JPSIM Journal of Pakistan Society of Internal Medicine

Original Article

Frequency of Contributing Factors of Lactation Failure in Infants Presented at Mayo Hospital Lahore

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Abstract

Objective: To determine the frequency of contributing factors for lactation failure in infants

Methods: This cross-sectional observational study was conducted at the Department of Pediatric Medicine, KEMU/Mayo Hospital Lahore from 25-06-2024 to 28-02-2025. After meeting the selection criteria, 277 infants were enrolled. Demographic and contributing factors that are closely linked to breast feeding were used as variables in this study including age, gender, insufficient milk supply, latch problem, maternal and infant medical conditions, maternal fatigue, return to work, personal decision and no reported reason. Data was entered and analyzed in SPSS version 26.

Results: The mean age of the infants was 6.83 ± 2.63 months and the mothers had a mean age of 29.67 ± 6.14 years. The most common contributing factor was insufficient milk supply, observed in 52% of infants. This was followed by latch problems in 21.7%, maternal medical conditions in 13.4%, and infant medical conditions in 10.1%. Personal decision was identified as a contributing factor in only 2.95% of respondents.

Conclusion: The most common factors contributing to lactation failure in mothers were insufficient milk supply, followed by latch problems, maternal medical conditions, infant-related medical conditions, and personal decisions observed in this study.

Keywords: Lactation Failure, Infants, Factors

How to cite this:

Ali Z, Bajwa MA, Akhtar MK, Bokhari S, Tehreem S. Frequency of Contributing factors of lactation failure in infants presented at Mayo Hospital Lahore. J Pak Soc Intern Med. 2025;6(4): 359-363

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Received: 24-04-2025 **Revised:** 05-07-2025 **Accepted:** 11-10-2025 **DOI:** https://doi.org/10.70302/jpsim.v6i4.2566

Introduction

A crucial component of early baby feeding is exclusive breastfeeding (BF). The best strategy to lower the infant mortality rate is to encourage exclusive breastfeeding. Despite nursing being the most natural practice with many advantages, lactation failure rates are high.[1] Significance of breastfeeding in promoting health and illness prevention is supported by evidence across the life span. Infants benefit from BF in a variety of ways, including fewer respiratory illnesses, hospitalizations, improved IQ scores, neurodevelopmental outcomes, and a decreased incidence of sudden infant death syndrome.[2-4] Reduced postpartum blood loss and a decreased risk of depression, Type 2 diabetes, cardiovascular disease, and breast cancer are the main advantages for mothers.[5,6] Exclusive Breastfeeding has significant economic benefits, including lower direct and indirect pediatric healthcare expenses, as well as a lower risk of early death from childhood disease.[7,8]

The best practices for feeding and nourishing newborns are human milk and nursing. Breastfeeding is a public health issue, not just a choice of lifestyle. Breastfeeding is recommended by the World Health Organization and the American Academy of Pediatricians (AAP).[9] The AAP[10] suggests nursing exclusively until the infant is six months old, and then continuing to do so for a year or more when supplemental foods are introduced. For a newborn's healthy growth and development, BF is the ideal diet, and it can last for up to two years.[11]

The UNICEF Breastfeeding Scorecard states that 48% of children under six months old are exclusively breastfed worldwide, close to the World Health Assembly target of 50% by 2025; nonetheless, there are significant differences among nations.[12] The UNICEF BF study states

that 1 in 25 infants in low- and middle-income countries are not breastfed, while more than 1 in 5 newborns in high-income countries are not. A controlled study in a hospital setting concluded at least 60% of babies under the age of six months were exclusively breastfed.[13] There is strong evidence that BF has health advantages. In Pakistan, however, despite the strong evidence, there is a significant aversion to and negligence of exclusive breastfeeding methods. In Pakistan, just 18% of women begin the process of first breastfeeding, and only 37.7% of women continue to nurse exclusively.[14] Such findings paint a bleak picture for baby health and point to a problem that has to be studied so that the causes of a lack of BF behaviors may be identified.

Only a few researchers have identified mother or child factors for early cessation of BF. These elements, however, have never been explicitly explored in our setup, to our knowledge. The goal of this research is to identify mother and infant related variables that cause lactation failure presented at Mayo Hospital Lahore. So that we try our best to overcome these factors and improve quality of life among infants. The objective of this study was to determine the frequency of contributing factors linked to lactation failure in infants.

