Increasing the Coverage of Breastfeeding within One Hour of Birth in Institutional Delivery – A Gap Analysis

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Abstract

Background: Breastfeeding is the ideal source of nutrition for first six month of life which is globally recognised. There are various advantages of optimal breastfeeding but a still breastfeeding rate in Bihar is only 31 % within one hour of birth. This might be attributed to various social, cultural and economical factors. Since there is limited local data on the knowledge, attitudes and practices of women toward breastfeeding. Hence, we planned this study to assess knowledge, attitude and practices (KAP) of mothers regarding breastfeeding and influence of socio-demographic profile on them.

Methods: A cross sectional study was conducted on 350 mothers coming to the rural and urban areas of a district with infants between 0-6 months. The data was collected using a predesigned questionnaire based on KAP about breastfeeding. The data was analyzed using (SPSS) version 23.0.

Results: Our study shows that regarding knowledge of breastfeeding, in rural group 41% considered Colostrum as first breast milk. In contrast in urban group, 64% were aware that it was first breast milk (p=0.001). Regarding practices, 58% of rural women had started breastfeeding within one hour while only 41% of urban women did the same (p=0.016). Regarding attitude, 79% women of urban area agreed regarding goodness of Colostrum for health followed by 47% of rural women (p≤0.00001). Most of the women agreed to the belief that a baby should burp after feeding (91% rural and 85% urban).

Conclusions: The gap between KAP regarding breastfeeding exists in rural and urban setups. So, proper strategies should be planned depending on socio-demographic profile.

Keywords: Breastfeeding, Colostrum, Infant, Complementary feeding.

1. Introduction

It has been globally recognized the benefits of breastfeeding for infants as an ideal source of nourishment till six months of life. Early breastfeeding within one hour and for first 6 months are key interventions to achieve Millennium Development Goals (MDG) 1 & 4, related to child malnutrition and mortality respectively. The World Health Organization (WHO) recommends continued breastfeeding up to two years of age or beyond and it has been estimated that optimal breastfeeding of children younger than two years, could annually save the lives of over 800,000 children under five years of age.

WHO defines “exclusive breastfeeding" as no other food or drink, not even water, except breast milk (including milk expressed or from a wet nurse) for six months of life, but allows the infant to receive ORS, drops and syrups (vitamins, minerals and medicines).

As per National Family Health Survey (NFHS)-4 (2015-16), only 42 percent of children under 6 months are exclusively breastfed in India. Continuous vigilance over infant feeding practices in the community is necessary for timely interventions, to ensure optimal growth and development.

Pre lacteal feeds should not be given but still the majority of woman give sugar water or honey. Discarding the Colostrum is still practiced widely. The Colostrum is rich in vitamins, minerals, and immunoglobulin that protect the child from infections. Practice of breastfeeding among Indian mothers is almost universal, but initiation of breastfeeding is quite late and the Colostrum is usually discarded. Breastfeeding practices in rural communities are shaped by their beliefs, which are influenced by social, cultural, and economic factors.

Moreover, to bring a significant change in breastfeeding practices, local data regarding knowledge, attitude and practices needs to be collected and addressed. Therefore, we aimed to identify the influence of socio-demographic factors on knowledge and attitudes and practices (KAP) of women regarding breastfeeding.

Breastfeeding is one of the known best practices, which if implemented widely can reduce neonatal mortality rate by 20 percent. The first 1000 days are critical for any child and regarded as a window of opportunity for survival and development. Good nutrition in the first 1000 days of life is critical to enabling children to develop their cognitive and physical capacity that leads to healthier and more productive lives. One of the key reasons of under nutrition in early life is faulty and sub optimal infant and young child feeding practices. The trends in three major Infant and Young Child Feeding (IYCF) indicators over the last 15 years for the Bihar State are as below:

- Children breastfed within 1 hour of birth- 5.4% (NFHS-2, 1998-99); 4% (NFHS-3, 2005-06), 34.9% (NFHS-4) and 31.1% (NFHS-5).
- Children (0-6 months) exclusively breastfed- 27.9% (NFHS-3, 2005-06), 53.4% (NFHS-4) and 58.9% (NFHS-5).• Children (6-9 months) receiving solid and semi-solid food with breast milk- 57.3% (NFHS-3, 2005-06), 30.8% (NFHS-4) and 39% (NFHS-5).

