



# Infant and Young Child Feeding Practices: A Cross-Sectional Study Amongst Mothers in The Urban Field Practice Area of Navodaya Medical College, Raichur

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## ABSTRACT

**Background:** Malnutrition is one of the commonest causes underlying under five mortality in developing countries like India. The first two years after birth of child is the critical window period for promotion of good growth, health, behavioural and cognitive development. The research aimed to study the current practices of infant and young child feeding among mothers and socio-demographic factors influencing it.

**Methodology:** A cross-sectional study was conducted in the urban area among 375 mothers having children of less than two years. Data was collected after informed consent regarding socio-demographic factors and child feeding practices from mothers. Data was analyzed using EPI Info 7 and expressed in terms of percentages, proportions and chi-square value.

**Results:** In our study 46.7% children of less than two years were exclusively breastfed for 6 months. 17.3% of children were fed with complementary foods at 6 months of age. The study showed 35.5% of children had minimum diet diversity and 50.85% were given minimum meal frequency. Mothers' education was found to be significantly associated with child feeding practices.

**Conclusion:** In our study Infant and young child feeding (IYCF) practices were much less. The study shows giving importance to female literacy, improving socioeconomic condition of mothers in the community will bring greater changes in the practice of optimal IYCF practices.

**Key words:** Infant and young child feeding; Exclusive breastfeeding; Complementary feeding; Minimum Diet Diversity; Minimum Meal Frequency.

## INTRODUCTION

Malnutrition is a national problem and child is the chief victim of interplay of nutrition, socio-economic and health factors that cause malnutrition. The steep rise in malnutrition in children during first two year of life is indicative of poor feeding practices. It results in impaired cognitive and social development, poor school performance and reduced productivity in later life.

The total population of children in 0-4-year age group constitutes 9.7% of India's population<sup>1</sup>. Infant and young child feeding is a set of well-known and common recommendations for appropriate feeding of new-born and children under two years of age<sup>2</sup>. It comprises breastfeeding and complementary feeding which directly affects the nutritional status of children under two years of age and ultimately has an impact on child<sup>3</sup>.

Breast milk is called 'The nurture provided by nature'<sup>4</sup>. Breastfeeding in India is almost universal<sup>5</sup>. However, the rates of early initiation of exclusive breast feeding are well below desirable targets and need improvement<sup>6</sup>. The protection, promotion, and support of exclusive breastfeeding in the first six months of life is acknowledged as the single most significant strategy for reduction of child mortality<sup>7</sup>. 22% of new born babies could be saved if mother starts breastfeeding within one hour of birth which is estimated to be 1 million infants per year globally<sup>8</sup>. Breastfeeding can prevent more than 50% of diarrheal and pneumonia deaths during the first six months life of baby universally<sup>9</sup>. Also, evidence has emerged that it has a direct impact on adult intelligence, educational attainment and income<sup>10</sup>.

Complementary feeding is a gradual process of starting soft food or semi-solid or solid foods around the age of six months, because the mother's milk alone is not sufficient to sustain growth beyond six months. Severe malnutrition coincides with the age at which complementary feeding started. Susceptibility to infection and severity of illness are significantly less in well-nourished than in malnourished children<sup>11</sup>. Complementary foods are often introduced too early or too late and are often nutritionally inadequate and unsafe<sup>12</sup>.

In spite of vast available resources and contact points for imparting knowledge, there exists a gap between knowledge and practice. Community based studies are essential to obtain a clear understanding of factors that are responsible for poor feeding practices and to develop measures to reduce such faulty practices.

## OBJECTIVES

The research was undertaken to study the current practices of infant and young child feeding and socio-demographic factors influence it.

## MATERIALS AND METHODS

A community-based cross-sectional study was conducted in the urban field practice area of Navodaya Medical College and Hospital, Raichur. Data was collected during the period of January 2016 to December 2016 from the mothers of 0-23 months age children residing in the study area and who were willing to participate in the study. Mothers having children of less than two years but are pregnant during the time of study and those mothers not willing to participate in the study were excluded.

Sample size was calculated by using the formula,  $n = 4pq/L^2$ . According to National Family Health Survey III, Karnataka data, estimated prevalence of

exclusive breast feeding for infants was 54%; Children aged 6-9 months receiving solid and semi-solid with breast milk was 74%. So lesser of two values was chosen, which was 54%<sup>13</sup>. So, taking p as 54%, q as (100 - p) and L (allowable error) 10 % of prevalence, the calculated sample size was 341. Considering 10% as non-response rate, 375 taken as final sample size.

