

Breastfeeding knowledge, attitude and practices: A comparative study of urban and rural mothers in northern Karnataka, India

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■ **ABSTRACT** : The pattern of infant and young child feeding that provides the most benefit includes being put to the breast within an hour of birth, exclusive breastfeeding for 6 months, continued breastfeeding along with complementary foods upto 2 years of age or beyond and avoidance of any prelacteal feeds and bottle feeding. In India, breastfeeding is culturally well accepted but inadequately practiced, partly due to ignorance and taboos that significantly contribute to undesirable breastfeeding practices such as delayed initiation and discarding of colostrum. In this context a cross-sectional study was conducted with the objective to find the “Breastfeeding knowledge, attitude and practices: A comparative study of urban and rural mothers in northern Karnataka, India” in northern Karnataka. The population of the study consisted of mother –infant dyads, where the infants were in the age group of 3- 24 months and their mothers. The sample comprised of 900 women of whom 600 were from rural area and 100 from urban area. The tools used for the study were socio – economic status (SES) scale developed by Aggarwal *et al.* (2005), a self structured questionnaire to study feeding practices and knowledge of mothers towards breastfeeding and Iowa Infant Feeding Attitude Scale (1999) to assess maternal attitude towards infant feeding. The results indicated that rural mothers practiced early initiation of breastfeeding, exclusive breastfeeding for first six months and longer duration of breastfeeding when compared with urban mothers. The rate of not feeding colostrum was high in urban area (37.33 %) when compared to rural mothers (21.83 %). Urban mothers had high knowledge regarding breastfeeding compared with rural mothers. However, rural mothers had more favorable attitude towards breastfeeding when compared with urban mothers.

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Human milk has been characterized as the optimal food for human growth and development because of its nutritional, anti infective and

biological properties and is known to confer a number of benefits to the developing child. Both the constituents of breast milk and the act of breastfeeding have been

implicated in the process playing a major role on infant developmental milestones/outcomes. Colostrum, the yellowish, sticky breast milk produced at the end of pregnancy, is recommended by WHO (World Health Organisation) as the perfect food for the newborn and also advocates to initiate feeding within the first hour after birth.

WHO recommends mothers worldwide to exclusively breastfeed infants for the first six months with continued breastfeeding along with appropriate complementary foods upto two years of age or beyond to achieve optimal growth, development and health. The pattern of infant and young child feeding that provides the most benefit includes being put to the breast within an hour of birth, exclusive breastfeeding for 6 months, continued breastfeeding along with complementary foods upto 2 years of age or beyond and avoidance of any prelacteal feeds and bottle feeding. High breastfeeding initiation rates and long duration of breastfeeding is still the norm in many developing countries and exclusive breastfeeding (EBF) is rare in some of these countries because of cultural practices associated with lactation and breastfeeding.

In India, breastfeeding is culturally well accepted but inadequately practiced, partly due to ignorance. Lack of knowledge, prevailing misconceptions and cultural taboos significantly contribute to undesirable breastfeeding practices such as delayed initiation and discarding of colostrum. Although breastfeeding is a universal phenomenon in India, it is usually started after 3-4 days and the practice of feeding prelacteal feeds like honey, sugar water, gutti (a prelacteal feed prepared by rubbing almonds and other herbs), water, etc. is common. (Parveen *et al.*, 2012 and Ahmed *et al.*, 2014). According to the NFHS-4(2014) report the exclusive breastfeeding rates in India are 54.9 per cent and in Karnataka is 54.2 per cent. Globally, various studies have shown that factors specific to the mothers being important factors in early and timely initiation of breastfeeding. Breastfeeding initiation, prelacteal feeding, long duration of breastfeeding is influenced bio-socio-cultural factors like age, education, occupation, parity, obstetrical complications, antenatal care received etc in mother. It is also determined by child characters like gender, age, birth weight, birth order and family characteristics like family type, size, SES, place of residence (rural vs. urban), social support, etc. (Archana *et al.*, 2013).