Recent new evidence on the health and economic benefits of breastfeeding (The LANCET 2016) indicates that the universalization of optimal breastfeeding practices in India could reduce around 156,000 child deaths, mainly by protecting against diarrhoea and pneumonia. It is also estimated that cognitive losses associated with not breastfeeding which impact upon earning potential could amount to a loss of Rs.4300 Crores annually in India.

In Bihar effective implementation of these interventions is yet to be achieved. National Family Health Survey (NFHS)-5 (2019-20) data show proper initiation & continuation of breast feeding in children under 6 months is only 31 percent in NFHS-5 (2019-20) which reduced from 34.9 percent in NFHS-4 (2015-19). To formulate any effective strategy to improve infant nutrition it is essential to have an insight into existing knowledge, attitude and practices about infant feeding practices prevailing in the community.

So far as Institutional Delivery is concerned, it has improved significantly from 63.8% in 2015-16 (NFHS 4) to 76.2% in 2019-20 (NFHS 5) in Bihar. Thus, there is a visible gap of around 45 percentage points between Institutional Delivery and breastfeeding with one hour of birth. It would be rather easy to improve the coverage of breastfeeding within one hour of birth for births taking place at institutions.

2. Objective:

- To assess the coverage of breastfeeding within one hour of birth in institutional facilities.

- To identify the issues associated with low coverage.
- To suggest interventions for improving 100% coverage vis. a vis. institutional delivery.

3. Methodology:

The analysis is based on the primary as well as the secondary data related to institutional delivery for breastfeeding within one hour of birth available in the health facilities for delivery in the selected district.

To complement the secondary data primary information was also collected by discussion with the beneficiaries. All the data were analysed with the statistical tools for calculations and based on that conclusion were drawn.

3.1 Sample Design:

The sampling design was adopted as the mixed approach of qualitative and quantitative methods.

- Primary and secondary methods of data collection were adopted for analysis purposes.
- Quantitative was exercised for the data collection through telephonic interview based on the structures schedules during the COVID-19 pandemic.**3.2 Sample size:**

The sample size was calculated on the basis of prevalence (p) of exclusive breast-feeding NFHS-5 (2019-20) using the formula,

$$n= 4p (1-p)/d^2$$

d = allowable error 7.5% absolute for 90% power of study. Data loss=

10%, then sample size came out to be 350.

The data was analyzed using (SPSS) version 23.0. Chi- square test was used to compare the data. A 'p' value less than 0.05 is suggestive of a statistically significant difference.

In the study, one district namely; Patna was covered. From Patna district, two randomly selected rural blocks namely; Fatuha and Mokama were selected with the sample of 100 beneficiaries from each of the block. From the Patna urban block 150 benefices were selected for the telephonic interview purposes. A total 350 women falling in sampling frame were included out of which 200 were from rural and 150 from urban areas. The telephone numbers of all the beneficiaries were initially procured from the State Health Society (SHS) of Bihar. The information was collected from beneficiaries with their prior consent for the interview of the selected rural and urban areas through the telephonic interview due to the severity of the COVID-19 pandemic.
In total, 350 beneficiaries were interview for the study purposes who have given births of children within 1-2 years.

4. Comparative Analysis at State Level

The practice of exclusive breastfeeding increased while the practice of early initiation of breastfeeding dipped across most Indian states in the past half-a-decade, according to the latest National Family Health Survey (NFHS)-5 (2019-20). Breastfeeding and child feeding practices have been covered in the recently published key findings for 22 states in the first phase of NFHS-5 by Ministry of Health and Family Welfare. This article highlights the progress towards two major indicators of breastfeeding

practices: Children under age 3 years breastfed within one hour of birth and Children under age 6 months exclusively breastfed.

