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**SOCIO-DEMOGRAPHIC DETERMINANTS AND ITS INFLUENCE ON
BREASTFEEDING PRACTICES IN URBAN AND RURAL AREAS OF
LUCKNOW**

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ABSTRACT

Introduction: Breast feeding has a unique biological and emotional influence on the health of both mother and infant (WHO/UNICEF,1989). Breastfeeding is related to social, cultural and traditional patterns of a given population. **Objective:** To find out various socio-demographic factors associated with breast feeding practices. **Materials & Method:** A community based cross-sectional study was carried out in rural and urban areas of Lucknow. Multistage random sampling was used. A pre designed & pretested questionnaire was used and house to house survey was done. 528 infants with their mothers as respondent were interviewed and information about their socio-demographic factors and breast feeding practices were collected. **Results:** 36.7% mothers started breast feeding within one hour, while 83.0% mothers gave colostrum. Exclusive breast feeding was present in 65.6% mothers. Significant association of early initiation of breast feeding was observed with caste, socio economic status, number of living children, mother's education, occupation and area. Colostrum feeding was significantly associated with maternal age, type of family, no. of live children, mother's occupation and area while exclusive breast feeding was significantly associated with mother's education, occupation, type of family and area.(P-value <0.05). **Conclusion & Recommendation:** Socio-demographic factors play a pivotal role in determining breast feeding practices. Breast feeding is the single most cost effective intervention for good health in childhood.

Keywords: Breast feeding practices, Exclusive breastfeeding, Lucknow.

INTRODUCTION

Breast-feeding has a unique biological and emotional influence on the health of both mother and infant [1]. However, in most countries a relatively small percentage of mothers practice optimal breast-feeding behaviours that reduce infant's risk of morbidity and mortality, including initiation of breast-feeding in the first hour after birth and exclusive breast-feeding for the first 6 months of life. In India, breast feeding has been the traditional way of feeding the newborn. It lays foundation for their healthy psychosocial development. Besides

providing perfect nutrition for infants it also immunizes the child against common infections [2]. Despite high economic growth and growing literacy levels, India scored only 69 out of 150 in a study conducted by World Breastfeeding Trends Initiative (WBTi). The report 'State of breastfeeding in 33 countries: 2010, tracking infant and young child feeding policies and programmes worldwide' - identifies specific gaps and makes recommendations in each country. Various factors associated with sub-optimal breastfeeding practices have been identified in various settings. These include maternal characteristics such as age, marital status, occupation, and education. Nevertheless, it is always considered that breastfeeding is related to social, cultural and traditional patterns of a given population [3]. This fact justifies need for regional studies that allows more efficient action in

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regard to measures for intervention, based on knowledge of local reality. With this background, this cross sectional study was undertaken to evaluate the breastfeeding practices in urban and rural areas of Lucknow.

MATERIALS AND METHODS

A community based cross-sectional study was done on infants (children less than 1 year of age) with their mothers as respondents living in urban and rural areas of Lucknow district for a period of 1 year (October 2012 till September, 2013).

SAMPLING

Sample Size

The basis for sample size collection was prevalence of exclusive breast feeding. In NFHS-3, UP, 2005-06 report, the prevalence of exclusive breast feeding in Uttar Pradesh has been reported to be 27.6%. In present study we also targeted this prevalence to be a representative

proportion within a 95% confidence interval range. The sample size was calculated using the following formula:

$$n = (z_{\alpha})^2 \times p \times q / d^2$$

Where n = sample size

z = Z static at α level of significance, at $\alpha=5\%$, its value is 1.96

p = prevalence = 27.6% (according to NFHS-3, UP, 2005-06, exclusive breast feeding upto 4-5 months)

q = 100 – p = 72.4%

d = allowable error = 4%

$$\begin{aligned} \text{Sample size (n)} &= 3.84 \times 27.6 \times 72.4 / 4 \times 4 \\ &= 479.57 = 480 \end{aligned}$$