■ RESEARCH METHODS

A cross-sectional study was conducted in rural and urban areas of three district *viz.*, Dharwad, Vijayapura and Bagalkot districts of Northern Karnataka. The population of the study consisted of mother –infant dyads, where the infants were in the age group of 3 months to 24 months and their mothers from rural as well as urban area of the district. The sample comprised of 900 women of whom 600 were from rural area and 300 from urban area in the age range of 17-45 years. Purposive Proportionate random sampling technique was employed. The tools used for the study were socio – economic status scale developed by Aggarwal *et al.* (2005) and a self structured questionnaire to document the mother and child health characters, demographic profile, feeding practices, patterns and knowledge of mothers towards breastfeeding. Iowa Infant Feeding Attitude Scale (1999) was used to assess maternal attitude towards infant feeding and information regarding feeding choice. Higher scores on attitude and knowledge indicate higher attitude and knowledge among mothers. The rationale behind the study was that the prevalence of exclusive breastfeeding for six months was 16.8 per cent in Dharwad district, 24 per cent in Vijayapura and 33.2 per cent in Bagalkot which was lower than national figure (54.9 %) according to district level household and facility survey-4 fact sheets (2012-13). Data were entered in CPro (6.3) version and analysed using SPSS 16.0 version. Differential research design was employed to compare between breastfeeding prevalence, knowledge and attitude of mothers of rural and urban mothers. Prior to data collection verbal consent was taken from the mothers who participated in the study. A pilot study was conducted before collecting data and the tools were pretested and found highly reliable. The study was approved by ethical committee of University of Agricultural Sciences, Dharwad.

■ RESEARCH FINDINGS AND DISCUSSION

A total of 900 mothers having children aged 0-24 months were interviewed. The background characteristics are presented in Table 1. Mother's age ranged from 18-40 yrs with a mean \pm SD of 25.63 \pm 4.08. Majority of mothers both in urban and rural area were in the age range of 21-30 yrs and belonged to Lingayat caste (forward caste) of Hindu religion which is the dominant caste of the region. The illiteracy

percentage was more in rural area (15.2 %) and per cent of graduates and above was high in urban (30.7 %) area. More than 80 per cent of women in both urban and rural area were homemakers. Majority of rural mothers (55 %) were from joint families and urban mothers (65.30 %) from nuclear families. Most of the rural as well as urban respondents belonged to small and medium size. The children were in the age range of 6-24 months in rural as well as urban area. Majority (98 %) of the children were singletons in both rural and urban

area.

The breastfeeding practices among urban and rural mothers are presented in Table 2. It can be observed that the rate of early breastfeeding initiation among both rural (49.67 %) and urban mothers (49.16 %) was similar. The rate of initiation of breastfeeding within one hour was 9.67 per cent in rural mothers and 5.33 per cent in urban mothers. However breastfeeding initiation after 3 days and more was 22 per cent among urban mothers and 2.67 per cent in rural mothers. The reason probably