Systematic random sampling technique was used to collect the sample size. A random number between 1 to 9 was taken out by lottery method which was the first sample unit of study to start with. With the help of systematic random sampling technique, every 10th house was selected then onwards in order to interview the study subjects till the desired sample size (375) was achieved.

Data was collected using pre-tested, semi-structured questionnaire by house to house visit and personal interview method. Questionnaire was validated. Data thus collected was further processed and analyzed using Epi Info-7 version and expressed in terms of percentages (%), proportions. Chi-square test and Fischer's exact test were applied to test association between two variables.

## RESULTS

In the present study the age of mothers ranged from 18 years to 35 years. The mean age of mothers was  $23.88 \pm 2.92$  years. Majority of mothers were illiterate (41.9%). Only 5.3% of mothers had completed their education up to Pre-University and graduation. More than half of study population (58.4%) belonged to lower middle class followed by 24.5% in lower class. 13.1% belonged to middle class and only 0.8% belonged to upper class.

Figure 1 shows that 46.7% children of less than two years were exclusively breastfed (EBF) for 6 months. But 5.1% of children were exclusively breastfed for more than 7 and 8 months and 2.7% were fed for 9 and 10 months. 2 children were fed up to 11 months.

**Table 1: Feeding practices related to Colostrum, Pre-lacteal feeds, Initiation of breastfeeding**

| Variable                            | Respondent (n=375) (%) |
|-------------------------------------|------------------------|
| <b>Colostrum</b>                    |                        |
| Given                               | 371 (98.9)             |
| Not given                           | 4 (1.1)                |
| <b>Pre-lacteal feeds</b>            |                        |
| Given                               | 107 (28.5)             |
| Not given                           | 268 (71.5)             |
| <b>Initiation of breastfeeding.</b> |                        |
| Within one hour                     | 313 (83.5)             |
| After one hour                      | 62 (16.5)              |

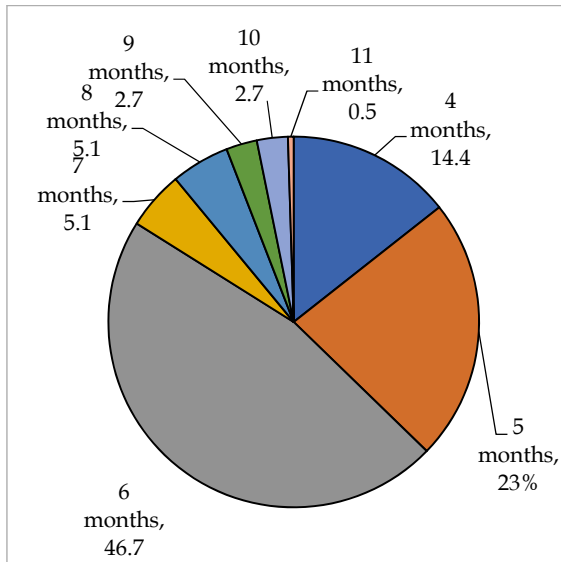


Figure 1: Practice of Exclusive breastfeeding

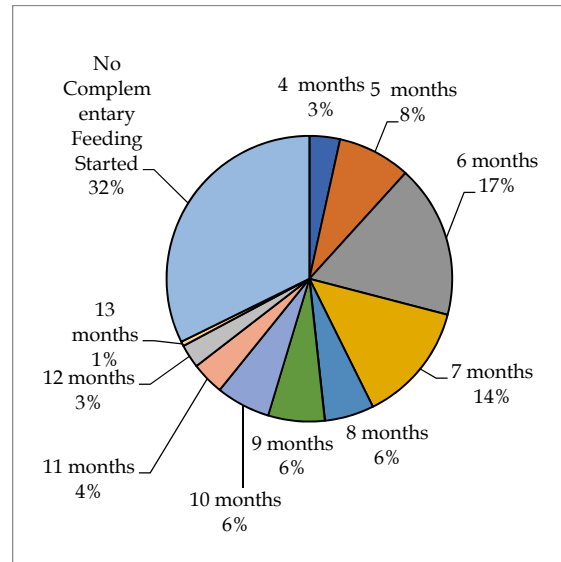


Figure 2: Practice of initiation of complementary feeding

Table 2: Association between Mothers’ education & socio-economic status with colostrum feeding practice

| Socio- Demographic variable  | Colostrum feeding |           | Total | Fischer exact value | df | P-value |
|------------------------------|-------------------|-----------|-------|---------------------|----|---------|
|                              | Given             | Not given |       |                     |    |         |
| <b>Mothers’ education</b>    |                   |           |       |                     |    |         |
| Primary & below              | 226               | 0         | 226   | 0.048               | 1  | 0.024*  |
| Middle school & above        | 145               | 4         | 149   |                     |    |         |
| <b>Socio-Economic status</b> |                   |           |       |                     |    |         |
| Upper                        | 61                | 3         | 64    | 0.033               | 1  | 0.017*  |
| Lower                        | 310               | 1         | 311   |                     |    |         |

