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Comparative study of feeding practices among children less than two years attending rural and urban primary health centers, Mysuru, Karnataka

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ABSTRACT

Background: Breastfeeding is considered one of the most significant aspects of a child's health and survival. Breastfeeding is unquestionably the "GOLD STANDARD" dietary intake during the first six months after birth. So it is necessary to know about the feeding practices among children less than two years in both rural and urban areas. Aim of study was to compare the feeding practices among children less than two years attending the urban and rural Primary health centers under JSS Medical College, Mysuru.

Methods: This analytical cross-sectional study was conducted among 280 mother and their children residing in both rural and urban areas of Mysuru for six months. A pretested structured questionnaire was used to collect the sociodemographic characteristics and feeding practices. Feeding practices among study subjects were analyzed using SPSS 23 software.

Results: In the present study, 35% had poor, 57.1% had average and 7.9% had good infant and early child feeding practices in rural areas, on the other hand, 19.3% had poor, 55.0% had average and 25.7% had good in urban. In this study, the frequency of breastfeeding practices, pre-lacteal feeding, and overall feeding practices were significantly associated with place of residence.

Conclusions: This study concludes that though pre-lacteal feeding and bottle feeding were more in urban areas, the overall feeding practices were poorer in rural than urban.

Keywords: Feeding practices, Infant and young child feeding, Rural areas, Urban areas

INTRODUCTION

Breastfeeding is considered one of the most significant aspects of a child's health and survival. During the first six months of life, the newborn's only source of sustenance is the mother's milk. WHO and UNICEF advise that mothers should start breastfeeding within the first hour of delivery and continue to exclusively breastfeed for the initial six months of the infant that is, consuming no other foods or liquids. Newborns should be

breastfed on demand, which means whenever the child wants, day or night.² The WHO and the AAP advocate exclusive nursing for the initial 6 months of infant life, nutritively appropriate and prudent complementary foods, and lactation should be continued until two years or longer. Breastfeeding should be started as soon as feasible, according to baby-friendly approach guidelines, because it's essential to numerous objectives for the infant, the mother.³ Inadequate feeding patterns of behavior that are inconsistent with child health and child

feeding recommendations. The key suggested infant and young child feeding behaviors encompass starting breastfeeding for newborns within the first hour of life, continuing breastfeeding for two years and even beyond, with nutrient and appropriate safe supplementary feedings introduced during the sixth month.⁴

Exclusive breastfeeding indicates that the infant only consumes mother milk and no additional fluids or solids, including plane water, with the exemption of oral rehydration remedy, syrup, or drops of essential vitamins, minerals, or medicine. The WHO (World Health Organization) strongly recommends exclusive breastfeeding for 6 months, with supplementary foods introduced at 6 months of age although the mother continues to feed her infant up to two years of age. Breastfeeding exclusively offers numerous established benefits for both the infant and the mother. Any food provided to neonates before breastfeeding begins in the first three days of life is referred to as pre-lacteal foods.

Delayed breastfeeding initiation, colostrum deprivation, supplemental trying to feed mothers milk substitutes, advanced initiation of complementary feeding, with improper weaning from mother milk are all regular occurrences around the world. So it is necessary to know about the feeding practices among children less than two years in both rural and urban areas.

In this context, the present study will be held to determine the feeding practices among young children under the age of two and to compare the feeding practices among children less than two years attending the urban and rural Primary health centers under the Department of Community Medicine, JSS Medical College, Mysuru.

METHODS

This analytical comparative cross-sectional study was conducted in the primary health center in urban and rural field practice areas of the department of community medicine, JSS Medical College, Mysuru for 6 months from January to June 2022 among mothers with children less than two years after obtaining ethical clearance from the institutional ethical committee. Based on the prevalence of exclusive breastfeeding among children less than 2 years as per NFHS-5 to be 79.1 percent with 5% absolute allowable error, an alpha level of 5 percent, and a 95% confidence level, the sample size calculated is 254.8 Considering a 10% non-response rate, the study sample size would be 279 which was rounded off to 280.

The sampling technique used in this study is purposive sampling with children less than two years of age and their mothers are included in the study. Mothers not consenting to participate in the study were excluded. 280 consecutive Children less than two years of age and their mothers attending these Primary Health Centres (140 in rural and urban areas each) were interviewed after taking

written informed consent using a pre-tested structured questionnaire.

