Infant feeding and rearing practices adapted by mothers in Coastal South India

Nithin Kumar^{*}, B.Unnikrishnan, Rekha T, Prasanna Mithra, Vaman Kulkarni, Mohan Kumar Papanna, Ramesh Holla, Angita Jain

Kasturba Medical College (Manipal University), Mangalore, India

* Corresponding Author: Dr. Nithin Kumar,

Assistant Professor; Department of Community Medicine Kasturba Medical College (Manipal University), Mangalore, Karnataka, India Tel: +91 824-2422271(O) | Email: nithin.gatty@manipal.edu, drnithin_kumar@yahoo.co.in

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Abstract

Introduction: Understanding the differences in beliefs and practices regarding infant feeding and rearing practices is important for the successful delivery of health messages and services, especially in a country like India with many religion and diverse customs and practices.

Objectives: To assess the infant feeding and rearing practices among mothers in Coastal South India and to study the factors influencing their practices.

Methods: This cross-sectional study was conducted among 152 expectant multigravida and postnatal mothers, in three associated teaching hospitals of Kasturba Medical College, Mangalore; in Coastal South India, using a semi structured questionnaire. Analysis of collected data was done using SPSS version 11.5, Chi-square test was applied and p value < 0.05 was taken as statistically significant.

Results: The mean age of the mother was 25.75 years (SD: 3.6) and 57.9 % of the mothers practiced exclusive breastfeeding (EBF) their child and 34.9% mothers had given prelacteal feeds to the newborn. Oil massage to the baby was practiced by 98.7% of the mothers and 51.3% applied substances like boric acid, oil and turmeric powder on the umbilical stump. The association between socioeconomic status and EBF was found to be statistically significant (p<0.05). 38.8% mothers continued breast feeding up to a period of one year. Mothers belonging to joint family breast fed the child for more than a year compared to those belonging to nuclear families (64.5% v/s 35.5% & p<0.05).

Conclusion: The overall awareness about infant feeding practices among mothers was low despite the study area having high literacy rate and quality antenatal services. The EBF was practiced by only half of the interviewed mothers. Family type and socio cultural factors affected the infant feeding & rearing practices among the mothers in the study area.

Key words: Child rearing practices, Exclusive Breast feeding, Prelacteal feeds, Colostrum, South India

Introduction

India is predominantly a Hindu nation. Religion along with the socio-economic status of a family influences the child rearing practices in India. Infant feeding and rearing practices vary across communities, depending on social customs, traditional beliefs and prejudices of the community, literacy and socio-economic status of the family, especially of the mother. These practices at times are not of any benefit to the new born and can be harmful.¹

A high prevalence of neonatal and infancy deaths still looms large on our country hampering its progress towards achieving the goal no 4 of the Millennium Development Goals (MDG). The Sample Registration Survey, 2009 reported a Neonatal Mortality Rate (NMR) of 34 per thousand live births and Infant Mortality Rate (IMR) of 50, which declined to 47 in 2010.²

India is ranked at 25 out of 33 countries in parameters like early initiation of breastfeeding, Exclusive Breast Feeding (EBF) for the first six months, complementary feeding and bottle feeding rates. The concerning factor is that EBF rate for the first 6 months has remained stagnant at 46% since 1998 in India while bottle feeding has gone up from 13.4% in 1998 to 17.3% in 2005-2006.³

Despite of its rapid economic growth, India's poor ranking can only be attributed to the cultural differences and social beliefs and customs existing within the various sections of the community. Understanding the differences in beliefs and practices regarding infant feeding and rearing practices is important for the successful delivery of health messages and services to diverse populations especially in a country like India with many religion and diverse cultural beliefs and customs, which are followed to the core.¹

The current study was conducted to assess the infant feeding and rearing practices among mothers in Coastal South India and to study the factors influencing their practices.

