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The Practice of Exclusive Breast Feeding and Its Determinants Among Mothers of Under Two Years Children Attending an Urban Primary Health Center of North Karnataka - A Cross-Sectional Study

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ABSTRACT

Introduction: Breastmilk is the supreme nourishment for infants. It is safe, clean and encompasses antibodies which safeguard the infants against numerous childhood illnesses. Exclusively breastfed child is 14 times more likely to survive than the non-breastfed child. The breastfeeding and child feeding patterns in the urban area are highly impacted by religion, social and cultural beliefs, customs and traditions. Hence the above study was done to determine the practice of exclusive breastfeeding and its determinants in urban North Karnataka

Materials and methods: A cross-sectional study was conducted for a period of 3 months in the immunization clinic of urban health training center, Ballari medical college and research center, Ballari, Karnataka. All the mothers of children between 6 months to 2 years of age were included. Those not willing to participate were excluded. 270 participants were recruited and consecutive sampling technique was used.

Results: The practice of exclusive breast feeding was 71%. 24% introduced prelacteal feeds. The key causes for nonexclusive breast feeding were non production of enough milk in the mothers (35.9%) followed by lack of knowledge and awareness about the exclusive breast feeding. (34.6%). Socio economic class of the mothers, birth weight of the newborns, early initiation of breastfeeding and colostrum feeding had significant association.

Conclusion: Training the health care professionals regarding the proper techniques of breastfeeding and imparting the education to the expectant mothers during antenatal visits, implementation of community level programs for promoting breast feeding further enhances the rate of exclusive breastfeeding.

Keywords: Practice, Exclusive breast feeding, Determinants, Urban

INTRODUCTION

World Health Organization has defined Exclusive breastfeeding (EBF) as "when an infant has been given only breast milk from his/her mother or a wet nurse or expressed breast milk during first six months of life and no other liquids/solids except necessary

medicine and nutritional supplements in form of drops or syrup".[1]

Breastmilk is the supreme nourishment for infants. It is safe, clean and encompasses antibodies which safeguard the infants against numerous and multiple childhood illnesses. Breastmilk offers all the energy and nutrients that the infant wants in the initial months of life, and it continues to deliver more than half of the child's nutritional essentialities during the second half of the first year and up to one third during the second year of life.[2]

Breastfeeding has both short-term and long-term advantages for the child and mother, which includes protection to children against an array of acute and chronic ailments. The affinity to disorders such as diarrhea and pneumonia is significantly reduced in exclusively breastfed child and it is 14 times more likely to survive than the non-breastfed child. Breastfeeding offers numerous benefits to the mother as it aids to prevent postpartum hemorrhage, decreases the risk for breast and ovarian cancers and permits her to space sufficiently between pregnancies.[3]

As per the estimation of world health organization, about 800,000 under-five children's lives could be protected if ideal breastfeeding is practiced. But only 44% of infants under six months of age are exclusively breastfed all across the world.[4]

In India, the infant and child malnutrition is a potential issue of public health concern. Inadequate breastfeeding practices subsidize significantly to infant morbidity and mortality.[5]

The breastfeeding and child feeding patterns in India with special concern in the urban area are highly impacted by religion, social and cultural beliefs, customs and traditions.[6] Growing urbanization, industrialization and a substantial migrant population have a hostile effect on exclusive breastfeeding. Hence there is a critical necessity to recognize the specific determinants of breastfeeding practices in the urban areas. This knowledge is required for designing targeted interventions and policies to increase the breastfeeding rates, reduce child morbidity and mortality and encourage the overall health and well-being of infants.[7]

Despite of several government programs launched and implemented at the community level, the exclusive breastfeeding rate is less than expected. Hence this research is intended to assess the factors which contribute to the practice of exclusive breastfeeding.[8] Analyzing these factors may aid the healthcare professionals and concerned authorities for formulating more effective and appropriate strategies to promote exclusive breastfeeding.[9]

Aims & Objectives

To determine the practice of exclusive breast feeding among mothers of under 2 years children in urban Ballari and the various social, economic and medical factors which influence it.

