

Prevalence of Exclusive Breast Feeding and Its Determinants among the Infants Up to the Age of Six Months Attending a Tertiary Care Centre: A Cross Sectional Study.

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Abstract: Background - Infant and Young Child Feeding practices in India has recommended EBF for first 6 months of life. Despite the substantial impact on child and maternal health, breast feeding practices for infants is quiet unsatisfactory in India. The objective of present study was to estimate the prevalence of exclusive breast feeding during first 6months of life and to identify factors that are associated with the practice in the study area, so that proper interventions can be planned by the health system staff to strengthen the practice of EBF in that area. **Methodology** - A hospital based cross-sectional study was conducted over almost one year at Bankura Sammilani Medical College & Hospital. Cross-sectional study design with structured questionnaires was used among 215 mother-infant pair to collect data. **Results** - More than half of the infants (56.74%) are exclusively breast fed upto 6 months. EBF decreased progressively with age of the baby. Breast feeding was initiated within 1 hour in 37.2% of babies. Colostrum was given to 80.93% of babies. Prelacteal feed was given in 22.79% of babies. This study identified maternal education status, adequate no of antenatal visit, institutional delivery, normal vaginal delivery, advice regarding EBF during postnatal period, maternal age (20-30yrs), timing of initiation of breastfeeding to be significantly associated with EBF. No association could be explored between EBF and type of family, inter-delivery interval, colostrum feeding, ethnicity and gender of baby. **Conclusions**-About 56.74% of the infants were exclusively breastfed till six months of age, which is marginally greater than national value, this shows that undesirable cultural practices such as giving pre-lacteals, late initiation of breast feeding, discarding colostrum are still prevalent among the community & these should be discouraged by proper BCC activities.

Keywords: Exclusive breast feeding, Prevalance, Infant, Six months

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I. Introduction

Breast feeding is considered the best and safest feeding option for infants because of its nutritive, emotional and ethical values. Breast feeding is practiced by women all over the world. Breast feeding is the right of every mother and it is right of every baby to be breastfed. Breast feeding is one of the most effective ways to ensure child health and survival¹. W.H.O recommended exclusive breast feeding until a baby is six months of age and continued breast feeding with the addition of nutritious complementary foods for up to two years or beyond.² A lack of exclusive breast feeding (EBF) during the first six months of life contributes to over a million avoidable child deaths each year.¹ Early cessation of breast feeding than recommended age and lower rate of EBF have important adverse effects on health, social and economic implications for women, children, community and environment, and it results in greater expenditure on national health care provision³. Analysis of various studies from developing countries showed that infants who are not breastfed are 6 to 10 times more likely to die in the first months of life than infants who are breastfed.^{4,5} Studies have also revealed without any doubt that child exclusively breast fed are less prone to diarrhoea and dehydration.^{6,7} There is also evidence that early breast feeding reduces the rate of hospitalization due to pneumonia⁸. It is important for mother to understand the factors that influence EBF, to be able to breast feed exclusively to the recommended six months. Various factors have been found to influence EBF, breast feeding initiation and duration viz- socio-demographic factors (education level, urban versus rural residence, monthly household income and parity); bio-social factors

(breast feeding support); cultural factors (beliefs, norms and attitudes towards breast feeding) and employment policies⁹⁻¹¹. It is evident from various studies that it is important to recognize the social circumstances to improve the understanding of infant feeding, thereby to improve the ability to increase breast feeding in the communities¹². It is necessary to identify, the determinants of breast feeding practices in designing of targeted interventions to promote breast feeding and the formulation of national public health policy.¹³ Studies have revealed that women who received encouragement to breast feed from health care providers are more likely to initiate and maintain breast feeding compared to the women who did not received encouragement¹⁴. In India, breast feeding is almost universal. However, the rates of early initiation, EBF are far from desirable. Breast feeding practices vary among different regions and communities. This fact justifies need for regional studies that allows more efficient action in regard to measures for intervention, based on knowledge of local reality. Hence, the purpose of this study was to evaluate the magnitude of EBF during first 6 months of life of babies attending Bankura Sammilani Medical College & Hospital and to identify the factors that influence the practice.