4.1 Early initiation of breastfeeding

Provision of a mother's breast milk to infants within one hour of birth is referred to as early initiation of breastfeeding. According to WHO, first milk ensures that the infant receives the Colostrum which is rich in protective factors. When compared to NFHS-4, the surveyed states have shown a range of varying results in NFHS-5. There are certain states that have fared exceptionally well over these 5 years with commendable improvement in the percentage of children under age three breastfed within one hour of birth. These states include Andhra Pradesh, Meghalaya, West Bengal, Jammu and Kashmir and Lakshadweep. On the other hand States of Sikkim, Assam and Gujarat have shown a huge reduction in the prevalence of early initiation of breastfeeding and needs investigation of the associated factors. Meghalaya, Lakshadweep and Kerala top the list while Bihar remains at the bottom among the surveyed states where still only one out of three children receives early breastfeeding.

The urban-rural differentials in initiation of breastfeeding seem to have narrowed down as per the latest NFHS estimates. Surprisingly, majority of states report higher prevalence of early initiation of breastfeeding in comparison to their urban counterparts. Majority of districts of Bihar, Telangana and Gujarat need special attention and investment in awareness campaigns to promote the early breastfeeding initiation practices.

4.2 Exclusive breastfeeding practices at the state level etc.

Exclusive breastfeeding is defined as no other food or drink, not even water, except breast milk (including milk expressed or from a wet nurse) for 6 months of life, but allows the infant to receive ORS, drops and syrups (vitamins, minerals and medicines). According to WHO exclusive breastfeeding protects infants against diarrhoea and common childhood illnesses such as pneumonia, and may also have longer-term health benefits, such as reducing the risk of overweight and obesity in childhood and adolescence.

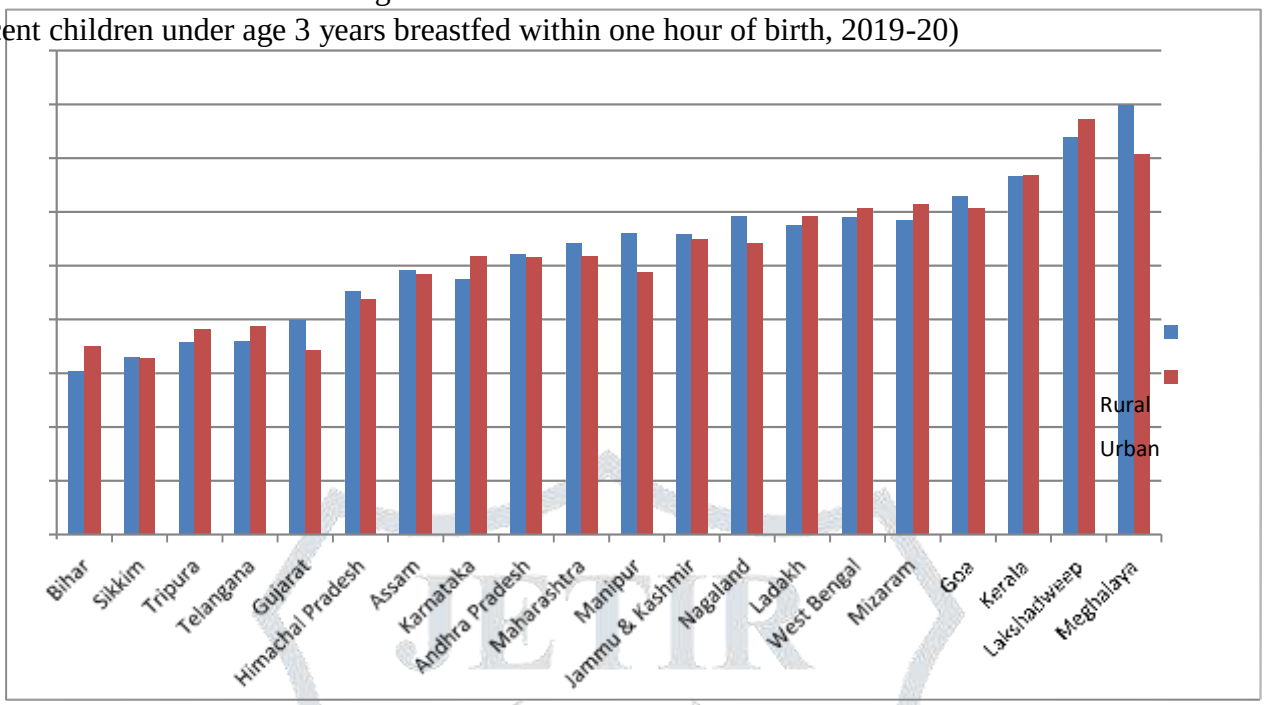
As per the recently released data, except Sikkim and Tripura, most of the surveyed states registered significant improvement or no change in exclusive breastfeeding practice. Sikkim reports huge dip while Maharashtra shows a noteworthy increase. However, almost every third or second child is not breastfed exclusively in the states of Sikkim, Meghalaya, Nagaland, West Bengal, Kerala, Bihar and Karnataka.

