

Research Article

Patterns of Feeding In First Six Months among Infants Attending a Pediatric Outpatient Department: A Prospective Descriptive Study

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ABSTRACT

Background: Optimal infant feeding during the first six months of life is central to healthy growth, immune protection and prevention of avoidable morbidity. Local clinical data can help describe the feeding patterns encountered in routine pediatric practice.

Objective: To describe the age and sex distribution of infants included in the clinical dataset and to describe the feeding patterns in first six months of life.

Study Design: Prospective descriptive study.

Place and Duration of Study: Imran Idrees Teaching Hospital, Sialkot, Pakistan from 1st September 2025 to 28th February 2026.

Methodology: One hundred and ninety seven infants using an electronic clinical data were enrolled. Age, sex, feeding pattern and diagnosis were recorded and standardized for analysis. Age was converted to months where possible and categorized as neonatal period (0-28 days) or 1-6 months.

Results: There were 107 (54.3%) neonates and 90 (45.7%) were aged 1-6 months. Male infants were 109 (55.3%) and female infants 88 (44.7%). One hundred and fifty one (76.6%) infants were taking mother-feed, out of which exclusive mother feed were 104/197 (52.8%), followed by mother feed and bottle feed - mixed feeding 47 (23.8%). Only 46 (23.4%) were taking bottle feeding alone.

Conclusion: The substantial diversity in infant feeding practices, with exclusive mother feed only in half of the infants along with mixed feeding categories. Exclusive mother feed can be increased by systematic counseling, standardized documentation of feeding practices and prospective studies using internationally recommended infant and young child feeding indicators.

Keywords: Infant Feeding, Breastfeeding, Mixed Feeding, Infant Nutrition, Feeding Practices.

INTRODUCTION

Infancy is a critical period in which feeding practices influence growth, immune function, susceptibility to infection and longer-term health. The World Health Organization and UNICEF recommend initiation of breastfeeding within the first hour after birth, exclusive breastfeeding for the first six months, and introduction of safe and nutritionally adequate complementary foods at approximately six months while breastfeeding continues thereafter.¹⁻³

Despite these recommendations, feeding practices vary considerably across families and healthcare settings. The reasons for variation include maternal and family beliefs, perceived insufficient milk supply, return to work, cultural practices, illness, prematurity, access to formula

and the availability of professional lactation support. In Pakistan, national surveys have demonstrated that breastfeeding is common, but exclusive breastfeeding and early initiation remain below optimal levels. The Pakistan National Nutrition Survey 2018 reported that approximately half of infants aged 0–5 months were exclusively breastfed, with important regional differences.⁴ The Pakistan Demographic and Health Survey 2017–18 also documented improvement in exclusive breastfeeding compared with the preceding survey, while highlighting the persistence of sub-optimal practices.⁵

Routine pediatric clinics provide an important opportunity to identify feeding practices and reinforce evidence-based counseling. However, clinical records often use locally understood

abbreviations and may not capture standardized indicators such as exclusive breastfeeding, early initiation, minimum dietary diversity or minimum meal frequency. The present study therefore describes the available feeding records in a cohort of infants and provides a baseline for improving documentation and counseling.

METHODOLOGY

This was a prospective descriptive study based on a clinical dataset of infants attending a pediatric outpatient department of Imran Idrees Teaching Hospital, Sialkot from 1st September 2025 till 28th February 2026. One hundred and ninety seven infants using an electronic clinical data were enrolled and describe the distribution of feeding patterns. The variables analyzed were age, sex, diagnosis and feeding pattern. Age entries were standardized from days of life or months into an approximate month-based variable. For descriptive reporting, infants were categorized as neonates (0-28 days) or 1-6 months. Sex entries were standardized as male or female. Feeding labels were preserved as MF, BF, MF AND BF and other combinations. Because the dataset did not provide a formal data dictionary defining every abbreviation, the abbreviations were not expanded beyond their recorded form. Diagnoses were grouped into

clinically meaningful descriptive categories while retaining the original clinical intent where possible. The data was analyzed through SPSS-25.