Materials & Methods

This facility based cross-sectional study was conducted in three associated teaching hospitals of Kasturba Medical College, Mangalore, which is situated in coastal South India and has a population of around 0.6 million, with a female literacy rate of 84.04%, birth rate of 13.72% and Infant Mortality Rate of 1.2%, as per census 2011.⁴ The participants consisted of 152

multigravida and post-natal mothers admitted in these hospitals. The sample size was calculated considering an EBF rate of 40%, observed in a study done in Bangalore.⁵ Information on the study variables was collected using a pretested, semi-structured questionnaire consisting of 3 sections which included socio-demographic details and questions on infant feeding and rearing practices. Socioeconomic status (SES) of the mothers was assessed using the modified Kuppuswami scale,⁶ which was further modified for the purpose of analysis : lower and upper lower class was considered as low SES, lower and upper middle class as middle SES, and upper class as high SES.Written informed consent were taken from the mothers after explaining the objectives of the study in their own language and only those willing to participate were included in the study. Institutional Ethics Committee clearance was taken before the commencement of the study and prior permission was obtained from the concerned Hospital authorities to interview the mothers. Analysis of collected data was done using SPSS version 11.5. The results are expressed in proportions. For qualitative data, chi-square test was applied. P value < 0.05 was taken as statistically significant.

Results

A total of 152 mothers were included in our study. The mean age (SD) of the mother was 25.75 ± 3.6 years. The mean age (SD) at marriage was 21.16 ± 2.6 years and mean age (SD) during delivery of the first child was 22.78 ± 2.8 years. 13.2% of the mothers were less than 18 years at the time of marriage and 11.8% had more than two children. Only 5.3% of the mothers were illiterate and 32.9% belonged to low socioeconomic status. Socio-demographic characteristics of the study population are given in Table 1.

Feeding practices adapted by mothers compared with SES are given in Table 2.EBF was practiced by 57.9 % of the mothers and 34.9% mothers had given prelacteal feeds to their newborn. On comparison across SES, it was observed that among mothers who practiced EBF, majority (53.4%) were from middle SES.

Infant rearing practices adapted by mothers is given in table 3.Oil massage to the baby was practiced by 98.7% of the mothers and 51.3% applied substances like boric acid, oil and turmeric powder on the umbilical stump as a protection from infection.

Table 4 shows the factors associated with EBF. Among mothers who practiced EBF 70.5% were housewives and 59.1% belonged to a joint family.53.4% mothers in the middle SES practiced exclusive breast feeding their child and this association between SES and EBF was found to be statistically significant (p<0.05).

The various factors associated with duration of breast feeding is shown in table 5. In our study 38.8% mothers continued breast feeding the child up to a period of one year. Mothers belonging to joint family breast fed the child for more than a year compared to those belonging to nuclear families (64.5% vs. 35.5%) and this association between type of family and duration of breast feeding was found to be statistically significant (p<0.05).

Only 43.4 % of the mothers practiced traditional customs related to child rearing, of whom 87.9 % mothers were Hindus and 54.5% mothers' belonged to joint family (Table 6).

Discussion

Our study aimed at assessing the various infant feeding and rearing practices prevalent among mothers in the study area. The World Health Organization (WHO) recommends EBF for the first six months of life.⁷Third National Family Health Survey (NFHS III) for India reports EBF rates of 46.3% at 5 months.⁸ In the present study 57.9% of mothers had exclusively breast fed their child up to six months. Studies from Zhejiang Province in China [9], Hyderabad¹⁰ and Karachi¹¹ of Pakistan reported an EBF rate of 64.4%, 68.7% and 54%. Similar observations were made in a study in Navi Mumbai¹² where the rate was 70.2%. However in studies conducted in Bangalore⁵, Davangere¹³ and Botswana¹⁴ the rates were lower with 40%, 26.8% and 6% respectively. Benefits of breast feeding get diluted as its exclusivity decreases.¹⁵The reasons given by the mothers for not EBF were that just breast milk was not enough to fulfill the water requirement and the baby will be thirstier. It was surprising to find such a low awareness among mothers regarding EBF even though the level of literacy among mothers as well as the quality of antenatal services in the study area is very high.⁷These results were obtained from settings which adapts Baby Friendly Hospital Initiative (BFHI). This stresses the need for awareness generation among mothers regarding the importance of EBF, especially during antenatal and postnatal checkups.

Giving prelacteal feeds delays the establishment of lactation and can cause diarrhea and electrolyte imbalance in the newborn.¹⁵ In our study, prelacteal feeds were given by 34.9% of the mothers, of which 41.5% did so because of advice from the elders in the family as it was a custom to give prelacteal feeds before initiation of lactation. Remaining 34% did so because they had undergone caesarean section and hence could not start breast feeding immediately, and 24.5% did so because of failure of lactation. Similar observations were reported from studies conducted elsewhere.^{5, 13, 16} The custom of giving prelacteal feeds to the baby is practiced even outside India, as observed in studies from Pakistan (35%), Botswana (49%) and China (26%).^{11, 14, 17} The prelacteal feeds given by mothers in our study included warm water, sugar water, and honey.

