



Timely Initiation of Breast Feeding and Its Determinants Among Mothers in Rural Areas of Kamrup District, Assam, India

KEYWORDS

initiation, breast feeding, determinants, IYCF, pre-lacteal feeds, practices.

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ABSTRACT *Initiation of breastfeeding is link with the socio-cultural factors that may either enhance or inhibit the optimal practices. Though government of India developed National Infant and Young Child Feeding (IYCF) Guideline, there is a little information on the practice of timely initiation of breast feeding. The objective of this study is to determine the prevalence timely initiation of breastfeeding and its determinants among mothers in rural areas of Kamrup, Assam. A cross-sectional study was conducted from 1st February 2015 to 31st July 2015. The sample size was calculated as 600 using the formula and assuming an expected prevalence for timely initiation of breast feeding of 50%. Out of 600 mothers, 56% were initiated breastfeeding within one hour of birth. Among 264 mothers, 32.5% of mothers reason given for delayed initiation of breast feeding were neighbours advised/elders advised. The association between various determinants and timely initiation of breastfeeding was found to be significant ($P < 0.05$). Timely initiation of breast feeding practices in the present study was found to be low.*

Introduction:

Proper nutrition of infants leading to adequate growth and good health is the essential foundation of human development. Appropriate feeding practice means early initiation of breast feeding within 1 hour of delivery, no pre-lacteal feeding, no discarding of colostrum, and giving only breast milk till 6 months of age.⁽¹⁾ Timely initiation of breastfeeding is defined as putting the newborn to the breast within one hour of birth. Timely initiation of breastfeeding is not only the easiest, cost effective and most successful intervention; it also tops the table of life-saving interventions for the health of the newborn.⁽²⁻⁴⁾ 22% of neonatal deaths could be prevented, if all infants are put to the breast within the first hour of birth.⁽⁵⁾

National prevalence initiation of breast feeding was documented to be low with wide regional difference. In India, early initiation of breast feeding is rejected in about one third of birth.⁽⁶⁻⁷⁾ According to Annual Health Survey 2011-2012 Fact Sheet, Assam prevalence of initiation of breast feeding within one hour of birth in Kamrup district of Assam is 76.4%.⁽⁸⁾

To overcome the various problems of breastfeeding practices, the govt. of India developed infant and young child feeding (IYCF) guidelines giving appropriate emphasis to key messages on timely initiation of breastfeeding and raising the awareness in both rural and urban areas regarding the advantages of exclusive breastfeeding and timely introduction of complementary feeding through IEC/BCC activities as well as through NGO's and even the government machinery.⁽⁹⁾ However, these efforts are not based on systematic evidence on the level of existing breast feeding practices which might be due to the lack of data from studies on timely initiation of breast feeding.

Moreover such studies are almost lacking in this part of the country. So, there lies a wide scope to find out the determinants of faulty feeding practices. The present study explore the underlying issues related to prevalence of timely initiation of breastfeeding and its determinants among mothers in rural areas of Kamrup district, Assam.

Methodology

It is a community based cross sectional study on initiation of breast feeding and its determinants among mothers in rural areas (Villages under Rani Community Development Block) Kamrup district, Assam. The block consists of population of 94,728 as per **Census 2011**.⁽¹⁰⁾ 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.

All the infants in the age group of 0-12 months of age were the study population. Only one infant has been selected from each house hold and mothers of each child were interviewed.

Inclusion Criteria:

Infants ,both males and females residing in selected villages under the Rani Community Development Block, Kamrup district, Assam were interviewed.

Exclusion Criteria:

Infants with congenital anomalies and metabolic disorders influencing growth and who does not give consent for study.

The sample size for the study was determined using single population proportion formula $N = 4pq/P^2$, assuming an expected prevalence for timely initiation of breast feeding of $P = 50\%$ with a finite population correction and relative precession of 10% of P and design effect of 1.5. Sample size was calculated as 600. 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 20 villages (2 villages from each sub-centre) were selected through cluster random sampling using the method of probability proportional to size. From each cluster 30 infants were selected to get the sample size of 600 i.e., $20 \times 30 = 600$ using cluster sampling method who fulfilled our inclusion criteria. If, the required number of sample units is not met in that village or ward,

then the adjacent village or ward was taken to get the remaining sample units.

