

Study on infant feeding practices among mothers in rural areas of Faizabad District (U.P.), India

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Abstract

The present study was undertaken to find out socio-demographic profile of respondents and to estimate the current feeding practices including breastfeeding, pre-lacteal feeding and complementary feeding. A cross-sectional study was conducted in four blocks namely Haringtonganj, Amaniganj, Bikapur and Sohawal of Faizabad District in 2015. Total 352 lactating mother having children's aged from 6 months to 2 years were interviewed to collect information on pre designed and pretested proforma. The data was tabulated on Microsoft Excel sheet and analysed using chi-square test. Study findings showed that mostly 43.75% were in the age range of 20-25 years. More than half (58.51%) of the mothers were literate and majority 96.87% mothers were housewives. All mothers had done breastfeeding in which 73.58% mothers continued breastfeeding after 6 months at the time of study. Majority 89.49% responding mothers were given exclusive breastfeeding, 81.82% had given colostrum and 38.64% gave pre-lacteal feed to their baby. Most of the children (80.11%) were taking weaning food but majority 89.36% mothers did not prepare any special food for their children. The association between education of mothers and infant feeding practices was found to be statistically significant ($p < 0.05$). The study showed that mostly mothers adopted correct feeding practices at some extent and these practices were much influenced by education of mothers. So it is very necessary to imparting nutrition and health education to the mothers.

Keywords: Complementary feeding, Education, Exclusive breastfeeding, Infant, Pre-lacteal feeding, Socio-demographic profile

INTRODUCTION

Infant mortality rate (IMR) is considered as one of the most sensitive indicators of health status of a community and malnutrition is one among the commonest causes of infant mortality in a developing country like India. Child is the chief victim of interplay of nutrition and the socioeconomic factors. The under-five population of India stands at a staggering 112.8 million. However, despite all the advances in health, education and agriculture sectors as well as vast improvements in the country's economy, India Figs in the list of countries

those have made insufficient progress towards meeting the Millennium Development Goals (Agarwal *et al.*, 2018; Tiwari *et al.*, 2016). According to National Family Health Survey – 4 data, the per cent of underweight (weight-for-age) children under 5 years is 45.9% in rural area of Faizabad district. The children who are stunted (height-for-age) and wasted (weight-for-height) found in 51.6% and 18.9% respectively.

Under any circumstances breast milk is the ideal food for the infants (Karim *et al.*, 2012). Only Breast Milk offers complete nutrition, early protection against illness and safe healthy food at once.

The unique characteristic of Breast Milk is that it is baby specific composition (WHO, 2018; Jain *et al.* 2013). The World Health Organization (WHO) and United Nations Children's Fund (UNICEF) recommends initiation of breastfeeding within the first hour after the birth; exclusive breast feeding for the first six months of life, with the addition of safe, nutritionally adequate, age appropriate, responsive complementary feeds at six months with continued breast feeds until at least the age of two or beyond because the first 2 years of a child's life are particularly important, as optimal nutrition during this period lowers morbidity and mortality, reduces the risk of chronic disease, and fosters better development overall. Over 820 000 children's lives could be saved every year among children under 5 years, if all children 0–23 months were optimally breastfed (WHO, 2018).

Breastfeeding practices vary among different regions and communities. The fourth National Family Health Survey (NFHS-4) in rural areas of Faizabad district reported that overall 27.1% of children aged under three years were breastfed within one hour of birth, 25.5% of the children aged under 6 months were exclusively breastfed, and only 0.9% of the children aged 6-23 months received adequate diet with or without breastfeeding. About 36% of infants aged 0–6 months worldwide were exclusively breastfed over the period of 2007-2014. Despite the marked advantages of breast feeding, its popularity has decline significantly in many parts of the world. **Formula milk is used in place of breast milk but it is not an acceptable substitute for breast milk** because it carries risks of additional illness and death due to danger of the contamination and over dilution of the fat. It is also hard for the baby's gut to absorb anything other than breast milk (UNICEF, 2015; Karim *et al.* 2012).