Methods

This cross-sectional observational study was conducted at the KEMU/Mayo Hospital Lahore in the pediatric medicine department. The trial lasted for eight months, from 25-06-2024 to 28-02-2025. In this study, a total of 227 infant-mother pairs were chosen, and the sample size was determined using a 95% confidence interval with a 3% margin of error and an estimated 5% proportion of unreported reasons.[15] For the selection of respondent's non-probability convenient sampling technique was applied. All infants with lactation failure, infants who were born after at least 28th weeks of gestation[16] and infants up to 1 year of age including both male and female were included, and infants not being breastfed due to absolute contraindications of breastfeeding e.g. galactosemia and/or phenylketonuria were excluded in this study. In this study, women who solely nursed their babies exclusively and offered no other drinks or foods were referred as breast fed and infants were defined as the child with age less than 1 year. Lactation failure was labeled if breast feeding cessation of the infant by the mother happened before 1 year of age. Contributing factor was labeled if women had insufficient milk supply, difficulty in attachment of baby to breast, any reported medical or surgical reasons in mother, any reported medical or surgical reasons in infant and parents own decision to cease breast feeding. After the approval from the Ethical Review Committee, CPSP and Institutional Review Board of KEMU letter No. 773/RC/KEMU, mother-infant visiting pediatrics OPD/Follow-up Clinic/Emergency/Wards were recruited in the study. Purpose and benefits of the study were explained to all the participating mothers. An interview was then conducted in the native, widely spoken urdu language. Data collection was divided into two parts; demography and identification of reasons. Demographic questionnaire was based upon the survey used by Pakistan Demographic Health Survey (PDHS) 2017–201817. The contributing factors of cessation of BF were included on the basis of previous studies.[9,15] Demographic and contributing factors that are closely linked to breast feeding were used as variables in this study i.e., age, gender, insufficient milk supply, latch problem, maternal and infant medical conditions, maternal fatigue, return to work, personal decision and no reported reason. SPSS version 26 was used to enter and analyze all of the data that was gathered. All the qualitative data like gender and contributing factors were presented in the form of frequency and percentages and all the quantitative data like age of mother and infant was presented in the form of mean±SD. The data was categorized according to the mother's age, the infant's age, and the infant's gender. The chi-square test was used for post-stratification analysis. A p-value of less than 0.05 was considered significant.

Results

In this study, a total of 277 infants with lactation failure were included. The mean age of the infants was 6.83 ± 2.63 months, ranging from 1 to 11 months. The mothers had a mean age of 29.67 ± 6.14 years, with ages spanning from 18 to 40 years. The average time at which breastfeeding ceased was 45.23 ± 27.48 hours. Of the infants, 144 (52%) were male and 133 (48%) were female, resulting in a male-to-female ratio of 1.08:1 (Table 1).

Table 1: *Descriptive statistics of demographic and clinical variables of the respondents*

Variable		Outcome	
Infant Age (months)		6.83 ± 2.63 (1.00 -11.00)	
Mother's age (years)		29.67 ± 6.14 (18.0 - 40.0)	
Gender	Male	144	52.0%
	Female	133	48.0%
Age of child when ceased breast feeding		45.23 ± 27.48 (1.0 - 240.0)	

In this study, the most common contributing factor was insufficient milk supply, observed in 52% of infants. This was followed by latch problems in 21.7%, maternal medical conditions in 13.4%, and infant medical conditions in 10.1%. Personal decision was identified as a contributing factor in only 2.95% of respondents. Factors such as maternal fatigue, return to work/school, and no reported reason were not observed in any cases (Fig 1).