The study was conducted in each village by house to house visits and if one house is found locked the adjacent house is approached and in case of families with more than one infants only younger one was selected as our study population. Age of child 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 schedule. Parents/Guardians especially mothers were interviewed and all the information were recorded. Permission to conduct the study was obtained from the Institutional Ethics Committee, Gauhati Medical College, Assam. All the mothers were briefed about the objective, purpose and nature of the study as well as contents of the schedule in local language and active help and cooperation were sought from them. Data was analyzed and presented in suitable tables; chi-square test was applied to test statistical significance where ever necessary. Data was 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 :

Table – 1

Socio-demographic profile of study population

Socio-demographic profile	N (%)
Age of mothers (years)	
<15	50 (8.3)
15-19	95 (15.8)
20-24	275 (45.8)
25-29	129 (21.5)
>30	51 (8.5)
Religion	
Hindu	490(81.6)
Muslim	90(15)
Others	20(3.4)
Castes	
General	90 (15)
OBC	189(31.5)
SC	66(11)
ST	255(42.5)
Type of Family	
Nuclear	330 (55)
Joint	270(45)
Educational status of the mothers	
Illiterate	175(29.1)
Primary school	95(15.8)
Middle school	160(26.6)
High school	51(8.5)
Higher secondary school	71(11.8)
Graduate	48(8)
Occupational status of father	
Cultivator	315(52.5)
Daily wage earner	140(23.3)
Service holder	65(10.8)
Shop-keeper	50(8.3)
Others	30(5)
Occupational status of mother	
House wives	425(64.6)
Cultivator	33(5.5)
Daily wage earner	19(3.1)
Service	81(13.5)
Shop-keeper	42(7)
Socioeconomic status (Per capita income in Rs.)	

Upper high (5156 & above)	55(9.1)
High (2578-5155)	100(16)
Upper middle (1547 – 2577)	120(20)
Lower middle (773 – 2546)	195(32.5)
Poor (<773)	130(21.6)
Place of delivery	
Govt. Institution	470(78.4)
Private Institution	65(10.8)
Home	65(10.8)
Type of delivery	
Normal	458(76.8)
CS	110(18.3)
Others	32(5.3)
Parity	
<2	261(43.5)
>2	339(56.5)
Sex of infants	
Male	330(55)
Female	270(45)
Age of infants	
<6 months	229(38.1)
>6 months	371(61.9)

Table - 2

Distribution of infants in rural areas according to time of (in hours) of initiation of Breast feeding after birth

Time of initiation of Breast Feeding (hours)	No. of infants (N=600) (%)
< 1 hour of life	336(56)
1-6 hours of life	165(27.5)
6 – 24 hours of life	80(13.3)
>24 hours of life	19(3.2)
Not given at all	Nil
Total	600

Table – 3

Distribution of infants in rural areas according to the reasons behind the delayed initiation of breast feeding

Reason of delayed initiation of breast feeding	No. of infants (N=264) (%)	
Milk was not secreted	26	9.8
Religious belief	42	16
Caesarean delivery	70	26.5
Neighbors advised/Relatives advised/elders advised	86	32.5
Others*	40	15.2
Total	264	100

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

Table – 4

Initiation of breast feeding according to the socio-demographic profile of mothers

Socio-demographic profile	Time of initiation of breast feeding		
	<1 hour N (%)	>1 hour N (%)	P- value
Age of mothers (years)			
<15 (50)	30(60)	20(40)	0.2
15-19(95)	54(56.8)	41(43.2)	$X^2=5.781$ DF=4
20-24(275)	161(58.5)	114(42.5)	
25-29 (129)	70(54.2)	59(45.8)	
>30(51)	21(41.1)	30(58.9)	
Type of Family			
Nuclear(330)	198(60)	132(40)	$<0.006; X^2=7.407$
Joint(270)	138(51)	132(49)	DF=1

