

## Original Research Article

# A cross-sectional study of determinants and impact of breastfeeding and complementary feeding practices on nutritional status and common illnesses among infants in urban slum

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**Received:** 08 August 2017

**Accepted:** 02 September 2017

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### ABSTRACT

**Background:** The present research was carried out with an objective to study various breastfeeding and complementary feeding practices its effect on nutritional status of children and association with common illness like diarrhea and ARI.

**Methods:** This cross sectional observational study was conducted on infant registered in under five-clinic at an urban health center in urban slum. A semi structured questionnaire was used to study the current breast feeding and infant feeding practices among mothers of the study subjects. The analysis was done using Microsoft Excel.

**Results:** There was universal breastfeeding with almost all children having ever been breastfed. Exclusive breastfeeding for the first six months was not practiced as only about 37.72% of infants were exclusively breastfed for six months. Factors associated with sub-optimal infant and young child feeding practices in these settings include mother's education level, lack of knowledge of proper feeding practices, lower socioeconomic status, and frequent illness. Noncompliance with proper exclusive breast-feeding practices was associated with more chances of having diarrhoea and acute respiratory illness among infants.

**Conclusions:** The study indicates poor adherence to WHO recommendations for breastfeeding and infant feeding practices leading to more chances of falling ill with common illnesses.

**Keywords:** Breastfeeding, Common illnesses, Nutritional status

### INTRODUCTION

Breastfeeding confers both short-term and long-term benefits to the child. It reduces infections and mortality, improves mental and motor development. Infant feeding practices have a major role in determining the nutritional status of a child.<sup>1</sup> Exclusive breastfeeding (EBF) during the first 6 months of life has been associated with a lower incidence of diarrhea and respiratory disease in infants, particularly in less-developed countries.<sup>1</sup> Complementary feeding is the transition from exclusive breastfeeding to family foods, covers the period from 6 to 18-24 months of

age. Infant and young child feeding practices is a major component of under-five care and is having a major role in determining the nutritional status of a child.<sup>2</sup>

About 60% of all deaths among children <5 years of age are directly or indirectly, attributed to malnutrition. About two-thirds of these deaths are associated with inappropriate feeding practices and occur during the first year of life. Poor feeding practices during infancy and early childhood, resulting in malnutrition, contribute to impairment of cognitive and social development; poor school performance and reduced productivity in later

life.<sup>3</sup> Infant-feeding practices constitute a major component of child caring practices apart from socio-cultural, economic and demographic factors. So, the infant and young child feeding (IYCF) practices, especially early initiation of breastfeeding and EBF for the first 6 months of life is recommended by WHO ensures that young children get the best possible nutrition at start of their life.

The present study aims at studying the breastfeeding and infant feeding practices among infants in the urban slum area and to study its association with common illness and nutritional status of the infants.

**METHODS**

This is a cross sectional study conducted at the under-five clinic in the urban health training centers of the department of Community Medicine. UHTC is a service delivery centre attached to a tertiary care centre (Medical College) where services like implementation of National health programmes and reproductive and child health services, primary and promotive healthcare along with outpatient department services for general public is carried out in the slum area and it caters to about 3500 population of the field practice area where most of the population belongs to lower socio-economic group.

The Immunization clinic and under five clinics for children is held on every Thursday at this UHTC and all the mothers coming for immunization with their children on these days were included in the study. Information was collected from the mothers of the infants or from whoever accompanying the baby. The study tool was a semi structured questionnaire containing questions regarding the socioeconomic and demographic profile and regarding feeding practices for the infants that are followed by mothers. Weight for age of the infant was used to assess the nutritional status and frequency of common illness like episodes of diarrhea and acute respiratory infections within last 6 months was asked to the mother.

As per the records it was revealed that the number of beneficiaries at immunization clinic held every Thursday ranged from 15 to 20, it was decided to collect data from a minimum of 10 mothers per immunization session. The total number of infants whose data was collected was 220 during the 6 months of data collection. Data was entered and analyzed using Microsoft Excel.

**RESULTS**

Table 1 shows that 62.7% of the mothers had started breastfeeding within one hour of birth of the baby while rest delayed breastfeeding, colostrum was given to 67.73% of the infants while remaining 32.27 % of mothers discarded colostrum, the reason being It is not pure milk. Exclusive breastfeeding for 6 months was practiced by only 37.72% of the mothers.