RESULTS

One hundred and seven (54%) were within the neonatal period and 90 (45.5%) were aged from 1 to 6 months. There were 109 (55.1%) male and 87 (43.9%) female infants (Table 1). The most frequently documented feeding category was mother feed alone, recorded in 104 (52.5%) infants, followed by mother feed and bottle feed in 47 (23.7%) and bottle feed alone in 31 (15.7%). Smaller numbers had combinations involving weaning, cow milk, formula feed or other mixed arrangements. Because the source dataset did not provide a formal definition of the abbreviations mother feed and bottle feed, these labels are presented exactly as recorded rather than being assigned an unverified expansion (Table 2).

Routine follow-up or well-baby visits were the most frequent clinical category 113 (57.4%), followed by common cold 29 (14.7%), acute watery diarrhoea 20 (10.1%), infantile colic 18 (9.2%), pneumonia or pneumonia follow-up 17 (8.6%) [Table 3].

Table 1: Demographic characteristics of infants (n=197)

Characteristic	No.	%
Age		
Neonatal period (0–28 days)	107	54.3
1–6 months	90	45.7
Gender		
Male	109	55.3
Female	88	44.7

Table 2: Feeding categories recorded in the clinical dataset

Recorded feeding category	No.	%
Mother feed	104	52.8
Mother feed + bottle feed	47	23.8
Bottle feed	46	23.4

Table 3: Broad diagnostic categories derived from the recorded diagnoses

Diagnostic category	No.	%
Routine follow-up/well baby	113	57.4
Common cold	29	14.7
Acute gastroenteritis/diarrhea	20	10.1
Colic/reflux	18	9.2
Pneumonia/follow-up	17	8.6

DISCUSSION

This study provides a descriptive overview of infant feeding practices documented in a pediatric clinical population. The cohort

predominantly comprised neonates and young infants, with routine follow-up representing the most common reason for attendance. The predominance of MF-only and mixed MF/BF

entries indicates heterogeneity in feeding practices and suggests that a substantial proportion of infants were documented as receiving a combination of feeding modalities. These findings highlight the importance of systematically assessing infant feeding during routine pediatric encounters, particularly during the neonatal period and early infancy when feeding practices are established and may have important implications for growth, development, and health outcomes. The findings should not be interpreted as a direct estimate of exclusive breastfeeding prevalence. Exclusive breastfeeding is a specific standardized indicator that requires confirmation that the infant received only breast milk during the preceding reference period, with limited exceptions such as oral rehydration solution, medicines, and vitamin or mineral preparations. In the present dataset, important information including the timing of breastfeeding initiation, use of pre-lacteal feeds, exact formula or milk composition, feeding frequency, and the timing of introduction of complementary foods was not consistently documented. Therefore, the present findings describe recorded clinical feeding categories rather than nationally comparable infant and young child feeding (IYCF) indicators. The WHO and UNICEF IYCF indicator framework provides a standardized approach for future data collection and facilitates meaningful comparison across populations and settings.^{1,2}

Pakistan-specific evidence provides important context for interpreting these findings. The National Nutrition Survey 2018 reported that 48.4% of infants aged 0–5 months were exclusively breastfed, while early initiation of breastfeeding was reported in 45.8% of infants.³ Similarly, the Pakistan Demographic and Health Survey 2017-18 reported that exclusive breastfeeding among children younger than six months had increased from 38% in 2012-13 to approximately 48% in 2017-18.⁴ Differences between these national survey estimates and the present clinical dataset are expected because of differences in study populations, sampling methods, data collection approaches, and operational definitions of feeding practices. Consequently, direct comparison should be made cautiously. Nevertheless, the findings emphasize the continuing importance of strengthening breastfeeding promotion and improving the quality of infant feeding data in Pakistan.