Across the front runner states like Maharashtra, Manipur, Nagaland and Gujarat rural children are benefitting more than their counterparts while in Bihar, Karnataka and West Bengal rural children are more deprived in terms of exclusive breastfeeding practice (Fig.1). This phenomenon is quite surprising as urban women are considered more aware of maternal and child care practices.

The importance of early initiation of breastfeeding and exclusive breastfeeding practices have well been outlined in the National Guidelines on Infant and Young Child feeding practices (IYCF). The Planning Commission, for the very first time, had included goals for breastfeeding and complementary feeding in the National Nutrition Goals for the Tenth Five Year Plan (2002-2007). The latest initiative taken by the Ministry of Health and Family Welfare in the year 2016, to promote exclusive breastfeeding practices was under the name of MAA (Mothers' Absolute Affection) aiming to build an enabling environment for breastfeeding through awareness generation and reinforcement of lactation support services at public

health facilities. But the results from the fifth round of National Family Health Survey indicate no major achievement of the new initiative.

Figure 1: Initiation of breastfeeding within one hour of birth in rural and urban areas
(Percent children under age 3 years breastfed within one hour of birth, 2019-20)



5. Results and Discussions

5.1 Some socio-demographic characteristics of the eligible women at the State Level under the study

A total 350 women falling in sampling frame were included out of which 200 were from rural and 150 from urban areas in Patna district of Bihar. Majority of the women interviewed belonged to the age group of 25-34 years (Table 1). Among the rural areas, 47 percent of women belonged to the age group of 25-34 years while among the urban areas, it was 56 percent in the age group of 25-34 years. Among the rural areas, 34 percent of the women had completed 10 to 12 years of schooling which was followed by fewer than 5 years including never went to school (32 percent), 5 to 9 years of schooling (26 percent) and more than 12 years of schooling (8 percent). Among the urban areas, 43 percent of women had completed more than 12 years of schooling which was followed by 10 to 12 years of schooling (28 percent), fewer than 5 years including never went to school (17 percent) and 5 to 9 years (13 percent). Most of the interviewed women were Hindus (94 percent) whereas only 6 percent belonged to the Muslim religion. In the rural areas, 49 percent of women belonged to the other backward caste categories. Among the urban areas, 58 percent of the women belonged to other backward caste categories. Only 32 percent of the women were married between the 18-20 years in the covered areas of the study. On an average, 19.5 year was the age at marriage of the rural women while for the urban areas, it was about 19 years. There was no significance difference of the age at marriage of the rural and urban women. Only about 7 percent of the women in the rural areas were working and most of the women (93 percent) were the housewife/not working. In urban areas, 18 percent of the women were working and the rest 82 percent of those were housewife/not working. Most of women's husband was working (98 Percent) in the study areas for their livelihood. Thirty two percept of women resided in pucca houses which was followed by 25 percent in the kuchha houses and the rest 20 percent in the semi-pucca houses of residents.

