Infant and Young Child Feeding (IYCF) Practices among Mothers Residing in Urban Slums of Agartala: A Cross-Sectional Study

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Abstract:

Introduction: Inappropriate child feeding practices is a major contributor of undernutrition and childhood mortalityin India. The optimal infant and young child feeding (IYCF) practices rank among the most effective intervention to improve child health and nutritional status. **Objective :** 1. To study the IYCF practices among mothers residing in urban slums of Agartala. 2. To study the factors associated with exclusive breast feeding and Minimum acceptable dietary intake. **Method :** This was a community based Cross-sectional study conducted among 180 mothers of children <24 months, residing in Urban slums of Agartala. Multistage simple random sampling procedure was adopted, and 'WHO standard questionnaire for IYCF practices' was used to assess the IYCF practices. **Results :** The study showed that the prevalence of exclusive breast feeding under 6 months was 67.39% and 91.70% mothers were continuing breast feeding at 2 years of age. Regarding complementary feeding practices, 67.20%, 73.90% and 58.95% children were having food with minimum dietary diversity, minimum meal frequency andminimum acceptable dietary (MAD) intake respectively. Early initiation of breast feeding was significantly associated with breast feeding practices (p value-0.00). Whereas, increasing age (p value-0.00),higher birth order (p value-0.03) and type of family (p value-0.01) had significant association with MAD intake. **Conclusion:** Study reveals suboptimal IYCF practices in the slums. There is urgent need to strengthen the on-going programs on IYCF practices targeting children with younger age and higher birth order.

Key words : Complementary feeding, Colostrum, Exclusive breast feeding, Feeding patterns, Feeding related behavior.

Introduction:

Adequate nutrition during infancy and early childhood is essential to ensure the growth, health, and development of children.[1] According to WHO, around 45% deaths under 5 years of age are linked to undernutrition[2] and almost one fifth of these deaths can be averted if 90% children are covered with anintervention of optimal Infant and young child feeding(IYCF) practices.[3,4] Hence, WHO and UNICEF

have developed the IYCF strategy, which recognizes appropriate feeding practices among children upto 2 years with-early initiation of breastfeeding, exclusive breast feeding for first 6 months and introduction of nutritionally adequate safe complementary food at 6 monthswith continued breast feeding, upto 2 years of age or beyond.[5]

The infant and young child feeding practices has been a public health concern in a developing country

like India. From, 2005-06 to 2015-16, the prevalence of Exclusive breastfeeding in the country among children under six months increased from 46% to 55% only.[6] Again, complementary feeding practices varied from state to state, with proportion of children aged 6-23 months who receive a minimum acceptable diet being lowest in Rajasthan and Dadra & Nagar Haveli (3% or less).[6] According to NFHS (National Family Health Survey)-4 and NFHS-5 state report for Tripura the breast feeding and complementary feeding practices in the state has been consistently poor.[7,8] Again, the IYCF practices are least explored in the urban slums of the state, so that evidence based targeted initiatives can be taken to improve the nutritional status of the children. Hence, the study was conducted to assess the IYCF practices among mothers of infant and young children (<24 months) residing in urban slums of Agartala and to study the factors associated with exclusive breastfeeding and minimum acceptable dietary intake.

Method :

This was a community based Cross-sectional study conducted in March-April, 2019 among Mothers of children below 2 years age, residing in the Urban slums of Agartala. The sample size was calculated considering the least prevalence of IYCF practices in urban areas as per NFHS-4 Tripura report as 7.2% for minimum acceptable dietary intake[7], at 5% level of significance and with an absolute precision of 4 and rounded to **180 respondents,** considering 10% non-response rate.

Multi-staged simple random sampling procedure was adopted and in the 1st stage of the sampling from each of the four zones of Agartala Municipal Corporation, one slum was selected by Simple random sampling. (Figure 1) In the next stage of the sampling; 67, 41, 38 & 34 houses were randomly selected from the four slums respectively, using PPS technique (considering population of the selected slums) from the house list of each slum.