According to National Guidelines of Indian Pediatrics, breast milk alone is not enough to make an infant grow well after six months, other foods are also needed which is known as complementary foods. The weaning period is a very vulnerable period. It is the time when malnutrition starts in many infants, contributing significantly to the high prevalence of malnutrition in children under five years of age world-wide. WHO estimates that 2 out of 5 children are stunted in low-income countries. Inappropriate feeding practices are often a greater determinant of inadequate intakes than the availability of foods in the households (WHO, 2018). Knowledge of weaning foods and practices is an important aspect of child health & development. Efforts should be therefore be made to design and promote the use of feeding practice of infants (Park, 2005; Karim *et al.* 2012). As there is a paucity of literature on infant feeding practices in this region, the present study was undertaken to estimate the current feeding practices including breastfeeding, pre-lacteal feeding and comple-

mentary feeding in selected rural areas of Faizabad district.

MATERIALS AND METHODS

The present cross-sectional study was conducted at Faizabad District which is situated in Uttar Pradesh, on the bank of River Saryu, about 130 k.m. east of Lucknow. The total population in Faizabad district as per census 2011 stood at 24,70,996 in which 21,30,743 live in rural and rest 3,40,253 in urban parts. The per cent of child population in the age group 0 – 6 years is 14.6%. According to census 2011, the district contains 11 community development blocks with a rural female literacy rate of 56.5% which has increased to 62.8% as per NFHS – 4 data. Among these blocks, four blocks namely Haringtonganj, Amaniganj, Bikapur and Sohawal were purposively selected. Total 352 lactating mothers having children's aged from 6 months to 2 years was interviewed. Random sampling method was used to select the study population. The information about participants demography and infant feeding practices towards breast feeding, pre-lacteal feeding and complementary feeding were collected from the mothers on pre designed and pretested proforma. Face to face interview technique was used to collect data from children's mother. The data was collected, checked, verified and then enter into the computer. Data were analyzed with the help of MS-excel software. The frequency and percentages of various responses were carried out and results are given in percentage. For qualitative data, chi-square test was applied. P value < 0.05 was taken as statistically significant.

RESULTS AND DISCUSSION

Socio-demographic profile: A total of 352 mothers having children in the age group 6 months to 2 years were interviewed and the response rate was 100%. Out of 352 mothers, 56.82% (200) belonged to joint family and 43.18% (152) belonged to nuclear family. Similar findings were reported by Parashar *et al.*, (2017) in selected Anganwadis of Shimla district of Himachal Pradesh where the rate of joint family was 56% and nuclear family was 42%. A high per cent of joint family (83.06%) than nuclear family (16.94%) was also obtained by Cacodkar *et al.*, (2016) in rural mothers of Goa. Other studies conducted in Dehradun by Saxena and Kumar (2014) and Udaipur by Jain *et al.*, (2013), the rates were also almost similar with 64% and 61.05% respectively. However in studies conducted by Wagh *et al.*, (2013), Karim *et al.*, (2012) and Patil *et al.*, (2009), the rates were lower with 37.8% in Maharashtra, 40.3% in Dhamrai and 41.5% in urban slum of Western India respectively. In our study, majority of 53.12% (187) had 5 -10 member in a family whereas 36.36% (128) had 0-5 member and only 10.51% (37) had >10

Table 1. Socio demographic profile of the subjects (n=352).

Family Types	Characteristics	Frequency	Per cent
Family Size	Nuclear	152	43.18
	Joint	200	56.82
	0-5	126	35.79
	5-10	189	53.69
	>10	37	10.51
Age	20 – 25	154	43.75
	25 – 30	138	39.20
	30 – 35	38	10.79
	>35	22	6.25
	Illiterate	146	41.48
Education	Primary	70	19.89
	Middle	65	18.46
	High school	37	10.51
	Intermediate	21	5.96
	Graduate and Above	13	3.69
Working status	Housewife	341	96.87
	Working Lady	11	3.12
Age of child (month)	6 – 12	157	44.60
	12 - 18	118	33.52
	18 - 24	77	21.87
Sex of children	Male	187	53.12
	Female	165	46.87

Table 2. Distribution of the respondents by duration of stopped breastfeeding [n=93].

