Original Article

Comparison of breast feeding practices among urban and rural mothers: A cross-sectional study

Abstract

Introduction: Exclusive breast feeding practice ranks first among the most effective interventions to improve child health. Present study was undertaken to compare breast feeding practices among urban and rural mothers and the factors influencing these practices. **Materials and Methods:** One year long community based cross-sectional study was done at villages namely Vantamuri, Kakati (A and B), Honaga, and Bhutramanahatti; and urban area Khasbag which are the field practice areas of Department of Community Medicine, J. N. M. C., Belgaum. By random sampling, 380 rural mothers and 400 urban mothers having 1-year-old child were selected. Information on sociodemographic variables, breast feeding practices was recorded. **Results:** In the present study, majority of urban (65.00%) as well as rural mothers (64.21%) were between 20 and 24 years of age and were literates (90.25 and 77.89%, respectively). Majority of the mothers in both urban and rural areas gave prelacteal feeds (54.25 and 57.11%, respectively). Many mothers in both rural and urban areas discarded the colostrum, (14.75% in urban vs 25.79% in rural). Initiation of breast feeding after delivery was delayed by 24.50% of mothers in urban and 33.68% of mothers in rural areas. As many as 67.89% rural mothers practiced demand feeding as opposed to 38.75% urban mothers. Age of the mother, education, socioeconomic status, type of family, place of delivery, and education about benefits of breast feeding influenced the breast feeding practices. **Conclusions:** Various inappropriate breast feeding practices are prevalent both in rural as well as urban areas. Elder's advice played an important role in shaping the breast feeding practices.

Key words: Colostrum, ghutti, prelacteal feeds

Ashwini S., Katti S. M.[1], Mallapur M. D.[1]

Departments of Community Medicine, Shri Dharmasthala Manjunatheshwara Medical College, Dharwad, [1]Jawaharlal Nehru Medical College, Belgaum, Karnataka, India

Address for the Correspondence:
Dr. Ashwini S., Department of Community Medicine, Shri Dharmasthala Manjunatheshwara Medical College, Manjushrinagar, Sattur, Dharwad - 580 009, Karnataka, India.
E-mail: ashwini2184@gmail.com

Access this article online

Website: www.ijmedph.org

DOI: 10.4103/2230-8598.127172

Quick response code:

INTRODUCTION

Infants, that is children in the age group of 0-1 year constitute 2.92% of the total population in India.[1] Health of these infants is quiet fragile with increased vulnerability to infections and malnutrition. Hence, the major responsibility of a mother is to maintain and improve her child's health. After all a well-nurtured healthy infant of today is the healthy workforce of tomorrow's nation.

Appropriate breast feeding practice ranks first among the most effective interventions to improve child health. A great asset in India is that an average Indian mother although poor in nutritional status, has a remarkable ability to breast feed her infant for prolonged periods. However, some inappropriate breast feeding practices do exist in India.

Appropriate breast feeding practice means early initiation of breast feeding within 1 h of delivery, no prelacteal feeding, no discarding of colostrum, and giving only breast milk till 6 months of age. A mother needs knowledge regarding these in order to practice them and that depends on the mother's education, her socioeconomic status, her access to information regarding breast feeding, feeding taboos, and so on. Rural mothers are generally not well-educated; do not have better socioeconomic status and difficulty in accessing information regarding breast feeding as compared to their urban counter parts. Hence, this study was taken up to compare the breastfeeding practices and the factors influencing these practices in the urban and rural areas.

MATERIALS AND METHODS

A 1 year long cross-sectional study was carried out from January to December 2011 in urban field practice area under Urban Health Center, Khasbag and rural field practice areas namely Vantamuri, Kakati (A and B), Honaga, and Bhutramanahatti under Primary Health Center, Vantamuri. There were 17 villages under Primary Health Center, Vantamuri. Among these, by using simple random sample method, above named 5 villages were chosen. The urban and rural areas where the study was conducted were the field practice areas of J. N. Medical College, Belgaum.

