

Original article:

Assessment of breastfeeding practices in a rural area of North India

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Abstract:

Background: Breast milk is the natural first food for babies. It provides all the energy and nutrients that the infant needs for the first 6 months of life. Only 35% of infants world-wide are exclusively breastfed during the first four months of life and complementary feeding begins either too early or too late with foods which are often nutritionally inadequate and unsafe.

Objectives: To assess the breastfeeding practices and its associated factors.

Methodology: This descriptive cross - sectional study was carried out among mothers who had less than 2 years old children, in the catchment area of the Rural Health and Training Centre (RHTC). A total of 236 mothers were included in the study. Data collection for breastfeeding practices was done only for the last child born.

Results: Mean age of mothers was 25.91 (\pm 5.13) years. 56.4% had initiated breast feeding within 24 hrs, and 37.7% had provided exclusive breastfeeding for \geq 6 months. Multivariate logistic regression analysis showed significant association of literate (OR=2.92), higher socioeconomic status (OR=3.54), hospital delivery (OR=4.49), and birth of a male child (OR=2.56) with initiation of breast feeding within 24 hours of child birth. Exclusive breastfeeding for \geq 6 months also had significant association with literate (OR=2.23), higher socioeconomic status (OR=4.88), hospital delivery (OR=3.32) and birth of a male child (OR=2.18).

Conclusion: Early initiation & duration of exclusive breastfeeding are significantly associated with demographic and socioeconomic factors. Breastfeeding intervention programmes should have an effective mass education component to promote exclusive breastfeeding.

Key words: Breastfeeding practice, rural area, literate mother, socio-economic status.

Introduction

Breast milk is the natural first food for babies. It provides all the energy and nutrients that the infant needs for the first 6 months of life, and it continues to provide up to half or more of a child's nutritional needs during the second half of the first year, and up to one-third during the second year of life.^[1]

WHO recommends exclusive breast feeding for first 4 – 6 months followed by addition of semisolid & solid foods to complement breast milk

till the child is gradually able to eat the normal food.^[2] Breastfeeding is important for young child's survival, health & nutrition. It has been found that exclusive and longer duration of breast feeding not only protects the child from obesity risks, but it also helps in enhancing child's brain development and learning capacities.^[3]

Various studies have emphasized the importance of breastfeeding.^[4,5] The importance of exclusive breastfeeding and the immunological and

nutritional values of breast milk has already been demonstrated.^[6,7]

It has been found that only 35% of infants worldwide are exclusively breastfed during the first four months of life and complementary feeding begins either too early or too late with foods which are often nutritionally inadequate and unsafe.^[3] In a study done at Rajkot, the prevalence of exclusive breastfeeding at 6 months of age of infants was found to be 62%.^[8] As per National Family Health Survey (NFHS-3) data only 69 percent of children below two months of age are exclusively breastfed, which further drops to 51 percent at 2-3 months of age and 28 percent at 4-5 months of age.^[9]

Data from Uttar Pradesh showed that although there has been an improvement in the practice of early breastfeeding, but still it was only around 15 percent. The data also revealed that just 8 percent of children aged 6-23 months in rural Uttar Pradesh were exclusively breastfed till the age of 6 months.^[10]

Evidence suggests that early breastfeeding, if implemented widely, can reduce the neonatal mortality rate by 20 percent. Moreover, early breastfeeding, coupled with good breastfeeding skills, could positively influence the practice of exclusive breastfeeding.^[11] Therefore, this study was conducted to assess the breast feeding practices of the rural women in North India.

Materials and methods

Study Design: This cross sectional descriptive study was conducted in catchment area of Rural Health and Training Centre (RHTC), Department of Community Medicine.

Study subjects: Mothers of children aged less than 2 years, residing in the catchment area of RHTC.

Sampling technique: Convenience sampling was done.

Inclusion criteria: Mothers whose last child was aged less than 2 years.

Exclusion criteria: Mothers who had children older than 2 years and those who did not agree to give their consent for the study.

