, and only 24.0% were educated beyond matric. Cessation of exclusive breastfeeding was more frequent among mothers with lower educational attainment, suggesting that maternal literacy and awareness may influence breastfeeding continuation. Regarding family type, the majority of infants lived in two-parent households (68.0%), followed by extended families (22.0%) and single-parent families (10.0%). Mothers from single-parent and extended family structures appeared more likely to report breastfeeding cessation compared with those in nuclear two-parent families, reflecting the potential role of family support systems in sustaining breastfeeding practices.

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These findings highlight that both maternal education and family structure are important determinants that should be explored in future analyses to develop comprehensive support strategies.

Table 1: Descriptive statistics of enrolled participants (n = 150)

Parameters	Mean	Std. Deviation
Age (months)	3.20	1.269
Weight (kg)	3.608	.6667

Table 2: Baseline characteristics of study participants (n = 150)

Parameters		Frequency	Percent
Age (months)	3 or below	84	56.0
	Above 3	66	44.0
Gender	Male	90	60.0
	Female	60	40.0
Residence	Rural	78	52.0
	Urban	72	48.0
Education mother	No formal schooling	48	32.0
	Matric or below	66	44.0
	Above matric	36	24.0
SES	Poor	57	38.0
	Fair	93	62.0
Family type	Single Parent	15	10.0
	Two Parents	102	68.0
	Extended family	33	22.0

Table 3: Distribution of factors of breast milk cessations (n = 150)

Factors of cessation		Frequency	Percent
Breast milk insufficiency	Yes	66	44.0
	No	84	56.0
Maternal employment	Yes	57	38.0
	No	93	62.0
Social issues	Yes	48	32.0
	No	102	68.0
Poor Maternal health	Yes	42	28.0
	No	108	72.0

Table 4: Stratification of factors of cessation with age (n = 150)

		Age (months)		**Total**	**P value**
		3 or below (n = 84)	**Above 3 (n = 66)**		
Breast milk insufficiency	Yes	36	30	66	0.750
		54.5%	45.5%	100.0%	
	No	48	36	84	
		57.1%	42.9%	100.0%	
Maternal employment	Yes	27	30	57	0.095
		47.4%	52.6%	100.0%	
	No	57	36	93	
		61.3%	38.7%	100.0%	
Social issues	Yes	24	24	48	0.310

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		Age (months)		Total	P value
		3 or below (n = 84)	Above 3 (n = 66)		
		50.0%	50.0%	100.0%	
	No	60	42	102	
		58.8%	41.2%	100.0%	
Poor maternal health	Yes	27	15	42	0.202
		64.3%	35.7%	100.0%	
	No	57	51	108	
		52.8%	47.2%	100.0%	

Table 5: Stratification of factors of cessation with gender (n = 150)

		Gender		Total	P value
		Male (n =90)	Female (n = 60)		
Breast milk insufficiency	Yes	42	24	66	0.420
		63.6%	36.4%	100.0%	
	No	48	36	84	
		57.1%	42.9%	100.0%	
Maternal employment	Yes	36	21	57	0.537
		63.2%	36.8%	100.0%	
	No	54	39	93	
		58.1%	41.9%	100.0%	
Social issues	Yes	30	18	48	0.668
		62.5%	37.5%	100.0%	
	No	60	42	102	
		58.8%	41.2%	100.0%	
Poor maternal health	Yes	27	15	42	0.504
		64.3%	35.7%	100.0%	
	No	63	45	108	
		58.3%	41.7%	100.0%	

Table 6: Stratification of factors of cessation with residence (n = 150)

		Residence		Total	P value
		Rural (n = 78)	Urban (n = 72)		
Breast milk insufficiency	Yes	33	33	66	0.664
		50.0%	50.0%	100.0%	
	No	45	39	84	
		53.6%	46.4%	100.0%	
Maternal employment	Yes	15	42	57	0.000
		26.3%	73.7%	100.0%	
	No	63	30	93	
		67.7%	32.3%	100.0%	
Social issues	Yes	27	21	48	0.475
		56.3%	43.8%	100.0%	
	No	51	51	102	
		50.0%	50.0%	100.0%	
Poor maternal health	Yes	18	24	42	0.162
		42.9%	57.1%	100.0%	
	No	60	48	108	
		55.6%	44.4%	100.0%	