Multiindicator coverage survey conducted jointly by United Nations Children's Fund (UNICEF) and Government of Maharashtra in all districts of the state showed that the prevalence of exclusive breast feeding in urban area was 49.00% and in rural area was 37.00%.[2] Absolute error of 5.00% was considered and by using the formula $n = 4\ pq/d^2$ sample size was worked out as 400 in urban and 380 in rural areas. Mothers in the above mentioned study areas having child aged 1 year were included in this study.

In urban area, information regarding the births between January and December 2010 were collected in January 2011 from 39 Anganwadis. There were a total of 664 mothers having a 1-year-old child. By simple random sample method, using random number tables, 400 mothers were selected. They were interviewed in the month in which their infants completed 1 year in order to minimize recall bias.

In the rural area, information regarding the births between January and December 2010 were collected in January 2011 from the birth registers of the subcenters of the above mentioned villages. There were 679 mothers and 380 mothers were selected using random number table. They were also interviewed in the month in which their infants completed 1 year.

Residential addresses of these mothers were collected from Anganwadi workers in urban and female health worker of the subcenters in rural areas. Mothers were interviewed using a predesigned, pretested questionnaire regarding sociodemographic factors and breast feeding practices. If the mothers were not present at the time of visit, they were revisited for a maximum of three times. Despite three visits if they were unavailable then next number in the random number table was chosen.

The present study was approved by J. N. M. C. Institutional Ethics Committee on Human subjects' research.

Analysis was done using rates, means, and Chi-square test using Statistical Package for Social Sciences (SPSS) version 18.0 software.

RESULTS

A majority of 260 (65.00%) urban as well as 244 (64.21%) rural mothers were in the age group of 20-24 years with a mean age of 23.45 ± 2.34 years in urban and 23.20 ± 2.64 years in rural area. Among the study participants, as many as 331 (82.75%) urban and 322 (84.74%) rural mothers were Hindus. Literates were more among urban participants with 361 (90.25%) urban and 296 (77.89%) rural mothers being literates. Whereas, occupation wise 44 (11.58%) rural mothers were employed in various jobs as opposed to 23 (5.75%) urban mothers. In the urban area, 130 (32.50%) mothers belonged to the families with per capita income less than Rs. 950/- compared to 155 (40.79%) rural mothers. None of the urban participants had delivered at home; whereas, 32 (8.42%) rural mothers had done so [Table 1]. Among those who had delivered at a hospital, as many as 370 (92.50%) urban and 294 (84.48%) rural mothers were told about the benefits of breast feeding in the hospital ($\chi^2 = 27.327$, DF = 1, $P < 0.001$).

Practice of giving prelacteal feeds was prevalent among 217 (54.25%) urban and 217 (57.11%) rural mothers; most commonly in the form of sugar water by as many as 96 (44.24%) urban and 132 (60.82%) rural mothers [Table 2].

As many as 59 (14.75%) urban and 98 (25.79%) rural mothers discarded the colostrum [Table 2]. Most of the mothers had discarded the colostrum as per the elders' advice (22.03% urban and 60.20% rural mothers).

Inititation of breast feeding was delayed beyond 4 h by 98 (24.50%) urban and 128 (33.68%) rural mothers [Table 2]. Most common reason quoted by urban mothers for delayed initiation of breast feeding after delivery was their physical inability like pain or tiredness (38.78%); whereas, in rural area it was because of elders who advised not to initiate breast feeding early (46.09%).

Ghutti is a paste of almonds, dates, and other medicinal plants. Practice of giving Ghutti to their infants was more common in

Table 1: Distribution of study participants according to sociodemographic variables