Colostrum provides a concentrated source of food for the newborn and offers protection against URTI, allergies, and G.I.infections.¹⁸ A higher percentage of mothers (92.1%) in our study gave colostrum to their babies. Similar observations were made in studies conducted abroad as well as in India.^{5, 11-13, 19-21} Mothers, who did not give colostrum, did so on the advice of the elders in the family, who felt that it was harmful for the baby and should be discarded.

Breast feeding the baby is not contraindicated during minor illness in the mother. In our study 36.8% mothers stopped breast feeding when they were ill.22.4% did not breast fed the baby when it was ill. In an Ethiopian study, three quarters of the mothers did not breast feed when they were sick and 91% suggested not to breast feed when child gets sick.²²

The new born should be quickly dried and wrapped in warm clean cloth since it can lose body heat quickly, especially from the head.² Wrapping the new born baby was practiced by 90.1% of the mothers in our study However, the reasons for doing so varied with 39.5% mothers doing so for protecting the child from cold, 30.9% felt that it would straighten the baby's limbs, and

18.4% felt that it makes the baby sleep comfortably.9.9% of the mothers did not know the reason for wrapping up the newborn and did so on the advice of their mother or nurses. In a Chandigarh study 93.8% mothers in urban area practiced thermal care.²³

In South Asian region, there is a belief that the mother and her baby are polluted from the birthing process which can be removed by bathing.²⁴This can make the new born more vulnerable to hypothermia and infection.Bathing should be avoided immediately after birth. Preferably, normal baby should be given bath on second day during summer.²⁵ In our study 45.4% mothers gave bath to the baby on the first day itself among whom,71.7% gave for hygienic reasons and 18.3% felt that giving bath reduces the heat in the baby's body and makes it sleep well. 54.6% of the mothers did not practice giving bath on the first day, instead wiped the baby with warm water sponge or cloth on the advice of the nurses. In a similar study in Chandigarh and Bangladesh, 76.1% and 40% of the newborns were bathed on the first day of birth.^{23, 26}

Majority (98.7%) of mothers in our study gave oil massage to their babies. The most commonly used oil were coconut oil (70%), commercial baby oil (21%) and ayurvedic oil (9%). 66.6% of the mothers practiced oil massaging to give strength to the limbs,20% to prevent dry skin in babies and remaining 13.3% of the mothers applied oil on the advice of the elders. In a similar study in Chandigarh, 72.6% of the mothers in rural area and 56.6% mothers in urban area practiced massage to their babies.²² In a similar study in Pakistan, 89% of mothers gave oil massage to their babies.²⁶

Application of unhygienic substances on the cord stump is a cause of tetanus Neonatorum and infant deaths. In our study we observed that 51.3% mothers applied substances to the umbilical cord, of which 59% was boric acid antiseptic powder. The worrying aspect was that 20.5% mothers applied oil to the cord and 20.5% turmeric powder. This was to make the cord fall faster. Similar observations were made in studies from Bangladesh, where 83% of the mothers applied turmeric powder on the umbilical stump and in Pakistan where 58% of mothers applied substances on the umbilical cord.^{26,27} In another study in Bangladesh, mothers applied ash and burnt earth on the umbilical stump.²⁸

Applying Kajal to the eye or face is age old traditional belief considered to ward off evil, with the added cosmetic benefit of making the baby's eye look bigger and more beautiful. However, its application to the eye can cause conjunctivitis and dacrocystitis, and finger nail trauma to the eye can also occur.²⁹ 91.4% of the mothers in our study applied kajal to the baby's eye, among whom 59.7% did so to ward off evil, 20.9% applied it as a part of tradition and 18.7% to make the baby look beautiful.

Other child rearing practices observed in our study were piercing of the ears/nose of the baby before the age of one year (69.7%), giving traditional or ayurvedic preparations to the baby to boost its immunity (55.9%), and shaving the head of the baby (13%), and tying black thread around the neck and waist of the baby to ward off evil (63.8%).

In our study, we observed that 61.2% of the mothers continued breast feeding their babies for more than a year, as compared to 38.8% mothers, who continued only upto one year. Higher percentage of mothers(53.8%) in the age group between 26-30 years continued breast feeding for

more than a year (p<0.05). No Statistically significant association was found between literacy status, occupation of mothers, religion, and socio-economic status, type of family and duration of breast feeding. In a study in Jordan, almost two thirds of the study group continued breastfeeding for more than one year and employed women were more likely not to practice full breastfeeding compared to unemployed women.³⁰ 43.4% of the mothers followed traditional methods of child rearing in our study. Religion was found to be a significant factor with 87.9% Hindu mothers following traditional customs of child rearing (p<0.05).However, this observation can also be attributed to the fact that a vast majority of our study population consisted of Hindu mothers.

