

Original Research Article

Factors associated with pre-lacteal feeding practices in rural areas of Kamrup district, AssamRana Kakati¹, Jutika Ojah², Chandana Deka³¹Department of Community Medicine, Jorhat Medical College, Jorhat, Assam²Department of Community Medicine, Gauhati Medical College, Gauhati, Assam³Department of Community Medicine, Jorhat Medical College, Jorhat, Assam***Corresponding author**

Dr. Rana Kakati

Email: rkrana32@gmail.com

Abstract: India is a country with low exclusive breast feeding practices and introduction of pre-lacteal feeding is a known barrier for exclusive breast feeding practices. However, knowledge about the factors associated with pre-lacteal feeding is low. The objective of the current study was to assess the prevalence and factors associated with pre-lacteal feeding practices among mothers having children 0-12 months in rural areas of Kamrup, Assam. A community based cross-sectional study was conducted from 1st February 2014 to 31st July 2014. A total number of 540 mothers took part in this study. Cluster random sampling was used for selecting the villages. Predesigned semi structured schedule was used to interview mothers regarding pre lacteal feeding practices. Among 540 mothers, 149 (27.5%) had given pre lacteal feeds to their infants. Sugar water was the most common form of (49%) pre lacteal feeds followed by plain water (37.5%). Elder's advices were found to be the most common (34.8%) reason given for the pre lacteal feeding practices. The association between various determinants and the pre lacteal feeding practices were found to be significant ($P < 0.05$). Pre lacteal feeding practices are still major problem in rural India and it is significantly associated with educational status, socioeconomic status, place of delivery and maternal knowledge of IYCF. Therefore, emphasis should be given to improve mothers knowledge regarding IYCF practices and encouragement if institutional delivery. Special attention should be given to mothers with lower socio-economic status to increase their knowledge about better IYCF practices.

Keywords: factor, pre-lacteal feeding, determinants, practices.

INTRODUCTION

Child malnutrition status is an essential component of a country's overall human development. Inappropriate feeding practices are linked with the problems of malnutrition, overweight, obesity that may develop beyond 2 years. India is home to the largest number of underweight and stunted children in the world. Approximately 30% of children in India are born with Low Birth Weight (LBW) and rest of the damage happens during the following two years of life due to faulty feeding practices, infections etc [1]. The WHO and UNICEF have developed the Global Strategy for Infant and Young Child Feeding (IYCF), which recognizes appropriate infant feeding practices to be crucial for improving nutritional status and decreasing infant mortality in all countries. WHO offers three recommendations for IYCF practices for children:

Continued breastfeeding or feeding with appropriate calcium-rich foods if not breastfed; feeding solid or semi-solid food for a minimum number of times per day according to age and breastfeeding status; and including foods from a minimum number of food groups per day according to breastfeeding status [2].

Unfortunately, the pre-lacteal feeding practices are common in our society due to different customs and religious believes. It not only leads to discarding of colostrum, but might deny the success of breast feeding and paves way for infections [3, 4]. With delay in initiation of breast feeding, a marked increase in neonatal mortality has been reported earlier from different parts of the world [5]. The practice of feeding new born babies other than breast milk is a common cultural practice [6]. When the babies are given such

fluids, even before lactation has been initiated, it is called pre-lacteal feeding, and the fluids are called pre-lacteal feeds [7]. From the various studies revealed that the effects of pre-lacteal feeding in babies range from lactation failure, shortening of the duration of breast feeding to the incidence of diarrhoea [8]. Honey, sugar water, ghee or other herbal preparation are used as pre lacteal feeds in India.

The concept of baby friendly hospital initiative (BFHI) was launched globally in 1991 by UNICEF and WHO for promoting and supporting breast feeding [9]. In spite of detrimental effects on health of the neonates, still pre lacteal feeding practices are widely prevalent in our country. The perception of mothers due to various factors like Customs, religious beliefs and elder's advice plays an important role in culturing of bad habits of pre lacteal feeding practices. In this background, the present study aimed to find out the prevalence of pre lacteal feeding and the factors associated with pre lacteal feeding practices in rural area of Kamrup, Assam.