Table 1: Eligible women socio-demographic characteristics

Socio-demographic characteristics	Rural (%)	Urban (%)	Total (%)
Woman age			
15-24	38	28	33
25-34	47	56	51
35-49	15	16	16
Woman completed years of schooling			
Fewer than 5 years incl. never went to school	32	17	25
5 to 9 years	26	13	20
10 to 12 years	34	28	32
More than 12 years	8	43	23
Woman religion			
Hindu	96	92	94
Muslim	4	8	6
Woman caste			
Scheduled castes	23	29	25
Scheduled tribes	4	1	20
Other backward classes	49	58	32
Others (General castes)	24	12	23
Woman age at marriage			
Before 18 years	42	54	48
18 to 20 years	33	31	32
21 to 24 years	20	15	17
25 years or later	5	0	3
Woman current work status			
Currently working	7	18	12
Housewife / Not working	93	82	88
Woman husband current work status			
Currently working	97	99	98
Househusband / Not working	3	1	2
Type of house			
Kuchha	22	19	25
Semi-Pucca	47	28	20
Pucca	32	53	32
Total (N)	200	100	350

5.2 Knowledge of breastfeeding among rural and urban women

In the study areas, they were assessed for knowledge, attitudes and practices regarding breastfeeding, Table 2 compare the knowledge level of rural and urban women with respect to breastfeeding. On assessing knowledge regarding breastfeeding, 58 percent of mothers in rural and 85 percent (χ^2=17.88, p<0.001) urban mothers knew that breast milk was best food for baby. There was a gap of knowledge regarding time to start breastfeeding 25 percent of rural and only 36 percent of urban mothers (χ^2=2.85, p=0.09) knew that breastfeeding should be started within one hour of baby's birth. Regarding Colostrum 41 percent rural and 64 percent urban mothers were aware that it was first breast milk, the difference was statistically significant (p=0.001).

Knowledge regarding benefits of Colostrum was also lacking in both rural and urban setup. Only 33 percent of rural and 60 percent of urban women was aware that Colostrum is needed to boost immunity.

Fifty nine percent rural and 64 percent urban women knew that exclusive breast-feeding should continue up to first six months of life. There were also gaps in knowledge regarding timing of breastfeeds in both the groups. Majority of rural women (61 percent) considered appropriate time for feeding to be done whenever child cries while only 44 percent of urban women considered it so. With respect to position of mother during breastfeeding, 55 percent rural mothers considered side lying as the ideal position followed by sitting position (45 percent) whereas in urban group 59 percent considered sitting position to be ideal position followed by side lying 41 percent.

Table 2: Comparison of knowledge of breastfeeding among rural and urban women

Factor	Rural (%) (n=200)	Urban (%) (n=150)	χ^2	P Value
Best food for baby:				
Breast milk	58	85	17.88	0.01 (S)
Cow's milk/others	42	15		
Time to start breastfeeding:				
Within 1-2 hours	25	36	2.85	0.09 (NS)
Later than an hour	75	64		
Colostrum:				
First breast milk	41	64	10.61	0.001(S)
Don't know Breast milk/Secreted after 5 days/ others	59	36		
Need for Colostrum:				
For immunity	33	60	14.65	0.01 (S)
Promoting growth /others	67	40		
Period of exclusive breastfeeding:				
First 6 months	59	64	0.529	0.467 (NS)
First 2 months/more than a year	41	36		
Time for feeding:				
Child cries	61	44	5.79	0.016 (S)
On schedule/as per convenience	39	56		
Position of mother during breastfeeding:				
Side lying	55	41	3.92	0.047 (S)
Sitting	45	59		

5.3 Practice of breastfeeding among rural and urban women

The practice of breastfeeding among the women is very important. Table 3 shows the comparison of practices of urban and rural women regarding breastfeeding. Fifty eight percent of rural women had started breastfeeding within 1-2 hours, on the other hand only 41 percent of urban women did the same. This may be attributed to the high incidence of caesarian deliveries in urban areas that causes a delay in the onset of breastfeeding.