MATERIALS & METHODS

A cross-sectional study was conducted for a period of 3 months from January to March 2026 in the immunization clinic of urban health training center, Ballari medical college and research center, Ballari Karnataka. All the mothers of children between 6 months to 2 years of age were recruited in the study. Those mothers not willing to participate were excluded. In the previous study done by Sharma P et.al in Uttar Pradesh, the prevalence of exclusive breast feeding was 60 %.[7] Considering this prevalence the sample size was calculated for the present study using the formula $n=4pq/d^2$ with d as 10% relative precision of p. The sample size required for the research was 267. A total of 270 participants were recruited in the study. Consecutive sampling technique was used. All the mothers who fulfil the eligibility criteria were included till the desired sample size was reached. A semi structured questionnaire was prepared in accordance to the study objectives and was tested by conducting a pilot study. After preliminary self-introduction, purpose of the study was described to the study subjects.

After securing the informed consent, data was collected through face-to-face interview. Information was collected regarding their social and economic background. Ante natal, natal and postnatal history with respect to the current child was obtained followed by the practice of exclusive breast feeding. Among those who did not exclusively breast feed the reasons behind the same were enquired. All issues relating to privacy and confidentiality were maintained. Data collected was entered in MS Excel. Permission was obtained from the institutional ethical committee of Ballari medical college and research center with letter no-IEC/BMCRC/01/04/2026

Statistical Analysis

Data was analysed for frequencies and percentages. Chi square test and binary logistic regression were used to find the significance of association and the adjusted odds ratio respectively. $P<0.05$ was considered to be statistically significant. JAMOVI v.2.6.26 software was used for the analysis.

RESULT

A total of 270 mothers took part in the study. The mean age of the study participants was 26.5 years. 30% of the women belonged to class II socioeconomic status according to modified BG prasad classification and 93.3% of the women were literates. 73.7% of the study subjects were not employed. 52.2% were hailing from joint family. 57.8% of the women were multiparous (Table 01).

The practice of exclusive breast feeding was 71% (Figure 01).73.3% of the women in the age group of 26 to 30 years exclusively breast fed their children. The association was not significant. The practice was 78.9% among the employed women but no significance was found. 84.4% of the women belonging to class III socioeconomic status exclusively breast fed their children. The association was statistically significant ($p<0.001$). The practice was 73.3% among mothers of nuclear family without any significance. 71.5% of the female babies were exclusively breast fed without any significant association. The practice was 84.8% in those babies with birth order three without any statistical significance. 73.4% of the babies born through normal labour were exclusively breast fed. The association was not significant. 71.4% of term babies were exclusively breast fed. No statistical significance was found. 84.2% of the babies weighing more than 3.5 kg at birth were exclusive breastfed and it had a significant association ($P=0.013$). 81% of the newborns in whom the feeding was initiated within an hour after the birth were exclusively breast fed. The association was statistically significant ($P=0.049$). 74.9% of the babies that were fed with colostrum were exclusively breastfed with a significant statistical association ($P=0.002$). The practice was 70.7% among those mothers who had not taken any galactagogues. The association did not have any significance (table 02).

On performing univariate analysis socio economic status, birth weight of the baby, early initiation of breastfeeding (≤1 hour), colostrum feeding and parity were significantly associated with exclusive breastfeeding. On subjecting these for multivariate analysis using binary logistic regression, socio economic status, birth weight and colostrum feeding exerted a positive independent impact on exclusive breast feeding. Pseudo R square in Nagelkerke's model explained that 15.6 % of variance that is observed in the outcome variable as exclusive breast feeding can be explained by independent variables (table 03).

The key causes for nonexclusive breast feeding were non production of enough milk in the mothers (35.9%) followed by lack of knowledge and awareness about the exclusive breast feeding (34.6%) (table 04).

24% of the women introduced prelacteal feeds to the babies. The most common prelacteal feed was powder milk (table 05).