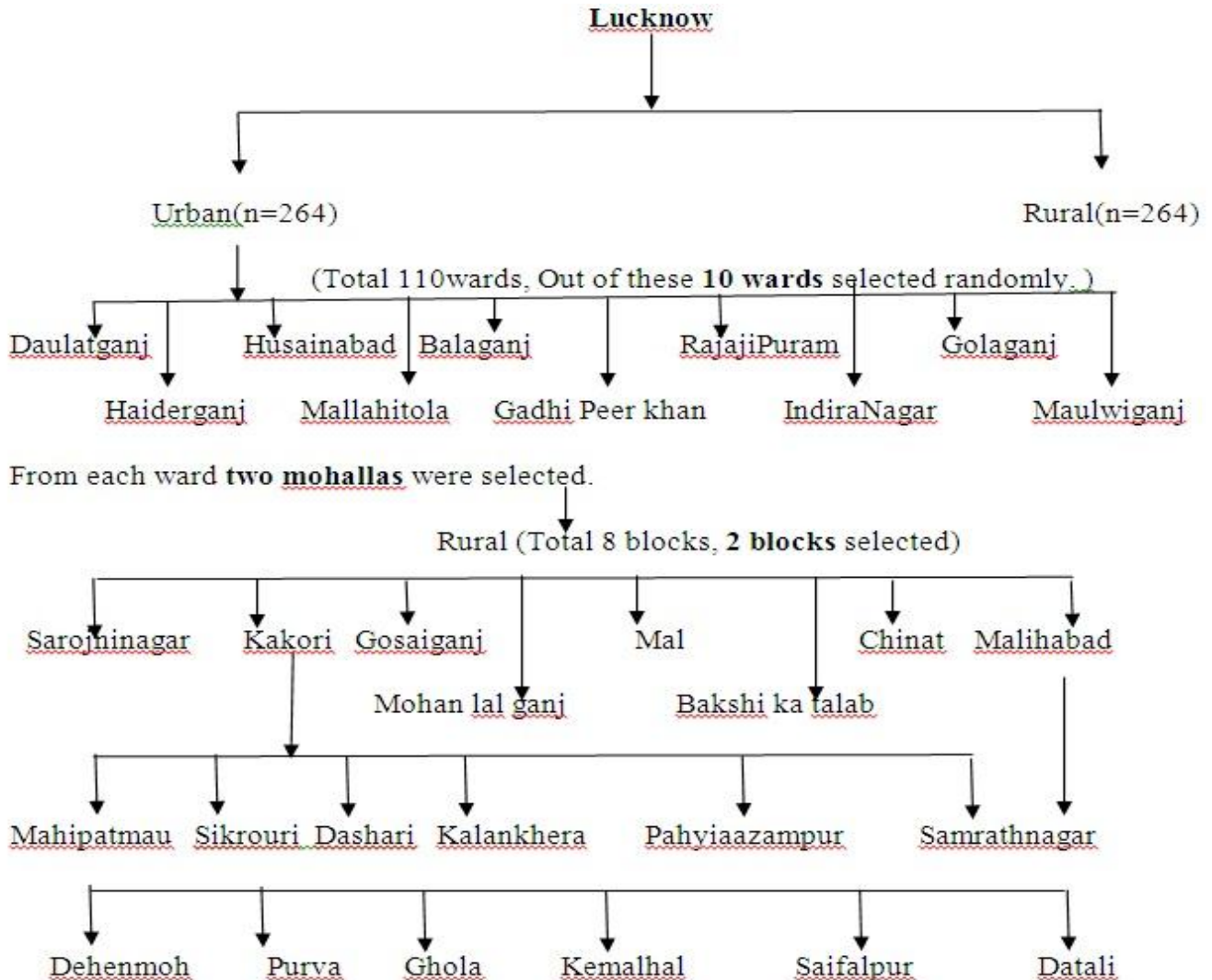
Taking 10% non respondents, the proposed sample size was = 480 + 48 = 528

Sampling Technique

A multi-staged random sampling technique was used to select required sample size.

Selection of sample

Requisite sample size was reached in following stages:



FIRST STAGE

Firstly the sample size of 528 was divided equally into urban and rural areas.

SECOND STAGE

Urban Areas

A list of total number of 110 wards were obtained (Annexure-I). Out of these, 10 wards were selected randomly. From each ward two mohallas were selected by simple random sampling. So that total 20 mohallas were selected from urban area.