METHODS

It was a community based cross sectional study on factors associated with the pre lacteal feeding practices among mothers of infants (0-12 months) in rural areas (Villages under Rani Community Development Block) Kamrup district, Assam, India. The Rani Community Development Block consists of population of 94,728 as per Census 2011. Child sex ratio estimated to be 1.15. The population pattern of Block is mixed one accounting 48% of tribal, which again comprises of the Bodos, the Rabhas and the Garos. About 80% of the population is Hindu while rest of the population is Muslim and Christians. Study was conducted during February – July 2014.

Inclusion criteria

- Mothers of the Infants (both males and females) residing in selected villages under the Rani Community Development were interviewed.
- Those who were living in this area for >6 months
- Mothers who gave consent for the study

Exclusion criteria

- Mothers who did not give consent

The study population consisted of infants in the households of randomly selected villages under the

Rani Community Development Block, Kamrup district, Assam. The sample size was calculated by taking the prevalence of 40% [10] of pre lacteal feeding practices with 95% confidence interval with the absolute errors (L) of 6% by using the formula $n=4pq/L^2$. Thus, the size of the sample came around 266 and was rounded up to 270. Since I have done the cluster random sampling so as to get the required sample size we have to multiply sample size (N) with design effect of 2. Therefore, minimum sample size was required was 540.

Permission to conduct the study was obtained from the Institutional Ethics Committee, Gauhati Medical College, Assam. As per Census 2011, Rani Community Development Block consists of 26 Sub-centres. Out of 26 Sub-centres, 10 Sub-centres were selected randomly and out of 10 Sub-centres 30 villages (3 villages from each sub-centre) were selected through cluster random sampling using the method of probability proportional to size. From each cluster 18 infants were selected to get the sample size of 540 i.e. $30 \times 18 = 540$ from the selected villages using cluster sampling method who have fulfilled our inclusion criteria.

The study was conducted in each village by house to house visits. If one house was found locked the adjacent house was approached and in case of families with more than one infants only younger one was selected as our study population. Age of infants was ascertained from birth certificate, hospital discharge certificate, mother and child protection card (MCPC) and local event calendar prepared for this purpose. The data were collected with the help of both open ended and closed ended proforma, dietary history of the infant. Parents/Guardians especially mothers were interviewed and all the information were recorded. All the mothers were briefed about the objective, purpose and nature of the study as well as contents of the proforma in local language and active help and cooperation were sought from them. Data were analyzed and presented in suitable tables; chi-square test was applied to test statistical significance where ever necessary. Data were collected and entered in Microsoft Office Excel and analyzed by using SPSS- Version 18. Criteria of significance used in the study were $p < 0.05$.

RESULTS

Out of 540 mothers 27.5% of mothers had given pre lacteal feeding and exclusive breast feeding were practiced by majority (62.4%) of mothers.

Table 1: Socio demographic profile of study population

Socio demographic profile	No. of infants (N=540) (%)
Age of the mothers (years)	
<18	35 (6.4%)
18-25	222 (41%)
25-35	197 (36.4%)
>35	86 (16%)
Religion	
Hindu	446 (82.5%)
Muslim	84(15.5%)
Others	10 (2%)
Castes	
General	55 (10%)
OBC	90 (16.6%)
SC	15 (27.7%)
ST	380 (70.3%)
Type of Family	
Nuclear	378 (70%)
Joint	162 (30%)
Educational status of mothers	
Illiterate	33 (6%)
Primary school	101 (18.7%)
Middle school	188 (34.8%)
High school	108 (20%)
Higher secondary	77 (14.2%)
Graduate	33 (6%)
Occupational status of mothers	
Housewife	379 (70%)
Cultivator	57 (10.5%)
Daily wage earner	41 (7.5%)
Service	42 (7.7%)
Shop-keeper	21 (3.8%)
Socioeconomic status (Per capita income in Rs.)	
Upper high(>=6186)	13 (2.4%)
High(3093-6185)	21 (3.8%)
Upper middle(1856-3092)	169 (31.2%)
Lower middle(928-1855)	239 (44.2%)
Poor(<927)	98 (18%)
Place of delivery	
Govt. institution	422 (78%)
Private institution	79 (14.6%)
Home	39 (7.2%)
Mode of delivery	
Normal	398 (73.7%)
CS	113 (21%)
Others	29 (5.3%)
Parity	
<2	169 (31%)
>2	371 (69%)
Sex of the infants	
Male	355 (65.7%)
Female	185(34.3%)

