

Comparison of Infant feeding practices among rural and urban mothers: an observational study

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Abstract

Background: Infant feeding practices are the major determinants of nutritional status of infants and young children. Present study was undertaken to compare the infant feeding practices of rural and urban mothers and the factors influencing these practices. **Methods:** An observational study was carried out in department of Paediatrics, C R Gardi hospital (CRGH) associated with R D Gardi Medical College (RDGMC), Ujjain Charitable Trust Hospital (UCTH), a unit of C R Gardi Hospital and urban health centre, associated with R D Gardi Medical College, Ujjain. The present study included a total of 1000 children of which 500 were from rural and 500 from urban background over a period of one year. Information on breast feeding and complementary feeding practices was recorded. **Results:** In the present study, maximum children in both rural and urban areas were between age group of 12-36 months and majority of children of rural area were males. Significantly higher proportion of rural mothers was labourer, illiterate and belongs to low socioeconomic status groups. Majority of rural mothers discarded colostrums and offered prelacteal feeds to their babies. Significantly higher proportion of urban mothers started early initiation of breast feeding after delivery. Formula milk feeding was commoner in urban babies but bottle feeding was significantly higher in rural babies. **Conclusion:** Feeding practices are poor in rural area so mothers should receive counselling regarding early initiation, colostrum feeding and appropriate complementary feeding practices. Steps should be taken to improve the educational status of females especially among rural mothers.

Keywords: Infant feeding practices, Complementary feeding, Breast feeding.

Introduction

Appropriate feeding practices are of fundamental importance for the survival, growth, development and nutrition of infants and children everywhere. Amongst various factors that affect the growth of various organs of a child, the most important factor is the nutrition. The optimal duration of exclusive breastfeeding is one of the crucial public health issues that the World Health Organization (WHO) has been keeping under continued review [1]. Continued and frequent breastfeeding protects child health by reducing risk of morbidity and mortality [2]. Maternal factors such as educational status of mother, occupation or work status of mother is associated with infant feeding practices [3]. The

prevalence of breast feeding in India is high, however there are many traditional practices associated with breast feeding, of which certain undesirable practices like delay in initiating breast feeding, prelacteal feeding and rejection of colostrum need to be discouraged [4]. Optimal Infant and Young Child Feeding practices especially early initiation and exclusive breastfeeding for the first six months of life help ensure young children the best possible start to life. Optimal complementary feeding depends not only on what is fed but also on how, when, where and by whom a child is fed [5]. At 6-11 months of age malnutrition is 43%, which could be due to inadequate breastfeeding and inappropriate non exclusive breastfeeding and inappropriate complementary foods and then at two

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years this percentage goes upto about 63% again could be due to inadequate food or inappropriate practices [6]. Mothers with more education are more likely to adopt appropriate health promoting behaviour including feeding habits [7]. Malnutrition has been responsible, directly or indirectly, for 60% of the 10.9 million deaths annually among children under five. Well over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life [8]. The prevalence of under nutrition is the highest in Madhya Pradesh (55%) [6]. The prevalence of under-weight children under three years and five years of age are 47 percent, 43 percent respectively. About 55 million, or one-third, of the world's underweight children under age five live in India.

It is clear that infant feeding practices are the major determinants of nutritional status of infants and young children which in turn can be affected by various socio demographic factors. So the present study was designed as an observational study to understand and compare the locally prevalent infant feeding practices and the factors influencing these practices of rural and urban mothers.

Material and Methods

Study area: The present an observational study was carried out in the department of Paediatrics C R Gardi hospital (CRGH) associated with R D Gardi Medical College (RDGMC), Ujjain Charitable Trust Hospital

Results

There were total 100 children were included in this study, 500 in each group (rural & urban) were divided.

Table: 1 Age and gender-wise distribution of study group in rural and urban area

Age group (months)	Rural (n=500)				Urban (n=500)			
	Male		Female		Male		Female	
	No	%	No	%	No	%	No	%
0-6	53	18.7	37	17.1	52	22.0	54	20.5
6-12	66	23.3	54	24.9	83	35.2	110	41.7
12-36	164	58.0	126	58.1	101	42.8	100	37.9
Total	283	100	217	100	236	100	264	100

Table 1 shows that Proportion of males in rural group was significantly higher than urban group (56.6% vs 47.2%; $p=0.003$). Maximum children were between age group of 12-36 months in both rural and urban groups.

(UCTH), a unit of C R Gardi Hospital and urban health centre, associated with R D Gardi Medical College, Ujjain over a period of one year from January 2010 to December 2010.

Inclusion criteria: All the children who were 0 to 3 year of age & free from significant illness were included in this study.

Exclusion criteria: The children were disqualified from study if they were above 3yrs of age, having congenital anomaly and having systemic illness.