Conclusion

Our study has revealed areas of similarities and a few distinct differences in infant and child feeding and rearing practices when compared with studies within India as well as those conducted abroad. Majority mothers in our study area, practice breast feeding since birth and the EBF rate of 57.9% is high compared to national figures. Practices like giving prelacteal feeds, stopping breast feeding when mother or child is ill, application of substances on the cord, giving bath to the baby immediately after birth, application of kajal to the eye are still prevalent among mothers in our study area which is alarming. These practices are influenced by the age of the mother, religion, type of family and the socio-economic status. Various National programs with its cadre of health workers educate the mother as to the recommended breast feeding practices and new born care. However, the effectiveness of these health education programmes is short-lived unless the cultural beliefs of the community are not taken into account.

The study was Hospital-based and the data was collected on a recall basis hence had a component of recall bias. Similar studies should be conducted in other parts of the country which will give an insight into the prevalent infant rearing and feeding practices. Community based studies with Focus Group Discussions are required to study the cultural influences on breast feeding and child rearing practices in depth among the general population.

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Socio-demographic factors	n (%)
Age group of mothers	
<20 YRS	12(7.9%)
21-25 YRS	63(41.4%)
26-30 YRS	68(44.7%)
>30 YRS	9(5.9%)
	Mean age (SD): 25.75(3.6)
Age at marriage	
<18 YRS	20(13.2%)
18-24 YRS	115(75.7%)
>24 YRS	17(11.2%)
	Mean age(SD):
	21.16(2.6)
Literacy Status	
Illiterate	8(5.3%)
Primary School	42(27.6%)
Secondary school	74(48.7%)
Higher Secondary School	10(6.6%)
PUC	16(10.5%)
Graduation	2(1.3%)
Occupation	

Table 1: Socio-demographic characteristics of the study population (N=152)

Housewife	107(70.4%)
Working	45(29.6%)
Socio-economic status	
Low	50(32.9)
Middle	74(48.7)
High	28(18.4)
Religion	
Hindu	112(73.7%)
Muslim	28(18.4%)
Christian	12(7.9%)
Type of family	
Nuclear	64(42.1%)
Joint	88(57.9%)
Nos.of Children	
≤ 2	134(88.2%)
> 2	18(11.8%)

Table 2: Infant feeding practices adapted by mothers (N=152)

	Socio-economic status			
Practices	Low	Middle	High	Total
	n(%)	n(%)	n(%)	N(%)
Exclusively breast fed the baby	28(31.8)	47(53.4)	13(14.8)	88(57.9)
Pre-lacteal feeds were given to the new born	15(28.3)	26(49.1)	12(22.6)	53(3/1.0)
baby	15(20.5)	20(49.1)	12(22.0)	55(54.7)
Initiation of breast feeding after 3 days of	A(36 A)	A(36 A)	3(27.2)	11(7.2)
birth	4(30.4)	4(30.4)	5(27.2)	11(7.2)
Breast-feeding stopped when mother is ill	20(35.7)	29(51.8)	7(12.5)	56(36.8)
Breast-feeding stopped if baby gets diarrhoea	10(29.4)	13(38.2)	11(32.4)	34(22.4)

Table 3: Infant rearing practices adapted by mothers (N=152)

	Socio-economic status			
Practices	Low	Middle	High	Total
	n(%)	n(%)	n(%)	N(%)
Wrapping the new-born baby immediately after birth	43(31.4)	70(51.1)	24(17.5)	137(90.1)
New born baby given bath on the first day of birth	18(26.1)	37(53.6)	14(20.3)	69(45.4)

1997

Traditional Custom followed before introduction of weaning food	19(28.4)	32(47.8)	16(23.9)	67(44.1)
Oil massage given to the baby	49(32.7)	73(48.7)	28(18.7)	150(98.7)
Application of substances on the umbilical stump	28(35.9)	35(44.9)	15(19.2)	78(51.3)
Threads/Bands tied on the new-born baby	29(29.9)	51(52.6)	17(17.5)	97(63.8)
Kajal /Black spot applied to the new-born baby	40(30.5)	67(51.1)	24(18.3)	139(91.4)
Baby's ear/nose pierced	35(33.0)	54(50.9)	17(16.0)	106(69.7)