Table 01: Sociodemographic profile of the study participants

Variable	Frequency (N=270)	Percentage
Age category (In years)		
Up to 20	17	6.3 %
21 to 25	98	36.3 %
26 to 30	116	43.0 %
Above 30	39	14.4 %
Education		
Illiterate	18	6.7 %
Primary	29	10.7 %
High school	65	24.1 %
Pre university	67	24.8 %
Graduate	91	33.7 %
Socio economic status		
Class I	40	14.8 %
Class II	81	30.0 %
Class III	64	23.7 %
Class IV	55	20.4 %
Class V	30	11.1 %
Family type		
Joint	141	52.2 %
Nuclear	129	47.8 %
Employment		
Employed	71	26.3 %
Unemployed	199	73.7 %

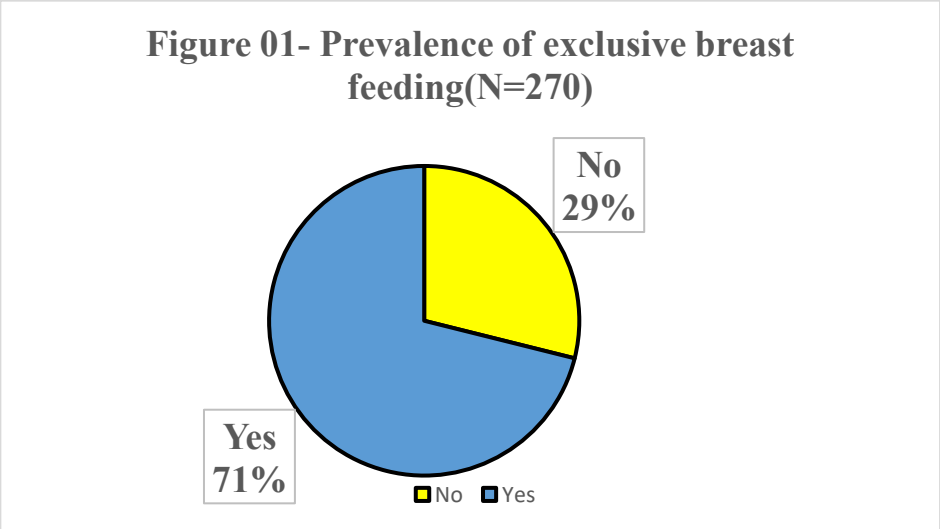

Table 02- Association between exclusive breast feeding and socio demographic factors

Variable	Exclusive breast feeding		Total	X^2 value	P Value
	No	Yes			
Age category					
Up to 20	5(29.4%)	12(70.6%)	17(100%)	0.47	0.9
21 to 25	30(30.6%)	68(69.4%)	98(100%)		
26 to 30	31(26.7%)	85(73.3%)	116(100%)		
Above 30	12(30.8%)	27(69.2%)	39(100%)		
Education					
Illiterate	5(27.8%)	13(72.2%)	18(100%)	7.02	0.135
Primary	7(24.1%)	22(75.9%)	29100%)		
Secondary	13(20%)	52(80%)	65(100%)		