If stopped, then	Age at which stopped feeding (month)			
	1 - 6	6 - 12	12 - 18	18 – 24
Frequency	37	20	26	10
Percentage (%)	39.78	21.50	27.96	10.75

Table 3. Distribution of the respondents by frequency of breastfeed in a day [n=259].

If continued, then	No. of feeding/day					When cry
	1 – 3	3 - 5	5 - 7	7 - 9	>9	
Frequency	7	19	19	11	40	163
Percentage (%)	2.70	7.33	7.33	4.25	15.44	62.93

Table 4. Association between education of mothers and exclusive breastfeeding.

Factor	Exclusive Breast – feeding				χ^2 , p-value (df – 2)
	Given		Not given		
Education	Frequency	Per cent	Frequency	Per cent	
Illiterate	124	35.23	22	6.25	6.34 /0.041
Primary	63	17.90	7	1.99	
Middle & above	128	36.36	8	2.27	

Table 5. Association between education of mothers and pre-lacteal feeding.

Factor	Pre – lacteal feed				χ^2 , p-value (df – 3)
	Given		Not given		
Education	Frequency	Per cent	Frequency	Per cent	
Illiterate	60	17.04	86	24.43	8.675 / 0.033
Primary	23	6.53	47	13.35	
Middle	33	9.37	32	9.09	
≥High school	20	5.68	51	14.49	

Table 6. Association between education of mothers and complementary feeding.

Factor	Age-wise complementary feeding						χ^2 , p-value (df – 3)
	0-6		6-12		>12		
Education	Frequency	Per cent	Frequency	Per cent	Frequency	Per cent	
Illiterate	31	10.99	54	19.15	40	14.18	23.399/
Primary	18	6.38	36	12.76	4	1.42	0.0006
Middle	4	1.42	37	13.12	14	4.96	
>High school	10	3.55	23	8.16	11	3.90	

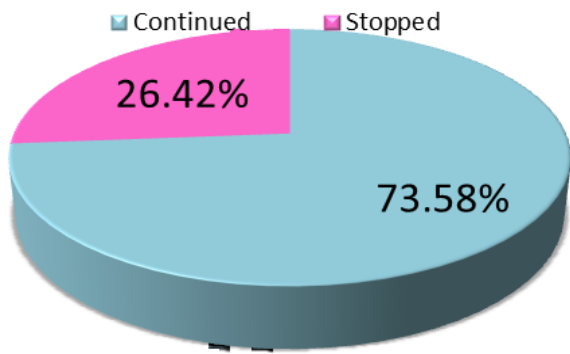


Fig.1. Distribution of the infants by continuation of breastfeeding after six months[n=352]

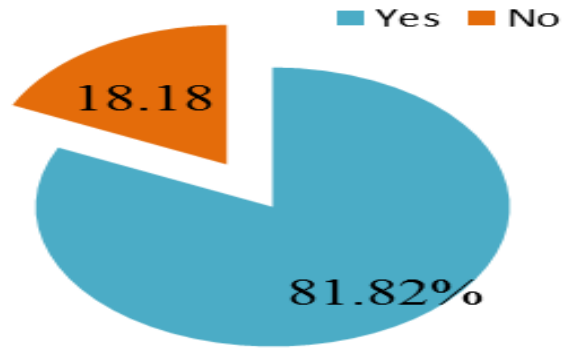


Fig. 2. Distribution of respondents by getting colostrum feed (n=352)

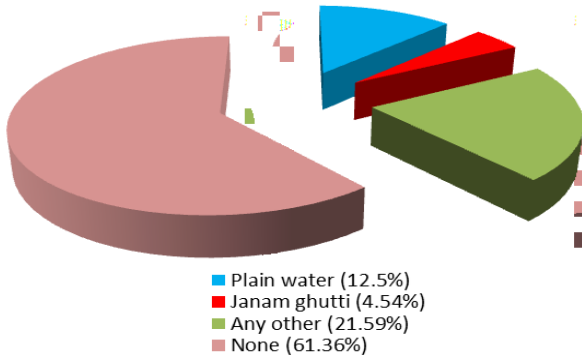


Fig. 3. Distribution of respondents by getting pre-lacteal feed (n = 352).