Method: Informed consent was obtained after explaining the purpose of the interview. A pre-designed interview schedule was used to collect the necessary information from the participants. The information was collected about various demographic and socioeconomic factors, and factors associated with breastfeeding on a preformed, pre-tested interview schedule. Socioeconomic status was calculated using the Modified BG Prasad's Classification for 2014.^[12]

Statistical analysis: Data from the interview schedule was transferred to a computer and SPSS Data Editor Software version 19 was used for analysis. Chi-square test was performed, and $p \leq 0.05$ was considered statistically significant. Both univariate and multivariate logistic regression analysis was performed to assess the various factors favouring initiation of breastfeeding and exclusive breastfeeding. The fit of the logistic model was assessed with the Hosmer and Lemeshow goodness-of-fit test. Odds ratio (OR) and corresponding 95% confidence interval (CI) are reported.

Results

A total of 236 mothers were included in the study. Mean age of mothers was 25.91 (\pm 5.13) years. 52.1% of the mothers were aged 25 years and above. 39.4% of the mothers were illiterate and 70.8% of the mothers belonged to lower socioeconomic class. 56.4% had initiated breast feeding within 24 hrs. It was observed that initiation of breastfeeding was early in mothers who were 25 years old and above (OR=1.12) and living in nuclear type of family (OR=1.12). Early initiation of breastfeeding was also seen in literate mothers (OR=4.98) and those belonging to the upper socioeconomic class (OR=5.03) (Table – 1).

Early initiation of breastfeeding was done in those children who were of birth order 2 or more (OR=1.17), those delivered in hospitals (OR=8.35), and in a male child (OR=2.66) (Table – 2). Multivariate logistic regression analysis showed that literate mothers (OR=2.92), higher socioeconomic status (OR=3.54), hospital delivery (OR=4.49), and birth of a male child (OR=2.56) had significant association with initiation of breastfeeding within 24 hours (Table – 3).

Exclusive breastfeeding for 6 months and above was found to be more common in mothers who were 25 years old and above (OR=1.05) and living in nuclear type of family (OR=1.27). Exclusive breastfeeding for 6 months and above was seen in

mothers who were literate (OR=4.11) and those who belonged to upper socioeconomic class (OR=6.36) (Table – 4).

Exclusive breastfeeding was present in those children who were of birth order 2 or more (OR=1.19), those delivered in hospitals (OR=6.57), and in male children (OR=2.14). Exclusive breastfeeding was more in those mothers who had initiated breastfeeding early (OR=26.84) (Table – 5). Multivariate logistic regression analysis showed Literate (OR=2.23), higher socioeconomic status (OR=4.88), hospital delivery (OR=3.32), and birth of a male child (OR=2.18) had significant association with exclusive breastfeeding for 6 months and above (Table –6).

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Table 1: Association between initiation of Breastfeeding and socio-demographic variables (N = 236)					
Variables	Initiation of Breastfeeding		Total (N=236) (100%)	* P value	**Odds Ratio (95% CI)
	< 24 hours (N=133) (56.4%)	≥ 24 hours (N=103) (43.6%)			
Age Group					
≥ 25 years	71 (57.7%)	52 (42.3%)	123 (100%)	0.658	1.12 (0.67-1.88)
< 25 years	62 (54.9%)	51 (45.1%)	113 (100%)		
Religion					
Hindu	118 (57.8%)	86 (42.2%)	204 (100%)	0.245	1.56 (0.74-3.29)
Muslim	15 (46.9%)	17 (53.1%)	32 (100%)		
Caste					
General	41 (63.1%)	24 (36.9%)	65 (100%)	0.199	1.48 (0.82-2.64)
OBC/SC/ST	92 (53.8%)	79 (46.2%)	171 (100%)		
Type of Family					
Nuclear	107 (56.9%)	81 (43.1%)	188 (100%)	0.732	1.12 (0.59-2.11)
Joint	26 (54.2%)	22 (45.8%)	48 (100%)		
Education of mother					
Literate	102 (71.3%)	41 (28.7%)	143 (100%)	< 0.001	4.98 (2.83-8.74)
Illiterate	31 (33.3%)	62 (66.7%)	93 (100%)		
Socioeconomic status					
Upper middle	56 (81.2%)	13 (18.8%)	69 (100%)	< 0.001	5.03 (2.56-9.87)
Lower middle	77 (46.1%)	90 (53.9%)	167 (100%)		
* Chi square test was applied, degree of freedom = 1, P value < 0.05 was considered as statistically significant.					
** Univariate regression analysis. Unadjusted Odds Ratio with 95% Confidence Interval (CI).					
N = Number of mothers included. Upper middle = Class I and II, Lower middle = Class III, IV and V.					