Pre university	18(26.9%)	49(73.1%)	67(100%)		
Graduate	35(38.5%)	56(61.5%)	91(100%)		
Employment					
Employed	15(21.1%)	56(78.9%)	71(100%)	2.83	0.093
Unemployed	63(31.7%)	136(68.3%)	199(100%)		
Socio economic status					
Class I	22(55%)	18(45%)	40(100%)	19.2	<0.001
Class II	23(28.4%)	58(71.6%)	81(100%)		
Class III	10(15.6%)	54(84.4%)	64(100%)		
Class IV	16(29.1%)	39(70.9%)	55(100%)		
Class V	7(23.3%)	23(76.7%)	30(100%)		
Family type					
Joint	44(31.2%)	97(68.8%)	141(100%)	0.771	0.38
Nuclear	34(26.4%)	95(73.6%)	129(100%)		
Sex of the baby					
Female	39(28.5%)	98(71.5%)	137(100%)	0.024	0.877
Male	39(29.3%)	94(70.7%)	133(100%)		
Birth order					
1	39(34.2%)	75(65.8%)	114(100%)	4.7	0.096
2	34(27.6%)	89(72.4%)	123(100%)		
3	5(15.2%)	28(84.8%)	33(100%)		
Mode of delivery					
LSCS	57(29.8%)	134(70.2%)	191(100%)	0.28	0.591
Normal	21(26.6%)	58(73.4%)	79(100%)		
Gestational age					
Preterm	20(28.6%)	50(71.4%)	70(100%)	0.004	0.94
Term	58(29%)	142(71%)	200(100%)		
Birth weight					
< 2.5	20(46.5%)	23(53.5%)	43(100%)	8.69	0.013
2.5 to 3.5	55(26.4%)	153(73.6%)	208(100%)		
>3.5	3(15.8%)	16(84.2%)	19(100%)		
No of Antenatal visits					
<4	2(20%)	8(80%)	10(100%)	0.733	0.693
4	11(25.6%)	32(74.4%)	43(100%)		
>4	65(30%)	152(70%)	217(100%)		
Advice about breastfeeding during antenatal visits					
No	19(28.8%)	47(71.2%)	66(100%)	0.0004	0.983
Yes	59(28.9%)	145(71.1%)	204(100%)		
Initiation of breastfeeding					
≤1 hour	12(19%)	51(81%)	63(100%)	3.87	0.049
> 1 hour	66(31.9%)	141(68.1%)	207(100%)		
Colostrum given					
No	21(48.8%)	22(51.2%)	43(100%)	9.91	0.002
Yes	57(25.1%)	170(74.9%)	227(100%)		
Any galactagogues taken					
No	63(29.3%)	152(70.7%)	215(100%)	0.0878	0.767
Yes	15(27.3%)	40(72.7%)	55(100%)		

Table 03-Multivariate analysis using binary logistic regression with outcome variable as exclusively breastfed vs non exclusively breastfed

Variable	Exclusive breast feeding		Adjusted Odds ratio (95% CI)	p value
	No(N=78)	Yes(N=192)		
Socio economic status				
Class III& below	33	116	2.65(1.46-4.82)	0.001
Class I & II	45	76		
Birth weight				
2.5 and more	58	169	2.14(1.04-4.43)	0.03
Less than 2.5	20	23		

Initiation of breast feeding				
≤ 1 hour	12	51	0.54(0.26-1.12)	0.10
> 1 hour	66	141		
Colostrum given				
No	21	22	0.26(0.12-0.54)	<0.001
Yes	57	170		
Parity				
Primipara	39	75	1.27(0.72-2.26)	0.40
Multipara	39	117		

Table 04 – Reasons for nonexclusive breast feeding

Reasons for non exclusive breast feeding	Frequency(n=78)	Percentage
Baby illness	7	9.0%
Baby not able to suck	7	9.0 %
Breast problems	5	6.4 %
Lack of knowledge	27	34.6 %
Maternal illness	4	5.1 %
Non production of enough milk	28	35.9 %

Table 05- Various prelacteal feeds given to the newborns

Prelacteal feed	Frequency(N=64)	Percentage
Formula feed	14	22.2 %
Honey	13	20.6 %
Powder milk	19	30.2 %
Sugar water	9	12.7 %
Water	9	14.3 %

DISCUSSION

The practice of exclusive breast feeding in the current study was 71%. In the study done by Joseph R et al. in Kerala it was 70.4%.[4] Similar number of study participants and urban setting as the study area may be the probable cause. In the observation of Singh P et.al in New Delhi it was 77% and that of Sankar TJ et al. the practice was found to be 69.4%.[3,10] These were in parallel with our observation.

In our research 73.3% of the mothers in the age group of 26 to 30 years exclusively breast fed their child. Concurrent results were observed by Sankar TJ et al. (77%) and Nyirahirwa et al. (84.9%) in the parallel age group.[10,11] Elderly women are better experienced in terms of child care than the teen age mothers and hence exclusively breast feed their children.