Sociodemographic variables	Urban (%) *N* = 400	Rural (%) *N* = 380
Age (years)		
<19	22 (5.50)	20 (5.26)
20-24	260 (65.00)	244 (64.21)
≥25	118 (29.50)	116 (30.53)
Religion		
Hindu	331 (82.75)	322 (84.74)
Muslim	69 (17.25)	56 (14.74)
Christian	0 (0.00)	2 (0.52)
Literacy status		
Illiterate	39 (9.75)	84 (22.11)
Literate	361 (90.25)	296 (77.89)
Occupational status		
Housewife	377 (94.20)	336 (88.42)
Working	23 (5.80)	44 (11.58)
Socioeconomic status		
APL	270 (67.50)	225 (59.21)
BPL	130 (32.50)	155 (40.79)
Place of delivery		
Hospital	400 (100.00)	348 (91.58%)
Home	0 (0.00)	32 (8.42%)

APL= Above poverty line, BPL = Below poverty line

Table 2: Distribution of study participants according to various breast feeding practices

Breast feeding practices	Urban (%) *N* = 400	Rural (%) *N* = 380	
Prelacteal feeds given			χ^2=0.664,
Yes	217 (54.25)	217 (57.11)	DF=1,
No	183 (45.75)	163 (42.89)	*P*=0.422
Colostrum given			χ^2=14.772
Yes	341 (85.25)	282 (74.21)	DF=1
No	59 (14.75)	98 (25.79)	*P* < 0.001
Initiation of breast feeding after delivery			χ^2=11.99
<1 h	170 (42.50)	163 (42.89)	DF=2
1-4 h	132 (33.00)	89 (23.43)	*P*=0.002
>4 h	98 (24.50)	128 (33.68)	
Demand feeding practiced			χ^2=66.442,
Yes	155 (38.75)	258 (67.89)	DF=1,
No	245 (61.25)	122 (32.11)	*P* < 0.001
Ghutti given to the infant before 6 months of age			χ^2=122.8,
Yes	125 (31.25)	6 (1.58)	DF=1,
No	275 (68.75)	374 (98.42)	*P* < 0.001
Type of breast feeding			
Exclusive	65 (16.25)	58 (15.26)	χ^2=0.17,
Predominant	309 (77.25)	296 (77.89)	DF=2,
Partial	20 (5.00)	26 (6.85)	*P*=0.921
Token	6 (1.50)	0 (0.00)	

DF = Degrees of freedom

mothers of urban area. As many as 125 (31.25%) urban mothers compared to six (1.58%) rural mothers gave Ghutti to their infants before 6 months of age [Table 2]. Most of the urban as well as rural mothers did so as per the elder's advice (93.60 and 100.00%, respectively). As many as 295 (73.75%) urban and 286 (75.26%) rural mothers had given water alongside breast milk even before 6 months of age to their infants.

Difference among urban and rural mothers in the practices of discarding colostrum, delaying initiation of breast feeding beyond 4 h, demand feeding, and giving Ghutti to the infant before 6 months of age was statistically significant ($P < 0.05$).

Indicators of breast feeding were calculated. Early initiation of breast feeding rate was 42.50% in urban and 42.89% in rural area. Exclusive breastfeeding rate under 6 months of age was 16.25% in urban and 15.26% in rural area. Continued breast feeding rate at 1 year was 100% in urban and 99.21% in rural area.

In the urban area, practice of giving prelacteal feeds was significantly associated with religion, age of the mother, educational status of the mother, socioeconomic status, type of family, and mother receiving information about benefits of breast feeding in the hospital; whereas, in the rural area factors associated with this practice were place of delivery and information given to the mother regarding benefits of breast feeding in the hospital ($P < 0.05$).

A significant association was found between the practice of discarding colostrum and educational status of the mother, socioeconomic status, and being informed about the benefits of breast feeding in the hospital in the urban area. However, in the rural area the only factor having significant association with this particular practice was the information given to the mother regarding benefits of breast feeding to the mother in the hospital ($P < 0.05$).

In the rural area, no sociodemographic factors had significant association with the practice of delaying the initiation of breast feeding beyond 4 h after delivery. Nevertheless, more number of illiterate mothers (38.46%) had delayed initiation of breast feeding beyond 4 h compared to literate mothers (21.37%) in the urban area and this association was statistically significant ($P < 0.05$).

