

Urban–Rural Disparities in Early Breastfeeding Initiation: A Cross-Sectional Study in Pakistan

Urban–Rural
Disparities in
Early
Breastfeeding

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ABSTRACT

Objective: To examine breastfeeding patterns among lactating mothers using urban-rural comparison techniques to identify geographical variations and influencing factors.

Study Design: A cross-sectional study

Place and Duration of Study: This study was conducted at the Pediatrics department, Nishtar Hospital, Multan, from April 2024 to March 2025.

Methods: Data were collected through structured questionnaires administered to a purposively selected sample of 258 lactating mothers across urban and rural settings. The independent variables included maternal age, residence (urban/rural), child's age, and maternal education level. The dependent variables included the early initiation of breastfeeding.

Results: The overall breastfeeding initiation rate of 16.7% (n = 43) among participants. (Figure. I). Urban mothers breastfed at a significantly lower rate (13.5%, 27/200) compared to rural mothers (27.6%, 16/58). A chi-square test confirmed a statistically significant association between residence and breastfeeding ($\chi^2(1) = 6.42, p = 0.011$), indicating rural mothers were more likely to breastfeed than urban mothers.

Conclusion: Findings of this study reveal lower breastfeeding rates among urban mothers compared to rural counterparts, consistent with global trends. The findings underscore the need for targeted interventions, such as workplace breastfeeding policies in urban areas and community education programs in rural regions.

Key Words: Breastfeeding, Lactating mothers, Rural, Urban, Pattern

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INTRODUCTION

Breast milk is an important aspect of infant well-being, as it provides essential nutrients and immunity that nourish development and growth. Despite the widely well-documented benefits of the process, breastfeeding patterns vary across different regions of the globe, which is influenced by cultural, socioeconomic, and environmental factors¹. It is also significant to understand such disparities to develop targeted measures that increase the rate of breastfeeding and other positive outcomes for mother-baby health².

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Geographic or urban–rural variation of breastfeeding patterns can indicate the presence of geographic differences and identify areas where the recommended practice is not being followed as much³.

Breastfeeding varies widely throughout the world, with people in a given region practicing it extensively while others face the challenges of early weaning or the use of supplements with formula⁴. The causes of these inequalities can be attributed to the lack of affordable medical care, the underrepresentation of women in matriculated education, occupational guidelines, and cultural customs⁵.

Geographic mapping of these differences can be utilized to identify where clusters of such issues are located and where the implementation of breastfeeding support programs can be most effectively targeted⁶. Through visualization of the breastfeeding percentages, policymakers will be able to allocate their resources more effectively to disadvantaged groups. Such a strategy will make the interventions data-driven, local, and tailored to local needs⁷. The rate of breastfeeding in several low- and middle-income nations is also low, as the population does not avoid poverty, the lack of lactation support, and the aggressive advertising of breast milk substitutes⁸. On the contrary, the barriers to breastfeeding in high-income countries can be various,

with such items as short maternity leave and social disapproval of breastfeeding in the streets⁹. In comparing these divergent conditions, a geographic perspective helps determine the structural and cultural factors influencing breastfeeding practices. It is also possible to monitor and assess the effectiveness of public health campaigns or policy reforms. Such understanding is important in devising measures that can solve region-specific problems. In the end, however, improving the breastfeeding rate requires a complex solution that considers the spatial, cultural, and socioeconomic aspects¹⁰.

This study aims to identify geographic disparities in breastfeeding practices among mothers to guide us regarding targeted maternal health policies. The results inform the public, and resources could be allocated to mothers who need them the most. By targeting geographical variation in breastfeeding customs, policymakers can improve nutrition and decrease health disparities. This study will add value to international endeavors to ensure optimal breastfeeding, utilizing evidence-based and location-specific solutions.

METHODS

The study employed a cross-sectional design conducted at Pediatrics department, Nishtar Hospital, Multan, from April 2024 to March 2025. Data were collected using structured questionnaires from the 258 lactating mothers from both urban and rural areas, selected through a combination of stratified and purposive sampling. Ethical approval was obtained from the hospital review board, and informed consent was secured from all participants before data collection. Trained enumerators conducted face-to-face interviews to ensure accuracy and minimize recall bias. The collected data were anonymized and stored securely, with access restricted to the research team to protect participant confidentiality.

The target population consisted of lactating mothers with infants aged 0–24 months, with inclusion criteria requiring mothers to be currently breastfeeding, willing to participate, and having infants within the specified age range. Mothers with medical conditions preventing breastfeeding or infants with congenital disorders affecting feeding were excluded from the study. Stratified random sampling was used to ensure representation from different socioeconomic backgrounds, though convenience sampling was applied in areas where random selection proved challenging.

The independent variables examined were residence (rural/urban), maternal age, age of child, and education of mothers. The dependent variables included the early initiation of breastfeeding. Quantitative analysis involved descriptive statistics such as means and percentages, while the Chi-square test was used to

compare breastfeeding patterns between rural and urban mothers.

RESULTS

The study included 258 participants, with 46.5% of mothers aged ≤30 years and 53.5% >30 years. Majority of the child, 54.3% were between 2-6 months of age. Among the children, the majority were female (58.9%), while males were at 41.1%. In terms of literacy, maternal education varied, with 37.2% completing 1–5 classes and 19.8% completing 9–10 classes; only 6.6% were graduates. The majority of the participants resided in urban areas (77.5%), with 22.5% in rural regions. (Table. I).

