

Determination of Factors Contributing to Lactation Failure in Discharged Neonates from a Tertiary Care Hospital

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Author's Contribution

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ABSTRACT

Objective: To determine the frequency of lactation failure and its common contributing factors in Discharged Neonates from a Tertiary Care Hospital.

Study design: Prospective Observational study

Study place and period: Department of Pediatrics, Sir Ganga Ram Hospital, Lahore from August, 2025 to February 2026.

Methodology: One hundred and fifty infants were enrolled who presented for routine checkup or vaccination. Mothers were questioned about whether their infants were undergoing exclusive breast feeding or not. Mothers were also asked about lactation failure and their contributing factors. Analysis was done in SPSS 20.0. Frequency and percentage of lactation failure and common contributing factors to lactation failure were calculated.

Results: The mean age of infants was 2.03 ± 1.67 months. There were 76 (50.7%) male infants and 74 (49.3%) female infants. Out of 150 infants, 56 (37.3%) infants had lactation failure. Out of 56 infants with lactation failure, the most common contributing factor of lactation failure was insufficient milk production [42 (75%)], followed by working mother [16 (28.6%)], weak or sick infant [15 (26.8%)], maternal health condition [9 (16.1%)] and twin babies [4 (7.1%)].

Conclusion: It has been concluded that the rate of lactation failure is high in local population and major contributing factor is reduced milk production.

Key words: lactation failure, contributing factors, infants, insufficient milk, maternal health

Introduction

Since there is currently no other food source that offers the precise nutrition a baby requires, breastfed babies flourish.¹ Newborns should only drink breast milk for the first two years of their lives, according to the World Health Organization (WHO). There is a significant chance for nutritional interventions at this window of opportunity.^{2, 3} Lactation insufficiency is a global public health issue since it is the most common cause of malnutrition and using breast milk substitutes increases the risk of morbidity and death among newborns in developing countries.^{4, 5} Due to the brain's highest growth rate at this critical period, malnutrition may result in stunting and less-than-ideal developmental results. Despite being the most natural behavior and having many benefits, breastfeeding has a high failure rate.^{6, 7}

According to a study by Sreekantham, 26% of newborns experienced lactation failure.⁸ In addition to improving brain development and lowering children's risk of diarrhea, pneumonia, and otitis media, effective breastfeeding also shields kids from long-term obesity, diabetes, and cardiovascular disease.⁹ In Pakistan, 67% of moms do not breastfeed their children exclusively, compared to 38%. The nation's 2012–2013 demographic and health survey is the source of this data.¹⁰ Another study found that the most frequent cause of nonexclusive breastfeeding (71% of cases) is inadequate

milk production. Maternal employment (11.2%), social taboos (such a newborn not gaining weight), loose or constipated feces (3.3%), a systemic sickness in the mother (3.6%), and having twins (1.5%) are other common causes.¹¹

In previous literature, study conducted by Sreekantham and according to demographic and health survey of Pakistan 2012–13 incidence of lactation failure was 26 % and 33 % respectively.^{8, 10} In both studies major factors of lactation failure has been identified too, some worth mentioning are inadequate milk production and maternal employment. To best our knowledge no study has been conducted in last 5 years particularly in Punjab that has evaluated incidence and risk factor of lactation failure.

Methodology

After approval from ethical review committee (ERC letter number with date) of Sir Ganga Ram hospital, Lahore, this Prospective Observational study was done at Department of Pediatrics, Sir Ganga Ram Hospital, Lahore from August, 2025 to February 2026. Sample size (n) 150 was projected with 26% prevalence of lactation failure by keeping 95 % confidence level and 7 % margin of error. All the infants who fulfilled

following criteria were enrolled by using Non probability consecutive sampling technique.

Inclusion criteria: Infants of age less than 6 months, either gender, presenting to pediatric OPD for routine checkup or vaccination were enrolled.

Exclusion Criteria: Newborns with Congenital cleft lip and palate, parents' refusal newborns with birth asphyxia were not idled in the study.

Mothers were questioned about whether their infants were undergoing exclusive breast feeding or not. Mothers were also asked about lactation failure. Lactation failure was defined as the need to start top feeds for the baby after the delivery. Contributing factors were also noted.

Contributing factors:

1. Insufficient Milk Production: The inability of the mother to produce an adequate quantity of breast milk to meet the nutritional needs of the infant, as reported by the mother or assessed by the healthcare provider.
2. Working Mother: A mother who has resumed professional employment after childbirth, limiting her ability to exclusively breastfeed due to time constraints, workplace conditions, or lack of lactation support.
3. Maternal Medical Condition: Any diagnosed health condition in the mother, such as anemia, diabetes, hypertension, or postpartum complications, which adversely affects her ability to produce milk or breastfeed effectively.
4. Weak/Sick Infant: An infant with health conditions such as prematurity, low birth weight, or illnesses that impair their ability to suckle effectively, thus interfering with breastfeeding.
5. Twin Babies: A condition where a mother is breastfeeding two infants simultaneously, potentially leading to challenges in meeting the nutritional needs of both babies due to increased demand.