80% of the mothers who had completed secondary education exclusively breast fed in the current investigation. Identical findings were seen in that of Singh P et.al (70%).[3] Despite of low formal education, information and communication by health care professionals might have influenced the mothers to exclusively breast feed.

The exclusive breast feeding was 78.9% among the employed women in the present study. It was 57% in the observations of Adebayo A.M. et al. in Nigeria.[12] Employed women may not find enough time to breast feed their children. Hence the contrasting results might have been observed.

In the present report, 73.6% of the mothers belonging to nuclear family exclusively breast fed their children. Mirror result was reported by Jain A et al. in Haryana where the practice was 70.6%.[8] Nuclear families usually are not bound by social and cultural constraints hence can practice exclusive breast feeding without hindrances.

In our study, no difference was observed in exclusive breast feeding with respect to gender of the baby. It was 71.5% in females and 70.5% in males. The findings were congruent with the reports of Jain A et.al and Giang et al. in Vietnam.[8,13] The concept of gender equality is emerging in the modern society. This will have impacted the mothers.

In our investigation, the practice of exclusive breast feeding increased with parity. It was in concurrent with that of Singh P et.al (69%) and Nyirahirwa et al.[3,11] Mothers with multiple children will know the importance of breast feeding and adhere to it as they will have consulted the health care facility numerous times.

In the current study no appreciable difference was observed in exclusive breastfeeding with respect to mode of delivery and the age of gestation. The result of Singh P et al. was in reflection to our observation.[3] Mode of delivery may not be having any impact on the breastfeeding, as all mothers preferred to practice the same.

74.4% of the babies with birth weight more than 2.5kg were exclusively breast fed in the present study. Identical results were seen by Joseph et.al (71.1%) in the similar sector.[4] Mothers who have begotten babies of normal birth weight will be conscious towards child's health since antenatal time and practice exclusive breast feeding in the postnatal period.

In this research, the practice of exclusive breastfeeding among those mothers with four or more antenatal visits was 70%. In the findings of Nyirahirwa et al. in Rwanda it was 90.4%.[11] Effective counselling during the antenatal visits might have improved the rate of effective breastfeeding in their study.

In this investigation the exclusive breast feeding remained same irrespective of the advice received or not during the antenatal period. Jain A et al. reported the same as 63.5% in those mothers who received antenatal breastfeeding advice.[8] The advent of mass media might have stimulated the mothers to exclusively breast feed their kids.

In the present study, 81% of the infants which were breast fed within one hour postpartum were exclusively breast fed. Joseph et.al observed that 71% of the infants in parallel category were exclusively breast fed. [4] The mothers who initiate early breastfeeding will be aware of the benefits of exclusive breastfeeding.

74.9% of the study participants who fed colostrum to their newborns practiced exclusive breast feeding. The practice was 63.8% in the study of Jain A et al. and 57.47% in that of Munshi Safikul Islam et al. in the identical group.[8,14] These findings were less than that of ours. In our study, the mothers who fed colostrum might be well versed with scientific rationale of breastfeeding and hence adhered to it strictly.

The common challenges for exclusive breast feeding in our research were non production of enough milk (35.9%) followed by lack of knowledge about the same (34.6%). The reasons matched with that of Raveendran A et.al and Saqib N et al. where inadequate milk production was the main obstacle. [15,16] It was 45.8% and 48.9% respectively.

CONCLUSION

The practice of exclusive breast feeding was 71%. Socioeconomic class of the mothers, birth weight of the newborns, early initiation of breastfeeding, colostrum feeding was significantly associated with exclusive breast feeding. On performing multivariate analysis using binary logistic regression socio economic status, birth weight and colostrum feeding exerted an independent impact. Training the health care professionals regarding the proper techniques of breastfeeding and imparting the education to the expectant mothers during antenatal visits, implementing community level programmes for promoting breast feeding and introducing a proper legal framework for regulating the production and marketing of commercial infant feeds go long way in enhancing the practice of exclusive breast feeding.

Declaration by Authors

Ethical Approval: Approved

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