The questionnaire included sociodemographic characteristics like age of the child, gender, age of the mother, education status of the mother, occupation of mother and father, socio-economic status, BPL card, type of family, family size, birth order, birth weight of the baby, type of delivery, place of delivery and feeding practices of children as per IYCF like pre lacteal feeds, initiation of breastfeeding, colostrum feeding, exclusive breastfeeding, duration of feeding, demand feeding, weaning practices, and complementary feeding practices were collected.⁹

Data analysis

The data was imported into Microsoft Excel and analyzed with the Statistical Package for Social Sciences (SPSS) version 23. (Licensed to JSSAHER). Descriptive statistics like percentages, mean, and standard deviations are applied for socio-demographic characteristics. To examine the comparison of feeding practices among study subjects in rural and urban areas, inferential statistics methods such as the chi-square test/fisher exact test will be used. At p less than 0.05, the link was deemed statistically significant. The data were presented as tables where appropriate.

RESULTS

Of the 280 mothers who were interviewed, 140 (or 50%) were from urban regions and 140 (or 50%) were from rural ones. Participants in the study were on average 25±3 years old. The majority of the 280 children involved in the study, 142 (50.71%), were female, and 138 (49.29%) were male. Among them, 82 (29.29%) belonged to the 19-24 month age group, 71 (25.36%) to the 0-6 month age group, 67 (23.9%) to the 7-12 month age group, and 60 (21.4%) to the 13-18 month age group.

Out of 280 study participants, 12 (4.29%) were illiterates and 99 (35.36%) had degrees. 263 (93.93%) of the mothers did not have jobs, while 17 (6.07%) did.

Among 280 subjects, 157 (56.07%) were delivered through full-term normal vaginal delivery, and 123 (43.93%) were delivered by lower-segment cesarean section. And among those, 251 (89.64%) children had normal birth weight, and 29 (10.36%) has low birth weight (Table 1).

Comparison of feeding practices between rural and urban women

In this study, 98.6% in rural areas and 100% in urban areas had breastfed their children (Table 2). 73.6% of women residing in rural areas and 71.4% in urban areas had exclusively breastfed their children. 37.1% of mothers breastfed their child on demand and 62.9% of

mothers breastfed at times decided by themselves. The frequency of breastfeeding and the residence were statistically significantly correlated. Additionally, it was

noted that 30% of the infants were bottle-fed. 34.3% of urban women and 25.7% of rural women have breastfed their infants in a bottle.

Table 1: Socio-demographic characteristics of the study participants.

Characteristics	Variables	Frequency	Percentage
	Less than 20	9	3.2
Age of the mother	20-25	146	52.1
	26-30	105	37.5
	31-35	14	5.0
	35 and above	6	2.1
	1-6 months	71	25.4
A 641 1.91.1	7-12months	67	23.9
Age of the child	13-18months	60	21.4
	19-24months	82	29.3
	Illiterate	12	4.3
	Primary school	7	2.5
Mother education	High school	104	37.1
	Higher secondary	58	20.7
	Graduate and above	99	35.4
Gender of the child	Male	142	50.7
Gender of the child	Female	138	49.3
Birth order of the	First	164	58.6
	Second	98	35.0
child	Third	16	5.7
	Fourth	2	0.7
	One	154	55.0
Total number	Two	107	38.2
of children	Three	15	5.4
	Fourth	4	1.4
Residence	Urban	140	50.0
Residence	Rural	140	50.0
	Hindu	230	82.1
Religion	Muslim	49	17.5
	Christian	1	0.4
BPL card	Present	224	80.0
Dr L caru	Absent	56	20.0
Mother working	Working	17	6.1
status	Not working	263	93.9
Father education	Illiterate	26	9.3
	Primary school	17	6.1
	High school	116	41.4
	Higher secondary	47	16.8
	Graduates	74	26.4
Type of delivery	Full term normal vaginal delivery	157	56.1
Type of delivery	Lower segment caesarean section	123	43.9
Birth weight of	Normal weight	251	89.6
the baby	Low birth weight	29	10.4

In a sample of 280 mothers, 52.5% began breastfeeding within 30 minutes of delivery and 5% did so after two hours. It was noted that 97.5% of the infants ingested colostrum. Colostrum was given to 94.6% of babies in cities and 98.6% of babies in rural areas.

In the three days following delivery, 16.1% of the women were found to have fed their children. In the first three days following delivery, 26.4% of babies living in urban areas and 5.7% of babies living in rural regions respectively received pre-lacteal feed. Pre-lacteal feeding

and place of residence are statistically significantly related. In our study, 41.4% of them in the rural area got breastfeeding education from a nurse and 46.4% in urban areas got breastfeeding education from doctors (Table 3).