Information was collected from the mothers of children bellow 2 years age, who consented to take part in the study using a pre-tested interview schedule adopted from WHO standard questionnaire for IYCF practices.[9,10] If the selected house had no mothers with children <2 years or denied consent or were physically or mentally unfit to participate in the study they were excluded, then next to next house was visited till eligible subject was obtained. Information was collected after taking written informed consent from the mothers by trained investigators and all responses regarding feeding habits were recorded by 24 hours recall method except for initiation of breastfeeding, colostrum feeding and prelacteal feeding which were elicited by historic recall and abiding the National ethical guidelines for biomedical and health research involving human participants, ICMR, 2017. Data was entered in SPSS version 25 and statistical analysis was done using Chi-square test and Fishers exact test and p value of <0.05 was deemed as statistically significant.

Operational definitions :[10]

Early initiation of breastfeeding : Proportion of children born in the last 24 months who were put to the breast within one hour of birth.

Exclusive breastfeeding under 6 months : Proportion of infants <6 months of age who are fed exclusively with breast milk.

Predominant breast feeding : Proportion of infants 0–5.9 months of age who are predominantly breastfed (Breastmilk + water / fruit juice)

Breastfeeding : Proportion of infants 0– 5.9 months of age who are breastfed along with cow's milk / formulae milk + water / fruit juice

Continued breastfeeding at 1 year and 2 year : Proportion of children 12–15.9 months and 20–23.9 months of age who are fed breast milk respectively

Bottle feeding : Proportion of children 0-23.9 months of age who are fed with a bottle.

Minimum dietary diversity (MDD) indicator : Proportion of children 6–23.9 months of age who receive foods from ≥4 food groups from a total of 7 food groups, namely, dairy products, legumes and

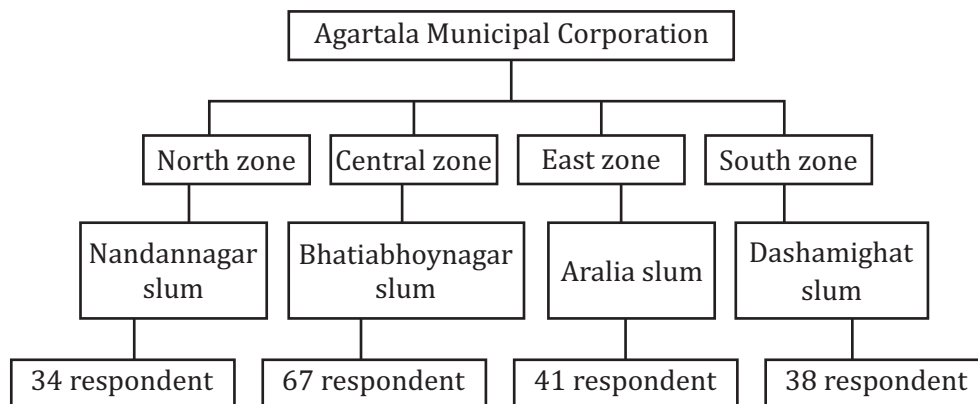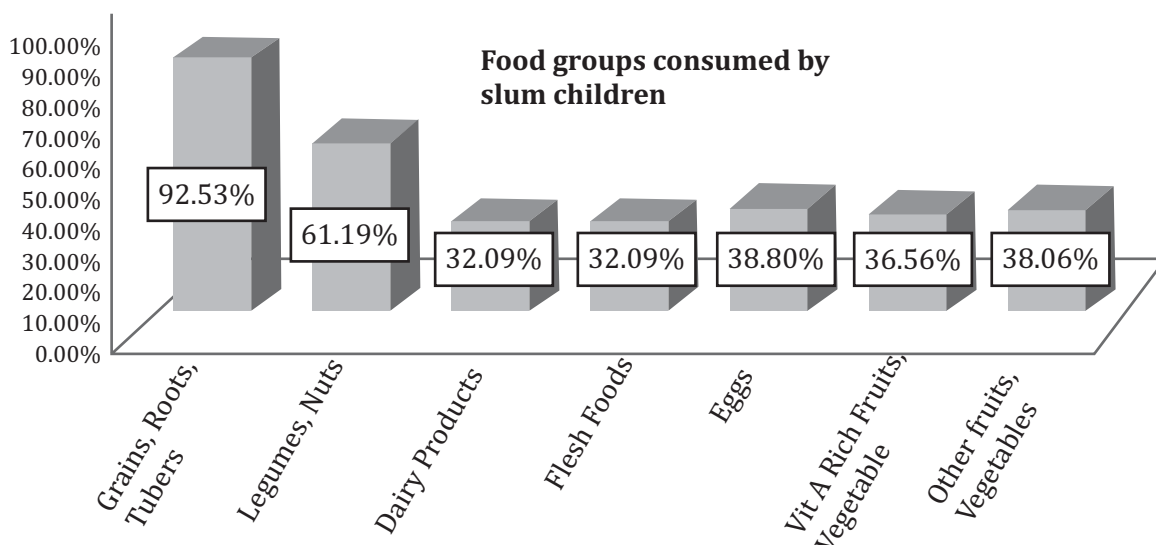**Figure 1: Flow chart showing the sampling procedure.**