A total 1000 children were taken in two groups, the study population consisted of 500 rural and 500 urban children from birth to 3 years of age were included in this study. A validated semi- structured questionnaire was used. Mothers were informed about study and they were interviewed about feeding practices and socio demographic profile. Informed consent was taken from the parents. The present study was approved by R.D. Gardi Medical College Institutional Ethics Committee.

Analysis of data: The Statistical Package for Social Sciences (SPSS) version 19.0 software was used for analysis of data. Data was the presented in the form of numbers, percentage, mean and standard deviation. Chi-square (χ^2) test was applied to find out the significant difference between the proportions. A P value of less than 0.05 was considered significant.

Table: 2 Socio demographic profile of the study group

Parameter		Rural (n=500)		Urban (n=500)		P Value
		No	%	No	%	
1.Mother's occupation	House wife	311	62.2	376	75.2	0.000
	Labourer	169	33.8	72	14.4	
	Service class	20	4.0	52	10.4	
2.Mother's education	Illiterate	387	77.4	146	29.2	0.000
	literate	113	22.6	354	70.8	
3.Socio economic status	Lower	457	91.4	188	37.6	0.000
	Middle	36	7.2	276	55.2	
	upper	7	1.4	36	7.2	

Table 2 shows that a significantly higher proportion of women in rural population were labourer ($p<0.000$), Literates were more among urban participants with 354 (70.8%) urban and 113 (22.6%) rural mothers being literates. Majority of rural population belonged to lower socioeconomic status (91.4%), ($p<0.000$).

Table: 3 Breast feeding practices among study group in rural and urban area.

Variables		Rural (n=500)		Urban (n=500)		P value
		No	%	No	%	
1.Initiation of BF	<1 hr	271	54.2	359	71.8	0.000
	1hr-4 hr	69	13.8	74	14.8	
	>1hr	160	32.0	67	13.4	
2.Frequency	< 8times	120	24.0	60	12.0	0.000
	≥ 8 times	380	76.0	440	88.0	
4.Prelacteal feed	Given	251	50.2	92	18.4	0.000
	Not given	249	49.8	408	81.6	
5.Type of pre lacteal feeds	Sugar water	42	16.7	15	16.3	0.000
	Honey	33	13.2	0	0	
	Tea	30	12.0	11	11.9	
	Kadha	86	34.2	0	0	
	Milk(animal)	60	23.9	66	71.8	
6.Colostrum	Given	347	69.4	479	95.8	0.000
	Not given	153	30.6	21	4.2	
7.Exclusive BF till 6 months	Given	293	58.6	370	74	0.000
	Not given	207	41.4	130	26	

Table 3 shows that Initiation of breast feeding was delayed beyond 4 h by 160 (32%) rural and 67 (13.4%) urban mothers. Frequency of breast feeding ≥ 8 times/day was more prevalent in urban mothers (88%) than rural mothers (76%). Practice of giving prelacteal feeds was more prevalent among 251 (50.2%) rural as compared with 92 (18.4%) urban mothers; most commonly in the form of kadha 86 (34.2%) by rural mothers and animal milk 66 (71.8%) by urban mothers. As many as 153 (30.6%) rural and 21 (4.2%) rural mothers discarded the colostrum. Most of the urban mothers had given exclusive breast feeding till 6 months of age.

Table: 4 Prevalence of bottle feeding and use of commercial formula feed in rural and urban area

Feeding practices		Rural(n=500)		Urban(n=500)		P value
		No	%	No	%	
1.Bottle feeding	Given	175	35.0	97	19.4	0.000
	Not given	325	65.0	403	80.6	
2.Formula milk	Given	10	2	36	7.2	0.000
	Not Given	490	98	464	92.8	

Table 4 shows that higher proportions of babies in rural areas were bottle fed in comparison to urban areas. Difference was statistically significant (35% Vs 19.4%; $p=0.000$). Only 7.2% among urban population and 2% of rural population gave their infants commercial formula feeds, (7.2% Vs 2%; $p=0.000$).

Table: 5 Complementary feeding practices in children of rural and urban areas

Complementary feeding practices		Rural(n=419)		Urban (n=385)		P value
		No	%	No	%	
1.Time of introduction	Appropriate	311	74.2	356	92.5	0.000
	Delayed	108	25.8	29	7.5	
2.Type	Milk based	181	43.2	70	18.2	0.000
	Cereal based	69	16.5	32	8.3	
	Mixed	169	40.3	283	73.5	
3. Frequency	Inappropriate	50	11.9	38	9.9	0.349
	Appropriate	369	88.1	347	90.1	

Table: 5 demonstrate comparison between complementary feeding practices of rural and urban population. Significantly higher proportion of rural mothers introduced complementary feeds at a later age than required in comparison to the urban mothers (25.8 % vs. 7.5%; $p=0.000$). In rural area, milk based CF was given in 43.2% mixed in 40.3 % and cereal based in 16.5% of the cases. In urban population, most common complementary feed was mixed type (73.5%), followed by milk based (18.2%) and least common was cereal based (8.3%). Higher proportion of rural children were given complementary feeds less than recommended age specific appropriate frequency than urban children (11.9% vs 9.9%, $p=0.349$).

