



# A Study of Child Feeding Practices of Mothers and Their Association with Nutritional Status of Child in an Urban Slum Area of Solapur

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**Financial Support:** None declared

**Conflict of Interest:** None declared

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## How to cite this article:

Rajput RR, Santosh JH, Suresh KM. A Study of Child Feeding Practices of Mothers and Their Association with Nutritional Status of Child in an Urban Slum Area of Solapur. *Natl J Community Med* 2018; 9(3):176-181

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**Date of Submission:** 31-12-17

**Date of Acceptance:** 26-02-18

**Date of Publication:** 31-03-18

## ABSTRACT

**Background:** Countrywide data from NFHS-III (2005-2006) documented that only 57% women practiced prelacteal feeding, proportion of exclusively breastfed infants at 6 months of age was 46.4%. The study was conducted to know breast feeding practices; to know nutritional status of child and to study the association between breast feeding practices and nutritional status of child.

**Methods:** The study was community based descriptive study with cross sectional design. A mother of infant and infant of age 6-12 months from the study area were the sampling unit. Sample size was calculated to be 400 considering 46.4% exclusively breast feeding rate in India according to NFHS-3.

**Results:** Out of 400, 37% mothers initiated breastfeeding within 1-4 hour of delivery, 41.25% mothers practice exclusive breast feeding, 90.5% mothers fed colostrum to their babies, 26.75% mothers gave prelacteal feed to their babies. Prevalence of stunting, underweight, overweight, obesity was 38.25%, 32.25%, 3.75%, 2% and wasting was 20%.

**Conclusion:** Breastfeeding practices like exclusive breast feeding; prelacteal feeding was less than the national average in present urban slum. Child feeding practices had direct association with nutritional status of child in present study.

**Keywords:** Prelacteal feeding, Exclusive breast feeding, Underweight, breast feeding.

## BACKGROUND

Nutrition of child mostly 0- 2 years is very important, as it affects its physical and mental growth. Nutrition of child is depends on breast feeding till early age i.e. till the complementary feeding starts. Various studies were done across the world for growth and nutrition of child. In study done by UNICEF in 2015<sup>1</sup> shows, worldwide, only two fifth of children were exclusive breast fed i.e 39% (0-6 months); children's receiving complimentary food were only 65%. Children continued breast feeding up to 2 years is 49%.

In India knowledge regarding breast feeding is very less which affect their overall growth and development later in life, if not treated early. In Na-

tional Family Health Survey-III<sup>2</sup> (2005-2006) only 24.5% mothers initiated breastfeeding within one hour after the birth and almost 45 percent did not start breastfeeding within one day of birth. Only 75% women practiced prelacteal feeding and exclusively breastfeeding up to 6 months of age was 46.4%. According to National Family Health Survey IV<sup>3</sup> 54.9% of children exclusively breast fed, 42.7% were given a complementary feeding after 6 month.

In India prevalence of stunting (height-for-age) is 38.4% and prevalence of wasting (weight-for-height) is 21%. Children who are severely wasted (weight-for-height) are 7.5%. Children who are underweight (weight-for-age) is 35.7%. As from

various studies it was proven that to build an overall health of child first 2 years were very important including their breast feeding and complimentary feeding practices. If the mother has good knowledge regarding child feeding practices, her child will maintain a good health in early stage of their life and it will avoid him in landing up in malnutrition. In Urban slum areas the population is migratory, parents were working, and many of them were exposed to infections and child neglect. So present study was conducted in urban slum to see their early child feeding practices and their effect on child nutrition, using of WHO growth chart so that early interventions can be initiated to protect them from landing up in malnutrition.

### OBJECTIVES

The exercise was conducted to study breast feeding practices of infants in urban slum population under urban health training centre; to know nutritional status of infants of age 6-12 months; and to study the association between breast feeding practices of infants and nutritional status of infants.

### METHODS

**Study Area:** The present study has been carried out in the slum area, catered by Urban Health Training Centre of the Department of Community Medicine of Government Medical College, Solapur. Population in this slum area is approximately 16,600.