Agartala Municipal Corporation
- North zone
- Central zone
- East zone
- South zone

Nandannagar slum	Bhatiabhoynagar slum	Aralia slum	Dashamighat slum
34 respondent	67 respondent	41 respondent	38 respondent

Table 1: Breast feeding practices in the urban slums

Breast feeding practices		Frequency (%)
Early initiation of breastfeeding (n=180)		49 (27.2)
Pre-lacteal feeding (n=180)		33 (18.3)
Colostrum feeding(n=180)		154 (85.6)
Type of breast feeding: [For <6 months of age] (n=46)	Exclusive breast feeding	31 (67.4)
	Predominant breast feeding	10 (21.7)
	Breastfeeding	5 (10.9)
Continued breast feeding	At 1 year [between 12-15.9 months] (n=30)	28 (93.3)
	At 2 year [between 20-23.9 months] (n=48)	44 (91.7)
Ever breast fed (n=180)		179 (99.4)
Age appropriate breast feeding (n=180)		171 (95.0)
Bottle feeding (n=180)		57 (31.7)

Table 2 : Complementary feeding practices in the urban slums

Complementary feeding practices (age 6-23 months)		Frequency (%)
Age at weaning (n=134)	4 or 5 months	3 (2.2)
	At 6 months	49 (36.6)
	At 7 months	49 (36.6)
	At 8 months	15 (11.2)
	≥ 9 months	18 (13.3)
Minimum dietary diversity (n=134)	Present	90 (67.2)
Minimum meal frequency (n=134)	Present	99 (73.9)
Minimum acceptable dietary intake (n=134)	Present	79 (58.9)

Figure 2: Food diversity pattern among slum children between 6months to <2 years (n=134)

Food groups consumed by slum children

- Grains, Roots, Tubers: 92.53%
- Legumes, Nuts: 61.19%
- Dairy Products: 32.09%
- Flesh Foods: 32.09%
- Eggs: 38.80%
- Vit A Rich Fruits, Vegetable: 36.56%
- Other fruits, Vegetables: 38.06%

nuts, flesh foods, eggs, vitamin A rich fruits and vegetables, cereals and tubers, and other fruits and vegetables.

Minimum meal frequency (MMF) indicator : Proportion of children aged 6–23.9 months who receive solid, semi-solid, or soft foods the minimum number of times:

a. For **breastfed** infants: 6-8.9 months ≥2 times 9 - 23.9 months ≥3 times

b. For **non-breastfed** children 6-23.9 months ≥4 times

Minimum acceptable diet (MAD) indicator : Proportion of children aged 6–23 months who receive MDD as well as MMF according to the definitions mentioned above.

Results:

The present study included 46 (25.55%) children of<6 months age, and 134 children were between 6 months to <24 months age. 29.44% children were between 18 to <24 months of age. Majority of the children were male (62.8%) and Hindu by religion (78.33%). Most of the mothers were housewives (97.2%), belonging to joint family (66.1%) with upper lower socioeconomic status (59.4%) [as per Modified Kuppuswamy socioeconomic scale updated for the year 2019].[11]

Table 1 shows the breastfeeding practices in the slum area. The study revealed that only 27.20% children had early initiation of breastfeeding and prelacteal feeding was given to 18.3% children. However, colostrum was given to 85.6% of the children. The prevalence of exclusive breast feeding was 67.39% among children < 6 months age. >90% mothers were continuing breast feeding at 1 year & 2 years of age.