DISCUSSION

Purpose and benefits of breast feeding has been stressed all over the world by various health organizations and community-based programs and approaches. The present study was carried out to compare urban and rural areas to know which has better breast feeding practices and also to know other sociodemographic factors influencing the breast feeding practices.

A national survey[3] had showed that rural area is better than urban area in breast feeding practices summarized as exclusive breast feeding being 48.3% in rural and 40.3% in urban area. In the present study, the observation was contrary to what was observed in the national survey. Urban area appeared better in all the aspects of breast feeding than rural area. However, breast feeding practices were still suboptimal in both the areas.

The current study observed that prelacteal feeds were given by almost same proportion of 54.25% mothers in urban and 57.11% mothers in rural areas [Table 2]. On the contrary, in a study done by Qiu *et al.*,[4] as many as 62.00% mothers in urban area and 39.00% mothers in rural area gave prelacteal feeds. Probably, a strong custom of sweetening the newborns' mouth prevailing in the entire district can be held responsible for almost same proportion of study participants giving prelacteal feeds to their infants in urban as well as rural study areas.

The practice of giving prelacteal feeds was significantly associated with religion, age of the mother, educational status of the mother, and socioeconomic status indicating that a woman should bear a child at an appropriate age only when she understands the correct infant feeding practice and its importance. Apart from that women education and income generation raising her socioeconomic status are also equally important. Mother receiving information about benefits of breast feeding in the hospital was significantly associated with her practice of giving prelacteal feeds in urban as well as rural area in addition to place of delivery in the rural area. This observation stresses on the fact that hospital deliveries are always preferable and also it is important for the hospital personnel to emphasize the benefits of breast feeding to the mothers in order to develop and sustain appropriateness of feeding practices. Consistently, several studies[5-8] have showed statistically significant association of age, educational level, socioeconomic status, place of delivery, not being

informed about exclusive breast feeding with practice of giving prelacteal feeds ($P < 0.05$).

Practice of discarding colostrum was significantly different between urban and rural mothers with 14.75% urban and 25.79% rural mothers discarding the colostrum ($P < 0.05$) [Table 2]. Majority of the mothers had done so on elders' advice. Similarly, in a study carried out by Yadav and Singh[9] in Bihar it was seen that 62.50% urban and 66.40% rural mothers discarded colostrum and also had done so on elders' advice. Hence, it is advisable to health educate not only mothers but also the elders of the family.

Significant association was observed between educational status of the mother, socioeconomic status, and being informed about the benefits of breast feeding in the hospital in the urban area and with information given to the mother regarding benefits of breast feeding to the mother in the hospital in the rural area. Yet again, the observation imposes the importance of women education, financial status, and health education given in the hospital.

Inititation of breast feeding was delayed beyond 4 h by 24.50% urban and 33.68% rural mothers which was a statistically significant difference ($P < 0.05$) [Table 2]. Most commonly, urban mothers had delayed initiation of breast feeding after delivery due to their physical inability like pain or tiredness (38.78%); whereas, in rural area it was because of elders who advised not to initiate breast feeding early (46.09%). This observation is supported by a study carried out by Gupta *et al.*,[10] in urban slum of Lucknow which revealed that only 36.60% mothers initiated breast feeding within 1 h of delivery and most common reasons given for delayed initiation were family custom/belief (52.10%), no secretion of breast milk (31.00%), and discomfort in the mother (16.90%). Hence, mothers need appropriate physical and mental support in the hospital, post-delivery by breast feeding support groups encouraging them to breast feed more, and more along with apt health education to mothers and most importantly care giving elders of the family.

Though demand feeding which actively involves the infant in controlling the breast milk intake is desirable, only 67.89% of rural mothers practiced it. Among the urban mothers it was even lesser at 38.75% [Table 2]. Difference in the practice of demand feeding among urban and rural mothers was statistically significant ($P < 0.001$). It has been observed that more rural mothers were working compared to urban mothers. Hence, probably it was not possible for them to practice scheduled feeding as done by urban mothers. Apprehension among the urban mothers regarding the growth of the infant may also be the reason for their time bound feeding.