**Study type and Design:** The study was community based descriptive study with cross sectional design.

**Period of study:** The period of study was from January 2015 to June 2016.

**Sampling frame and Sampling Unit:** Sampling frame consisted of all mothers having infants of age 6-12 months residing in urban slum field practice area catered by Urban Health training Centre, of the Department of Community Medicine.

**Sample size:** The urban field practice area consists of 30,000 populations residing in slum area. Ac-

ording to national family health survey -3 exclusively breast feeding in India is 46.4%.<sup>2,10</sup> With precision level of 5% and level of significance set at 5% with 95% confidence interval, the sample size is calculated by the formula<sup>4</sup>  $n = (1.96)^2 pq / l^2$  So, the minimum sample size is 382. So, I have taken 400 as sample size.

**Selection of sample and Data Collection:** List of mothers whose infants were between 6-12 months was obtained from anganwadi centres of urban slum area of URBAN HEALTH TRAINING CENTER under department of community medicine and the slum area adjacent to it. Out of 453 mothers in the list, 400 mothers were selected by simple random sampling using statistical software from slum area under the urban health training centre and area adjacent to it till the sample sized was reached. Informed consent was obtained from the mothers. Direct interview method using a semi-structured questionnaire was used to collect the data. Performa containing list of questions regarding social and demographic characteristic, identification data, family information, breast feeding practices, infant's information and examination. Data was recorded in case record form.

**Nutritional Status:** Z score chart for Length/height -for -age, Weight-for-age and weight-for-length/height by age based on World Health Organization (WHO) child growth standards were used for nutritional status of children.<sup>5</sup>

Underweight<sup>6</sup> is defined by a weight for age below -2 standard deviations of the WHO standards. Stunting<sup>7</sup> is defined by a height for age below -2 standard deviations (SD) of the WHO standards. Wasting is a wasted child has a weight for height that is at least two standard deviation (-2SD) below the median for the WHO Child Growth Standards. Wasting includes Severe Acute Malnutrition (SAM) and Moderate Acute Malnutrition (MAM).

The study was approved by the institutional ethics committee.

Data was entered in Microsoft excel 2007 and analysed using SPSS 15 software. Z test, Chi square test, was used for statistical analysis. P <0.05 was considered statistically significant.

**Table 1: WHO Z score Growth charts for children**

Z - score	Growth indicators			
	Length/height for age	Weight for age	Weight for length/height	BMI for age
Above 3	--	--	Obese	Obese
Above 2	--	--	Overweight	Overweight
Above 1	--	--	Possible risk of overweight	Possible risk of overweight
0 (median)	--	--	--	--
Below - 1	--	--	--	--
Below - 2	Stunted	Underweight	Wasted	Wasted
Below - 3	Severely Stunted	Severely Underweight	Severely Wasted	Severely Wasted

**RESULTS**

Out of 400 mothers, educational status of mothers shows that, 90.5% mothers were literate. Among literate mothers maximum i.e. 67% mothers were educated up to secondary school. Out of 400 mothers, most of mothers i.e. 92.75% were nonworking and 7.25% were working. Distributions of mothers according to type of religion showed that maximum number of mothers were Muslim by religion (56%). Distribution of mothers according to Type of family showed that maximum i.e. 43.75% children belonged to three generation family [Table 1].

In the present study, out of 400 mothers, 41.25% mothers practice exclusive breast feeding while 58.75% mothers did not practice exclusive breast feeding. Most of the mothers, those who not practice exclusive breast feeding were found to be statistically significantly. [Table 2]

In the present study, out of 400 mothers, maximum no of mothers i.e. 79.75% mothers given complementary feed at and after 6 months and 20.25% started complementary feeding before 6 months and few of them who had not given complementary feeding to their child Table 2]

The present study shows distribution of mothers according to colostrum feeding. In the present study out of total 400 mothers, 90.5% mothers fed colostrum to their babies while 9.5% did not fed colostrum to their babies [Table 2].

In the present study out of 400 mothers, 26.75% mothers gave prelacteal feed to their babies while 73.25 % did not give it to their babies [Table 2].