Discussion

Optimal infant and young child feeding practices are crucial for growth, development and ultimately the survival of infants and young children [9]. Feeding practices include breast feeding and complimentary feeding practices. Several factors like maternal age, education, socio economic status, marital status, breast feeding support and counselling affect the feeding practices [3].

Purpose and benefits of breast feeding and complementary feeding at appropriate time has been stressed all over the world by various health organizations and community-based programs and approaches. In the present study, we have tried to find out and compare the prevalent feeding practices in rural and urban areas in children below 3 years and also to know other socio demographic factors influencing the breast feeding practices. 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.

Current study observed that proportions of males were significantly higher in the rural population and literacy rate of females in urban group was three times higher than that of rural group. Significantly higher proportion of rural children belonged to lower socio economic status in our study. In the present study, significantly higher proportion of urban mothers initiated breastfeeding within one hour than rural mothers (71.8%vs54.2%). Data are quite variable all over India, while NFHS- 3 data show that only 25% of mothers had initiated breastfeeding within one hour after birth [10]. Several other studies showed prevalence of initiation of breast feeding within one hour was 70 % in Surat [11],

61.3% at Navi Mumbai [4] and 38% at slums of Bhavnagar city Gujarat [12].

Present study showed that 50.2% of rural and 18.4% of urban babies received prelacteal feeds and most prevalent prelacteal feed in rural area was kadha (86%), while in urban most common prelacteal was animal milk (71.8%). On the contrary, in various studies prevalence of prelacteal feeds was 50.8% [13], 40% [14], 19% [15]. 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.

In the present study colostrum was given to 95.8% of urban and 69.4% of rural babies. There is variation in prevalence of giving colostrums countrywide. According to various studies, acceptance of colostrum was 95% [4], 51.1% by santhal and 66% by non santhal mothers, where as 11.8% of woman gave colostrums to their babies in rural area of Aligarh, UP [16].

In present study practice of giving exclusive breast feeding till 6 months of age was found in 90.2% of urban and 74.4% of rural population. It is quite satisfactory as compared with NFHS-3 data and other studies. Studies [17-20] done in various states of India have showed that exclusive breast feeding rate ranged from 23.50 to 69.35%.

In the present study, bottle feeding was practiced by 35.0% of rural and 19.4% of urban mothers. Formula milk feeding was done by 2% of rural and 7.2% of urban. Previous studies have reported a comparable bottle feeding prevalence of 23% [21], 14.8% [22] and 10.2% [23] and various other studies reported prevalence of commercial formula milk 16% [23] and 26% [24].

In present study timely introduction of complementary food was found in 92.5% of urban and 74.2% of rural population, which was quite higher than reported by other studies. According to Bhavdekar SB et al [21] 48% of children timely started complementary food in Bombay slum. Complimentary feeding at 6-9 months of age was reported to be 71.7% in Kolkata by Roy S et al [17] and 38.7% in Allahabad [14].

In present study most common complementary food in rural population was milk based preparation (43.2%), whereas in urban area most common complementary food was mixed type (73.5%). Taneja DK et al [24]

conducted a study to know the feeding practices in rural area of Delhi and their results showed that only 65.1% of children were given semisolids between 6-9 months.

In present study most of the children in both the groups (88.1% rural and 90.1% in urban) were fed with appropriate frequency according to age as per IMNCI Guidelines, which was quite higher than other studies. Sinhababu A et al [23] found that proportion of children between 6-11 months and 12-23 months being fed as age specific appropriate feeding IMNCI guidelines were 15.2% and 8.7% respectively.

Higher occurrence of maternal illiteracy and lower socio economic status are also found to be associated with poor feeding practices. Feeding practices have been found to be better in the present study which can be partly explained by the fact that it was a hospital based study and those mothers who approach health care facilities for minor illnesses of their babies may receive counselling regarding immunization and feeding which improves their practices. So more studies are requiring in the future knowing local culture and feeding practices.

Conclusion

Present study revealed that infant and young child feeding practices are poor in rural as compared to urban area. Higher occurrence of maternal illiteracy and lower socio economic status are also found to be associated with poor feeding practices in rural area, While urban mothers had more favourable practices compared to rural mothers. Steps should be taken to improve the educational status of females especially among rural population. Mothers should receive counselling regarding early initiation, colostrum feeding, frequency, duration of exclusive breast feeding and appropriate complementary feeding practices.

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