Table 2: Distribution of study subjects based on breastfeeding in rural and urban women.

Response	Residence		Total	Chi-	P-
	Rural	Urban	Total	square	value
No	2 (1.4)	0	2		
Yes	138 (98.6)	140	278	2.014	0.156
Total	140	140	280		

From Table 4, it has been observed that among 140 each rural and urban populations 72.8% and 76.4% of mothers started to give fortified food. Among them, in rural, all the children, and in urban 96.3% of children got fed with porridge, ragi, bread, rice, or any other food made from grains. 98% of the rural and 94.4% of urban children got fed pumpkin carrots, squash, or sweet potatoes. In rural 97% and 94.4% of the urban children had any green leafy vegetables. 67.6% and 60.7% of the rural and urban children had eggs. 67.6% and 86% of rural and urban children did not have liver, kidney, heart, or any other organ meat. There was a statistically significant association between any fortified food and foods made from grains given to the babies at their place of residence. Also, there is a significant association between meat and sea foods in the place of residence (Table 4).

Table 3: Distribution of study subjects based on breastfeeding practices in rural and urban women.

Characteristics	Response	Residence Rural	Urban	Total	Chi-square	р
Exclusive breastfeeding	No	37 (26.4)	40 (28.6)	77 (27.5)	0.161	0.688
practice	Yes	103 (73.6)	100 (71.4)	203 (72.5)	0.161	
	On-demand	27 (19.3)	77 (55.0)	104 (37.1)		0.001*
Frequency of breast- feeding practice	On regular timings as decided by me	113 (80.7)	63 (45.0)	176 (62.9)	38.243	
Type of breast-feeding	Exclusive breast-feeding	33 (23.6)	30 (21.4)	63 (22.5)	4.025	0.134
(currently)	Mixed feeding	53 (37.9)	40 (28.6)	93 (33.2)	4.023	
	Stopped	54 (38.6)	70 (50.0)	124 (44.3)	-	
	Within 30 mins of birth	77 (55.0)	70 (50.0)	147 (52.5)		0.688
Initiation of breastfeeding	30 Mins to 2 Hours	56 (40.0)	63 (45.0)	119 (42.5)	0.7451	
	More than two hours	07 (5.0)	07 (5.0)	14 (5.0)		
Dottle feeding	No	104 (74.3)	92 (65.7)	196 (70.0)	2.449	0.118
Bottle feeding	Yes	36 (25.7)	48 (34.3)	84 (30.0)	2.449	
Breastfeeding by any	No	137 (97.8)	140	277 (98.9)	3.032	0.220
other women	Yes	3 (2.2)	0	3 (1.1)	3.032	
Whether the baby	No	2 (1.4)	5 (3.6)	7 (2.5)	1.319	0.251
received colostrum	Yes	138 (98.6)	135 (96.4)	273 (97.5)	1.517	
Pre-lacteal feeding	No	132 (94.3)	103 (73.6)	235 (83.9)	22.26	0.001*
practices	Yes	8 (5.7)	37 (26.4)	45 (16.1)	22.20	
Age of supplementary feeding started	< 6 Months	35 (33.4)	34 (32.4)	69 (33.0)		
	6 Months and above	69 (66.3)	71 (67.6)	140 (67.0)	1.066	0.785
Source of	Doctors	54 (38.6)	65 (46.4)	119 (42.5)		
breastfeeding	Mother	28 (20.0)	28 (20.0)	56 (20.0)	2.169	0.338
education	Nurse	58 (41.4)	47 (33.6)	105 (37.5)		

From Table 5, it has been observed that, overall, 27.1% of women had poor, 56.1% average and 16.8% had good infant and early child feeding practices. The association between the locality and overall feeding practices was

found to be statistically significant. Among 140 women included in rural areas, 35% had poor, 57.1% had average and 7.9% had good infant and early child feeding practices on the other hand, in urban areas, 19.3% had

poor, 55.0% had average and 25.7% had good infant and

early child feeding practices (Table 5).

Table 4: Distribution of study subjects based on supplementary feeding according to IYCF guidelines.