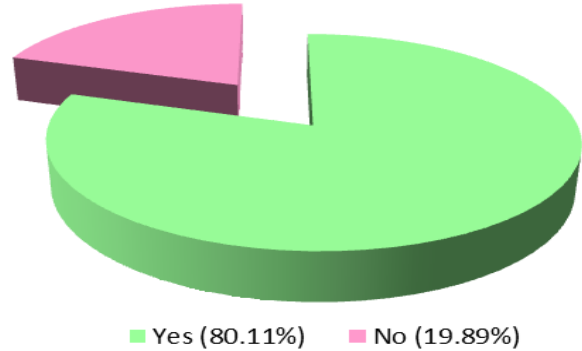


Fig. 4. Distribution of respondents according to take weaning food (n = 352)

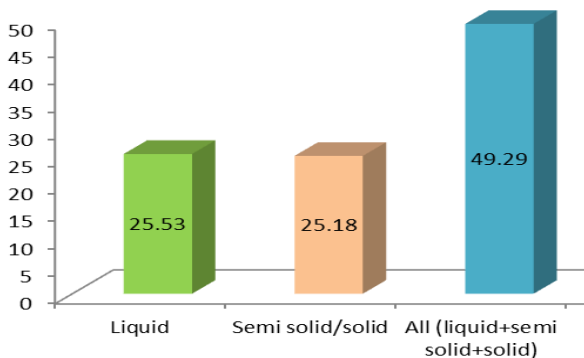


Fig. 5. Distribution of respondent according to types of food used in weaning (n=282).

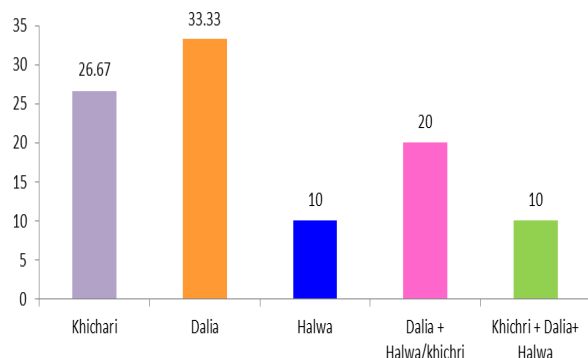


Fig. 6. Distribution of respondent by getting special food (n=30).

member. The study conducted by Gupta *et al.* (2012) in Lucknow did not corroborate with present study where majority of families (37.2%) had 0-5 member. In the current study, the age of all 352 lactating mothers ranged between 20-35 years and above in which 43.75% (154) were in the age range of 20-25 years, 39.2% (138), 10.79% (38) and 6.25% (22) in the range of 25-30, 30-35 and more than 35 years respectively. These findings were similar with findings conducted by Cacodkar *et al.*, (2016) in rural mothers of Goa where the per cent of mothers having age 20-25 years was higher (43.3%) than others. Farah and Karim (2015) also found high per cent of mothers (81.5%) in age range of 20-30 years in

Dinajpur District and 70% mothers having age between 20 to 29 years were observed by Kalita and Borah (2016) in rural areas of Assam. The infant feeding practices are affected by types of family, size of family and age of mothers because if the number of members in family are large, the mother gets more time for adequate feeding and caring of their children and the mother's age is also associated with their educational status which affects feeding practices of children.

More than half 58.51% (206) of the mothers were literate in which mostly 19.89% (70) had primary education and 18.46% (65) had middle level education. On occupation status, majority of mothers 96.87% (341) were housewives. Only 3.12% (11)

were employed. These findings were almost similar with the findings of Kakati *et al.*, (2016) in rural areas of Kamrup district, Assam, where 28.8% mothers had primary education, 16.8% had middle level education and 19.2% had above education. In other studies of Farah and Karim (2015) in Dinajpur District, most of the mothers (47.2%) had primary education and 94.1% mothers were housewife. Kalita and Borah (2016) also found high per cent of housewives (70.2%) in rural areas of Assam. Out of 352 children studied, 44.6% (157) belonged to the age of 6-12 months, followed by 33.52% (118) of 12-18 months and 21.87% (77) of 18-24 months. More than half of the children 53.12% (187) were male and 46.87% (165) were female (Table-1). Study findings of Saxena and Kumar (2014) also showed that 48.5% children were in the age of 0-6 months followed by 36.3% of 6-12 months, 12.5% of 12-18 months and 2.7% of 18-24 months. The percentage of male children (52.1%) was more than female children (47.9%) in their study. Kakati *et al.*, (2016) observed almost similar results in rural Assam where the per cent of male children was 56% and female children were 44%.