As shown in Table – 1; Out of 540 mothers with their infants, all were included as study population making the response rate 100%. Majority (82.5%) of mothers were Hindus and most of them (70.5%) were belonged to ST categories. 41% of the mothers were in the age group of 18-25 years followed by 36.4% were in the age group of 25-35 years. 34.8% of mothers had attended Middle school followed by 20% had attended up to high school. Majority of mothers (70%) were housewives followed by 10.5% were cultivators. Most of the mothers (44.2%) were belonged to lower middle class family followed by 31.2% were belonged upper middle class family. Majority of the infants (78%) were delivered at govt. hospital followed by 14.6% were delivered at private institutions and 7.2% were delivered at home. Most (56.5%) of mothers had more than two children. Majority (73%) of infants were delivered normally followed by 21% were delivered by CS. out of 540 infants 65.7% were males. As shown in Table – 2; Out of 540 mothers, 27.5% of mothers had given pre lacteal feeding to their infants. As shown in

Table – 3 ; when reasons was asked to the mothers regarding introduction of pre lacteal feeds, most of the mothers (34.8%) were replied that it was because of elder’s advice, 26.8% of mothers replied that milk was not secreted enough followed by 25.5% of mothers had given pre lacteal feeding as because of religious beliefs. As shown in Table – 4; 49% of mothers had introduced sugar water followed by 37.5% of mothers had introduced plain water and 13.4% had introduced honey as pre lacteal feeding.

As shown in Table – 5; when they were asked about the mode pre lacteal feeding, majority i.e., 95% of mothers had replied that they used spoon for the same followed by wet cotton wicks by 6% of mothers. As shown in Table – 6; Pre lacteal feeding practices was significantly associated with age of the mothers at marriage, Castes, families, educational status, occupational status, socioeconomic status of the mothers and place of delivery and mode of delivery (P<0.05) .

Table 2: Distribution infants according to the practice of pre lacteal feeding

Pre lacteal feeds	No. of infants (N=540) (%)
Given	149 (27.5%)
Not given	391 (72.5%)
Total	540 (100%)

Table 3: Distribution of infants according to the reasons given for pre lacteal feeding

Reasons given for pre lacteal feeding	No. of infants (N=149) (%)
Milk was not secreted	40 (26.8%)
Religious beliefs	38 (25.5%)
Elder’s advice	52 (34.8%)
Others	19 (12.7%)

Others includes flat or inverted nipple, retracted nipple, severe weakness of the mother following delivery.

Table 4: Distribution of infants according to the type of pre-lacteal feeds given

Pre lacteal feeds given	No. of infants (N= 149) (%)
Plain water	56 (37.5%)
Sugar water	73 (49%)
Honey	20 (13.4%)
Total	149 (100%)

Table 5: Distribution of infants according to the mode of pre-lacteal feeding:

Mode of pre lacteal feedings	No. of infants (N=149) (%)
Spoon	140 (94%)
Wet cotton wick	09 (6%)
Finger	Nil
Total	149 (100%)

Table -6: Pre lacteal feeding practices according to the socio demographic profile of mothers