Reason for need to add milk other than breast milk were noted in infants with lactation failure. This was done according to a pre-defined proforma.

Analysis was computer based. SPSS 20.0 version was used. Frequency of lactation failure and common contributing factors to lactation failure and gender were calculated as percentage. Mean and standard deviation was calculated for continuous variables e.g. age and gestational age. Data was stratified for the age, gestational age, and gender to rule out effect modifiers. Post-stratification, chi-square test was applied to compare lactation failure in stratified groups taking p-

value less than and equals to 0.05 as cut-off for significance.

Results

In this study, we enrolled total 150 infants who presented for vaccination or routine check-up in pediatric OPD. The mean age of infants was 2.03 ± 1.67 months. There were 34 (22.7%) infants of one month old, 85 (56.7%) were 1-3 months old and 31 (20.7%) were 4-6 months old. There were 76 (50.7%) male infants and 74 (49.3%) female infants. The mean gestational age of infants at birth was 36.94 ± 2.08 weeks. Out of 150, 68 (45.3%) had preterm birth while 82 (54.7%) had birth at term. Table-I

Table-I: basic data of infants enrolled in the study (n = 150)	
Parameters	Output
Age, in months	2.03 ± 1.67
<1 month old	34 (22.7%)
1-3 months old	85 (56.7%)
4-6 months old	31 (20.7%)
Gender	
Male	76 (50.7%)
Female	74 (49.3%)
Gestational age at birth, in weeks	36.94 ± 2.08
Preterm birth	68 (45.3%)
Term birth	82 (54.7%)

Out of 150 infants, 56 (37.3%) infants had lactation failure. Figure-1

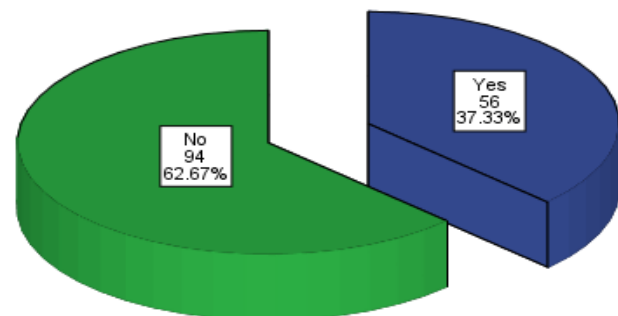


Figure-1: Lactation failure

Out of 56 infants with lactation failure, the most common contributing factor of lactation failure was insufficient milk production [42 (75%)], followed by working mother [16 (28.6%)], weak or sick infant [15 (26.8%)], maternal health condition [9 (16.1%)] and twin babies [4 (7.1%)]. Table-II

We stratified data in different age, gender and gestational age groups to check effect of these confounders on lactation failure. It was observed that infants of age 1-3 months had more lactation failure [41 (48.2%)] as compared to infants of age 4-6 months or <1 month i.e. 9 (29.0%) or 6 (17.6%), respectively ($p < 0.05$). Among males, lactation failure

was more common [34 (44.7%)] than females [22 (29.7%)], although the results were insignificant ($p>0.05$). Lactation failure was almost similar among preterm and term neonates i.e. 23 (33.8%) vs. 33 (40.2%), $p>0.05$. Table-III

It was also observed that insufficient milk is also significantly associated with age and more common in infants aged 1-3 months ($p<0.05$). But no association of age with other contributing factors ($p>0.05$). Similarly, no significant association was observed with gender and gestational age ($p>0.05$). Table-IV

Discussion

In this study, we observed lactation failure in, 56 (37.3%) infants. Out of 56 infants with lactation failure, the most common contributing factor of lactation failure was insufficient milk production [42 (75%)], followed by working mother [16 (28.6%)], weak or sick infant [15 (26.8%)], maternal health condition [9 (16.1%)] and twin babies [4 (7.1%)]. We also observed a significant impact of age on lactation failure.

In Pakistan, 84% of newborns between the ages of 6

Table-II: Contributing factors leading to lactation failure (n = 56)

Factor	F (%)
Insufficient milk	42 (75%)
Working mother	16 (28.6%)
Maternal health condition	9 (16.1%)
Weak or sick infant	15 (26.8%)
Twin babies	4 (7.1%)

and 8 months and 83% of children between the ages of 9 and 11 months are exclusively breastfed, according to a DHS 2012–13 survey.¹⁰ Later, according to the 2017–18 DHS survey, 61% of newborns were never nursed due to their mothers' health issues, and 20% did so because they were unable to suckle, or had lactation failure. 42% of breastfed infants stopped nursing due to their mother's health issues, and 22% did so due to a subsequent pregnancy.¹²