Out of 400 children studied, prevalence of stunting was 38.25%, prevalence of underweight was 32.25%, prevalence of overweight was 3.75%, prevalence of obesity was 2% and prevalence of wasted was 20%. Out of 80 children who were wasted, prevalence of severe acute malnutrition (SAM) was 5.25% and prevalence of moderate acute malnutrition (MAM) was 14.75% [Table 3].

In males values were 39.50%, 46.22% and 20.17% respectively. The prevalence of underweight, stunting and wasting was higher in males as compare to females. The association between gender and distribution of nutritional status was statistically significant (p<0.01). [Table 4]

Those infants exclusively breast feed, the prevalence of underweight in those infants was 30.90%, stunting was 36.97% and wasting was 18.18% respectively. Prevalence of underweight, stunting and wasting was higher in those infants who were not exclusively breast feed i.e. 33.19%, 39.15% and 21.28% respectively. Percentage of the association between exclusively breast feeding and prevalence of underweight was statistically significant

(p<0.01), whereas association between prevalence of stunting, wasting and exclusively breast feeding was not statistically significant (p>0.05) [Table 4]

Prevalence of underweight, stunting and wasting was higher in those infants who were not colostrum feed i.e. 39.47%, 47.37% and 31.58% respectively as compare to those were colostrums feed i.e.39.47%, 47.37% and 31.58% respectively. The association between colostrum feeding and nutritional status of infants was not statistically significant (p>0.05) [Table 4]

**Table 1: Socio-demographic profile of mothers**

Characteristics	Mothers (n=400) (%)
<b>Education</b>	
Illiterate	38 (9.5)
Primary	37(9.25)
Secondary	268 (67)
Higher secondary	37 (9.25)
Graduate	13 (3.25)
Post graduate	07(1.75)
<b>Occupation</b>	
working	29 (7.25)
nonworking	371 (92.75)
<b>Religion</b>	
Hindu	144 (36)
Muslim	224 (56)
Buddhist	32 (8)
<b>Type of family</b>	
Nuclear	119 (29.75)
Joint	106 (26.5)
Three generation	175(43.75)

**Table 2: Distribution of mothers according to feeding practice**

Feeding Practices	Mothers (%)
<b>Practice of exclusive breast feeding</b>	
Yes	165 (41.25)
No	235 (58.75)
<b>Age of initiation of complementary feeding in Months</b>	
<6m & Not started	81 (20.25)
>6m & 6m	319 (79.75)
<b>Practice of colostrum feeding</b>	
Given	362 (90.5)
Not given	38 (9.5)
<b>Prelacteal feed</b>	
Given	107 (26.75)
Not given	293 (73.25)

**Table 3: Distribution of nutrition status among children**

Characteristic	Children (%)
Stunting (Below -2 Z score)	153 (38.25)
Underweight (Below -2 Z score)	129 (32.25)
Overweight (Above +2 Z score)	15 (3.75)
Obese (Above +3 Z score)	08(2)
<b>Wasting</b>	
Severe acute malnutrition (SAM)	21(5.25)
Moderate acute malnutrition (MAM)	59 (14.75)

**Table 4: Comparison of nutritional status of children with gender and feeding practices**

Variables	Underweight		Stunting		Wasting	
	Present	Absent (%)	Present (%)	Absent (%)	Present (%)	Absent (%)
<b>Gender</b>						
Male (n=238) (%)	94(39.50)	144(60.50)	110(46.22)	128(53.78)	48(20.17)	190(79.83)
Female (n=162) (%)	35(21.60)	127(78.40)	43(26.54)	119(73.46)	32(19.75)	130(80.25)
P value	P<0.01		P<0.01		P<0.01	
<b>Exclusive Breast Feeding</b>						
Yes (n=165) (%)	51(30.90)	114(69.09)	61(36.97)	104(63.03)	30(18.18)	135(81.82)
No (n=235) (%)	78(33.19)	157(66.80)	92(39.15)	143(60.85)	50(21.28)	185(78.72)
P value	P <0.01		P>0.05		P>0.05	
<b>Colostrum</b>						
Given (n=362) (%)	114(31.49)	248(68.51)	135(37.29)	227(62.71)	68(18.78)	294(81.22)
Not given (n=38) (%)	15(39.47)	23(60.53)	18(47.37)	20(52.63)	12(31.58)	26(68.42)
P value	p>0.05		p>0.05		p>0.05	
<b>Age of initiation of complementary feeding in months</b>						
<6m and not started (n=81) (%)	30(37.03)	51(62.96)	35(43.20)	46(56.79)	20(24.69)	61(75.30)
6m and >6m (n=319) (%)	99(31.03)	220(68.96)	118(36.99)	201(63)	60(18.80)	259(81.19)
P value	p>0.05		p>0.05		p>0.05	