The proportion of those who fed Colostrum was higher in urban 78 percent as compared to rural area 49 percent. Ninety one percent of rural and 85 percent of urban women fed their babies 2-4 times at night or when the baby woke up.

Fifty six percent of rural and 63 percent women of urban areas were willing to continue exclusive breastfeeding up to six months followed by 44 percent of rural and 37 percent of urban women who were willing to continue the same up to nine months or longer. Statistically, there was no significant difference between two groups with respect to duration to continue exclusive breastfeeding (p=0.311).

Table 3: Comparison of practice of breastfeeding among rural and urban women

Factor	Rural (%) (n=200)	Urban (%) (n=150)	χ^2	P Value
Started breastfeeding Within 1-2 hours Others	 58 42	 41 59	5.578	0.0162 (S)
Fed Colostrums	49	78	18.14	0.00002 (S)
Frequency of feeding at night 1-2 times 2-4 times when baby wakes up	 9 91	 15 85	1.1704	0.191 (NS)
Willingness to continue exclusive breastfeeding Up to 6 months Up to 9 months/1-2 years	 56 44	 63 37	1.016	0.311 (NS)
Complementary feeding before 6 months Formula milk Others	 41 59	 44 56	0.184	0.667 (NS)

5.4 Attitude of rural and urban women regarding breastfeeding

The attitude of rural and urban women regarding breastfeeding was also assessed. Table 4 compares the attitude of rural and urban women with respect to breastfeeding. Seventy nine percent of women of urban area agreed regarding goodness of Colostrum for health followed by 47 percent of rural women. About 53 percent of rural and 21 percent of urban women were uncertain or disagreed. Fifty six percent of women residing in rural areas and 49 percent of urban women agreed that one should stop feeding the child if he/she has cough/fever, followed by 44 percent rural and 51 percent urban who were uncertain or disagreeing.

With respect to attitudes on the belief that breastfeeding protects from diseases of breast, 45 percent rural and 41 percent urban of women agreed. Sixty two percent of women of rural area agreed that breastfeeding should be stopped when starting complementary feeding while 38 percent were uncertain or disagreed with this. On the contrary in urban area, women those disagreeing were higher (60 percent). Most of the women agreed to the belief that a baby should burp after feeding (91 percent rural and 85 percent urban).

Table 4: Comparison of attitude of rural and urban women regarding breastfeeding

Factor	Rural (%) (n=200)	Urban (%) (n=150)	χ^2	P Value
Colostrum is good for health:				
Agree	47	79	21.964	0.00001 (S)
Uncertain/disagree	53	21		
Stop feeding when child has cough/fever:				
Agree	56	49	0.982	0.321 (NS)
Uncertain/disagree	44	51		
Breastfeeding protects from diseases of breast:				
Agree	45	41	0.326	0.567 (NS)
Uncertain/disagree	55	59		
Willingness to continue exclusive breastfeeding:				
Up to 6 months	62	40	9.683	0.0018 (S)
Up to 9 months/1-2 years	38	60		
Baby should burp after feeding: Agree	91	85	1.704	0.1916 (NS)
Uncertain/disagree	9	15		

6. Summary and Conclusions

Purpose and benefits of breastfeeding has been stressed all over the world by various health organizations and community-based programs and approaches.