Category of food	Response	Residence Rural (102)	Urban (107)	Total	Chi- Square	P-Value
Any fortified food	No	0	4 (3.7)	4 (1.9)	3.887	0.049*
·	Yes	102	103 (96.3)	205 (98.1)		
Porridge, ragi, bread, rice, or any	No	0	5 (4.6)	5 (2.4)	4.883	0.027*
other food made from grains	Yes	102	102 (95.4)	204 (97.6)	1.005	
Pumpkin, carrots, squash, or sweet	No	2(2)	6 (5.6)	8 (3.8)	1.886	0.170
potatoes	Yes	100 (98)	101 (94.4)	201 (96.2)	1.000	0.170
White potatoes, white yama, or any	No	3 (3)	9 (8.5)	12 (5.8)	2.887°	0.089
other food made from roots	Yes	99 (97)	98 (91.5)	197 (94.2)	2.007	0.007
Any green leafy vegetables	No	3 (3)	6 (5.6)	9 (4.3)	0.901	0.343
Any green leary vegetables	Yes	99 (97)	101 (94.4)	200 (95.7)	0.701	0.545
Ripe mangoes, papayas, banana	No	8 (7.8)	6 (5.6)	14 (6.7)	0.786	0.518
Ripe mangues, papayas, bahana	Yes	94 (92.2)	101 (94.4)	195 (93.3)	0.760	0.516
Any other fruits or vegetables	No	8 (7.8)	5 (5.7)	13 (6.2)	0.900	0.343
Any other fruits of vegetables	Yes	94 (92.2)	102 (95.3)	196 (93.8)	0.900	
Liver, kidney, heart, or any other	No	69 (67.6)	92 (86)	161 (77)	9.922	0.002*
organ meats	Yes	33 (32.4)	15 (14)	48 (23)	9.922	
Any meat, such as beef, pork, lamb,	No	39 (38.2)	55 (51.4)	94 (45)	3.658	0.038*
goat, chicken	Yes	63 (31.8)	52 (48.6)	115 (55)		
T	No	33 (32.4)	42 (39.3)	75 (35.9)	1.080	0.299
Eggs	Yes	69 (67.6)	65 (60.7)	134 (64.1)		
Fresh or dried fish, shellfish, or	No	50 (49)	68 (63.5)	118 (56.4)	1.10.5	0.034*
seafood	Yes	52 (51)	39 (36.5)	91 (43.6)	4.486	
Any foods made from beans, peas,	No	12 (11.8)	14 (13)	26 (12.4)	0.002	0.772
lentils, nuts, or seeds	Yes	90 (88.2)	93 (87)	183 (87.6)	0.083	0.773
	No	18 (17.6)	16 (15)	34 (16.3)	0.278	0.598
Cheese, yogurt, or other milk products	Yes	84 (82.4)	91 (85)	175 (83.7)		
Any oil, fats, butter, or foods made	No	27 (26.5)	23 (21.5)	50 (24)	0.7100	0.399
with any of these	Yes	75 (73.5)	84 (78.5)	159 (76)	0.710 ^c	
Any sugary food such as chocolates,	No	21 (20.6)	17 (15.9)	38 (18.2)		0.379
sweets, candies, pastries, cake, or biscuits	Yes	81 (79.4)	90 (84.1)	171 (81.8)	0.776	
Condiments for flavor, such as chilies,	No	54 (53)	57 (53.3)	111 (53.1)	0.002	0.962
spices, herbs, or fish powder	Yes	48 (47)	50 (46.7)	98 (46.9)	0.002	
Foods made with red palm oil, red	No	77 (75.5)	69 (64.5)	146 (69.9)	3.003	0.348
palm nut, or red palm nut pulp sauce	Yes	25 (24.5)	38 (35.5)	63 (30.1)		

Table 5: Distribution of study subjects based on overall feeding practices between rural and urban areas.

Cotogowy	Residence	Residence		Chi ganara	n volue
Category	Rural	Urban	Total	Chi-square	p-value
Poor	49 (35.0)	27 (19.3)	76 (27.1)		
Average	80 (57.1)	77 (55.0)	157 (56.1)	10.72	0.001*
Good	11 (7.9)	36 (25.7)	47 (16.8)	19.72	0.001*
Total	140	140	280		

DISCUSSION

In rural 60% of the mother got normal delivery and 40% had a cesarean and in urban 52% of women got normal delivery and 48% had a cesarean delivery. A study done

in the rural area of north India by Mahmood et al reported that about 94.3% of the deliveries were normal. According to a study done by Bagul et al in the urban slum area of Nagpur, India reported that cesarean sections were done in 21.66%. In our study 10.3% of the babies

are underweight. 10.7% and 10% of rural and urban newborns are measured as underweight. The study done by Kaur et al on Malaysian women reported that in urban areas 2% and in rural 9.8% of babies are underweight. 12

In our study, breastfeeding practices in rural and urban areas were compared. Among 140 women from both rural and urban areas, 98.6% in rural areas and 100% in urban areas breastfed their children. The study done by Gao et al reported that nearly 98.0% of urban and 99.0 % of rural mothers started breastfeeding. ¹³

Also in the present study, 72.5% of the mothers exclusively breastfeed their children in the study. 73.6% of rural women and 71.4% of urban women exclusively breastfed their children for six months.