Rural areas

In rural Lucknow, there are 8 blocks. Out of these 2 blocks (Kakori and Malihabad) were selected randomly. From each block 6 villages selected by simple random sampling.

THIRD STAGE

Simple random technique (using the last digit of currency) was used to select the first household for the survey. Then starting from the first household on the left side of the road all the houses, where an infant were available, were surveyed till the desired number of infants met from each of the 12 villages and 20 mohallas.

Inclusion Criteria

1. Infants (Children aged <1 year).
2. Infants residing for at least six months in the area.
3. Infants whose native place was other than present place of residence, but the duration of stay was more than six months.

Exclusion Criteria

1. Infants living in the area for less than six months.
2. Infants whose mother were not available or non cooperative or refused to provide the necessary information.

Data Collection

Door to door survey was done for the collection of necessary information. Each respondent was explained the purpose of study prior to the administration of tools of data collection and informed consent was obtained.

Tools of Data collection

The pre-tested questionnaire included socio-demographic information like age, sex religion, education, occupation *etc.* and other information like housing, ventilation, overcrowding *etc.* Information were collected for various factors that have a potential effect on the initiation and duration of breastfeeding practices. The questionnaire included socio-economic and demographic data, cultural factors, place of delivery, details on the initiations and duration of breastfeeding anything given to

the baby before giving breast milk, colostrum feeding, exclusive breast feeding.

Working Definition (as per IYCF Guidelines) [4]:

Early initiation of breastfeeding: put to the breast within one hour of birth.

Colostrum feeding: Breast milk of first 2 days.

Exclusive breastfeeding: Exclusive breastfeeding for the first six months of life i. e. 180 days (no other foods or fluids, not even water; but allows infant to receive ORS, drops, syrups of vitamins, minerals and medicines when required)

Data analysis

Data was analyzed using the statistical software SPSS 17.0 for windows. Chi-square test was used to make categorical comparisons.

RESULTS

Table 1 shows that maximum no. of mothers 443(83.9%) were aged between 18-30 years. A total of 29 (11%) of urban and 48 (18.2%) of rural women were aged between 30-40 years. Maximum number of respondents 388(73.5) were muslims. Muslim women were more in number 217(82.2%) in urban area to those in rural area 171(64.8%). In urban and rural both area higher number of respondents belonged to general castes. In urban area almost half (48.1%) women had only 1 child while in rural this was only 24.2%. Maximum number of respondents 278(52.7%) belonged to SES IV, in urban 132(50%) and in rural 146(55.3%) respondents respectively. Table-2 shows that 36.7% mothers started breast feeding within one hour, while 82.2% mothers gave colostrum. Early initiation of breast feeding is more in urban area (43.6%) in comparison to rural (29.9%). Exclusive breast feeding was present in 66.5% mothers, in urban population 71.0% while in rural 62.2%. Table-3 shows that breastfeeding initiation within 1 hr of birth did not show a significant association with maternal age, however, practice of giving colostrum was significantly lower in younger age group (<18 yrs; 62.5%)(p=0.003). No significant association between religion and feeding practices was observed. As compared to General castes (27.1%), significantly higher proportion of SC/ST and OBCs (47.3% and 48.3%) initiated the breastfeeding within 1 hr. (p<0.001) Practice of giving colostrum was also higher in SC/ST and OBCs (84.9 and 85.4% respectively) as compared to General caste (79.6%) yet the difference was not significant statistically (p=0.236). Exclusive breast feeding was practiced in significantly larger proportion of nuclear families (72.5%) as compared to joint families (44.1%) (p<0.001). Practice of starting breastfeeding within 1 hr was higher among those with 4 or more live children (51.3%) and the difference was significant statistically too (p=0.002). A significant but difference in number of live children and practice of giving colostrum, the practice was followed by

maximum no. of mothers having 4 or more live children (93.6%) and minimum among those with only 1 live child (76.4%) (p=0.010). As compared to SES I to III where practice of initiating breastfeeding within 1 hr was followed by 0 to 29% of mothers, significantly higher number of mothers in SES IV to V (43.5% and 31.6%) followed this practice (p=0.008). Practice of giving colostrum was more prevalent in SES I to III (100% to 71%) as compared to SES IV and V (56.6% and 68.4%) thus showing a significant difference (p=0.050).