Practices related to feeding: Among 352 lactating mothers, all mothers had done breastfeeding to their children in which 73.58% (259) mothers continued breastfeeding after 6 months whereas 26.42% (93) mothers had stopped breastfeeding at the time of interview (Fig. 1). Among 93 respondents, 27.96% (26) mothers had stopped breastfed their infants by duration of 12-18 months and 39.78% (37), 21.5% (20) & 10.75% (10) were stopped at 1-6 months, 6-12 months and 18-24 months respectively (Table-2). So the findings of this study showed that about ninety per cent (89.49%) responding mothers were given exclusive breastfeeding which was much higher compared to 25.5% in rural areas of Faizabad district conducted by NFHS-4. The per cent of exclusive breastfeeding has increased from 46.4% in NFHS-3 to 54.9% in NFHS-4 at national level. According to NFHS-4 data, only 8.7% children were received breastfeeding with adequate diet by duration of 6-23 months in India which was also lower than the present study. The most similar observation was found by Agarwal *et al.*, (2018) where the per cent of exclusive breastfeeding was 89.7% in rural area of Bareilly district, Uttar Pradesh. In other findings, 66% mothers practiced exclusive breastfeeding in rural areas of Assam conducted by Kakati *et al.*, (2016). Karim *et al.* (2012) also reported the higher per cent of exclusive breastfeeding (70%) and observed that 38.8% breastfed their infants by the duration of 6-9 months and 42.8% were 9-12 months in Dhamrai. In continuation of breastfeeding, mostly 62.93% (163) breastfed their infants on crying which is known as demand feeding. 15.44% (40)

mothers breastfed their infants more than 9 times in a day whereas 4.25% (11), 7.33% (19), 7.33% (19) and 2.7% (7) breastfed their baby 7-9, 5-7, 3-5 and 1-3 times in a day respectively (Table-2). The study of Vyas *et al.* (2012) in rural areas of Uttarakhand also formulated that high per cent of mothers (89.1%) breastfed their infants on demand and 10.9% at regular intervals in a day.

The use of colostrums and avoidance of pre lacteal food is the cornerstone in early infant's nutrition and may be prerequisite for the establishment of future of breast feeding. Pre-lacteal food was defined as food/liquid given to infant before initiation of breast feeding for the first time. In present study, majority of the women 81.82% (288) had given colostrum to their baby (Fig. 2). More than half 61.36% (216) of mothers did not give pre-lacteal feed to their children. Out of those who had given pre-lacteal feed, 12.5% had given plain water and 4.54% had given janam ghutti to their children. Other 21.59% had given honey, powdered milk, cow's milk and goat's milk (Fig. 3). This study was almost supported by Jha *et al.* (2016) findings where 83.8% mothers had given colostrums to their baby and the prevalence of pre-lacteal feeding was 40% in rural field practice area of Kakatiya Medical College, Warangal, Telangana. Other researcher reported the prevalence rate of pre-lacteal feeding was 20.5% in Bareilly district by Agarwal *et al.*, (2018), 14.8% in rural mothers of Tamilnadu by Shankar & Muthukumar (2015), 15.85% in Maharashtra by Wagh *et al.* (2013), 29.3% in Tamilnadu by Jennifer *et al.* (2012).