P <0.05 indicate statistical significance

Prevalence of underweight, at 6m and >6m age (Started at proper age) of initiation of complementary feeding was less (31.03%) than those who started it at <6m and not yet started (not a proper age) was 37%. The prevalence of stunting at 6m and >6m of age of initiation of complementary feeding was 36.99%, which was lower than infants who started it at <6 month or those who have not started (43.20%).

The prevalence of wasting at 6m and >6m of initiation of complementary was 18.80%, at <6month and not started was 24.69%, which is more when complementary feeding was not at proper age (<6month and not started). The association between nutritional status of infants and age of initiation of complementary feeding was not statistically significant (p>0.05) [Table 4]

## DISCUSSION

In present study, out of 400 children studied, 41.25% mothers practiced exclusive breast feeding the reason for less Exclusive breast feeding is because of less knowledge to mothers about breast feeding. Similar to present study, in study done by Sreedhara MS et al<sup>8</sup> (2013) exclusive breast feeding was 68% which was higher than present study. In contrast to present study, less practice of exclusive breast feeding was seen in Radhakrishnan S et al<sup>9</sup> (2012) which was 34%, the reasons for the less EBF was most of the mothers giving bottle feed to their child, because of inadequate breast milk secretion, other reasons were poor weight gain, unable to breastfeed, and bottle feeding more nutritious than breast milk.

In present study, out of 400 children studied, 38.25% children were stunted, 32.25% children

were underweight, 3.75% were overweight, 2% were obese and 20% children were wasted. Out of 80 children who were wasted, 5.25% were having severe acute malnutrition (SAM) and 14.75% were found to be having moderate acute malnutrition (MAM), they may. Similar to the present study, in the study done by Mishra M et al<sup>10</sup> (2015) showed that the underweight prevalence was 39.74%. Contrast to present study, in study done by Mukhopadhyay DK et al<sup>11</sup> (2013) it was observed that 35.9% children were underweight, 31.4% were stunted and prevalence of wasting was 20% which was similar to present study. In a study done by Sreedhara MS et al<sup>8</sup> (2013) the prevalence of wasting at one year was 34% and stunting was 32%. This was because the feeding practices in the study community were poor.

The prevalence of underweight, stunting and wasting was higher in males as compare to females. Similar to present study, in study done by, Kumar D et al<sup>12</sup> (2014) it was observed that 40.8% children were underweight. Males (42.9%) exceeded females (38.3%) in malnutrition with respect to weight for age (W/A). In the study done by Medhin G et al<sup>13</sup> (2010) in Ethiopia shows that, The overall prevalence of stunting and underweight were 26.7% and 21.7% at the age of six months and 48.1% and 21.2% at the age of twelve months, respectively. The prevalence of under nutrition was significantly higher amongst infants who were male Contrast to present study.

**Association between exclusive breast feeding and nutritional status of infants:** Prevalence of underweight, stunting and wasting was higher in those infants who were not exclusively breast fed. Association between prevalence of Underweight, stunting, wasting and exclusively breast feeding was not statistically significant (p>0.05). Similar find-

ings were observed in Khan Y et al<sup>14</sup> (2012), it was seen in the study that underweight (17.3%), stunting (9.4%) and wasting (10.3%) was lower in children where exclusive breast feeding was done (0-6 months) than non-exclusively breast fed children (37.2%, 30%, 25.5% respectively) and the association found to be significant. Contrast to present study, in the study done by Kumar D et al<sup>15</sup> (2015) out of the total 424 children surveyed, 64.5% were found to be underweight. Prevalence of underweight was higher in children in whom the exclusive breast feeding was done (67.8%) than in children who did not exclusively breast feed (60.9%).