II. Material And Method

□ **Study area:** Department of Paediatric Medicine, Bankura Sammilani Medical College and Hospital, Bankura, West Bengal.

□ **Study subjects:** Babies of 6-12 months of age attending/getting admitted to department of paediatric medicine, Bankura Sammilani Medical College and Hospital (Both out-patient & in-patient departments) were approached to collect information regarding their breast feeding pattern upto six months of their age. The accompanying mothers were the respondents during interview.

□ **Study period:** June 2017- June 2018.

□ **Sample size:** Sample size was calculated based on the formula used for Cross-sectional study i.e. $n = [Z^2 * PQ] / L^2$, where n=sample size, $Z_{1-\alpha/2} = 1.96$ at 95% confidence limit (two tailed), P=prevalence of exclusive breast feeding=54.9% (as per NFHS-4), Q=(100-P), L=allowable error =7(absolute). So, sample size was estimated to be 195. Considering 10% non-response, revised sample size was found to be 215. Data were collected for a period of 12.5 months≈54 weeks. As per OPD and IPD registers daily attendance of infants above age of six months to one year both at in-patient and out-patient department of Paediatric Medicine in single admission day was found to be 50. Data collection was planned to commence twice in a week. At the beginning of each week, the two days of data collection for that particular week were selected following a simple random sampling technique by the help of lottery method. On each day of data collection two cases from OPD were selected via simple random sampling using random number and two cases from the IPD were selected by lottery method. In this way, 215 study subjects were included as per selection criteria.

□ **Inclusion & exclusion criteria:** Babies above 6 months upto 1 year attending OPD or admitted at indoor were included babies having NICU/SNCU admission or having some congenital anomaly that may interfere with successful establishment of breast feeding (e.g -cleft lip, cleft palate) were excluded from study.

□ **Study design:** Hospital Based Descriptive Cross-sectional Study.

□ **Study technique:** Information relevant to each objective was obtained via structured interview of the respondent mothers using interviewer administered questionnaire.

□ **Case definition:** Exclusive breastfeeding is defined as no other food or drink, not even water, except breast milk (including milk expressed or from a wet nurse) for 6 months of life, but allows the infant to receive ORS, drops or syrups (vitamin, minerals and medicines).

□ **Data collection and interpretation-** This study was conducted after getting permission from Institutional Ethics Committee and approval of The West Bengal University of Health Sciences. All patients attending both out-patient and in-patient, who satisfied inclusion & exclusion criteria vide supra, was included in the study. Data were collected, recorded and compiled on Microsoft excel data sheet. Statistical tests like Chi-square test for association was used to determine the association of different socio-demographic factors with EBF. Odds ratio (OR) with its 95% confidence interval (CI) was adopted for testing the strength of association. Software (IBM SPSS version 16) and Epi.Info3.4.3 version (Atlanta) were utilized for the purpose of data analyses. P value of <0.05 was considered statistically significant at 5% precision.

III. Results

Majority of the study subjects were boys comprising 53.02%, most were non-tribal(76.74%),30.23% of study subjects were LBW.25.59% were delivered at home, caesarean section done on 29.76% of study participants.19.07% participants discarded colostrum. Breastfeeding was initiated within 1 hour & after 6 hours in 37.2% and 14.41% respectively. Interdelivery interval <24 months found in 13.48% of mother. Inadequate A.N.C visit(<3) found in 23.25% of mother. Majority of the mother are between 20-30 years of age(72.09%) & 12.55% belonged to <20year.Majority of the study participants were educated upto secondary or higher secondary level(36.74%) &14.88% were illiterate.24.19% were working mother. Most of the study subjects belonged to lower SE-status.