Socio demographic profile	Pre lacteal feeding practices		P value
	Given (N = 149)	Not given (N= 391)	
Age of the mothers (years)			DF = 3 0.0007
<18 (35)	17 (48.5%)	18 (51.5%)	
18-25 (222)	48 (21.6%)	174 (78.4%)	
25-35 (197)	66 (33.5%)	131 (66.5%)	
>35 (86)	18 (21%)	68 (79%)	
Religion			DF = 2 0.59
Hindu (446)	111 (24.8%)	335 (75.2%)	
Muslim (84)	33 (39.2%)	51(60%)	
Others (10)	5 (50%)	5 (50%)	
Castes			DF = 3 0.01
General (55)	19 (34.5%)	36 (65.5%)	
OBC (90)	20 (22.2%)	70 (77.8%)	
SC (15)	9 (60%)	6 (40%)	
ST (380)	101 (26.5%)	279 (73.4%)	
Type of Family			DF = 1 0.001
Nuclear (378)	89 (23.5%)	289 (76.5%)	
Joint (162)	60 (37%)	102 (63%)	
Educational status of mothers			DF = 5 0.0001
Illiterate (33)	20 (60.6%)	11 (39.4%)	
Primary school (101)	54 (53.4%)	47 (46.6%)	
Middle school (188)	31 (16.4%)	157 (83.6%)	
High school (108)	23 (21.2%)	85 (78.8%)	
Higher secondary (77)	10 (13%)	67 (77%)	
Graduate (33)	11 (33.3%)	22 (66.7%)	
Occupational status of mothers			DF=4 0.0001
Housewives(379)	64 (16.8%)	315 (83.2%)	
Cultivator (57)	32 (56%)	25 (44%)	
Daily wage earner (41)	21 (51.2%)	20 (49.8%)	
Service (42)	22 (52.3%)	20 (47.7%)	
Shop-keeper (21)	10 (47.6%)	11 (52.3%)	
Socioeconomic status (Per capita income in Rs.)			DF=4 0.0001
Upper high(>=6186) (13)	6 (46%)	7 (54%)	
High(3093-6185) (21)	11 (52.3%)	10 (47.7%)	
Upper middle(1856-3092) (169)	27 (16%)	142 (84%)	
Lower middle(928-1855) (239)	46 (19.2%)	193 (80.8%)	
Poor(<927) (98)	59 (62%)	39 (38%)	
Place of delivery			DF=2 0.0001
Govt. institution (422)	74 (17.5%)	348 (82.5%)	
Private institution (79)	51 (64.5%)	28 (35.5%)	
Home (39)	24 (61.5%)	15 (38.5%)	
Mode of delivery			DF=2 0.0001
Normal (398)	75 (18.8%)	323 (81.2%)	
CS (113)	55 (48.6%)	58 (51.4%)	
Others (29)	19 (65.5%)	10 (34.5%)	
Parity			DF = 1 0.0001
<2 (169)	73 (43%)	96 (57%)	
>2 (371)	76 (20.4%)	295 (79.6%)	

DISCUSSION

The present study was conducted on Pre lacteal feeding practices and its determinants in rural areas of Kamrup district, Assam. Out of 540 mothers in the study, 27.5% of mothers had given Pre lacteal feeds to their infants. On the contrary, Aswini S in 2014 [11] in a similar study which revealed that pre-lacteal feeds were given by almost 57.1% mothers. Qiu L in 2012 [12] in a similar study revealed that 39% of mothers gave pre-lacteal feeds. Meshram II in 2012 [13] in a study in Andhra Pradesh revealed that 41% mothers gave pre-lacteal feeds to their infants. Mukhapadhyay DK in 2013 [14] in a study in Bankura town, in West Bengal revealed that pre-lacteal feeding was received by 27.1% children of 0-5 months and 25.4% children of 6-23 months. Khan AM in 2012 [15] found 38% (142/374) of mothers gave pre-lacteal feeds. NFHS-3 [16] revealed 59.8% mothers gave pre-lacteal feeds to their children which was higher as compared to current study. Out of 149 mothers who had given Pre lacteal feeds most (49%) had given sugar water as Pre lacteal feeds followed by plain water (37.5%) and honey (13.4%). On the contrary, Shrivastava P in 2013 [17] in a study in West Bengal found that 23.2% of babies received pre-lacteal feeds in the form of honey. Kalita D in 2007 [18] found honey as the most commonly used pre-lacteal feed followed by 13.1% sugar water. Mahmood SE in 2012 [19] in a study in rural population in North India found that 'Ghutti' i.e., water mixed with honey and herbs (42.9%), boiled water (21.4%), tea (21.4%) and animal milk (14.3%) were commonly used as pre-lacteal feeds. Roy S in 2009 [20] found that 29.16% (35/120) received pre-lacteal feeds in the form of water, infant milk formula, cow milk and honey. Dasgupta A in 2014 [21] found that 31.4% received pre-lacteal feeds in the form of water and honey. Out of 149 infants examined, majority (94%) had given pre lacteal feeds with spoon followed by wet cotton wicks (6%). Out of 149 mothers, 34.8% of mothers sought the reason for pre-lacteal feeding practices were elder's advice followed by 26.8% milk was not secreted adequate enough. Mahmood SE in 2012 [19] in a study in rural population in North India found that out of 155 mothers 32.8% of mothers reasons sought for pre-lacteal feeding practices were elder's advice followed by 22% milk was not secreted adequate enough. Roy S in 2009 [20] found that 18.3% (22/120) of mothers received pre-lacteal feeds as because milk was not secreted adequate enough.