Table No.1: Demographic profile of the study participants

Variable	Category	N	(%)
Mother age (years)	≤30 years	120	46.5
	>30 years	138	53.5
Child age (months)	≤1 months	57	22.1
	2-6 months	140	54.3
	6-12 months	61	23.6
Gender of the child	Male	106	41.1
	Female	152	58.9
Mother’s education	Illiterate	24	9.3
	1-5 class	96	37.2
	6-8 class	45	17.4
	9-10 class	51	19.8
	11-12 class	18	7.0
	Graduation	17	6.6
	MBBS	3	1.2
Area of residence	Urban	200	77.5
	Rural	58	22.5

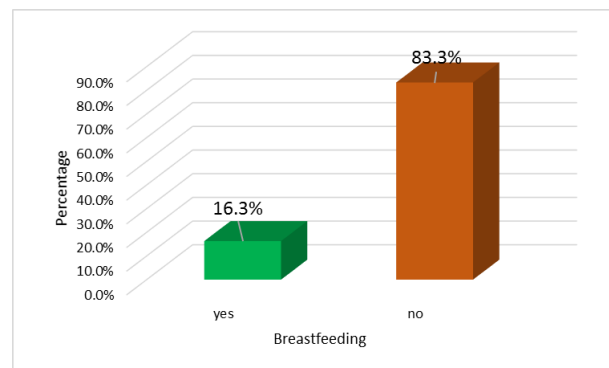


Figure No.1: Prevalence of breastfeeding among the study participants

The overall breastfeeding rate was 16.7% (n = 43) among participants. (Figure. I). Urban mothers breastfed to their children at a significantly lower rate (13.5%, 27/200) compared to rural mothers (27.6%, 16/58). A chi-square test confirmed a statistically significant association between residence and

breastfeeding ($\chi^2(1) = 6.42, p = 0.011$), indicating rural mothers were more likely to breastfeed than urban mothers. (Table. 2).

Table No.2: Association of breastfeeding with mothers' area of residence

Area of residence of mothers	Breastfeeding		Test of sig.
	Yes 43 (16.7%)	No 215 (83.3%)	
Urban	27 (62.8)	173 (80.5)	$\chi^2=6.42,$ d.f=1,p=0.011
Rural	16 (37.2)	42 (19.5)	
Total	43 (100.0)	215 (100.0)	

DISCUSSION

The present study analyzed breastfeeding patterns among lactating mothers, revealing an overall breastfeeding rate of 16.7%, with significant differences between urban (13.5%) and rural (27.6%) mothers. These findings align with and diverge from previous research on breastfeeding practices, highlighting the influence of sociodemographic and geographical factors.

The low overall breastfeeding rate (16.7%) in this study contrasts with higher rates reported in other regions. For instance, a study in Ethiopia conducted by Tewabe et al¹¹ found an exclusive breastfeeding rate of 83% among infants under six months, attributed to strong cultural practices and health education programs. Similarly, a Nigerian study conducted by Ogunlesi et al¹² reported a 55% exclusive breastfeeding rate, emphasizing the role of maternal education and healthcare support. The disparity may stem from variations in study populations, as our study included older children (45.3% ≥ 5 years), whereas others focused on infants.

This study examined breastfeeding patterns among 258 lactating mothers, revealing that 46.5% were aged 30 years or younger, while 53.5% were over 30 years old. The findings align with previous research suggesting that older mothers are more likely to breastfeed longer, possibly due to greater experience and confidence, as seen in a study by Senarath et al¹³. The children were mostly 5 months or older (45.3%), followed by those aged 1 month to 1 year (18.2%), with a majority being female (58.9%). The high proportion of children aged 5 months or older still being breastfed (45.3%) contrasts with global trends where exclusive breastfeeding typically declines after six months, as reported by the WHO (2021)¹⁴. Haider et al¹⁵ reported that this extended breastfeeding may reflect cultural practices or delayed weaning, or a potential recall bias similar to observations in South Asian studies.

In this study, maternal education levels varied, with 37.2% having completed 1–5 classes, 19.8% completing 9–10 classes, and only 6.6% being

graduates. Interestingly, the low percentage of graduate mothers (6.6%) contrasts with studies linking higher education to prolonged breastfeeding, such as Victora et al¹⁶. However, in some traditional societies, less-educated mothers may rely more on cultural norms that support breastfeeding, as noted by Bhandari et al¹⁷. Additionally, the predominance of urban mothers (77.5%) in this study differs from research conducted by Hector et al¹⁸ suggesting higher breastfeeding rates in rural areas due to traditional practices. While urbanization often leads to increased formula use, this study suggests urban mothers may still adhere to breastfeeding norms, possibly due to targeted health interventions.

Our findings indicate that rural mothers breastfeed at significantly higher rates (27.6%) than urban mothers (13.5%), consistent with global trends. A study in India conducted by Patel et al¹⁹ found that rural women were 1.5 times more likely to breastfeed exclusively due to traditional practices and limited access to formula milk. Conversely, urban mothers often face work-related barriers, such as employment demands and lack of breastfeeding-friendly workplaces, reducing breastfeeding duration²⁰. This aligns with our results, where urban residency was negatively associated with breastfeeding ($\chi^2(1) = 6.42, p = 0.011$).

CONCLUSION

Findings of this study reveals lower breastfeeding rates among urban mothers compared to rural counterparts, consistent with global trends. The findings underscore the need for targeted interventions, such as workplace breastfeeding policies in urban areas and community education programs in rural regions. Future studies can highlight the potential cultural, social, and other barriers behind these trends, and help design newer interventions.

Author's Contribution:

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Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

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