In a research done in Islamabad, Yaqub and Gul found that just 0.6% of babies were breastfed within an hour of birth. Of the study group, 20.6% were fully bottle-fed and 79.4% were partially breastfed; 29% had previously begun supplemental feeding, with an

Table-VI: Association of contributing factors with age, gestational age and gender of infant (n = 56)

	Age of infants			p-value
	<1 month	1-3 months	4-6 months	
Insufficient milk	4 (66.7%)	34 (82.9%)	4 (44.4%)	0.048
Working mother	0 (0%)	14 (34.1%)	2 (22.2%)	0.202
Maternal condition	1 (16.7%)	6 (14.6%)	2 (22.2%)	0.854
Weak or sick infant	2 (33.3%)	10 (24.4%)	3 (33.3%)	0.799
Twin babies	0 (0%)	3 (7.3%)	1 (11.1%)	0.713
	Gender of infants			
	Male	Female		
Insufficient milk	25 (73.5%)	17 (77.3%)		0.752
Working mother	11 (32.4%)	5 (22.7%)		0.436
Maternal condition	6 (17.6%)	3 (13.6%)		0.690
Weak or sick infant	8 (23.5%)	7 (31.8%)		0.494
Twin babies	2 (5.9%)	2 (9.1%)		0.649
	Gestational age at birth			
	Preterm	Term		
Insufficient milk	17 (73.9%)	25 (75.8%)		0.875
Working mother	6 (26.1%)	10 (30.3%)		0.731
Maternal condition	5 (21.7%)	4 (12.1%)		0.335
Weak or sick infant	7 (30.4%)	8 (24.2%)		0.607
Twin babies	0 (0%)	4 (12.1%)		0.083

Table III: Association of lactation failure with age, gestational age and gender of infants (n = 150)

		Lactation failure		p-value
		Yes n = 56	No n = 94	
Age of infants	<1 month	6 (17.6%)	28 (82.4%)	0.004
	1-3 months	41 (48.2%)	44 (51.8%)	
	4-6 months	9 (29.0%)	22 (71.0%)	
Gender	Male	34 (44.7%)	42 (55.3%)	0.057
	Female	22 (29.7%)	52 (70.3%)	
Gestational age at birth	Preterm	23 (33.8%)	45 (66.2%)	0.418
	Term	33 (40.2%)	49 (59.8%)	

average age of 4.54 ± 0.783 months. The most frequent causes of exclusive breastfeeding failure were inadequate milk production (93.2%), working moms (4.2%), infant illness (0.65%), and mother illness (1.9%).¹³ In a different study carried out in Lahore, Ali et al. found that the most frequent contributing factor was inadequate milk supply (52%), followed by latch issues (21.7%), maternal health (13.4%), and weak or unwell infant (10.1%). Just 2.95% of mothers were found to have made a personal decision.¹⁴

Breastfeeding significantly lowers infant death rates in areas with little resources, which are primarily caused by unclean and dangerous surroundings.¹⁵ A woman should not breastfeed her child if she is taking certain medications, such as alcohol, tobacco, opioids, benzodiazepines, amphetamines, radioactive iodine, chemotherapy, or benzodiazepines.¹⁶ According to Ibrahim et al., 71% of women cited insufficient milk production as the primary reason for not exclusively breastfeeding, followed by maternal employment.¹¹ In a study conducted in Gilgit, Pakistan, Aslam et al. found that breastfeeding is still not practiced until six months, that firstborns are denied this right in the majority of lower socioeconomic groups, and that illiterate mothers are more likely to breastfeed. They also found gender bias, with a significantly higher percentage of male babies being breastfed than female babies.¹⁷

In a study of Multan's urban population, Farrukh et al. found that 41.9% of patients had early lactation failure and 58.1% had late failure. Premature birth (13.5%), early second pregnancy (16.1%), working women (21.3%), and the perception of low weight growth by the newborn while solely breastfed (19.4%)

were among the few significant predictors reported for failure.¹⁸ The multibillion-dollar dairy industry is the source of the best and most comprehensive research on the physiology of lactation, which focuses on milk production. A competitive advantage in the market is created by good milk-producing calves whose milk composition (i.e., fat %) may be adjusted.¹⁹

There have been reports of decreases in breastfeeding initiation and duration from all over the world. Because of the corresponding increased morbidity and mortality, which are particularly noticeable in developing nations but can also be found in rich nations, this is a major public health concern. The mothers believe that a variety of circumstances are to blame for the lactation failure. For this reason, adequate health education about lactation and its significance for a child's growth is crucial. To help all moms achieve their breastfeeding objectives, it is necessary to identify the reasons behind lactation failure and create suitable solutions.^{20, 21}

Conclusion

It has been concluded that the rate of lactation failure is high in local population and major contributing factor is reduced milk production. This in future, we will implement counselling and strategies to improve the correct practice of breastfeeding to improve lactation and reduce risk of lactation failure.

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