Table 1 : Background characteristics of the sample		(n=900)	
Characteristics	Category	Rural (n=600)	Urban (n=300)
		N (%)	N (%)
Age of mother (yrs)	18-20	57(9.50)	16 (5.33)
	21-25	338(56.33)	143(47.67)
	26-30	179(29.83)	96(32.00)
	31-35	20(3.33)	40(13.33)
	36-40	6(0.10)	5 (1.67)
Religion	Hindu	538(89.67)	246(82.00)
	Muslim	56(9.33)	51(0.17)
	Christian	3(0.05)	1(0.30)
	Jain	3(0.05)	2(0.67)
Caste	Forward caste	248(41.33)	131(43.67)
	Scheduled caste	110(18.33)	29(9.67)
	Scheduled tribe	57(9.50)	20(6.67)
	Other backward caste	185(30.83)	120(40.0)
Education of mother	Illiterate	91(15.20)	18(6.00)
	Primary/Secondary	362(60.30)	134(44.70)
	PUC/Diploma	102(17.00)	56(18.70)
	Graduation and above	45(7.50)	92(30.70)
Status of mother	Working	104(17.30)	56(18.70)
	Home-maker	496(82.70)	244(81.30)
Family type	Nuclear	270(45.0)	196(65.30)
	Joint	330(55.00)	104(34.70)
Size of family	≤4 (Small)	231(38.50)	167(55.70)
	5-8 (Medium)	316(52.70)	127(42.30)
	>9 (Large)	53(8.80)	6(2.00)
SES of the family	Low	97(16.20)	9(3.00)
	Medium	454(75.70)	226(75.30)
	High	49(8.20)	65(21.70)
Age of the child	0-6	87(14.50)	40(13.30)
	6-12	191(31.80)	84(28.00)
	12-24	322(53.60)	176(58.60)
Gender of the child	Male	317(52.80)	152(50.70)
	Female	283(47.20)	148 (49.30)
Plurality	Singleton	589(98.20)	294(98.00)
	Twins	11(1.80)	6 (2.00)

was urban mothers who had caesarean delivery expressed that they were unable to breast feed due to labour stress. Urban mothers expressed that for 3-4 days they were unable to position themselves to breast feed the infants and the second most important reason being illness in the baby, where the doctors were sometimes judgemental and recommended formula for about first 3-5 days. With respect to colostrum feeding majority of rural (78.17 %) and urban (62.67 %) mothers fed colostrum to the baby. The rate of not feeding colostrum was high in urban mothers (37.33 %) compared to rural mothers (21.83 %). The common reasons for not feeding

colostrum in rural area was cultural belief that it is impure and in urban area was labour stress, no milk and illness in baby.

Regarding prelacteal feeding, most of rural (57.50 %) and urban (48.33 %) mothers fed prelacteal feeds to infants. 42.50 per cent of rural and 51.67 per cent of urban mothers did not practice prelacteal feeding. The common prelacteal feeds given in urban and rural area were water, sugar water, honey, gutti (almond and other herbs rubbed on stone) and formula. The frequency of breastfeeding indicated that majority of rural (64.67 %) and urban (77 %) mothers' breast feed their babies on

Table 2 : Breastfeeding practices among urban and rural women (n=900)			
Category	Rural N (%)	Urban N (%)	Total N (%)
1. Breast feeding initiation			
Immediately	295 (49.16)	149 (49.67)	444 (49.33)
< 1 hr	58 (9.67)	16 (5.33)	74 (24.67)
1 hr-6 hrs	46 (7.67)	30 (10.00)	76 (25.33)
7 hrs-24 hrs	15 (2.50)	14 (4.67)	29 (3.22)
> 24 hrs-3 days	26 (4.33)	25 (8.33)	51 (5.67)
> 3 days	160 (26.67)	66 (22.00)	226 (25.11)
Total	600 (100.00)	300 (100.00)	900 (100.00)
2. Colostrum feeding			
Fed	469 (78.17)	188 (62.67)	657 (73.00)
Not fed	131 (21.83)	112 (37.33)	243 (27.00)
Total	600 (100.00)	300 (100.00)	900 (100.00)
3. Prelacteal feeds			
Fed	345 (57.50)	145 (48.33)	520 (57.78)
Not fed	255 (42.50)	155 (51.67)	380 (42.22)
Total	600 (100.00)	300 (100.00)	900 (100.00)
4. Frequency of breastfeeding			
On demand	388 (64.67)	231 (77.00)	619 (68.78)
At regular intervals			
a) 1-2 hrs	116 (19.33)	42 (14.00)	214 (23.78)
b) 2-3 hrs	96 (32.00)	27 (9.00)	67 (7.44)
Total	600 (100.00)	300 (100.00)	900 (100.00)
5. Weaning			
Proper weaning	185 (30.83)	134 (44.67)	319 (35.44)
Improper weaning	415 (69.17)	166 (55.33)	581 (64.56)
Total	600 (100.00)	300 (100.00)	900 (100.00)
6. Duration of each feeding			
< 10 mins	94(15.67)	88(29.33)	182 (20.22)
> 10 mins	39(6.50)	23(7.67)	62 (6.89)
Till the baby sleeps	223(37.17)	83(27.67)	306 (34.00)
Leaves on its own	244(40.67)	106(35.33)	350 (38.89)
Total	600 (100.00)	300 (100.00)	900 (100.00)