On the contrary, a study on infant feeding practices by Parekh *et al.*,[11] in Parel, Mumbai showed that feeds were given on demand by as many as 73.68% mothers and yet another study by Panda *et al.*,[12] in Cuttack showed that 90.10% of mothers fed their infants on demand.

Nearly one-third of urban mothers compared to only 1.58% rural mothers gave Ghutti to their infants before 6 months of age [Table 2]. This difference probably was due to the high cost of ingredients of Ghutti, limiting rural mothers from using it. Since Ghutti is made of ingredients with high nutritive value, its health effects should be studied before labeling it as inappropriate infant feeding practice. However, it can be dangerous if not prepared hygienically spreading gastroenteric infections and predisposing the infant to the vicious infection — malnutrition cycle. For the same reason, giving water to the infant to drink should also be discouraged and mothers should be made aware that breast fed infant does not require water to drink as breast milk gives enough hydration. Extra fluids displace breast milk, and do not increase overall intake.[13]

Exclusive breast feeding rate at 6 months was as low as 16.25% in urban and 15.26% in rural area. Majority of mothers practiced predominant breast feeding in both urban and rural area (77.25 and 77.89%, respectively) [Table 2].

Various studies[4,14,15] at international level showed that exclusive breast feeding rate ranged from 10.70 to 61.00%. Studies[2,6,7,16-20] done in various states of India have showed that exclusive breast feeding rate ranged from 23.50 to 69.35%. A study done in villages of Central Karnataka by Banapurmath *et al.*,[21] showed that exclusive breast feeding rate at 4 months was 61.26%.

Women education and improvement in socioeconomic status which can be achieved by income generating activities are to be encouraged. Institutional deliveries must be scaled up to 100% through involvement of grass root level workers who can reach the corner of a village and promote institutional deliveries. IEC campaigns (information, education, and communication) also involving grass root workers and local leaders must target not only the mothers, but also the entire family particularly elderly women of the family.

In the present study, since only mothers having children aged 1 year were included in order to minimize the recall bias regarding breast feeding practices; and hence, it was not possible to know the proportion of mothers who continued breast feeding till recommended 2 years of age.

Further studies are needed to study in depth the cultural factors forcing the mothers to adopt faulty breast feeding practices for which targeted interventions can be planned, piloted, and tested. In addition, follow-up studies can be done to know the breast feeding continuation rate at the age of 2 years.

CONCLUSION

Present study revealed that various inappropriate breast feeding practices are prevalent in both urban and rural areas though urban mothers had more favorable practices compared to rural mothers. Mothers' education, her socioeconomic status, place

of delivery, and receiving information in the hospitals about benefits of breast feeding influenced the breast feeding practices. Elders' advice played an important role in shaping the breast feeding practices.

ACKNOWLEDGEMENTS

We are thankful to all the Anganwadi workers of the urban area and female multipurpose health workers of the rural areas for furnishing the list of mothers with a child aged 1 year and ASHA workers for showing the houses of those mothers in the rural area.

We are also very grateful to the Principal and all the staff, Department of Community Medicine, J. N. Medical College, Belgaum, for letting us conduct this study in the field practice areas besides their immense support and able guidance.

Most importantly we are thankful to the mothers of the infants for their cooperation.