Table 2 shows the complementary feeding practices among the children. In majority of the children weaning was done at 6-month (36.60%) and 7-month (36.60%) age. Overall 67.20% children received at least 4 food groups out of the 7 food groups (MDD) in last 24 hours(Table 2). Regarding the food diversity pattern (Figure 2) the study

revealed that 92.53% children between 6 months to <2 years age (124/134) were given rice grains in last 24 hrs. This was followed by legumes (pulses-61.19%), and milk (60.45%). However, flesh foods, eggs, fruits and vegetables were given to in <40 % children; showing their poor consumption pattern.

Table 3 shows that no socio-demographic factors were found to be significantly affecting the breast-feeding practices. However, 70% infants with early initiation of breastfeeding were exclusively breast fed and it was statistically significant (p value-<0.05).

Table 4 shows that the age of the children was significantly associated with MAD intakeand MAD intake increased with age (p value- 0.00). Again, majority children with birth order of 3 or more(30%) were having less MAD intake and higher birth order was significantly associated with poor dietary intake (p value- 0.03). Beside, children belonging to nuclear family were more adequately fed (73.80%) compared to children of joint family (52.2%) and it was also statistically significant. (p value- 0.03). (Table 4)

Discussion:

The present study assessed the IYCF practices in urban slums of Agartala. The study revealed poor practice of early initiation of breastfeeding in urban slums. However, a study conducted in Berhampur showed that 81.6% children had early initiation of breastfeeding.[12] The present study finding was also low compared to studies conducted by Chowdhury SR et al[13] and Dasgupta A et al[14] respectively. The present study showed, prelacteal feeding was given to 18.3% children whereas colostrum was given to 85.6% children. A study conducted by Rajesh D et al[15] showed prelacteal feeding was given to 34% and colostrum was given to 64% infants. A study conducted in Kolkata slums [14] showed prelacteal feeding was given to 31.4% and colostrum was given to 70.9% infants. The present study showed that the prevalence of exclusive breast feeding was 67.39% which was higher compared to studies conducted in Odhisa,[12] Mangalore[16] and Kolkata[14] where 44.35% to 66.75% children <6 months age were exclusively

Table 3: Factors affecting exclusive breast feeding

Variables		Exclusive breast feeding		p value
		Yes (n=31)	No (n=15)	
Gender of child	Male	17(60.70%)	11(39.3%)	0.33*
	Female	14(77.8%)	4(22.2%)	
Religion	Hindu	23(67.6%)	11(32.4%)	0.36*
	Muslim	8(66.7%)	4(33.3%)	
Birth order	1	16(64.0%)	9(36.0%)	1**
	2	14(73.7%)	5(26.3%)	
	>3	1(50.0%)	1(50.0%)	
Community	General	13(61.9%)	8 (38.1%)	0.27**
	SC	13(76.47%)	4(23.52%)	
	OBC	5(62.5%)	3(37.5%)	
Education of mother	Primary or bellow	8(61.53%)	5(38.46%)	0.21*
	Middle school	11(57.89%)	8(42.1%)	
	High school and above	12(85.71%)	2(14.29%)	
Occupation of the mother	Housewife	30(68.2%)	14(31.8%)	1**
	Working	1 (50%)	1(50%)	
Type of family	Nuclear	13(68.4%)	6(31.6%)	0.90*
	Joint	18(66.7%)	9(33.3%)	
Socio-economic status (Modified Kuppuswamy scale)	Upper & Upper middle	6 (75%)	2 (25%)	0.82*
	Lower middle	5 (71.42%)	2(28.58%)	
	Upper lower & lower	20(64.51%)	11(36.66%)	
Early initiation of breastfeeding	Present	7 (70%)	3 (30%)	0.00**
	Absent	8 (22.2%)	28(77.78%)	

* p value calculated using Pearson's Chi square test
** p value calculated using Fisher's Exact test

breast fed. However, the study finding is lower compared to the study conducted in Behrampur.[12] Hence, the present study revealed better practices regarding prelacteal feeding and colostrum feeding compared to other studies, whereas the practice of exclusive breast feeding was poor. This may be due to the fact that most of the deliveries were institutional deliveries and hence, good practice of no prelacteal feeding and colostrum feeding could be initiated, but exclusive breast feeding practice could not be continued in the household settings of the slums with mothers having low educational status and less motivation.