demand. With respect to weaning practices, Majority of rural (69.17 %) as well as urban (55.33 %) practiced improper weaning practices. Both rural and urban mothers fed the baby for less than 10 minutes and had inadequate knowledge about duration of each feeding to the child.

The breastfeeding practices of urban and rural mothers (Table 3) indicate that 44 per cent of urban and 41.33 per cent of rural mothers practiced exclusive breastfeeding for first six months, followed by 37.17 per cent of rural and 27.67 per cent of urban mothers predominantly breast feed their infants for first six months, 19.83 per cent of rural and 27 per cent of urban mothers complementarily breast feed their infants for first six months. While 1.67 per cent of rural and 1.33 per cent of urban mothers never breast fed their infants. The value of χ^2 indicates a significant association between

breastfeeding practices and locality (urban and rural area). However t-value indicated that there was no significant difference with respect to category of feeding practices according to WHO among urban and rural mothers. But, prevalence of exclusive breastfeeding upto six months in northern Karnataka among rural as well as urban area was lower than the national figure (54.9 %).

Table 4 shows the comparison of breastfeeding duration among urban and rural mothers. The duration of breastfeeding among rural mothers (13.24 months) was more compared to urban mothers (12.5 months). However, t-test revealed non-significant differences between the duration of breastfeeding between urban and rural mothers.

Association between knowledge among urban and rural women are represented in Table 5. Majority of

Category	Rural N (%)	Urban N (%)	Total N (%)	Chi square	P-value
Category of breastfeeding (WHO classification)					
Exclusively breastfed for first six months	248 (41.33)	132 (44.00)	380 (42.22)	10.411	0.015*
Predominantly breastfed for first six months	223 (37.17)	83 (27.67)	306 (34.00)		
Complementarily breastfed for first six months	119 (19.83)	81 (27.00)	200 (22.22)		
Bottle fed/never fed with breast milk	10 (1.67)	04 (1.33)	14 (1.56)		
Total	600 (100.00)	300 (100.00)	900 (100.00)		
Mean \pm SD	1.84 \pm 0.86	1.87 \pm 0.95			
t-value			0.57 ^{NS}		

*indicates significance of value at P=0.05 level

NS=Non-significant

Category	Breast feeding duration (months)			t-value
Locality	N	Range	Mean \pm SD	
Urban	300	0-24	12.50 \pm 6.24	1.66 ^{NS}
Rural	600	0-25	13.24 \pm 6.37	
Total	900	0-25	12.75 \pm 6.29	

NS=Non-significant

Knowledge	Urban (n = 300)	Rural (n = 600)	Total	Chi Square
High	248 (41.30)	87 (29.00)	335 (37.22)	20.884**
Medium	308 (51.30)	168 (56.00)	476 (52.89)	
Low	44 (7.30)	45 (15.00)	89 (9.89)	
Range	21-78	29-80	21-80	
Mean (\pm SD)	52.69 \pm 11.65	48.76 \pm 11.61	50.07 \pm 11.77	
t value		4.78**		

Figures in parentheses indicates percentage

** indicates significance of value at P=0.01 level

mothers in both urban (51.30 %) and rural (56 %) area had medium knowledge on breastfeeding. Urban mothers (41.30 %) had high knowledge compared to rural mothers (29 %). About 7.30 per cent of urban and 15 per cent of rural mothers had low knowledge on breastfeeding. t-test indicated a significant difference in knowledge level between urban and rural mothers with urban mother having better knowledge (mean knowledge score = 52.69) compared to rural mothers (mean knowledge score = 48.76). Also the value of χ^2 revealed a significant association between knowledge about breastfeeding and locality (urban and rural area).