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Table 7: Stratification of factors of cessation with SE status (n = 150)

		SE status		Total	P value
		Poor (n = 57)	Fair (n = 93)		
Breast milk insufficiency	Yes	21	45	66	0.167
		31.8%	68.2%	100.0%	
	No	36	48	84	
		42.9%	57.1%	100.0%	
Maternal employment	Yes	27	30	57	0.064
		47.4%	52.6%	100.0%	
	No	30	63	93	
		32.3%	67.7%	100.0%	
Social issues	Yes	24	24	48	0.038
		50.0%	50.0%	100.0%	
	No	33	69	102	
		32.4%	67.6%	100.0%	
Poor maternal health	Yes	18	24	42	0.445
		42.9%	57.1%	100.0%	
	No	39	69	108	
		36.1%	63.9%	100.0%	

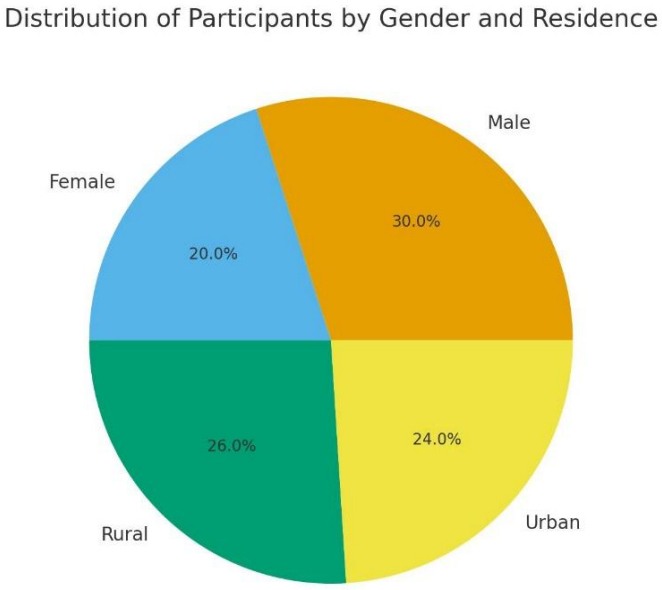

Figure 1 Distribution of Participants by Gender and Residence

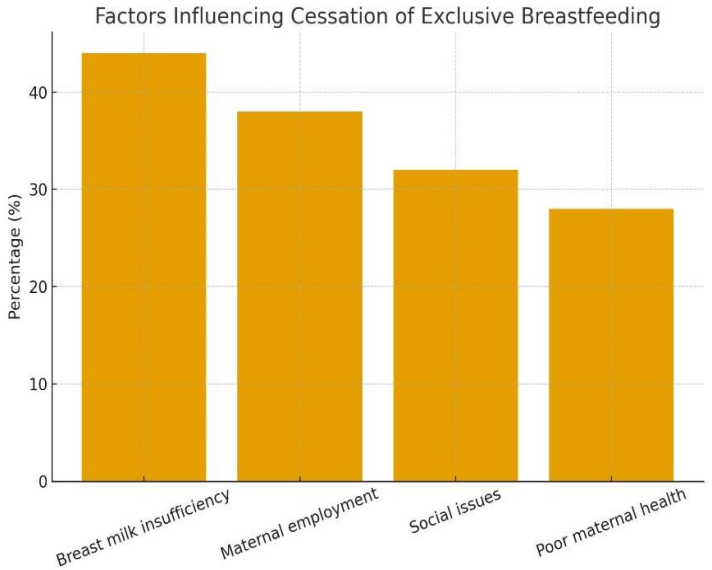

Figure 1 Factors Influencing Cessation of Exclusion Breastfeeding

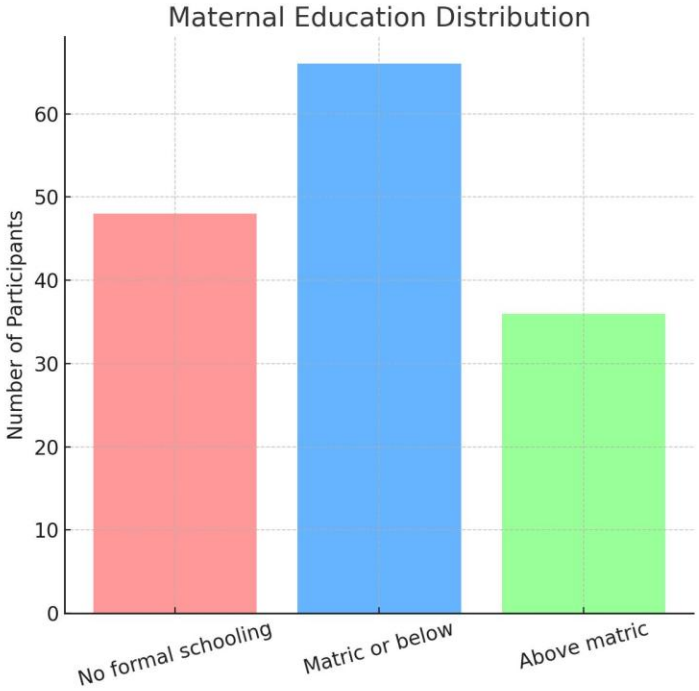

Figure 2 Maternal Education Distribution

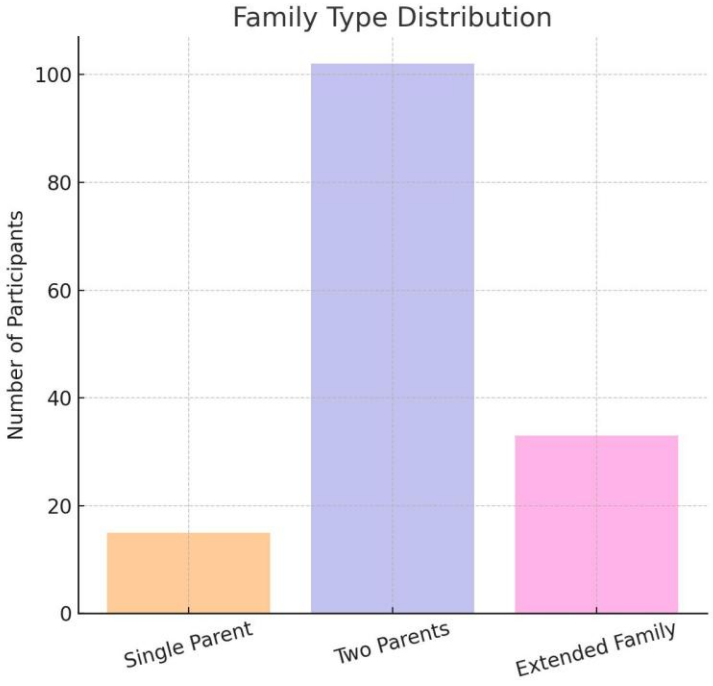

Figure 4 Family Type Distribution

DISCUSSION

The present study highlighted that breast milk insufficiency, maternal employment, social issues, and poor maternal health were the most frequently reported factors associated with the cessation of exclusive breastfeeding. Breast milk insufficiency was identified as the leading contributor, affecting nearly half of the participants. This finding aligns with earlier evidence that perceived or actual inadequate milk production is one of the most common reasons for discontinuation of breastfeeding. Several studies have emphasized that mothers often misinterpret infant crying or restlessness as hunger cues, leading to the perception of insufficient milk supply. Such perceptions may result in the premature introduction of formula or complementary foods, which further compromises breast milk production and perpetuates a cycle of reduced lactation (11,12). The importance of maternal education about breastfeeding physiology and appropriate counseling during antenatal and postnatal care cannot be understated, as inadequate knowledge was repeatedly shown to exacerbate concerns over milk sufficiency. Maternal employment emerged as the second most significant factor for cessation of exclusive breastfeeding. This finding corresponds with international research showing that employed mothers face challenges in sustaining exclusive breastfeeding due to workplace demands, lack of maternity leave, or absence of breastfeeding-friendly environments (13,14). The significant association between maternal employment and urban residence observed in this study highlights the structural and environmental challenges women face in balancing occupational responsibilities with infant care. In contrast, countries that provide extended maternity leave and supportive policies, such as Iran with six months of maternity leave, report relatively higher rates of exclusive breastfeeding (15). The absence of such supportive measures in many settings underscores the need for workplace interventions, flexible maternity leave policies, and lactation-friendly environments to promote breastfeeding continuation.