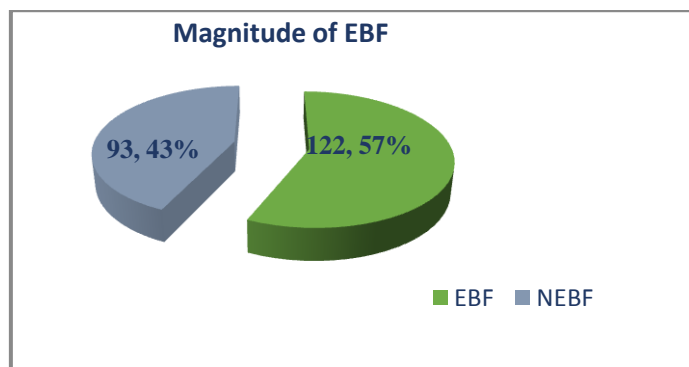


Fig-1: Pie diagram showing magnitude of exclusive breast feeding.

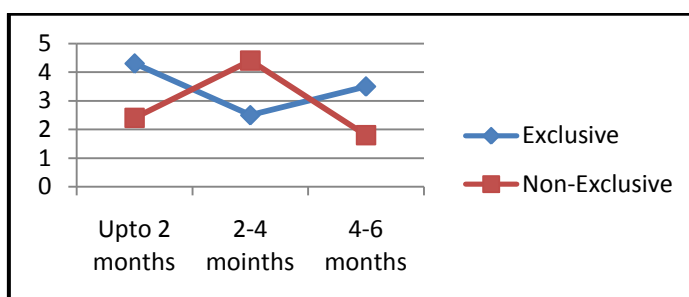


Fig-2: Decreased exclusiveness of breast feeding with progression of age.

Table-1. Breast feeding practices among study population-

Parameters		Pattern of breastfeeding		$\chi^2, df, p\text{-value}$	OR(95% CI)
		Exclusive(%)	Non-Exclusive(%)		
Time of breastfeeding initiation	<1hour	54(67.50)	26(32.50)	7.171, 2, 0.028	-----
	1-6 hour	55(52.88)	49(47.12)		
	>6 hour	13(41.94)	18(58.06)		
Colostrum feeding	Given	100(57.47)	74(42.52)	0.197, 1, 0.658	1.167(.589-2.312)
	Not Given	22(53.65)	19(46.34)		
Pre-lacteal feeding	Given	19(38.77)	30(41.23)	8.348, 1, .004	2.581(1.341-4.968)
	Not Given	103(62.04)	63(37.96)		
EBF upto 6 months	Given	122(56.74)	-----	-----	-----
	Not given	-----	93(43.26)		

Table-2. Obstetric and maternal factors vs EBF practices-

Parameters		Pattern of Breastfeeding		$\chi^2, df, p\text{-value}$	OR(95% CI)
		Exclusive(%)	Non-exclusive(%)		
Place of delivery	Institution	105(65.62)	55(34.38)	20.097, 1, .000	4.267(2.209-8.243)
	Home	17(30.90)	38(69.10)		
Mode of delivery	Vaginal	97(64.24)	54(35.76)	11.607, 1, 0.001	2.802(1.53-5.12)
	Caesarean	25(39.06)	39(60.93)		
Parity	Primipara	14(31.81)	30(68.19)	14.003, 1, 0.000	0.272(0.134-0.552)
	Multipara	108(63.18)	63(36.82)		
No. of antenatal visits	≥ 3 visits	104(63.03)	61(36.97)	37.924, 1, 0.000	3.013(1.569-5.854)
	<3 visits	18(36)	32(64)		
Postnatal feeding advice	Adequately given	111(62.36)	67(37.64)	13.288, 1, 0.000	3.916(1.818-8.435)
	Inadequate	11(29.73)	26(70.27)		
Breastfeeding difficulties	Yes	7(28)	18(72)	9.523, 1, 0.002	3.943(1.571-9.896)
	No	115(60.52)	75(39.48)		
Interdelivery interval	≥ 24 months	91(64.08)	51(35.92)	0.309, 1, 0.578	1.260(.558-2.844)
	<24 months	17(58.62)	12(41.38)		