The comparison of breastfeeding duration (Table 6) among urban and rural mothers shows that the duration was more in rural area (13.24 months) compared to urban mothers (12.5 months). However, t-test revealed non-significant differences between the duration of breastfeeding between urban and rural mothers.

Table 6 presents the association between breastfeeding attitude among urban and rural women. Majority of urban (65.30 %) as well as rural (57.20 %) mothers had neutral attitude towards breastfeeding, 20 per cent of urban and 35 per cent of rural mothers had favourable attitude, while 14.67 per cent of urban and 7.20 per cent of rural mothers had low attitude towards breastfeeding. χ^2 value indicates a significant association between breastfeeding attitude of urban and rural women. A significant difference in attitude of urban and rural mothers was indicated by t-value, where rural mothers (mean attitude score = 52.53) had more favourable attitude compared to urban mothers (mean attitude score = 47.87).

The results of the present study were in agreement with the study conducted by Kumari and Muralidhar (2015) in Warangal where, exclusive breastfeeding upto six months was better in rural area (60.60 %) and prelacteal feeding was more in urban area (51.70 %). The results were also consistent with Arya *et al.* (2015)

who showed that majority of rural mothers had initiated breastfeeding in 1-4 hrs after birth while majority of urban mothers had initiated breastfeeding after 4 hours of birth. It was also observed that 70.60 per cent of rural mothers and 53.30 per cent of urban mothers exclusively breast fed their babies for less than 6 months. Oommen *et al.* (2009) also found that the exclusive breastfeeding rates were 38, 30, 24, 20, 16 and 1 per cent at discharge. Use of formula feeding was very high (55 %) among the urban mothers during hospital stay. The factors associated with continuation of exclusive breastfeeding were mother's knowledge regarding breastfeeding and reinforcement by health professionals, whereas the factors associated with cessation were perceived insufficiency of milk, and cultural practices. Ashwini *et al.* (2014) also found that majority of the mothers in both urban and rural areas gave prelacteal feeds (54.25 and 57.11 %, respectively) and as many as 67.89 per cent rural mothers practiced demand feeding as opposed to 38.75 per cent urban mothers. The results of Lubala *et al.* (2016) also showed that mothers living in rural areas breastfeed longer than those who live in urban areas.

Thus the results indicate that rural mothers practiced exclusive breastfeeding practices upto six months and longer duration of breastfeeding than urban mothers. Also prelacteal feeding especially formula feeding in first few days after birth is found in large percentage among urban mothers. Both rural and urban mothers had inadequate knowledge about successful breastfeeding practices and benefits of breastfeeding. These findings indicate that the breastfeeding support provided by health services is weak. Hence, there is a need for promotion of EBF during the first six months of life, early initiation of breastfeeding, importance of colostrum feeding and continuation of breastfeeding after six months. To optimally reap the potential benefits of proper infant feeding, effort needs to be shifted to strategies that not only sustains and promotes knowledge but to those that confer behavioural

Table 6 : Association between locality and breastfeeding attitude of mothers				(N=900)
Attitude	Urban (n=300)	Rural (n=600)	Total	Chi square
Favourable	60 (20.00)	210 (35.00)	270 (30.00)	28.503**
Neutral	196 (65.30)	347 (57.20)	543 (60.30)	
Low	44 (14.67)	43 (7.20)	87 (9.70)	
Range	26-78	20-80	20-80	
Mean (± SD)	47.87 ± 11.49	52.53 ± 11.25	49.42 ± 11.61	
t value		5.768**		

Figures in parentheses indicates percentage

** indicates significance of value at P=0.01 level

change.

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