Social issues, including the discomfort of breastfeeding in public and lack of private spaces, were also identified as important barriers. These findings are supported by literature from both developed and developing countries, where mothers reported social embarrassment and lack of acceptance as major deterrents to practicing exclusive breastfeeding outside the home (16). In addition, the findings showed a significant association between social issues and socioeconomic status, with mothers from poorer backgrounds reporting greater difficulties. This may reflect limited access to supportive environments or cultural norms that discourage breastfeeding in public. Strengthening community-based support systems and raising public awareness about the importance of breastfeeding in all social contexts may reduce such barriers. Poor maternal health was reported less frequently compared to other factors, though its contribution remains clinically important. Chronic illnesses, fatigue, and mental health issues such as anxiety and depression can significantly hinder mothers' ability to breastfeed consistently. Evidence suggests that mothers with poor health or inadequate healthcare support are more

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likely to discontinue exclusive breastfeeding prematurely (17-19). Therefore, screening and supporting maternal physical and mental health should form an integral part of breastfeeding promotion programs. The study further demonstrated that male infants were less likely to be exclusively breastfed compared to females. This finding contrasts with research from Kenya and Vietnam, where male neonates were introduced to supplementary foods earlier than their female counterparts (20,21). However, the results are consistent with findings from Timor-Leste, which revealed cultural inclinations favoring male infants in terms of feeding and healthcare (22). Such gender disparities suggest that cultural perceptions may shape breastfeeding behaviors differently across populations, warranting further exploration in future studies.

A critical strength of this study lies in its detailed stratification of factors influencing breastfeeding cessation, including demographic and socioeconomic parameters. The use of standardized tools such as Likert scales for assessing maternal perceptions added validity to the findings. However, limitations must be acknowledged. The reliance on recall-based data collection introduces the risk of recall bias, particularly concerning maternal perceptions of milk insufficiency and social issues. Additionally, several important contextual variables were not assessed, including spousal support, cultural practices, conflicting advice regarding feeding, and the timing of breastfeeding initiation. The absence of analysis linking maternal education and family type with cessation factors represented another gap, despite the descriptive data being available. Furthermore, anthropometric measures were collected but not directly analyzed in relation to breastfeeding outcomes, limiting the interpretive value of these variables. Future studies should address these gaps by incorporating prospective designs, objective measures of lactation sufficiency, and broader social and cultural variables. Emphasis should be placed on examining the role of spousal and family support, inter-pregnancy intervals, and the influence of healthcare counseling on breastfeeding duration. Large-scale multicenter studies could provide more generalizable data and facilitate policy development tailored to local needs. In conclusion, this study reaffirmed that breast milk insufficiency, maternal employment, and social constraints remain the most significant factors leading to the cessation of exclusive breastfeeding, with maternal health also playing a contributory role. These findings highlight the need for integrated interventions that combine education, maternal health support, workplace modifications, and social acceptance to enhance exclusive breastfeeding rates and improve maternal and child health outcomes.

CONCLUSION

The study concluded that exclusive breastfeeding among infants under six months is influenced by a combination of maternal, social, and health-related challenges, with breast milk insufficiency, maternal employment, and additional household responsibilities emerging as the most significant factors. These findings underscore the urgent need for supportive interventions at both policy and community levels to enable women to sustain breastfeeding practices. Ensuring accessible prenatal care, promoting deliveries in health facilities with trained professionals, and creating breastfeeding-friendly environments at workplaces and within communities can substantially improve exclusive breastfeeding rates. By addressing these barriers through targeted strategies, it is possible to enhance maternal well-being and secure optimal nutritional outcomes for infants during this critical stage of life.

AUTHOR CONTRIBUTION

Author	Contribution
Nazia Nijat*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Ahmad Hussain	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Wajid Hussain	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Zara Ibrar	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published

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