Table 2: Association between the initiation of Breastfeeding and Child related variables (N = 236)					
Variables	Initiation of Breastfeeding		Total (N=236) (100%)	* P value	**Odds Ratio (95% CI)
	< 24 hours (N=133) (56.4%)	≥ 24 hours (N=103) (43.6%)			
Birth Order					
≥ 2	96 (57.5%)	71 (42.5%)	167 (100%)	0.586	1.17 (0.67-2.06)
One	37 (53.6%)	32 (46.4%)	69 (100%)		
Place of Delivery					
Hospital	107 (77.0%)	32 (23.0%)	139 (100%)	< 0.001	8.35 (4.61-15.1)
Home	26 (27.4%)	69 (72.6%)	97 (100%)		
Sex of Child					
Male	93 (66.0%)	48 (34.0%)	141 (100%)	< 0.001	2.66 (1.56-4.55)
Female	40 (42.1%)	55 (57.9%)	95 (100%)		
* Chi square test was applied, degree of freedom = 1, P value < 0.05 was considered as statistically significant.					
** Univariate regression analysis. Unadjusted Odds Ratio with 95% Confidence Interval (CI).					
N = Number of mothers included in the study.					

Table 3: Determinants of early initiation of Breastfeeding (N = 236)				
Variables	* Univariate analysis		# Multivariate analysis	
	P value	Unadjusted Odds Ratio (95% CI)	P value	Adjusted Odds Ratio (95% CI)
Education of Mother (Literate)	< 0.001	4.98 (2.83-8.74)	0.001	2.92 (1.52-5.57)
Higher Socio Economic Status	< 0.001	5.03 (2.56-9.87)	0.002	3.54 (1.62-7.76)
Hospital Delivery	< 0.001	8.35 (4.61-15.1)	< 0.001	4.49 (2.35-8.59)
Male child	< 0.001	2.66 (1.56-4.55)	0.005	2.56 (1.33-4.91)
* Univariate regression analysis.				
# Multivariate logistic regression analysis. P value < 0.05 was considered as statistically significant. Odds Ratio with 95% Confidence Interval (CI).				
N = Number of mothers included in study.				

Table 4: Association between Exclusive Breastfeeding and socio-demographic variables (N = 236)					
Variables	Exclusive Breastfeeding		Total (N=236) (100%)	* P value	**Odds Ratio (95% CI)
	≥ 6 months (N=89) (37.7%)	< 6 months (N=147) (62.3%)			
Age Group					
≥ 25 years	47 (38.2%)	76 (61.8%)	123 (100%)	0.869	1.05 (0.62-1.77)
< 25 years	42 (37.2%)	71 (62.8%)	113 (100%)		
Religion					
Hindu	80 (39.2%)	124 (60.8%)	204 (100%)	0.229	1.65 (0.73-3.74)
Muslim	9 (28.1%)	23 (71.9%)	32 (100%)		
Caste					
General	28 (43.1%)	37 (56.9%)	65 (100%)	0.294	1.37 (0.76-2.44)
OBC/SC/ST	61 (35.7%)	110 (64.3%)	171 (100%)		
Type of Family					
Nuclear	73 (38.8%)	115 (61.2%)	188 (100%)	0.483	1.27 (0.65-2.48)
Joint	16 (33.3%)	32 (66.7%)	48 (100%)		
Education of mother					
Literate	71 (49.7%)	72 (50.3%)	143 (100%)	< 0.001	4.11 (2.23-7.56)
Illiterate	18 (19.4%)	75 (80.6%)	93 (100%)		
Socioeconomic status					
Upper middle	47 (68.1%)	22 (31.9%)	69 (100%)	< 0.001	6.36 (3.44-11.8)
Lower middle	42 (25.1%)	125 (74.9%)	167 (100%)		
* Chi square test was applied, degree of freedom = 1, P value < 0.05 was considered as statistically significant.					
** Univariate regression analysis. Unadjusted Odds Ratio with 95% Confidence Interval (CI).					
N = Number of mothers included. Upper middle = Class I and II, Lower middle = Class III, IV and V.					