From a clinical perspective, these findings emphasize the importance of converting

informal feeding documentation into standardized assessments. For every infant, clinicians should document whether the child is exclusively breastfed, receiving expressed breast milk, receiving infant formula, receiving animal milk, or receiving mixed feeds. Documentation should also include the age at which other feeds were introduced and, for infants aged six months or older, the timing, diversity, and quality of complementary feeding. Such standardized documentation would support more meaningful clinical assessment, quality-improvement initiatives, and future research. In addition, structured documentation would help distinguish infants who require breastfeeding support from those who have a genuine medical indication for supplementation. Breastfeeding support should be integrated into routine pediatric care, particularly during newborn and early infancy follow-up. Current WHO guidance recommends exclusive breastfeeding during the first six months of life, followed by the introduction of appropriate complementary foods at around six months while breastfeeding continues thereafter.^{5,6} Breastfeeding has been associated with important short- and long-term health benefits for both infants and mothers, including protection against infectious diseases and improved child survival.⁷ Global evidence further suggests that improving breastfeeding practices requires coordinated efforts at individual, family, community, healthcare-system, workplace, and policy levels.¹⁰ Routine pediatric encounters therefore represent an important opportunity to assess infant feeding practices, identify barriers to optimal breastfeeding, provide evidence-based counseling, and promote appropriate complementary feeding.

The heterogeneity observed in feeding documentation may also reflect the influence of multiple maternal, household, cultural, and health-system factors on infant feeding practices. Maternal knowledge, family beliefs and advice, return to employment, perceived insufficient milk production, maternal illness, delivery-related factors, early exposure to formula or prelacteal feeds, and inadequate postnatal support may all influence the continuation of breastfeeding. In many settings, mothers may introduce additional feeds because of concerns regarding insufficient breast milk or because of advice from family members and healthcare providers. Evidence suggests that perceived insufficient milk supply remains one of the important reasons for early supplementation and discontinuation of exclusive breastfeeding.¹¹

The WHO and UNICEF emphasize that effective breastfeeding support should begin during pregnancy and continue throughout the postnatal period, with healthcare workers playing a central role in providing practical counseling and addressing common breastfeeding difficulties.^{5,8}

Evidence from systematic reviews indicates that professional, family, and community-based breastfeeding support can improve breastfeeding outcomes, particularly when support is provided repeatedly during pregnancy and the postnatal period.^{12,13} Interventions such as antenatal counseling, skilled lactation support, peer counseling, home visits, and structured follow-up have been shown to improve the initiation and continuation of exclusive breastfeeding. Therefore, strengthening counseling at each pediatric visit may help improve feeding practices and reduce unnecessary early supplementation.

The clinical setting also provides an important opportunity for early identification of infants at risk of suboptimal feeding. Infants with poor weight gain, recurrent illness, feeding difficulties, maternal concerns regarding milk supply, or inappropriate early introduction of other feeds should receive individualized assessment and counseling. In addition to assessing the type of milk received, clinicians should evaluate feeding technique, frequency of feeds, infant satiety, growth trajectory, and age-appropriate complementary feeding. A structured feeding assessment integrated into routine pediatric visits could improve the quality of documentation while also facilitating early intervention. For infants aged six months and older, counseling should emphasize timely introduction of safe, diverse, and nutritionally adequate complementary foods while continuing breastfeeding.^{6,9}

Recent global initiatives have demonstrated that breastfeeding rates can improve when governments and healthcare systems invest in maternity protection, breastfeeding-friendly health services, implementation of the International Code of Marketing of Breast-milk Substitutes, and community-based support programs. However, substantial inequalities persist between and within countries, particularly in access to skilled lactation counseling and workplace support for breastfeeding mothers.¹⁴ These findings are relevant to Pakistan, where strengthening breastfeeding support within hospitals and routine pediatric services may provide an

effective and practical strategy for improving infant feeding practices.