 Table 4: Factors associated with practicing Exclusive breast feeding (N=152)

	Exclusive Breast Feeding			
Factors	YES [N=88]	NO [N=64]		
	n (%)	n (%)	p VALUE	
Age of mothers				
<20 YRS	5(5.7)	7(10.9)		
21-25 YRS	33(37.5)	30(46.9)	0.301	
26-30 YRS	44(50.0)	24(37.5)		
>30	6(6.8)	3(4.7)		
Working Status				
Housewife	62(70.5)	45(70.3)	0.985	
Working	26(29.5)	19(29.7)		
Religion				
Hindu	64(72.7)	48(75.0)		
Muslim	19(21.6)	9(14.1)	0.292	
Christian	5(5.7)	7(10.9)		
Type of family				
Nuclear	36(40.9)	28(43.8)	0.726	
Joint	52(59.1)	36(56.2)		
Literacy status				
Illiterate	5(5.7)	3(4.8)		
Primary/Secondary	81(92.0)	61(95.2)	0.739	
Higher	2(2.3)	0(0)		
secondary/PUC/Graduation				
Socio-economic status				
Low	31(35.2)	19(29.7)		
Middle	47(53.4)	27(42.2)	0.032	
High	10(11.4)	18(28.1)		
Nos. of children				
≤2	78(88.6)	56(87.5)	0.830	
> 2	10(11.4)	8(12.5)		

	BREAST feeding	BREAST feeding	
	continued more	continued up to	
Factors	than a year	one year	p VALUE
	[N=93]	[N=59]	-
	n(%)	n(%)	
Age group			
<20 YRS	5(5.4)	7(11.9)	0.010
21-25 YRS	31(33.3)	32(54.2)	
26-30 YRS	50(53.8)	19(30.5)	
>30 YRS	7(7.5)	2(3.4)	
Working status			0 593
Housewife	64(68.8)	43(72.9)	0.575
Working	29(31.2)	16(27.1)	
Working	2)(51.2)	10(27.1)	
Religion			
Hindu	71(76.3)	41(69.5)	
Muslim	15(16.1)	13(22.0)	0.605
Christian	7(7.5)	5(8.5)	
Literacy status			
Illiterate	4(4.3)	4(6.8)	
Primary/Secondary	78(81.7)	40(67.8)	0.141
Higher	7(7.5)	15(25.4)	
secondary/PUC/Graduation			
Socio-economic status			
Low	28(30.1)	22(37.3)	
Middle	52(55.9)	22(37.3)	0.058
High	13(14.0)	15(25.4)	
Type of family			
Nuclear	33(35.5)	31(52.5)	0.038
Joint	60(64.5)	28(47.5)	
Nos. of children			
<2	80(86.0)	54(91.5)	0.306
<u>></u> 2	13(14.0)	5(8.5)	

Table 5: Factors associated with duration of breast feeding (N=152)

	Traditional customs of child rearing followed			
Factors	YES [N=66]	NO [N=86]		
	n (%)	n (%)	p VALUE	
Age of mothers				
<20 YRS	3(4.5)	9(10.5)		
21-25 YRS	23(34.8)	40(46.5)	0.090	
26-30 YRS	37(56.1)	31(36.0)		
>30	3(4.5)	6(7.0)		
Working Status				
Housewife	45(68.2)	62(72.1)	0.601	
Working	21(31.8)	24(27.9)		
Religion				
Hindu	58(87.9)	54(62.8)		
Muslim	5(7.6)	23(26.7)	0.002	
Christian	3(4.5)	9(10.5)		
Type of family				
Nuclear	30(45.5)	34(39.5)	0.464	
Joint	36(54.5)	52(60.5)		
Literacy status				
Illiterate	4(6.1)	4(4.7)		
Primary/Secondary	54(81.8)	62(72.1)	0.234	
Higher	8(12.1)	20(23.3)		
secondary/PUC/Graduation				
Socio-economic status				
Low	19(28.8)	31(36.0)		
Middle	39(59.1)	35(40.7)	0.058	
High	8(12.1)	20(23.3)		
Nos. of children				
≤ 2	59(89.4)	75(87.2)	0.679	
> 2	7(10.6)	11(12.8)		

Table 6: Factors associated with following traditional customs of child rearing (N=152)