**Table 1: Breastfeeding practices checked (n=220).**

Practice studied	Number (%)
<b>Time of initiation of breast feeding</b>	
Within 1 hour	138 (62.7)
Within 4 hours	42 (19.1)
Within 24 hours	24 (10.9)
Beyond 24 hours	16 (7.3)
<b>Practice of feeding Colostrum</b>	
Yes	149 (67.73)
No	71 (32.27)
<b>Practice of exclusive breast feeding</b>	
Yes	83 (37.72)
No	137 (62.28)

Table 2 complementary feeding practices showed that 54% of the mothers started weaning earlier than 6 months of age. Most of them got knowledge of feeding practices by elder’s advice. Only 35.9 % of them were informed regarding exclusive breastfeeding and weaning by health care providers.

**Table 2: Complementary feeding practices checked n=220).**

Practice Studied	Number (%)
<b>Time of introduction of complementary feed</b>	
Before 6 months	119 (54.1%)
At age of 6 months	83 (37.7%)
Later	18 (8.2%)
<b>Source of knowledge regarding feeding</b>	
Advice by elders	141 (64.1%)
Advice by health personal	78 (35.9%)
<b>Type of food given in complimentary feeding</b>	
Home made	104 (47.28%)
Formula food (farex, cerelac etc)	62 (28.18%)
Other type of food	54 (24.54%)

**Table 3: Relationship between breastfeeding and some of its determinants (n=220).**

Mother’s education	EBF (%)	Not EFB (%)
Illiterate	5 (2.27)	26 (11.9)
Literate	78 (35.45)	111 (50.45)
<b>P&lt;0.005 (significant) by Fisher’s exact test</b>		
Home delivery	13 (5.9)	42 (19.1)
Hospital delivery	71 (32.27)	94 (42.72)
<b>P&lt;0.005 (significant) by Fisher’s exact test</b>		
Informed by health personnel	123 (55.9)	51 (23.2)
Not informed by health personnel	7 (3.1)	39 (17.7%)
p < 0.0001 (extremely significant) by Fisher’s exact test		

Table 3 Mothers education, institutional delivery, counselling regarding breastfeeding and complementary

feeding were significantly associated with practice of exclusive breastfeeding to the infants (P value <0.005).

**Table 4: Counselling opportunities regarding breastfeeding and weaning (n=220).**

Type of visit to health care facility	Informed about feeding practices
Under 5 clinics	204 (92.72)
Immunization	173 (78.63)
Visit to physician in case of illness	11 (5)

**Table 5: Relationship between common illness and exclusive breastfeeding practices.**

Disease	Total no. of infants with symptoms	Complaints in the last 2 weeks (%)	
		Non EBF	EBF
ARI	46	33 (71.7)	13 (28.3)
Diarrhoea	39	24 (61.5)	15 (38.5)

**Table 6: Relationship between EBF and nutritional status of the infant (n=220).**

Weight for age of infant	EBF (83)	Not EBF (137)
Normal	58 (69.87)	42 (30.65)
Underweight	25 (30.13)	95 (69.35)

Chi-square test (p value <0.05) significant.

Table 4 shows the counseling opportunities were missed when the mother and baby visits to physician during illness. Table 5 and 6 shows relationship between exclusive breastfeeding and common illness and nutritional status of infants. The relationship was found to be significant as non-exclusively breastfed infant fall sick frequently with acute respiratory illness and diarrhea.

## DISCUSSION

In this study, it was found that 62.7% of the infants were fed for first hour and 19.1% were started to feed on breast milk within 4 hours of birth, while rest were started on breastfeeding later than an hour. A study conducted in Delhi showed similar, out of the total studied children, only 37.2% were put on breastfeeding within one hour of birth.<sup>4</sup> National Family Health Survey- 3 (NFHS-3) data at the national level and also at Delhi showed that initiation of breastfeeding longer than an hour in 23.4% and 21.7% of the infants under study, respectively.<sup>5,6</sup>

Study from West Bengal had shown that only 13.6% infants were started on breastfeeding within an hour.<sup>7</sup> in present study Colostrum was fed to nearly 67.73% of infants while in rest 32.27% infants were not fed with it, as it was considered as not good for their health. Some of the mothers had not given colostrum or first milk to the baby as they thought it was too less to fulfil the hunger of the infant. Exclusive breastfeeding till 6 months was practiced by only 37.72% and rest of the mothers either

started weaning the infant early or had given the baby bottle feeding with diluted cow's milk (Table 1).