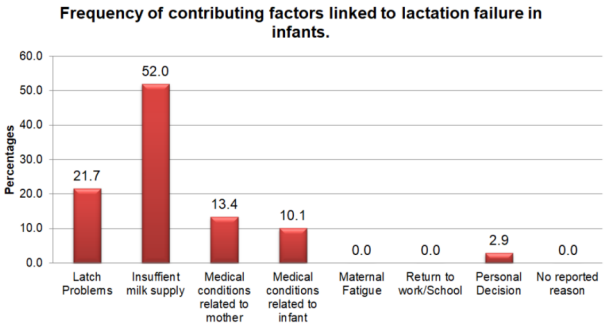

Fig 1: *Frequency distribution of different contributing factors related to lactation failure in infants*

In infants aged ≤6 months, lactation failure due to insufficient milk supply was observed in 60 cases (47.6%), compared to 84 cases (55.6%) in infants aged >6 months (p-value=0.184). Lactation failure caused by latch problems was noted in 28 infants (22.2%) aged ≤ 6 months and 32 infants (21.2%) aged >6 months (p-value = 0.836). Lactation failure due to maternal medical conditions was recorded in 24 infants (19%) aged ≤6 months, while it occurred in 13 infants (8.6%) aged >6 months (p-value=0.011). Lactation failure attributed to infant-related medical conditions was identified in 9 cases (7.1%) among infants aged ≤6 months and in 19 cases (12.6%) among those aged >6 months (p-value

Table 2: *Comparison of contributing factors between infant age, mother's age and gender*

Contributing Factors		Infant Age (months)		Total	p-value
		≤ .	>6		
Insufficient milk supply	Yes	60(47.6%)	84(55.6%)	144(52.0%)	0.184
	No	66(52.4%)	67(44.4%)	133(48.0%)	
Latch Problem	Yes	28(22.2%)	32(21.2%)	60(21.7%)	0.836
	No	98(77.8%)	119(78.8%)	217(78.3%)	
Medical condition(s) related to mother	Yes	24(19%)	13(8.6%)	37(13.4%)	0.011
	No	102(81%)	138(91.4%)	240(86.6%)	
Medical condition(s) related to infant	Yes	9(7.1%)	19(12.6%)	28(10.1%)	0.135
	No	117(92.9%)	132(87.4%)	249(89.9%)	
Personal Decision	Yes	5(4.0%)	3(2.0%)	8(2.9%)	0.475
	No	121(96.0%)	148(98.0%)	269(97.1%)	
Contributing factors		**Mother' age (Years)**		**Total**	**p-value**
		≤ 30	**>30**		
Insufficient milk supply	Yes	76(49.7%)	68(54.8%)	144(52.0%)	0.392
	No	77(50.3%)	56(45.2%)	133(48.0%)	
Latch Problem	Yes	33(21.6%)	27(21.8%)	60(21.7%)	0.967
	No	120(78.4%)	97(78.2%)	217(78.3%)	
Medical condition(s) related to mother	Yes	25(16.3%)	12(9.7%)	37(13.4%)	0.105
	No	128(83.7%)	112(90.3%)	240(86.6%)	
Medical condition(s) related to infant	Yes	17(11.1%)	11(8.9%)	28(10.1%)	0.539
	No	136(88.9%)	113(91.1%)	249(89.9%)	
Personal Decision	Yes	2(1.3%)	6(4.8%)	8(2.9%)	0.145
	No	151(98.7%)	118(95.2%)	269(97.1%)	
Contributing factors		**Gender**		**Total**	**p-value**
		Male	**Female**		
Insufficient milk supply	Yes	84(58.3%)	60(45.1%)	144(52.0%)	0.028
	No	60(41.7%)	73(54.9%)	133(48.0%)	
Latch Problem	Yes	28(19.4%)	32(24.1%)	60(21.7%)	0.351
	No	116(80.6%)	101(75.9%)	217(78.3%)	
Medical condition(s) related to mother	Yes	14(9.7%)	23(17.3%)	37(13.4%)	0.064
	No	130(90.3%)	110(82.7%)	240(86.6%)	
Medical condition(s) related to infant	Yes	13(9.0%)	15(11.3%)	28(10.1%)	0.535
	No	131(91.0%)	118(88.7%)	249(89.9%)	
Personal Decision	Yes	5(3.5%)	3(2.3%)	8(2.9%)	0.724
	No	139(96.5%)	130(97.7%)	269(97.1%)	

= 0.135). Finally, lactation failure resulting from personal decisions was reported in 5 infants (4.0%) aged ≤6 months and 3 infants (2.0%) aged >6 months (p-value = 0.475). Comparison of mother's age between contributing factors like insufficient milk supply, latch problem, medical condition related to mother and infants and personal decision showed statistically insignificant difference. i.e. p-value>0.05. Among male infants, lactation failure due to insufficient milk supply was observed in 84 cases (58.3%), compared to 60 cases (45.1%) among female infants (p-value=0.028). Lactation failure attributed to latch problems was noted in 28 male infants (19.4%) and 32 female infants (24.1%) (p-value = 0.351). Lactation failure caused by maternal medical conditions occurred in 14 male infants (9.7%) and 23 female infants (17.3%) (p-value = 0.064). Lactation failure due to infant-related medical conditions was identified in 13 male infants (9.0%) and 15 female infants (11.3%) (p-value = 0.535). Lastly, lactation failure due to personal decisions was reported in 5 male infants (3.5%) and 3 female infants (2.3%) (P-value = 0.535).