The present study also has important implications for quality improvement and future research. Prospective studies using standardized WHO/UNICEF IYCF indicators should collect detailed information regarding breastfeeding initiation, prelacteal feeding, exclusive breastfeeding, mixed feeding, formula use, expressed breast milk, animal milk, and complementary feeding. Such studies would allow more accurate estimation of feeding practices and help identify modifiable factors associated with suboptimal infant feeding in the local population. In addition, linking feeding data with anthropometric measurements, morbidity, and growth outcomes could provide a more comprehensive understanding of the clinical consequences of different feeding practices. Future research should also consider maternal education, employment status, socioeconomic factors, family support, delivery practices, and household determinants of feeding behavior to guide locally appropriate interventions.

The findings of the present study should be interpreted within the context of its descriptive design and clinical setting. The study population consisted of infants attending a pediatric outpatient department and therefore may not be representative of the general infant population. In addition, feeding information was derived from routine clinical documentation rather than from a structured IYCF questionnaire. Despite these limitations, the study provides useful real-world information regarding the diversity of feeding practices encountered in pediatric outpatient care and highlights important gaps in standardized documentation.

CONCLUSION

The diversity of feeding practices documented in a pediatric clinical population and highlights limitations in the use of non-standardized feeding categories for estimating exclusive breastfeeding prevalence. Although the findings cannot be directly compared with national IYCF indicators, they identify an important opportunity to improve clinical documentation and counseling. Standardized assessment of infant feeding, combined with timely breastfeeding support and appropriate complementary feeding counseling, should become an integral component of routine pediatric care. Improved documentation and prospective use of internationally standardized

indicators will strengthen both clinical quality improvement and future research on infant feeding practices in Pakistan.

REFERENCES

1. World Health Organization, United Nations Children's Fund. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. Geneva: World Health Organization; 2021.
2. United Nations Children's Fund. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. New York: UNICEF; 2021.
3. Ministry of National Health Services, Regulations and Coordination, Government of Pakistan; UNICEF. National Nutrition Survey 2018: Key Findings Report. Islamabad: Government of Pakistan; 2019.
4. National Institute of Population Studies (NIPS) [Pakistan], ICF. Pakistan Demographic and Health Survey 2017-18. Islamabad, Pakistan, and Rockville, Maryland, USA: NIPS and ICF; 2019.
5. World Health Organization. Infant and young child feeding. Geneva: World Health Organization; 2024.
6. World Health Organization. Guideline for complementary feeding of infants and young children 6-23 months of age. Geneva: World Health Organization; 2023.
7. Victora CG, Bahl R, Barros AJD, França GVA, Horton S, Krasevec J, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet* 2016;387(10017):475-90.
8. World Health Organization, United Nations Children's Fund. Protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services: the revised Baby-friendly Hospital Initiative 2018. Geneva: World Health Organization; 2018.
9. World Health Organization. Complementary feeding of infants and young children 6-23 months of age. Geneva: World Health Organization; 2023.
10. Rollins NC, Bhandari N, Hajeerhoy N, Horton S, Lutter CK, Martines JC, et al. Why invest, and what it will take to improve breastfeeding practices? *Lancet* 2016;387(10017):491-504.
11. Pérez-Escamilla R, Buccini GS, Segura-Pérez S, Piwoz E. Perspective: Should exclusive breastfeeding still be recommended for 6 months? *Adv Nutr* 2019;10(6):931-43.
12. McFadden A, Gavine A, Renfrew MJ, Wade A, Buchanan P, Taylor JL, et al. Support for healthy breastfeeding mothers with healthy term babies. *Cochrane Database Syst Rev* 2017;2(2):CD001141.
13. Sinha B, Chowdhury R, Sankar MJ, Martines J, Taneja S, Mazumder S, et al. Interventions to improve breastfeeding outcomes: a systematic review and meta-analysis. *Acta Paediatr* 2017;106(Suppl 481):114-34.
14. United Nations Children's Fund, World Health Organization. Global Breastfeeding Scorecard 2023: Rates of breastfeeding increase around the world through improved protection and support. New York: UNICEF; Geneva: WHO; 2023.