Table-3: Socio-demographic factors and breast feeding practices-

Parameters		Pattern of breastfeeding		χ^2,df,p -value	OR(95% CI)
		Exclusive(%)	Non-exclusive(%)		
Maternal age(years)	<20yrs	10 (37.03)	17(62.97)	32.825,2,0.000	-----
	20-30yrs	106(68.38)	49(31.62)		
	>30yrs	6(18.18)	27(81.82)		
Maternal education status	Illiterate	8(25)	24(75)	25.113,3, 0.000	-----
	Primary	30(53.35)	26(46.65)		
	Secondary & higher sec	45(56.96)	34(43.04)		
	Graduation and more	39(81.25)	9(18.75)		
Type of family	Nuclear	60(54.05)	51(45.94)	0.677,1,0.411	0.797 (0.464-1.369)
	Joint	62(59.61)	42(40.39)		
SE-status	Upper	6(37.50)	10(62.50)	6.123,2,0.046	-----
	Middle	41(68.33)	19(31.67)		
	Lower	75(53.95)	64(46.05)		
Age study(months) of	Upto 2	164(76.27)	51(23.72)	21.29,1,0.000	-----
	2-4	135(62.79)	80(37.20)		
	4-6	127(59.06)	88(40.93)		
Gender	Boy	71 (62.28)	43(37.71)	3.031,1,0.082	1.619(0.94-2.78)
	Girl	51(50.49)	50(49.51)		
Race	Tribal	23(46.00)	27(54.00)	3.050,1,0.080	0.567(0.300-1.074)
	Non-tribal	99(60.00)	66(40.00)		
Working status of mother	Housewife	103(63.19)	60(36.80)	11.404,1,0.001	2.982(1.56-5.70)
	working	19(36.53)	33(63.46)		

IV. Discussion

Breast feeding is the best method of infant feeding to meet the nutritional, metabolic and psychological needs of the baby. EBF is a feasible strategy especially in low-income countries, as it reduces the risk of infant mortality and morbidity, especially from infections^{15,16}. WHO recommends exclusive breast feeding until a baby is six months old and continued breast feeding with the addition of nutritious complementary foods for up to two years or beyond². Although breast feeding practice is universal in India, the rates of early initiation of breast feeding is low and EBF up to 6 months are not satisfactory.

This study enabled us to evaluate the rate of exclusive breastfeeding and to identify the factors associated with cessation of exclusive breastfeeding within first 6 months of life. In present study magnitude of exclusive breastfeeding was 56.74% which is comparable to NFHS-4 data¹⁷ (54.9%). Chaudasama R K et al.¹⁸ and Meshram I I et al.¹⁹ found prevalence of exclusive breast feeding of 62% and 41% respectively in their study. A study from Bankura district of West Bengal by Sinhababu et al²⁰. showed prevalence of exclusive breast feeding of 57.1%. However, a study from Ethiopia revealed a higher prevalence rate (70.02%) of EBF²¹. Foo et al²². reported EBF at 21% in Singapore which was quite low. The comparison of results from studies done across the globe suggested that prevalence of EBF was better in our study area despite the fact that it is a backward area. The most probable reasons for such findings could be the natural tendency of breast feeding among Indian women.