Socio-demographic profile	Time of initiation of breast feeding		
	<1 hour N (%)	>1 hour N (%)	P- value
Age of mothers (years)			
Educational status of the mothers			
Illiterate (175)	74(42.2)	101(57.8)	<0.0001
Primary school(95)	51(53.6)	44(46.4)	X ² =27.925
Middle school(160)	92(57.5)	68(42.5)	DF=5
High school(51)	35(68.6)	16(31.4)	
Higher secondary school(71)	48(67.6)	23(32.4)	
Graduate (48)	36(75)	12(25)	
Occupational status of mother			
House wife(425)	221(52)	204(48)	<0.0001
Cultivator(33)	11(33)	22(67)	X ² =37.495
Daily wage earner(19)	8(42)	11(58)	DF=4
Service (81)	67(82.7)	14(17.3)	
Shop-keeper (42)	29(69)	13(31)	
Socioeconomic status (Per capita income in Rs.)			
Upper high (5156 & above) (55)	37(74)	18(26)	0.02
High (2578-5155) (100)	65(65)	35(35)	X ² =11.195
Upper middle (1547 – 2577) (120)	71(59.1)	49(40.9)	DF=4
Lower middle (773 – 2546) (195)	99(50.7)	96(49.3)	
Poor(<773) (130)	64(49.2)	66(50.8)	
Place of delivery			
Govt. Institution (470)	272(57.8)	198(42.2)	0.2
Private Institution(65)	32(49.2)	33(50.7)	X ² =3.086
Home (65)	32 (49.2)	33 (50.7)	DF=3
Type of delivery			
Normal (458)	284(62)	174 (38)	<0.0001
CS (110)	40(36.3)	70(63.7)	X ² =27.627
Others (32)	13(40.6)	20(59.4)	DF=2
Parity			
<2 (261)	137(52.4)	124(47.6)	0.12
>2 (339)	199 (58.7)	140(41.3)	X ² =2.309
	DF=1		
Sex of infants			
Male (330)	212(64.2)	118(35.8)	0.07
Female (270)	154 (57)	116(43)	X ² =3.241
	DF=1		

X²= Chi square; DF=Degree of freedom

Out of 600 mothers 21% of mothers discarded colostrums and prelacteal feeds were given by 30% of mothers. Exclusive breast feeding were practiced by majority (62.4%) of mothers.

As shown in Table – 1; Out of 600 mothers with their infants (0-12 months) all were included as study population making the response rate 100%. Majority(81.6%) of moth-

ers were Hindus and most of them (42.5%) were belonged to ST categories. 45.8% of the mothers were in the age group of 20-24 years followed by 21.5% were in the age group of 25-29 years. 29% mothers were illiterate followed by 26.6% had attended Middle school and 15.8% completed primary school. Majority of mothers (64.6%) were housewives followed by 13.5% were service holders. Most of the mothers (32.5%) belonged to lower middle class family followed by 21.6% were belonged to poor families. Majority of the infants (78.4%) were delivered at govt. hospital followed by 10.8% were delivered at private institutions and home respectively. Most (56.5%) of mothers had more than two children. Majority (76.8%) of infants were delivered normally followed by 18.3% were delivered by CS. Out of 600 infants 55% were males and Majority (62%) were in the age group of more than 6 months.

As shown in Table-2, out of 600 mothers 56% were initiated breastfeeding within one hour of birth followed by 27.5% were initiated 1-6 hours after birth followed by 3.2% were initiated breastfeeding 24 hours after delivery. As shown in Table – 3, Among 264 mothers who had delayed in initiation of breastfeeding, 32.5% of the mothers reason behind the delayed initiation of breast feeding were Neighbours advised/Relatives advised/elders advised followed by 26.5% due to CS delivery. 15.2% of mothers were unable breastfed their infants in time due to some feeding related problems like flat or inverted nipple, retracted nipple, severe weakness etc.

As shown in Table – 4; Timely initiation of breastfeeding was significantly associated with type of families, educational status, occupational status, socioeconomic status of the mothers and type of delivery. Mothers belonged to the nuclear families had initiated breastfeeding early as compared to Joint family (P<0.006). The association between the educational status of the mothers (P<0.0001), occupational status (P<0.0001), socioeconomic status (P<0.05), type of delivery (P<0.0001) was found to be significantly associated with timely initiation of breastfeeding.

Discussion:

The present study was conducted in a rural areas of Kamrup district, Assam to determine the prevalence of timely initiation of breastfeeding and the factors associated with timely initiation of breastfeeding.

Out of 600 mothers in the study all (100%) were practiced breastfeeding and this figure is a bit higher than in our country (96%).