The complementary feeding was started earlier than 6 months by 54.1% of mothers, the reasons for early initiation of complementary feeding were like insufficient breast milk, working mothers, some thought that baby only on breast milk will not gain weight, feeding at night was difficult for some of mothers. Although practice of early weaning has been found to be prevalent across the cultures, there is an international consensus that providing other liquids in addition to breast milk in the first 6 months of life is unnecessary and harmful.<sup>8</sup> 6 in this study 37.7% mothers practiced weaning at 6 months while rest 8.2% continued only breast feeding for longer than 6 months, the reason being the infants were not accepting or eating complementary feed.

Most of the mother (47%) preferred homemade food like Rice and dal water, dal rice, khichadi, Shira as complementary food. While 28.18% mothers were giving their babies formula food like cerelac, farex etc. some of them were giving only cow's milk as complementary food. A study on Impact of feeding and breastfeeding practices on the nutritional status of infants in a district of Andhra Pradesh, India Only 41% of infants were exclusively breastfed for 6 months and 58% of infants (6-11 months) received complementary feeding at 6-9 months of age.<sup>9</sup> (Table 2)

Factors like Mothers education, institutional delivery, counselling regarding breastfeeding and complementary feeding were significantly associated with practice of exclusive breastfeeding to the infants (Table 3). Regarding counselling with importance of exclusive breastfeeding and complementary feeding, it was found that most of the opportunities were missed when the sick child visit to the physician (Table 4). Regarding nutritional status of infants, it was seen that the infants who were exclusively breastfed were having normal weight for age compared to those who were not on exclusive breast feeding and the results were significant (p value <0.05) (Table 5).

A study on influence of infant feeding practices on nutritional status of under-five children reports that discarding colostrum, delayed initiation of breastfeeding non-exclusive breast feeding and improper complementary feeding were the significant risk factors for underweight infant.<sup>10</sup> Various Recent studies conducted in Karnataka other parts of India also have recognized the link between malnutrition and infant and child feeding practices.<sup>11-13</sup> The study also showed that episodes of falling ill, with common illnesses like of ARI and diarrhoea in last 2 weeks, were more among infants who were not exclusively breastfed. (Table 6) various other studies also showed an epidemiological evidence of a causal association between early initiation and exclusive breastfeeding and reduced infection-specific neonatal mortality has also been documented.<sup>14</sup>

## CONCLUSION

The study indicates poor adherence to WHO recommendations for breastfeeding and infant feeding practices. Inappropriate feeding practices like the late initiation of breast feeding, rejecting colostrum, not exclusively breastfeeding for the first 6 months and the early initiation of complimentary feeds, are common. The practice of exclusive breast feeding was more in the literate mothers and in the mothers who had been informed about breast feeding by the health personnel. Improvement in feeding practices could positively impact nutritional status of children and certainly reduce the chances of common illness.

Limitations: the study, carried out at an UHTC, situated in the slum included infants of health-conscious mothers, coming to the center for immunization. Also, the sample size was not large. The small sample size and selection bias due to clinic-based nature of study limits its representativeness. The information was obtained from the mother or whoever accompanying the baby as there was no other means of obtaining that information regarding episodes of ARI and diarrhea, so it could have been subject to recall bias. Nutritional status was measured only by the weight for age criteria and the other indices were missed.

## Recommendations

Optimal infant-feeding practices should be promoted and protected to improve nutritional status of under-five children. None of the opportunities should be missed regarding imparting health education about exclusive breast feeding and complementary feeding. Peer counseling by mother support groups can be a way to improve the infant and young child feeding practices.

Encouraging Family support for breastfeeding that is, supportive husband, other family member such as in-laws, friends can play a key role in the success of breastfeeding. When a mother feels supported she is more likely to feel confident and empowered with her decision to breastfeed. Seminar on importance of breastfeeding and young child feeding to sensitize employers and mothers can be recommended. Using social media platforms to inform and engage a wider group of people for raising awareness on breastfeeding and young child nutrition can also be recommended.

## ACKNOWLEDGEMENTS

Authors would like to thank department of community medicine SVNGMC Yavatmal Maharashtra, as well authors would like to give thanks to the staff and interns working at Urban Health Training Center.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Masare MS, Soyam G, Hiwarkar PA. A cross-sectional study of determinants and impact of breastfeeding and complementary feeding practices on nutritional status and common illnesses among infants in urban slum. *Int J Res Med Sci* 2017;5:4563-6.