Discussion

Since human milk is still exclusively customized and tailored to the needs of the human newborn, breastfeeding is the most effective way to feed a baby. As the use of breast milk replacements raises the risk of morbidity and death among newborns in underdeveloped nations and these supplements are the leading cause of malnutrition, lactation insufficiency is a public health problem on a global scale. Malnutrition at this crucial time can result in growth stunting and worse than ideal developmental outcomes since the brain grows to its full potential.[18,19]

Early BF cessation is associated with a number of predicted risk factors. Smoking, body mass index > 30, returning to work before six months after giving birth, poorer education, preterm birth, low birthweight, perceived insufficient milk supply, and BF problems are risk factors and maternal obstacles linked to early BF discontinuation.[9] Another study reported that most common reasons for early BF cessation in low income countries included insufficient milk supply (40%), difficulties with latch (21%), medical conditions related to mother (11%) or infant (7%), inconvenience/ fatigue (18%), return to work/school (14%), personal decision (8%) and no particular reason (5%).[15] Similar results with the main reason for early abandonment of breastfeeding was the perception of insufficient milk production in a developed country like Spain.[20]

According to one study, feeling inadequately breastfed (40%) and the infant's sickness (22.7%) were the most frequent reasons for discontinuing EBF in preterm newborns. Furthermore, the perception of inadequate breastfeeding was the most frequent cause of EBF failure among those with a history of hospitalization (48%). Among demographic, midwifery, and infant demographic and medical characteristics, logistic regression analysis showed that the maternal age (p=0.012) and gestational age at birth (p=0.039) were the predictors of terminating exclusive BF in newborns.[21]

A study by Sravya Sree Sreekantham et al claimed that 24 out of 100 moms experience milk failure and are formula-feeding their infants. Breast illnesses were statistically significantly associated with lactation failure among the characteristics included before lactation, breastfeeding difficulties, and pre-lacteal meals. Breastfeeding moms acquire an average of 11.3 kg, whereas mothers who have lactation failure gain an average of 10.04 kg. The mean hemoglobin levels in moms who are nursing and those who are not lactating are 10.43 and 9.91 g/dl, respectively.[1]

Several studies showed that mother age (more than 35 years) and gestational age at delivery (less than 37 weeks) were substantially beneficial in halting breastfeeding after controlling for intervening factors. Similar to the current study, one of the factors contributing to EBF failure in the study was the mother's age, which was over 3621-22. Another study found that the baby's gestational age at birth (less than 37 weeks) was also a significant factor in halting breastfeeding because premature babies are more likely to have nutritional issues than term babies, including fatigue during feeding and excessive irritability, longer sleep duration, and incoordination between swallowing, sucking, and breathing, especially in infants under 34 weeks23.

Difference of opinion between the findings of our study and few of previously published studies may be due to the difference of methodology. It is suggested that in future further studies should be done to evaluate the findings of our study. The studies should be done with a larger sample size and data must be taken from either a multi-center setting or community based which leads to probability sampling technique.

Conclusion

The most common factors contributing to lactation failure in mothers were insufficient milk supply, followed by latch problems, maternal medical conditions, infant-related medical conditions, and personal decisions observed in this study.

Ethical Approval: The IRB/EC approved this study via letter no. 773/RC/KEMU dated November 20, 2024.

Conflict of Interest: None

Funding Source: None

Authors' Contribution

ZA: Conceptualization of the project

MKA, ST: Design of the work.

MAB, SB: Data acquisition, analysis, or interpretation.

MAB, MKA, ST: Draft the work.

ZA, SB: Critical review of important intellectual content.

All authors approve the version to be published.

All authors agree to be accountable for all aspects of the work.

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