Mothers who initiated breastfeeding within 1 hr were educated upto middle school (20.8%) while this number was maximum for illiterates (43.3%). Although a statistically significant difference was observed yet it was random in nature and did not follow a linear trend. Majority of mothers irrespective of their educational status gave

colostrums. Similar to breastfeeding initiation, a random but statistically significant difference in number of women who exclusively breastfed their infants was observed in different educational classes with maximum proportion for graduates and above (82.1%) and minimum proportion for those who were just literate or educated upto primary level. As compared to housewives (35.3%), significantly higher proportion of working women (71.4%) started breastfeeding within 1 hr, colostrum was given by significantly lower proportion of housewives (81.5%) as compared to working women (100%), all the working women continued exclusive breastfeeding (100%) as compared to 65.3% of housewives, thus showing the feeding practices of working women to be significantly better as compared to housewives (p<0.05).

Table 1. Distribution of Infant’s Mothers According to Their Biosocial characteristics

S.No	Biosocial Characteristics	Urban (n=264)		Rural (n=264)		Total (n=528)	
		No.	%	No.	%	No.	%
1	Age (years)						
	<18	5	1.9	3	1.1	8	1.5
	18-30	230	87.1	213	80.7	443	83.9
	30-40	29	11.0	48	18.2	77	14.6
2	Religion						
	Hindu	47	17.8	93	35.2	140	26.5
	Muslim	217	82.2	171	64.8	388	73.5
3	Caste						
	SC/ST	13	4.9	80	30.3	93	17.6
	OBC	120	45.5	31	11.7	151	28.6
	General	131	49.6	153	58.0	284	53.8
4	Type of family						
	Nuclear	245	92.8	199	75.4	444	84.1
	Joint	19	7.2	65	24.6	84	15.9
5	Number of living children						
	1	127	48.1	64	24.2	191	36.2
	2	88	33.3	97	36.7	185	35.0
	3	26	9.8	48	18.2	74	14.0
	4 and above	23	8.7	55	20.8	78	14.8
6	Socio-economic status (modified B. G. Prasad classification)						
	I	3	1.1	2	0.8	5	0.9
	II	33	12.5	17	6.4	50	9.5
	III	72	27.3	28	10.6	100	18.9
	IV	132	50.0	146	55.3	278	52.7
	V	24	9.1	71	26.9	95	18.0
7	Mother’s education						
	Illiterate	54	20.5	154	58.3	208	39.4
	Just literate +Primary	47	17.8	47	17.8	94	17.8
	Middle school	27	10.2	21	8.0	48	9.1
	High school	47	17.8	16	6.1	63	11.9
	Intermediate	44	16.7	9	3.4	53	10.0
	Graduate & above	45	17.1	17	6.4	62	11.8
8	Mother’s occupation						
	Housewife	250	94.7	257	97.3	507	96.0
	Working	14	5.3	7	2.7	21	4.0

Table 2. Distribution of infants according to Breast Feeding Practices

S.No	Practices	Urban (n=264)		Rural (n=264)		Total (n=528)		Significance of difference	
		No.	%	No.	%	No.	%	χ^2	P
1	Initiation of Breast Feeding								
	Within one hour	115	43.6	79	29.9	194	36.7	13.581	0.001
	After one hour	86	32.6	89	33.7	175	33.1		
	After one day	63	23.9	96	36.4	159	30.1		
2	Colostrum Given								
	Yes	225	85.2	209	79.2	434	82.2	3.313	0.069
	No	39	14.8	55	20.8	94	17.8		
3	Exclusive breast feeding*	n=138		n=143		n=281			
	Yes	98	71.0	89	62.2	187	66.5	2.430	0.119
	No	40	29.0	54	37.8	94	33.5		

Table 3. Association of Breast feeding practices with socio-demographic factors of infant’s mother