Balogun et al reported that in rural 79.8% of participants had used or were practicing exclusive breastfeeding. ¹⁴ The study done in the rural area of north India by Mahmood et al reported that 22.8% of the newborns have not been exclusively breastfed. ¹⁰ Jennifer et al reported that 68.4% of children had received exclusive breastfeeding. ¹⁵

In our study, 62.9% of study participants practiced on regular schedules determined by them. In rural 80.7% of women feed on regular timings as decided by them and 55.0% in urban areas have practiced demand breastfeeding. It shows statistically significant p<0.05 concerning the frequency of breastfeeding and residence. The study done by Ashwini et al shows that 38.75% and 67.89% of urban and rural women practiced on-demand feeding and it shows statistically significant. In the study done by Ausvi et al, 66% and 64% of urban and rural mothers practiced on-demand feeding practiced. In

With regards to the initiation of breastfeeding 52.5% of the study participants started breastfeeding in less than 30 minutes of delivery. 55% of women residing in rural areas breastfeed in less than 30 minutes of delivery and 50% in urban areas start breastfeeding within 30 minutes of delivery. It was not statistically significant initiation of breastfeeding and place of residence. The study done by Yadav et al reported that in rural 54.2% and urban 71.8% initiated breastfeeding in less than one hour and it is statistically significant. 18 According to the study done by Senanayake et al reports that overall, 41.5% of mothers initiate breastfeeding in the first hour of birth. And in the rural population, the prevalence of early breastfeeding initiation was 41.0%, and 42.9% in the urban. Population.¹⁹ According to Hitachi et al study reported that 90.5% and 69.2% of urban and rural mothers initiated breastfeeding in the first hour of birth.²⁰

25.7% of women residing in rural have given bottled feed and 34.3% in urban areas have given bottled feed to their children. The study done by Ausvi et al reported that 19% of urban and 26% of rural women practiced bottle feeding. ¹⁷ The study done by Yadav YS et al reported that

in rural 35% of babies received bottle feeding and in urban 19.4% of babies received bottle feeding. 18

Overall, in the study 97.5% of the babies received colostrum. 98.6% and 96.4% of babies received colostrum concerning rural and urban areas. Hitachi et al reported that colostrum was given to 98.7% of in urban and 97.9% of rural areas children, and it shows a similar finding to our study.²⁰

Related to pre-lacteal feeding in our study, 5.7% of babies in rural areas and 26.4% of babies in urban areas are fed by any pre-lacteal feed in the first three days after delivery. P value is significant. The study done by Yadav et al reported that in rural 50.2% and in urban 18.4% of babies received pre-lacteal feeding. According to a study done by Bansal et al in an urban district of India, 25% gave prelacteal feeds which are nearly similar to our study. 21

In the present study, 66.3% of women in the rural area start supplementary feeding after six months and 67.6% of urban women start supplementary feeding after six months. The study done by Ausvi et al reported that 68.5% and 65% of urban and rural women started supplementary feeding after six months.¹⁷

In our study, the questionnaire was used to collect the data on feeding practices which is subjected to recall bias. This is considered a limitation of the study.

CONCLUSION

This study concludes that in urban areas, demand feeding, pre-lacteal feeding, and bottle feeding were more common. Nearly 33% of both rural and urban were started supplementary foods before 6 months of age. The frequency of breastfeeding practices and pre-lacteal feeding were significantly associated with place of residence. There was a statistically significant association between any fortified food, foods made from grains, meat, and sea foods given to the babies, and place of residence. It also observed that in rural areas, 35% had poor, 57.1% had average and 7.9% had good infant and early child feeding practices on the other hand, in urban areas, 19.3% had poor, 55.0% had average and 25.7% had good infant and early child feeding practices. The association between the locality and overall feeding practices was found to be statistically significant. From this study, though pre-lacteal feeding and bottle feeding were more in urban areas, the overall feeding practices were poorer among rural than urban, so it is important to take necessary steps to improve feeding practices among rural populations.

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Institutional Ethics Committee

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