Out of 352 respondents, 80.11% were taking weaning food at the time of study with or without breastfeeding and 19.89% were not taking weaning food. On the type of weaning foods given to the infants, 49.29% of the nursing mothers preferred all types of foods like liquid, semi solid and solid foods whereas 25.53% provided only liquid foods and 25.18% offered only semi solid or solid foods (Fig. 5). In present study, 89.36% mothers did not prepare any special food for their children. Out of 30 mothers, only 33.33% mothers used dalia as complementary food for their children, 26.67% used khichri, 20% used dalia with halwa/khichri, 10% used all types & 10% used halwa as complementary feed (Fig. 6). Most similar results was obtained by Saxena and Kumar (2014) in Doiwala district, Dehradun where 87.3 per cent of children above 6 month of age were on complementary feeding, however in 12.7% of cases, complementary feeding was not started at the time of study. In rural areas of Assam, Kakati *et al.*, (2016) found that the complementary feeding was initiated by 54.4% of mothers at the age of 6 months, 19.2% of mothers initiated complementary feeding before 6 months of age and 26.4% of mothers initiated after 6 months of age. Most of the mothers (56.8%) had given semi-solid food

followed by Animal milk (35.2%). Semisolid includes khishri, suji, gruels and animal milk includes – Cow's milk and goat's milk. In other study of Farah and Karim (2015) in Dinajpur District, 142(50.9%) respondents were started complementary feeding after six months of age and only 27(9.7%) started at four months of age. The common types of complementary food were khichuri (49.7%), shagu, suji (21.5%), fruit juice (6.8%) given as family food.

Association between education of mothers and infant feeding practices: The infant feeding practices such as exclusive breastfeeding, pre-lacteal feeding and complementary feeding were found statistically significant (p -value < 0.05) with educational status of mothers. Above fifty per cent mothers (54.26%) who were literate offered exclusive breastfeeding compared to illiterate mothers (35.23%). The mothers having middle and above education were reported in higher per cent (36.36%) than others (Table-4). Verma and Dixit (2016) conducted study in rural Uttar Pradesh where the association of education status of mother was also seen to be significant with exclusive breast feeding, as it was seen to be a positive correlation. The educational status of lactating mothers also affect the pre-lacteal feeding practices because 36.93% literate mothers did not provide pre-lacteal feed to their children which was higher than illiterate mothers (24.43%). The per cent of mothers having high school education was found high (14.49%) than others (Table-5). The present findings was similar with the observation of Jha et al., (2016) where they noticed to be proportional increase in mothers not giving pre-lacteal feeds with proportional increase in education. There was significant relation between education and practice of not giving pre-lacteal feeds in rural field practice area of Kakatiya Medical College, Warangal, Telangana. Whereas Parashar et al., (2017) found that the literacy level of mother was not related to giving pre-lacteal feeds in selected Anganwadis of Shimla district of Himachal Pradesh.

In present study, the higher per cent of literate mothers provided complementary feeding at appropriate age than illiterate mothers. Among literate mothers, mostly mothers having middle level education (13.12%) offered complementary foods at right time. The late introduction of weaning foods was done by illiterate mothers in high frequency (14.18%) and the early introduction was practiced by literate and illiterate mothers about to equally i. e. 11.35 per cent and 10.99 per cent respectively (Table-6). The education of mothers is a significant factor in improving the nutritional status of infants. Evidently, it affects the appropriate feeding of children which is observed in present study. Similar findings were observed by Kakati et al., (2016) in rural areas of Kamrup district,

Assam where majority of mothers (81%) with middle educational status were more likely to initiated complementary feeding at 6 months as compared to illiterate (36.3%) and primary school mothers (51.3%) ($P < 0.0001$).

Conclusion

The present study has revealed areas of similarities and a few distinct differences in infant feeding practices when compared with other studies. Majority of mothers provided all feeding practices in our study which is much higher than national Fig.s. Practices like giving pre-lacteal feeds were found in lower per cent but still the prevalence rate is 38.63% in study area. It is very necessary to adopt the right practices of weaning food for rural mothers. The study shows that the infant feeding practices are influenced by the education of mothers because as the literacy level increases, the frequency of appropriate practices also increases. So, it is concluded that maternal knowledge and awareness of correct feeding practices is essential for the normal growth, health and wellbeing of the children which can be possible through effectiveness of various health education programmes conducted at national level in India.

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