S.No	Characteristics	Total No. (N=528)	Breastfeeding initiated within 1 hr(n=194)		Colostrum given(n=434)		Total No. (N=281)	Exclusive breast feeding*	
			No.	%	No.	%		No.	%
1	Maternal age								
	<18	8	5	62.5	5	62.5	8	8	100.0
	18-30	443	155	35.0	356	80.4	230	150	65.2
	30-40	77	34	44.2	73	94.8	43	29	67.4
	Statistical significance		$\chi^2=4.691$; p=0.096		$\chi^2=11.506$; p=0.003			$\chi^2=4.220$; p=0.121	
2	Religion								
	Hindu	140	57	40.7	117	83.6	90	53	58.9
	Muslim	388	137	35.3	317	81.7	191	134	70.2
	Statistical significance		$\chi^2=1.293$; p=0.255		$\chi^2=0.246$; p=0.620			$\chi^2=3.489$; p=0.062	
3	Caste								
	SC/ST	93	44	47.3	79	84.9	57	41	71.9
	OBC	151	73	48.3	129	85.4	82	53	64.6
	General	284	77	27.1	226	79.6	142	93	65.5
	Statistical significance		$\chi^2=24.546$; p<0.001		$\chi^2=2.891$; p=0.236			$\chi^2=0.948$; p=0.623	
4	Family Type								
	Nuclear	444	171	38.5	372	83.8	222	161	72.5
	Joint	84	23	27.4	62	73.8	59	26	44.1
	Statistical significance		$\chi^2=3.767$; p=0.052		$\chi^2=4.802$; p=0.028			$\chi^2=16.953$; p<0.001	
5	No. of live children								
	1	191	69	36.1	146	76.4	86	59	68.6
	2	185	69	37.3	154	83.2	113	70	61.9
	3	74	16	21.6	61	82.4	43	27	62.8
	4 or more	78	40	51.3	73	93.6	39	31	79.5
	Statistical significance		$\chi^2=14.430$; p=0.002		$\chi^2=11.386$; p=0.010			$\chi^2=4.444$; p=0.217	
6	Socioeconomic Class								
	I	5	0	0.0	2	40.0	5	3	60.0
	II	50	14	28.0	42	84.0	28	23	82.1
	III	100	29	29.0	77	77.0	42	25	59.5
	IV	278	121	43.5	236	84.9	158	110	69.6

	V	95	30	31.6	77	81.1	48	26	54.2
	Statistical significance		$\chi^2=13.730$; p=0.008		$\chi^2=9.506$; p=0.050		$\chi^2=8.061$; p=0.089		
	Mother's Education								
	Illiterate	208	90	43.3	173	83.2	102	76	74.5
	Literate/primary	94	33	35.1	79	84.0	44	23	52.3
	Middle school	48	10	20.8	38	79.2	23	14	60.9
	High school	63	27	42.9	46	73.0	34	19	55.9
	Intermediate	53	15	28.3	42	79.2	39	23	59.0
	Graduate & above	62	19	30.6	56	90.3	39	32	82.1
	Statistical significance		$\chi^2=12.777$; p=0.026		$\chi^2=7.397$; p=0.193		$\chi^2=14.218$; p=0.014		
	Mother's Occupation								
	Housewife	507	179	35.3	413	81.5	271	177	65.3
	Working	21	15	71.4	21	100.0	10	10	100.0
	Statistical significance		$\chi^2=11.321$; p=0.001		$\chi^2=4.737$; p=0.030		$\chi^2=5.212$; p=0.022		
	Area								
	Urban	264	115	43.6	225	85.2	222	161	72.5
	Rural	264	79	29.9	209	79.2	59	26	44.1
	Statistical significance		$\chi^2=10.561$; p=0.001		$\chi^2=4.802$; p=0.028		$\chi^2=16.953$; p<0.001		

DISCUSSION

In present study, evaluation of infant feeding practices were focussed on three major aspects, viz., time of initiation of breastfeeding, practice of giving colostrum to infant and exclusive breastfeeding upto 6 months. These aspects are important from the point of view of physical and emotional growth of an infant and have widely been studied as outcome measures in a number of studies.