REFERENCES

1. Park K. Park's Textbook of Preventive and Social Medicine. 21st ed. Jabalpur: Banarasidas Bhanot; 2011. p. 489, 497.
2. Kameshwararao AA. Breast feeding behaviour of Indian women. Indian J Community Med 2004;29:62-4.
3. India: National family Health Survey 3 (NFHS 3) 2005-06. Mumbai, India: International Institute of Population Sciences 2007:215, 218, 223.
4. Qiu L, Zhao Y, Binns CW, Lee AH, Xie X. A cohort study of infant feeding practices in city, suburban and rural areas in Zhejiang Province, PR China. Int Breastfeed J 2008;3:4. [Internet]. Available from: http://www.internationalbreastfeedingjournal.com/content/3/1/4 [Last accessed on 2012 Jun 28].
5. Kulkarni RN, Anjenaya S, Gujar R. Breast Feeding practices in an urban community of Kalamboli, Navi Mumbai. Indian J Community Med 2004;29:179-80.
6. Roy S, Dasgupta A, Pal B. Feeding practices of children in an urban slum of Kolkata. Indian J Community Med 2009;34:362-3.
7. Semwal J, Kishore S, Kar S, Gupta S. Breast-feeding practices among mothers and associated malnutrition in children of rural areas, Dehradun. Indian J Community Health 2008;20:3-6.
8. Monika, Shubhangna, Raj. Factors affecting infant feeding practices among women of baijnath block of Himachal Pradesh. J Hum Ecol 2004;16:29-32.
9. Yadav RJ, Singh P. Knowledge, attitude and practice of mothers about breast-feeding in Bihar. Indian J Community Med 2004;29:130-1.
10. Gupta P, Srivastava V, Kumar V, Jain S, Masood J, Ahmad N, *et al*. Newborn care practices in urban slum of Lucknow City, UP. Indian J Community Med 2010;35:82-5.
11. Parekh C, Bavdekar S, Shaharao V. Study of infant feeding practices: Factors associated with faulty feeding. J Trop Pediatr 2004;50:306-8.
12. Panda M, Kar K, Mohapatra B. Infant feeding practices of urban mothers. [Internet]. Available from: http://www.docstoc.com/docs/118623009/INFANT-FEEDING-PRACTICES-OF-URBAN-MOTHERS [Last accessed on 2012 Jul 04].
13. WHO. Infant and young child feeding Model Chapter for textbooks for medical students and allied health professionals. Geneva, World Health Organization, 2009. [Internet]. Available from: www.who.int/maternal_child_adolescent/documents [Last accessed on 2011 Feb 12].
14. Xu F, Binns C, Nazi G, Shi L, Zhao Y, Lee A. A comparison of breastfeeding among Han, Uygur and other ethnic groups in Xinjiang, PR China. BMC Public Health 2006;6:196. [Internet]. Available from: http://www.biomedcentral.com/1471-2458/6/196 [Last accessed on 2012 Jun 28].
15. Saha KK, Frongillo EA, Alam DS, Arifeen SE, Persson LA, Rasmussen KM. Appropriate infant feeding practices result in better growth of infants and young children in rural Bangladesh. Am J Clin Nutr 2008;87:1852-9.
16. Medhi GK, Mahanta J. Breastfeeding, weaning practices and nutritional status of infants of tea garden workers of Assam. Indian Pediatr 2004;41:1277-9.
17. Kumar D, Goel NK, Mittal PC, Misra P. Influence of infant-feeding practices on nutritional status of under-five children. Indian J Pediatr 2006;73:417-21.
18. Chakrabarty S, Ghosh R, Bharati P. Breastfeeding practices and nutritional status of preschool children among the shabar tribal community in Orissa, India. Proceeding of National symposium on tribal health. 227-34. [Internet]. Available from: www.rmrct.org/files_rmrc_web/centre's_publications/NSTH_O6/NSTH06_29 [Last accessed on 2010 Jun 15].
19. Fazilli A, Bhat IA, Iqbal M, Abid A, Jabeen R. Infant feeding practices of multiparous women attending the antenatal clinic in a tertiary care hospital. Int J Med Public Health 2011;1:47-50.
20. Bobhate PS, Shrivastava SR. Breastfeeding practices and factors associated with it: A cross sectional study among tribal women in khardi primary health centre, Thane, India. Int J Public Health Res 2012;2:115-21.
21. Banapurmath CR, Nagaraj MC, Banapurmath S, Kesaree N. Breastfeeding practices in villages of central Karnataka. Indian Pediatr 1996;33:477-9.

How to cite this article: Ashwini S, Katti SM, Mallapur MD. Comparison of breast feeding practices among urban and rural mothers: A cross-sectional study. Int J Med Public Health 2014;4:120-4.

Source of Support: Nil, **Conflict of Interest:** None declared.