The current study has observed that the knowledge of the urban women regarding what was the best food for the baby and what is the appropriate time to start the breastfeeding was superior to the women residing in rural areas. Eighty five percent urban women believed that breast milk was the best food for their infants as opposed to 58 percent rural women who shared the same opinion. Twenty five percent women of rural areas believed that breastfeeding must be initiated within one hour vis-à-vis 36 percent women of urban areas felt it must be initiated within one hour.

The practice of initiating breastfeeding within one hour was only 41 percent in urban women whereas 58 percent of women in rural areas fed their infants within 1-2 hours of their birth. A gap in knowledge regarding breastfeeding was presented in both rural and urban setups. One Indian based study Bharani A et al. (2006) has shown that although 84 percent women in general had the knowledge to initiate breastfeeding within one hour only 22 percent did so.

A study by Karen M. Edmond and et al. (2006) has shown that delayed breastfeeding within one hour of delivery increases the risk of neonatal mortality This shows that health programmes imparting knowledge are not enough neither have women received appropriate antenatal counseling.

Similarly when the knowledge about what Colostrum is and why it is essential was evaluated, 41 percent of rural women and 64 percent of urban women were aware that it was the first breast milk.

Fifty eight percent of women of rural area gave Colostrum to their infants. In urban areas 41 percent women gave Colostrum. While the others discarded it as they were not aware of its importance. On evaluation of attitude of mothers 47 percent of rural women believed that Colostrum is good for health as opposed to 79 percent women of urban area.

The main reason for this is on the advice of elders and their belief that Colostrum is not good for the health of the baby. Similarly a study in Bihar has shown that about two third of mothers discarded Colostrum.

The study has shown the trend of breast feeding in rural and urban areas to be almost the same. According to Kumar et al, 15.9% respondents threw away their Colostrum while in study of Slama et al, 43% of mothers had no knowledge about Colostrum.

Regarding the knowledge of period of exclusive breast feeding should be continued for six months it was almost the same in both areas (59 percent rural and 64 percent in urban) and so was the willingness to continue exclusive breast feeding in both areas (62 percent in rural and
40 percent in urban). Chinnasami et al. has shown that 11% women did not exclusively breast feed their child and 17% of them gave exclusive breast milk for three months only. Mothers should be educated about the benefits of exclusive breastfeeding till six months. In our study those 41 percent rural women and 44 percent urban started complementary feeding before six months. About two third of women of rural area and two fifth women of urban area believed that they should stop breastfeeding when they initiate complementary feeding. The attitude of women to make their infant burp after feeding was the same in both areas.

Contradictory observation was found in the urban and rural areas of Bihar in a study carried out by Yadav et al. that 17.7% urban and 13.1% rural mothers started complementary foods before six months of age and 53.7% urban and 54.2% rural mothers started complementary foods between 6–12 months of age. However, reason behind early weaning was found to be the apprehension that breast milk was not sufficient (30% in urban and 28.9% in rural area). Cereal preparations and milk formed are the major substitutes for children on breast milk. The main reasons for starting supplements were insufficient milk production by mother, child's demand and supplements are required for proper growth. There was no major difference in the knowledge regarding frequency of feeding in the night and the position to be adopted while feeding. As far as the knowledge of when to feed the child
61% women of rural area were aware of demand feeding as opposed to 44% women of urban areas.

There was no major difference in the attitude of women of both areas regarding whether they should stop feeding the child when they are sick.

7. **Recommendations**

1) Gaps in knowledge, attitude and practices regarding breastfeeding exists in both rural and urban setups and proper steps should be implemented to narrow this gaps of breastfeeding.

2) Imparting knowledge and change in attitude through proper counseling may influence breastfeeding practices.

3) The dissemination of information through mass media and education of mothers during antenatal visits and immunization sessions about optimal breastfeeding and complementary feeding practices.

4) Exclusive breastfeeding up to six months as recommended by global health agencies and advocated by Breastfeeding Network in India (BPNI) should become universal practice.

5) It will also require co-ordinate efforts from community medicine and pediatrics along with strong political will to successfully implement the measures to curb ignorance in breast feeding practices.

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