It was revealed in our study that exclusiveness of breast feeding decreased progressively with age, The magnitude of EBF in our study upto 2months,2-4months, 4-6months and upto 6 months found to be 76.27%,62.79%,59.06% and 56.74% respectively. Meshram I I et al²² reported EBF at 1 month,3 month and 5 month 100%,86% and 46% respectively. The declining rate of exclusive breast-feeding with age, could be attributed to supplementation with plain water in early months and milk other than breast milk in later months. Similar findings were observed by Saha et al²³. in Bangladesh. Explanations put forward for this in different studies include beliefs that breast milk does not contain water, and breast milk alone is insufficient^{24,25}. Many working mother were not being able to continue exclusive breast feeding upto six months as they had to resume their work.

The present study revealed that initiation of breast-feeding within one hour of birth was less common (37.2%) than the corresponding national NFHS-4 data¹⁷ (41.6%). A study in Ghana reported that 22% of all neonatal deaths could be prevented if all women could initiate breast feeding within one hour of delivery.²⁶ A study conducted by Ekamaram M et al²⁷. showed that 36% baby was given breast milk within 1 hour of birth. A study done In rural Punjab²⁸, it was reported that 23.8% subjects started breast feeding their babies on the first day of birth, but only 13.5% respondents put their babies on the breast within four hours of birth. While in Nepal it was observed that Caesarean deliveries were associated with delay in timely initiation Of breast feeding.²⁹ In a study done in West Bengal, it was observed that only 16.5% initiated breast feeding within an hour of giving birth and about half (47.9%) did not start breast feeding until at least 24 hours after the birth. The reasons cited for delaying breast feeding were that 'it was harmful for the baby' and that there was 'insufficient milk'³⁰. Some of the other probable reasons for delayed initiation could be poor general condition of the women post partum.

In the present study, pre-lacteal feeds were given to 22.27% of study population. According NHFS-4 data¹⁷ prelacteal feed was given to 21.1% newborn population nationally and corresponding figure of West Bengal is 11%. In contrast to a study conducted in four hospitals in Kuwait where almost 81.8% subjects were given pre-lacteal feeds³¹. The probable explanation for the above findings in the present study could be the strong beliefs and rituals among population about not feeding initial milk i.e. colostrum and giving prelacteal feeds in the form of honey or sugar syrup. These beliefs still persist in population despite the efforts of the healthcare staff. Thus, in order to bring about a substantial improvement in such wrong beliefs effective behavioural change communication (BCC) strategy needs to be developed.

In our study we found EBF is more in mother in age group between 20-30years age than <20yr mother of age and >30yr mother of mother. It is in accordance with Kausal A et al³².The reason for this could be 20-30years age group is optimum age of marriage and childbirth among women in India.

Practice of EBF is significantly associated with maternal education, SE-status,housewife mother,institutional delivery, normal vaginal delivery.Few mother(11.62%)have initial breast feeding difficulties(sore nipple,crack nipple e.t.c) and EBF rate is lesser among them.

In this study it was found that EBF is significantly associated with parity, EBF is more among multipara mother than primipara mother. Bobhate PS et al³³ study shows similar results. But it differs from the findings reported by Chudasama R K et al¹⁸ and Caldeira AP et al³⁴ Multiparous women were more likely to be aware about correct breastfeeding practices as compared to primiparous women who are new to motherhood,hence there is need of stressing the importance of antenatal counseling about breastfeeding among such women.

Women with adequate knowledge about breast feeding in postnatal period and those who were advised about EBF during antenatal period were practicing EBF correctly again pointing towards importance of antenatal counseling about breastfeeding.bobhate PS et al³³ found similar results.

No association was found between EBF and gender of baby,race,colostrum and type of family of the baby.

V. Limitations

This study wasn't without limitations. It was a cross-sectional study and hence certain biases arose, specially the reverse causality bias/Cart vs Horse bias, recall bias etc. Also possibility of confounding factors for breast feeding cannot be ruled out. It might be more useful and scientific to conduct a longitudinal and interventional study among antenatal women with follow up in post natal period to assess their breast feeding practices.

VI. Conclusion

Exclusive breast feeding prevalence rate found higher than national level indicating better feeding practices in these part of India, though it is far lower than satisfactory level.

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