Table 5: Association between the Exclusive Breastfeeding and child related variables (N = 236)					
Variables	Exclusive Breastfeeding		Total (N=236) (100%)	* P value	**Odds Ratio (95% CI)
	≥ 6 months (N=89) (37.7%)	< 6 months (N=147) (62.3%)			
Birth Order					
≥ 2	65 (38.9%)	102 (61.1%)	167 (100%)	0.551	1.19 (0.67-2.14)
One	24 (34.8%)	45 (65.2%)	69 (100%)		
Place of Delivery					
Hospital	75 (54.0%)	64 (46.0%)	139 (100%)	< 0.001	6.57 (3.41-12.7)
Home	14 (14.4%)	83 (85.6%)	97 (100%)		
Sex of Child					
Male	63 (44.7%)	78 (55.3%)	141 (100%)	0.007	2.14 (1.22-3.75)
Female	26 (27.4%)	69 (72.6%)	95 (100%)		
Initiation of Breastfeeding					
< 24 hours	83 (62.4%)	50 (37.6%)	133 (100%)	< 0.001	26.84 (10.9-65.7)
≥ 24 hours	6 (5.8%)	97 (94.2%)	103 (100%)		
* Chi square test was applied, degree of freedom = 1, P value < 0.05 was considered as statistically significant.					
** Univariate regression analysis. Unadjusted Odds Ratio with 95% Confidence Interval (CI).					
N = Number of mothers included in the study.					

Table 6: Determinants of Exclusive Breastfeeding (N = 236)				
Variables	* Univariate analysis		# Multivariate analysis	
	P value	Unadjusted Odds Ratio (95% CI)	P value	Adjusted Odds Ratio (95% CI)
Education of Mother (Literate)	< 0.001	4.11 (2.23-7.56)	0.024	2.23 (1.11-4.49)
Higher Socio Economic Status	< 0.001	6.36 (3.44-11.8)	< 0.001	4.88 (2.45-9.70)
Hospital Delivery	< 0.001	6.57 (3.41-12.7)	0.001	3.32 (1.60-6.87)
Male Child	0.007	2.14 (1.22-3.75)	0.024	2.18 (1.11-4.27)
* Univariate regression analysis.				
# Multivariate logistic regression analysis. P value < 0.05 was considered as statistically significant. Odds Ratio with 95% Confidence Interval (CI).				
N = Number of mothers included in study.				

Discussion

In our study 56.4% of the mothers had initiated breastfeeding within 24 hours of delivery. In a study by Vyas et. al., 47.2% of the mothers had initiated breastfeeding to their infants within 24 hours.^[13] Similarly, another study done by Kumar et. al., in Varanasi reported that 46% of the mothers had initiated breastfeeding to their child within 24 hours of birth.^[14]

In the present study early initiation of breastfeeding was found in those children who were of birth order 2 or more, those delivered in hospitals, and in male infants. Multivariate logistic regression analysis showed mothers who were literate, having higher socioeconomic status, who delivered in hospital and had a male child had significant association with initiation of breastfeeding within 24 hours. In another study a similar association was found between mother's education and breastfeeding initiation within 24hrs of birth. Women who were illiterate were found to be significantly less likely to have initiated breastfeeding within a day than literate women. Similarly the child delivered at hospital were significantly more likely to have received breast milk within 24 hrs than those delivered at home.^[14]

In our study 37.7% of infants were exclusively breastfed for 6 months and above. Medhi et al. who studied Assam tea garden workers reported the prevalence of exclusive breastfeeding to be 69.35% up to six months of age.^[15] Similarly, C.R. Banapurmath et al. in Davanagere district showed

that 60% of infants were exclusively breastfed till 4–6 months' age.^[16] A meta-analysis by Arun Gupta and Y. P. Gupta showed that 26% of children in the age group of 4-6 months were exclusively breastfed.^[17] In another study done in Gujarat it was found that 37% of the infants were exclusively breastfed.^[18] In another study done by Radhakrishnan and Balamuruga in Tamil Nadu, it was found that exclusive breast feeding for the first six months was seen in 34% of infants.^[19]

Some studies have reported high prevalence of exclusive breastfeeding from Punjab (57.7%) and Delhi (63.5%).^[20,21] Radhakrishnan and Balamuruga in their study done in Tamil Nadu, inferred that the factors influencing breastfeeding were parental education, number of deliveries by the mother and the maternal age.^[19]

Conclusion and recommendations

Our study shows that early initiation of breastfeeding and the duration of exclusive breast feeding is low. There is a positive significant association between early initiation of breast feeding and duration of exclusive breast feeding. Though many National Health Programs were working for the improvement of mother and child health the prevalence of exclusive breastfeeding has not yet improved. Therefore, great emphasis should be given on breastfeeding intervention programs during antenatal and postnatal check-ups. Breastfeeding intervention programmes should have an effective mass education component to promote exclusive breastfeeding.