**Association between colostrum feeding and nutritional status of infants:** The association between colostrum feeding and nutritional status of infants was not statistically significant ( $p > 0.05$ ). The prevalence of underweight, stunting and wasting was maximum in those infants who were not colostrum fed. Similar findings were observed in study done by Kumar D et al<sup>15</sup> (2015) and Khan Y et al<sup>14</sup> (2012). In the study done by Kumar D et al<sup>15</sup> (2015) out of the total 424 children surveyed, 64.5% were found to be underweight. Prevalence of underweight was higher in children in whom the colostrum feeding was not done (68.5%) than in children those feed colostrum (63.9%) also similar findings were observed in study done by Khan Y et al<sup>14</sup> (2012), it was observed in the study that percentage of underweight (29.8%), stunting (17.7%) and wasting (21.1%) was maximum in children where colostrum feeding was not done than colostrum fed children (19.2%, 15%, 11.9% respectively) and the association was found to be significant. They found out that breast feeding knowledge in mothers was less as mothers were less educated and which affect their nutritional status.

**Association between complementary feeding and nutritional status of infants:** Similar findings were observed in study done by Chakravarthy KB et al<sup>16</sup> (2015) and Sreedhara MS et al<sup>8</sup> (2013). In a study done by Sreedhara MS et al<sup>8</sup> (2013) showed that the prevalence of wasting at one year was 34% and stunting was 32%. Higher prevalence of malnutrition was noticed in infants in whom complementary feeding was initiated before six months ( $P < 0.001$ ), in whom complementary feeding was inadequate ( $P = 0.001$ ) or inappropriate ( $P < 0.001$ ). Chakravarthy KB et al<sup>16</sup> (2015) found in their study that, among the study population, the prevalence of mild, moderate, severe and very severe underweight children were 11.5%, 2.8%, 0.2% and 0.3% respectively. Among the study population, the prevalence of stunting, wasting was 28.1%, 16.1% respectively. The proportion of children initiated on complementary feeds age less than 6 months was 62.4% and 36.3% children were initiated after the age of 6 months. Prevalence of wast-

ing and stunting in children who started complementary feeding at 6 months was 11.1% and 22.2% respectively which was lower than the children who started <6 months (i.e. 13.9% and 28.4%) or after 6 months (i.e. 13.8% and 33.2%). Contrast to present study, in the study done by Kumar D et al<sup>15</sup> (2015) out of the total 424 children surveyed, 64.5% were found to be underweight. Prevalence of underweight was higher in children in whom the complementary feeding was started at proper timing (72.9%) than in those children in whom complementary feeding was not started at proper time (56.5%).

## CONCLUSION

From the present study we conclude that the prevalence of exclusive breast feeding, prevalence of prelacteal feeding and complementary feeding was less than national average as knowledge regarding breast feeding practices was less among mothers. In present study, prevalence of underweight, stunting and wasting was higher in those infants who were not exclusively breast fed, the prevalence of nutritional status was maximum in those infants who were not colostrum fed respectively as compare to those who were colostrum fed. Probable reason was mothers were residing in slum area where hygiene is poor, mothers were less educated and most of them were housewives, so not exposed to many new nutritious things which were helpful for their child growth.

## Acknowledgements

Authors would like to thank all the study subjects, anganwadi workers for co-operating toward data collection and Mr Mulaje sir for statistical guidance. We would like to acknowledge all the interns and post-graduates in the Department of Community Medicine for conducting in health check-up.

## Limitations of study:

Negative associations found in the study need further research and studies. In present study, information was collected from mothers by interview method so there might be a possibility of recall bias which needs in-depth epidemiological inquiries and studies.

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