Similar to other studies which saw high prevalence of prelacteal feed among poor section, the present study also found that the extent of prelacteal feeding increases with better socioeconomic condition

[22, 23]. However, a study from Jammu and Kashmir contradicts this view [24]. It may happen that well to do families have easy access to traditional alternates which indirectly influences their choice of prelacteal feeding. It is evident from our study that education, has an important role in deciding the behaviour in regard to prelacteal feeding and it was found to be significant which was similar to other studies [23, 25, 26]. This may be the reason for apparent association between literacy and prelacteal feeding. However, a study from Honduras also found the same tendency among literate mothers [27]. Higher rate of prelacteal feeding was also seen among mothers who delivered at home. The finding is supported by previous studies [23, 24, 28, 29]. This group of mothers could be considered as those who, in general, lack not only touch with health workers as well as knowledge of newborn care.

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DECLARATIONS

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REFERENCES

1. NFHS-1. Available from: <http://www.nfhsindia.org/india>
2. Khan AM, Kayina P, Agrawal P, Gupta A, Kannan AT. Infant and young child feeding practices among mothers attending an urban health center in East Delhi. *Ian J Public Health*. 2012 Oct-Dec; 56(4):301-4.
3. Ludvigsson JF. Breastfeeding intentions, patterns, and determinants in infants visiting hospitals in La Paz, Bolivia. *BMC pediatrics*. 2003 Jun 22; 3(1):5.
4. Pérez-Escamilla R, Segura-Millán S, Canahuati J, Allen H. Prelacteal feeds are negatively associated with breast-feeding outcomes in Honduras. *The Journal of nutrition*. 1996 Nov; 126(11):2765-73.
5. Edmond KM, Kirkwood BR, Amenga-Etego S, Owusu-Agyei S, Hurt LS. Effect of early infant feeding practices on infection-specific neonatal