National Infant and Young Child Feeding (IYCF) Practices guidelines recommended that all the newborns should start breastfeeding immediately (within one hour after birth) and encourage all the mothers for colostrums feeding.⁽¹¹⁾ The current study showed that 21% of mothers discarded the colostrums due to elder's advise and cultural belief that colostrum can cause illness and diarrhoea and abdominal pain in the infants whereas Gupta P et al.⁽¹²⁾ (2010) in their study found that 43.5% of mothers gave Colostrums to their baby. Kumar D.⁽¹³⁾ (2006) found that 54.8% of mothers discarded colostrums. The prevalence of prelacteal of prelacteal feeding in the current study was 30% which is almost similar to the national prelacteal feeding i.e., 29%⁽¹⁰⁾. The reasons behind the prelacteal feeds are insufficient breast milk, elder's advise; whereas Aswini S.⁽¹⁴⁾ (2014) in a study which revealed that pre-lacteal feeds were given by almost 57.1% of mothers in rural area. Qiu L.⁽¹⁵⁾(2012) in a

study revealed that 62% mothers in urban area and 39% mothers in rural area gave pre-lacteal feeds. Mukhopadhyay DK.⁽¹⁶⁾ (2013) 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.

The present study revealed that the prevalence of timely initiation of breastfeeding was about 56% which is better as compared to a similar study conducted by Das N.⁽¹⁷⁾ (2013) in rural areas of West Bengal and revealed that 65.8% (225/342) mother did not initiate breast feeding within 1 hour. Mondal TK.⁽¹⁸⁾ (2014) in a similar study in Burdwan district in West Bengal revealed that 43.3% of infants initiated BF within 1 hour of birth. Mahmood SE.⁽¹⁹⁾ (2012) in a study found that majority of rural mothers initiated BF in the first 24 hours. Neighbours advise, elder's advise/relatives advise (32.5%), CS (26.5%) and mothers illness following delivery and nipple related problems (15.2%) were the main reasons behind the delayed initiation of breastfeeding whereas Aswini S.(2014)⁽²⁰⁾ in a similar study found that 38.7% mothers from urban area had delayed initiation of BF after delivery due to their physical inability like pain or tiredness; Pandey (1990)⁽²¹⁾ in his study found that small percentage of mothers delayed initiation of Breast feeding was due to milk secretion problem, child illness and due to mother's illness. Gupta P et al.⁽²²⁾ (2010) in a similar study in urban slums of Lucknow which revealed that only 36.6 % initiated BF within 1 hour of delivery and most common reasons given for delayed initiation were family custom/belief (52.10%), no secretion of breast milk (31.00%) and discomfort in the mother (16.9%).

The near average rate of timely initiation of breastfeeding in the current study could possibly be attributed to the fact that since this study has been conducted in rural areas of Assam where timely initiation was less practiced and educational status is much lower in rural area as compared to urban.

The present study observed that timely initiation of breastfeeding was significantly associated with type of families and educational status of the mothers i.e., percentage of mothers with higher educational status initiated breastfeeding early were more as compared to the mothers with lower educational status. Salah EO.(2006)⁽²³⁾ in a study found that strong relationship between the increase in the level of education of the mother and the timely initiation of breastfeeding($P<0.01$). Benjamini AI⁽²⁴⁾ (1993) in a study on 'Nutritional status and feeding practices in under-3 years old children in the rural community in Ludhiana, Punjab' found that significant association of higher maternal education with lower prevalence of delayed initiation of breastfeeding.

The current study observed that timely initiation of breastfeeding was significantly associated with the socioeconomic status of the family i.e., percentage of mothers with higher socioeconomic status initiated breastfeeding early were more as compared to lower socioeconomic status which was found to be similar in a study conducted by Islam S. (2014)⁽²⁵⁾ in rural area of Assam. The present study also observed that prevalence of mothers who were employed initiated breastfeeding more early as compared to housewives and others but Vyas S (2011)⁽²⁶⁾ and Mittal A. (2007)⁽²⁷⁾ in a similar study found the opposite results. Nayak RK.(2014)⁽²⁸⁾ in a study found that breastfeeding was delayed in those infants whose mothers were Housewife (32.95%) followed by working as farmers(31.82%) ($p>0.2$).

Conclusion:

The current study revealed that the prevalence of timely initiation of breastfeeding was low. Pre lacteal feeding was common and the reasons behind the prelacteal feeds were insufficient breast milk, elder's advises. The reason behind the delayed initiation of breastfeeding were neighbours advise/relatives advise, elder's advise followed by CS. Mid-wives and Nurses must help the mothers to initiate breastfeeding early (preferably within one hour after delivery or as soon as possible) and All the mothers in rural areas need special attention as they are distant from various information sources and they should be empowered through education and counselling .