The present study showed good practice of continuing breast feeding at 2 years age compared to the study conducted in Kolkata slums[14] where 43.3% children had continued breastfeeding up to 2 years.

The present study failed to establish any association of breastfeeding practices with socio-

Table 4 : Factors affecting minimum acceptable dietary intake

Variables		Minimum acceptable diet		p value
		Yes (n=79)	No (n=55)	
Age group	6-12 months	15(40.5%)	22(59.5%)	0.00*
	12-18 months	24(54.5%)	20(45.5%)	
	18-24 months	40(75.5%)	13(24.5%)	
Gender	Male	50(58.8%)	35(41.2%)	0.96*
	Female	29(59.2%)	20(40.8%)	
Religion	Hindu	61(57%)	46(43%)	0.36*
	Muslim	18(66.7%)	9(33.3%)	
Birth order	1	51(56.7%)	39(43.3%)	0.03*
	2	25(73.5%)	9(26.5%)	
	3 or more	3(30%)	7(70%)	
Community	General	26(52%)	24(48%)	---
	SC	21(51.2%)	20(48.8%)	
	ST	5(100%)	0	
	OBC	27(71.1%)	11(28.9%)	
Education of mother	Illiterate	5(55.6%)	4(44.4%)	0.56**
	Primary School	12(42.9%)	16(57.1%)	
	Middle School	27(65.9%)	14(34.1%)	
	High School	20(57.1%)	15(42.9%)	
	Higher Secondary	12(75%)	4(25%)	
	Graduate and above	3(60%)	2(40%)	
Occupation of the mother	Housewife	78(59.5%)	53(40.5%)	0.34**
	Working	1(33.33%)	2(66.67%)	
Type of family	Nuclear	31(73.8%)	11(26.2%)	0.01*
	Joint	48(52.2%)	44(47.8%)	
Socioeconomic status (using Modified Kuppuswamy scale)	Upper	2(66.7%)	1(33.3%)	0.80**
	Upper middle	7(50%)	7(50%)	
	Lower middle	18(64.3%)	10(35.7%)	
	Upper lower	48(60%)	32(40%)	
	Lower	4(44.4%)	5(55.6%))	

* p value calculated using Pearson's Chi square test
** p value calculated using Fisher's Exact test

demographic factors unlike studies conducted in Kolkata[14] and Berhampur.[12] However, the present study highlighted that early initiation was a significant determinant of exclusive breast feeding showing the possible role of awareness regarding importance of breast feeding behind it.

Regarding dietary diversity pattern the present study revealed that majority children between 6 months to <2 years age were given rice grains followed by legumes and milk. Similar finding was obtained from NFHS-4 India report, where foods made from grains were the most consumed complementary food items and foods made from beans, peas, lentils, and nuts followed by fruits and vegetables rich in vitamin A were the least consumed food items. [6]

The present study showed 58.95% children had MAD intake. The study finding is higher compared to NFHS-5 where 13.5% children in urban areas of Tripura had MAD intake. [8] This may result from the several initiatives taken by the Government at Anganwadi center level to improve the child's nutrition in slum areas. The study finding is also higher compared to other studies conducted in Mangalore,[16] Odhisa[12] and Kolkata[14] where 18.7%-46% children had MAD intake. The present study showed that increasing age, lower birth order and type of family were significantly affecting the MAD intake. However, a study conducted by Dhami MV et al[17] on IYCF practices from NFHS-4 data found that significant higher household wealth index was significant determinant of better complementary feeding practice in North East India.

Conclusion:

The present study revealed suboptimal IYCF practice in the slums with average practice of exclusive breastfeeding and minimum acceptable dietary intake. In order to bridge the practice gap IEC activities on breastfeeding, and complementary feeding diversity and frequency, should be reinforced; especially targeting mothers with younger children, high birth order and joint family.

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