- mortality: an investigation of the causal links with observational data from rural Ghana. *The American journal of clinical nutrition*. 2007 Oct 1; 86(4):1126-31.
6. Gosvami A. Analytical study of prevalence and traditional prelacteal feeding practices and their relevance. *Indian J. Prev. Soc. MED.* 2009; 40(4):219-24.
 7. Meera Sadagopal. *Her Healing Heritage: Study conducted in 7 states of India through LPSS & CHETNA*, Ahmedabad, 1986
 8. Punia S, Chhikara S, Sangwan S. Infant feeding and weaning practices in selected cultural zones of Haryana. *Ind J Nutr Dietet*, 1997; 34: 102-105.
 9. Saadeh R. Global overview of the WHO/UNICEF baby-friendly hospital initiative. *International Child Health*. 1996; 7:31-4.
 10. Roy MP, Mohan U, Singh SK, Singh VK, Shrivastava AK. Determinants of Pre lacteal feeding in Rural Northern India. *Int. J Prev.Med.*2014 May; 5(5):658-663.
 11. Ashwini S, Kaitti SM, Mallapur MD. Comparison of breast feeding practices among urban and rural mothers in field practice areas of the department of Community Medicine, JNM College, Belgaun : A cross-sectional study.2014 Feb ;4(1):120-124.
 12. Qiu L, Zhao Y, Binns CW, Lee AH, Xie X. A cohort study of infant feeding practices in city, suburban and rural areas in Zhejiang Province, PR China. *International breastfeeding journal*. 2008 Mar 3; 3(1):4.
 13. Meshram II, Laxmaiah A, Venkaiah K, Brahmam GN. Impact of feeding and breastfeeding practices on the nutritional status of infants in a district of Andhra Pradesh, India.
 14. Mukhopadhyay DK, Sinhabau A, Saren AB, Biswas AB. Association of child feeding practices with nutritional status of fewer than two slum dwelling children: A community based study from West Bengal, *Indian J Public Health*. 2013 July-Sept; 57(3):169-72.
 15. Khan AM, Kayrina P, Agarwal P, Gupta A, Kannan AT. Infant and young child feeding practices among mothers attending an urban health centre in East Delhi. *Indian J Public Health*. 2012 Oct-Dec; 56(4):301-4.
 16. National family Health Survey (NFHS-3),2005-06: India: Volume I. Mumbai: International Institute for Population Sciences (IIPS);2007
 17. Shrivastava P, Saha I, Nandy S. A study on feeding practice of less than 6 months infants attending the nutrition clinic of a tertiary care hospital of West Bengal, India. *Epidemiology, Biostatistics and Public Health*. 2013 Jun 18; 10(4).
 18. Kalita D. Child care practices of mothers having 1 - 5 years child in Sonapur, Kamrup District, Assam. Thesis submitted to Gauhati University for MD degree of Community Medicine; 2007.
 19. Mahmood, SE, Srivastava P, Shrotiva VP, Mishra P. Infant feeding practices in rural population of North India. *Journal of Family and Community Medicine*. 2012May; 19(2):130-5.
 20. Roy S, Dasgupta A, Pal Bobby. Feeding practices of children in urban slum of Kolkata. *Indian Journal of Community Medicine*, 2009 Oct; 34(44):362-3.
 21. Dasgupta A, Naiya S, Ray S, Ghosal A, Pravakar R, Ram PS. Assessment of infant and young child feeding practices among the mothers in a slum area of Kolkata: A cross-sectional study. *Int J Biol Med Res*. 2014; 5(1):3855-61.
 22. Mumbai: IIPS; International Institute for Population Sciences (IIPS) and Macro International. 2008. National Family Health Survey (NFHS-3), India, 2005-06: Uttar Pradesh.
 23. Mumbai: IIPS; 2007. International Institute for Population Sciences (IIPS) and Macro International, National Family Health Survey (NFHS-3), 2005-06: India: Volume I.
 24. Raina SK, Mengi V, Singh G. Determinants of prelacteal feeding among infants of RS Pura block of Jammu and Kashmir, India. *Journal of family medicine and primary care*. 2012 Jan; 1(1):27.
 25. Haque MJ, Rahman MM, Sarker SK, Ali MA, Fakir M, Rahman MM, Islam MM. Infant feeding practice by the rural mothers of Dinajpur district. *Dinajpur Med Col J*. 2010 Jan; 3(1):35-8.
 26. Raval D, Jankar D, Singh M. A study of breast feeding practices among infants living in slums of Bhavnagar city, Gujarat, India. *Religion*. 2011; 78(5.44):0-19.
 27. Pérez-Escamilla R, Segura-Millán S, Canahuati J, Allen H. Prelacteal feeds are negatively associated with breast-feeding outcomes in Honduras. *The Journal of nutrition*. 1996 Nov; 126(11):2765-73.
 28. Kumar D, Agarwal N, Swami H. Socio-demographic correlates of breast-feeding in urban slums of Chandigarh. *Indian journal of medical sciences*. 2006 Nov 1; 60(11):461.
 29. Raval D, Jankar D, Singh M. A study of breast feeding practices among infants living in slums of Bhavnagar city, Gujarat, India. *Religion*. 2011; 78(5.44):0-19.