References

1. Ghose S. Infant feeding - Food and nutrition board, Department of women and child development, ministry of human resources and development, Govt. of India,1993.
2. World Health Organization (WHO) The optimal duration of exclusive breastfeeding: Report of an expert consultation. Department of nutrition for health and development and department of child and adolescent health and development . Geneva,Switzerland ; 2001.
3. Koosha A, Hashemifesharaki R, Mousavinasab N. Breast-feeding patterns and factors determining exclusive breast-feeding. Singapore Med J. 2008; 49(12):1002-006.
4. Du Plessis D. Breastfeeding: Mothers and health practitioners, in the context of private medical care in Gauteng. Journal of Interdisciplinary Health Sciences.2009;14(1).
5. Edmond KM, Zandoh C, Quigley MA. Delayed breastfeeding initiation increases risk of neonatal mortality. Pediatrics. 2006;117:380-86. doi: 10.1542/peds.2005-1496.
6. Central Statistical Agency [Ethiopia] and ORC Macro. Central Statistical Agency and ORC Macro. Addis Ababa, Ethiopia and Calverton, Maryland, USA; 2006. Ethiopia Demographic and Health Survey (EDHS) 2005.
7. Khassawneh M, Khader Y, Amarin Z. Knowledge, attitude and practice of breastfeeding in the north of Jordan: a cross-sectional study. International Breastfeeding Journal. 2006;1:17.
8. Annual health Survey 2011-12 Fact Sheet, Assam. Registrar General and Census Commissioner of India, New Delhi.
9. Federal Ministry of Health (FMOH) National strategy for Infant and Young Child Feeding (IYCF) Family Health Department India; 2004.
10. Census 2011, Office of Registrar General of India available at <http://www.censusindia.gov.in>.
11. Infant and young child feeding ; Fact sheet N°342 ; updated February 2014 (WHO).
12. Gupta P, Srivastava VK, Kumar V, Jain S, Masood J, Ahmad N et al. Newborn Care Practices in Urban Slums of Lucknow City, UP ; Indian Journal of Community Medicine, Jan 2010 jan;35(1):82-85.
13. Kumar D, Goel NK, Poonam C, Mittal and Mishra P. Influence of infant feeding practices and nutritional status of under five children. Indian J of pediatr. 2006;73:417-21.
14. 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.
15. 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. Int Breastfeed J 2008; 3:4.
16. Mukhopadhyay DK, Sinhabau A, Saren AB, Biswas AB. Association of child feeding practices with nutritional status of under two slum dwelling children: A community based study from West Bengal, Indian J Public Health. 2013 July-Sept;57(3):169-72.
17. Das N, Chattoadhyay D, Chakraborty S, Dasgupta A. Infants and young children Feeding Perceptions and Practices among mothers in a rural area of West Bengal, India. Indian Med Health Sci. Res.2013 Jul;3(3):370-5.
18. Mondal TK, Sarkar AP, Shivam S, Thakur RP. Assessment of infant and young child feeding practices among tribal women in Bhatar block of Burdwan district in West Bengal India. International J Med Public

Health,2014;3(3):324-326.

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. 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.
21. Pandey R. Breastfeeding and working woman in India. 1990;p-8.
22. Gupta P, Srivastava VK, Kumar V, Jain S, Masood J, Ahmad N et al. Newborn Care Practices in Urban Slums of Lucknow City, UP ; *Indian Journal of Community Medicine*, Jan 2010 jan;35(1):82-85.
23. Salah EO, Mahgoub MN, Theodore B. Factors effecting the prevalence of malnutrition of children under three years of age in Botswana . *African Journal of Food Agriculture Nutrition and Development*, 2006;6(1).
24. 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 Mar;16(1&2):3-21.
25. Islam S , Mahanta GT, Sarma R, Saikia H. Nutritional status of under-five children belonging to Tribal Population living in Riverine (Char) areas of Dibrugarh, district, Assam. *Indian Journal of Community Medicine*.2014 july;39(3):169-74.
26. Vyas S, Kandpal SD, Semwal J. Role of Maternal Education & Occupation in the nutritional status of under three children. *Indian Journal of Community Health*.2010 July;22(2) and 2011 June 23(1):35-37.
27. Mittal A, Singh J, Ahluwalia SK. Effect of Maternal Factors on Nutritional Status of 1-5-Year-Old Children in Urban Slum Population. *Indian Journal of Community Medicine*. 2007 May;32(4),264–267.
28. Nayak RK, Walekar PR, Mallapur MD. Determinants of Nutritional status of unde-five Children: A cross sectional study *Annals of Community Health*. 2014 Apr-Jun;2(2):26-30.