In present study, breast feeding initiation within 1 hr was (29.9%) in rural areas as compared to urban areas (43.6%) in their assessment of feeding practices of rural women in Bareilly also found a low prevalence (22%) of initiation of breastfeeding within 1 hr after the birth. However, Madhu *et al* [5] observed that nearly 45% of mothers in rural areas of Karnataka started breastfeeding within 30 minutes after birth. Literacy rate in Karnataka is much higher as compared to that in Lucknow and Bareilly. Although the role of regional variances an not be ruled out in determining the time of initiation of breastfeeding which might be dependent on the local beliefs. In this context, Garg *et al* [6] in which only 13.5% of rural mothers responded to have initiated breastfeeding within 4 hours of birth.

However, this practice was poorly followed among general castes (27.1%) as compared to SC/ST (47.3%) and OBCs (48.3%). In a study by Gupta *et al* [8], the rate of initiation of breastfeeding in urban slums which are mainly dominated by lower castes was also 36.6% which is higher than 27.1% in general castes as observed in present study.

The rate of giving colostrum to the baby was high 82.2% which is comparable to the findings of Mahmood *et al* [7] who reported this rate to be 84.6% amongst a rural

population of Uttar Pradesh. With respect to association of colostrum feeding with different socio-demographic factors, increasing age of mother was found to be positively associated with this practice with rates as high as 94.8% among mothers aged 30-40 years, similarly nuclear family, larger number of live children, lower socioeconomic status and urban area also showed a positive association with this practice. However Mamtarani *et al* [9] in their study in Gujrat found colostrums feeding were more in higher social class.

In present study, exclusive breast feeding was found to be 66.7%. This is much above the 46% reported for national and 51.3% for UP (Pradhan, 2013) [10]. In a study by Oommen *et al* [11], the rate of exclusive breastfeeding evaluated from birth till 6 months of age has shown a progressive decline with increasing age of infant. Using a similar design as adopted by us, Shroff *et al* [12] reported the rates of exclusive breastfeeding to be 75% in a rural setting from Nalgonda in Andhra Pradesh. In another study Chudasama *et al* [13] reported exclusive breastfeeding at 3 months to be 97% which declined to 62% by 6 months of age. In a study by Mahmood *et al* [7] in Bareilly region of Uttar Pradesh also reported exclusive breastfeeding rates to the tune of 71.2%.

On evaluating the association of exclusive breast feeding with socio-demographic factors, it seemed to be uninfluenced by maternal age, religion, caste, number of live children and socioeconomic class. Surprisingly nuclear families and urban area had higher rates of exclusive breast feeding (both 72.5%) as compared to joint families and rural areas (both 44.1%). Commitment to familial

responsibilities in a joint family can be perceived as a barrier for exclusive breast feeding, however the findings in present study are in agreement with the findings of Ulak *et al* [14] who also reported nuclear family to be positively associated with exclusive breast feeding. In another study, Chakrabarty *et al* [15] also reported lower education to be significantly associated with early termination of exclusive breastfeeding. In present study too, rural women had lower educational attainment as compared to urban women and hence it might also contribute for these differences.

In present study, maternal education was also found to be significantly associated with initiation of breastfeeding within 1 hour, with the observation of Chudasama *et al* [13] who explored but did not find a significant association between maternal education and initiation of breastfeeding. In a study by Shroff *et al* [12] maternal autonomy was found to influence the feeding practices and infant growth positively and working status of mother can be equated as an indicator of increasing financial autonomy of the mothers.

In present study, the practice of giving colostrum was unaffected by mother's education, which might be due to a high prevalence of colostrum use (~82%). However, with respect to maternal occupation, the differences were quite clear with all the working women giving colostrum to their infants. Father's literacy as well as higher occupational categories were also seen to be positively and significantly associated with colostrum feeding. All these findings together indicate that education, awareness and socioeconomic upgradation positively influences the colostrum feeding. These findings in essence support the views of Shroff *et al.* (2011) [12] who were of the view that maternal autonomy positively influences the feeding practices. In fact, economic and financial autonomy seem to positively influence the feeding practices as far as colostrum feeding was concerned.