References

1. WHO (World Health Organization). Breastfeeding. http://www.who.int/maternal_child_adolescent/topics/child/nutrition/breastfeeding/en/. Accessed 26 Aug, 2015
2. WHO (World Health Organization). Evidence for the ten steps to successful breastfeeding. Geneva. 1998; 21 – 30.
3. MWCD (Ministry of Women and Child Development: Food and Nutrition Board). Government of India. National Guidelines on Infant and Young Child feeding. 2006; 14 – 15.

4. Iskandar MB, Costello C, Nasution Y. Initiation and Duration of Breast feeding in Indonesia. *Asia Pac Popul J* 1990; 5:89-112.
5. Bautista LE. Factors associated with initiation of breast feeding in the Dominican Republic. *Rev Panam Salud Publica* 1997; 1:200-7.
6. Arifeen S, Black RE, Antelman G, Baqui A, Caulfield L, Becker S. Exclusive breast-feeding reduces acute respiratory infection and diarrhea deaths among infants in Dhaka slums. *Pediatrics* 2001; 108:E67.
7. Dewey KG, Cohen RJ, Brown KH, Rivera LL. Effects of exclusive breast-feeding for four versus six months on maternal nutritional status and infant motor development: Results of two randomized trials in Honduras. *J Nutr* 2001; 131:262-7.
8. Chudasama RK, Amin CD, Parikh YN. Prevalence of exclusive breastfeeding and its determinants in first 6 months of life: A prospective study. *Online J Health Allied Scs.* 2009; 8(1):3.
9. MHFW (Ministry of Health and Family Welfare): Key Findings. National Family Health Survey 3, India. 2007; 205 – 207.
10. Aruldas K, Khan ME and Hazra A. Increasing early and exclusive breastfeeding in rural Uttar Pradesh. *The Journal of Family Welfare.* 2010; 56 (Spl.Issue-2010):43 – 49.
11. Mullany, LC, Katz, J, Li, YM, Khatri, SK, LeClerq, SC, Darmstadt, GL and Tielsch, J M. Breastfeeding patterns, time to initiation and mortality risk among newborns in southern Nepal, *Journal of Nutrition.* 2008; 138: 599-603.
12. Mangal A, Kumar V, Panesar S, Talwar R, Raut D, Singh S. Updated BG Prasad socioeconomic classification, 2014: A commentary. *Indian J Public Health* 2015; 59:42-4.
13. Vyas S, Sharma P, Kandpal SD, Semwal J, Srivastava A, Nautiyal V. A community based study on breastfeeding practices in a rural area of Uttarakhand. *National Journal of Community Medicine* 2012; 3:283 – 7.
14. Kumar A, Verma P, Singh VS, Kansal S. Breastfeeding practices in rural Eastern Uttar Pradesh: A descriptive cross-sectional study. *Indian J. Prev. Soc. Med* 2011; 42(2): 193 – 8.
15. Medhi GK, Mahanta J. Breastfeeding, weaning practices and nutritional status of infants of tea garden workers of Assam. *Indian Pediatr* 2004;41:1277-9.
16. Banapurmath CR, Sobti R. Status of infant and young child feeding: Davanagere (state of Karnataka). *Bulletin of Breastfeeding Promotion Network of India* 2003:16-8.
17. Gupta A, Gupta YP. Status of infant and young child feeding in 49 districts (98 blocks) of India. A National Report of the Quantitative Study. *Breastfeeding Promotion Network of India (BPNI).* 2003; 14-8.
18. Chudasama RK, Patel PC, Kavishwar AB. Determinants of exclusive breastfeeding in south Gujarat region of India. *J Clin Med Res* 2009; 1:102-8.
19. Radhakrishnan S, Balamuruga SS. Prevalence of exclusive breastfeeding practices among rural women in Tamil Nadu. *Int J Health Allied Sci* 2012; 1:64-7.
20. Benjamin AI, Zachariah P. Nutritional status and feeding practices in under-3 years old children in the rural community in Ludhiana, Punjab. *Health and Population- Perspectives and Issues.* 1993; 16 (1&2): 3- 21.
21. Aggarwal A, Verma S, Faridi M.M.A. Complementary feeding-Reasons for Inappropriateness in Timing, Quantity & Consistency. *Indian Journal of Pediatrics.* 2008; 75: 49-53.