REFERENCES

1. WHO & UNICEF statement. Protecting, promoting and supporting breast-feeding, the special role of maternity services. Malaysia, IBFAN Sdn Bhd, 1989.
2. Grant JP. The study of the world's children, Oxford University Press, Oxford, 1991, 8-10.
3. Laddunuri MM. Patterns and Determinants of Breast Feeding Practices in Dodoma Municipality, A Cross Sectional Study. *Journal of Food Studies*, 1(1), 2012, 2-5.
4. Guidelines for enhancing optimal infant and young child feeding practices, MOHFW, Government of India, 2013.
5. Madhu K, Chowdary S, Masthi R Breast Feeding Practices and Newborn Care in Rural Areas, A Descriptive Cross-Sectional Study, *Indian J Community Med.*, 34(3), 2009, 243–246.
6. Garg R, Deepti S, Padda A, Singh T. Breastfeeding knowledge and practices among rural women of punjab, India, a community-based study. *Breastfeed Med*, 5(6), 2010, 303-7.
7. Mahmood SE, Srivastava A, Shrotriya VP, et al. Infant feeding practices in the rural population of north India. *J Fam Community Med*, 19, 2012, 130–135.
8. Gupta P, Srivastava VK, Kumar V, Jain S, Masood J, Ahmad N, Srivstava JP. Newborn Care Practices in Urban Slums of Lucknow City, UP. *Indian J Commu Med.*, 35, 2010, 82–5.
9. Mamtarani, Divakar B, Srivastava RK. Socio-Demographic Features and Breast Feeding Profile of Mothers Attending Teaching Hospital in Gujarat State, India. *J Community Med Health Educ*, 2, 2012, 159.
10. Pradhan SK. Guidelines for Enhancing Optimal Infant and Young Child Feeding Practices. Ministry of Health and Family Welfare, Govt. of India, 2013.

However, working status of mothers was found to be positively associated with exclusive breastfeeding with all the working mothers (100%) reporting to follow exclusive breast feeding as compared to 65.3% of housewives. This association in essence reflect the views of Shroff *et al* [12].

CONCLUSION

Despite the efforts of health policy makers, the results show a situation that is not improving. The predictors for breast feeding vary in different parts of world. We need to understand how these potential predictors operate and contribute to different perspectives and practices of breast feeding.

RECOMMENDATIONS

Focus on Appropriate Time for Initiation of Breast Feeding: In present study, we found that initiation of breastfeeding within 1 hr of birth was not done by majority of mothers in both rural and urban areas, thus indicating the need to focus on creating awareness regarding appropriate time for initiation of breastfeeding within 1 hr.

Exclusive Breastfeeding: Although majority of respondents reported of continuing exclusive breastfeeding yet more than one third (33.5%) children were barred from the benefit of exclusive breastfeeding. This indicating that there is still a large gap that needs to be address by creating awareness.

Education: In most of the cases, we found that illiteracy and poor socioeconomic status of the mothers was one of the key factors leading to non-compliance of appropriate feeding practices, hence, it is essential that education in general and that of girls in particular should be promoted.

Further Studies: Interventions and further research should address breast feeding practices in study area.

11. Oommen A, Vatsa M, Paul VK, Aggarwal R. Breastfeeding practices of urban and rural mothers. *Indian Pediatr*, 46(10), 2009, 891-4.
12. Shroff MR, Griffiths PL, Suchindran C, Nagalla BK, Vazir S, Bentley ME. Does maternal autonomy influence feeding practices and infant growth in rural India? *Soc Sci Med*, 73(3), 2011:447–455.
13. Chudasama RK, Amin CD, Parikh YN. Prevalence of exclusive breastfeeding and its determinants in first 6 months of life, A prospective study. *Online J Health Allied Scs.*, 8(1), 2009, 3.
14. Ulak M, Chandyo RK, Mellander L, Shrestha PS, Strand TA. Infant feeding practices in Bhaktapur, Nepal, across-sectional, health facility based survey. *International Breastfeeding Journal*, 7, 2012, 1.
15. Chakrabarty S, Ghosh R, Bharati P. Breastfeeding Practices and Nutritional Status of Preschool Children among the Shabar Tribal Community in Orissa, India. Proceedings of National Symposium on Tribal Health held from 26th to 28th October, 2007 at Varanasi.