\* Mid P Exact value

Figure 2 shows that 17.3% of children were fed with complementary foods at 6 months of age. 36.5% of children were initiated with complementary feeds between 6 to 8 months of age. 11.9% of mothers initiated complementary feeding before 6 months while 39.7% of mothers had initiated complementary feeding after 9 months of age.

In the present study 85.9% mothers had not given any bottle feeding while 14.1% had done it. 70.1% mothers had not given any commercial infant feeds to their children while 29.9% had given commercially available feeds.

Mothers’ education was found to be significantly associated with child feeding practices. Socio-economic status was found to be significantly associated with colostrum feeding practice.

The age of children in the present study ranged from 4 days to 23 months. The mean age of children was 12.28 ± 7.02 months. Girl children (50.7%) were slightly higher in number compared to other gender (49.3%). Most of the children belonged to first and second order.

Table 3: Association between Mothers’ education with Pre-lacteal feeding practice

| Mother’s education status | Pre-lacteal feeds |           | Total |
|---------------------------|-------------------|-----------|-------|
|                           | Given             | Not given |       |
| Primary & below           | 74                | 152       | 226   |
| Middle school & above     | 33                | 116       | 149   |

#Chi-square value= 4.944; df=1; p value 0.02618

Table 4: Association between socio-demographic variables with initiation of BF within one hour

| Mother’s education status | Initiation of BF within one hour |           | Total |
|---------------------------|----------------------------------|-----------|-------|
|                           | Given                            | Not given |       |
| Primary & below           | 199                              | 27        | 226   |
| Middle school & above     | 114                              | 35        | 149   |

#Chi-square value=8.67; df=1; p value 0.003; BF=Breast feeding

Table 5: Association between Mothers’ education with practice of EBF for 6 months.

| Mother’s education status | EBF for 6 months |           | Total |
|---------------------------|------------------|-----------|-------|
|                           | Given            | Not given |       |
| Primary & below           | 103              | 123       | 226   |
| Middle school & above     | 87               | 62        | 149   |

#Chi-square value=5.899; df=1; p value 0.015; EBF= Exclusive breast feeding

**Table 6: Association between Mothers' education with practice of initiation of complementary feeding**

| Mother's education status | Initiation of complementary feeding |          |           | Total | No CF* started |
|---------------------------|-------------------------------------|----------|-----------|-------|----------------|
|                           | < 6 months                          | 6 months | >6 months |       |                |
| Primary & below           | 34                                  | 28       | 90        | 74    | 226            |
| Middle school & above     | 10                                  | 37       | 55        | 47    | 149            |

Chi-square value=13.465; df=2; p value 0.001

**Table 7: WHO recommended IYCF indicators results**

| Indicators                                       | Definition   | Percentage (%) |
|--|--|----------------|
| Early initiation of breastfeeding                | Percentage of children born in the last 24 months who were put to the breast within one hour of birth.                     | 87.5           |
| Exclusive breastfeeding                          | Percentage of infants aged 0-5 months who only drank breast milk.  | 46.7           |
| Introduction of solid, semi-solid and soft foods | Percentage of infants aged 6-8 months who received solid, semi-solid or soft foods.  | 40             |
| Minimum meal frequency (MMF)                     | Percentage of children aged 6-23 months who were fed at least the minimum number of time (meals/snacks) * the previous day | 50.85          |
| Minimum diet diversity (MDD)                     | Percentage of children aged 6-23 months who were fed at least 4 (out of 7) food groups** the previous day                  | 35.5           |
| Continued breastfeeding at 1 years of age        | Percentage of children aged 12-15 months who were fed breast milk previous day.  | 100            |
| Continued breastfeeding at 2 years of age        | Percentage of children aged 20-23 months who were fed breast milk the previous day.  | 93.26          |
| Bottle feeding (optional indicator)              | Percentage of children aged 0 -23 months who were fed with bottle  | 14.1           |

\* Minimum number of meals/snacks per day: 2x for breastfed infants 6-8 months; 3x for breastfed children 9-23 months; 4 times for non-breastfed children 6-23 months (and can include milk/formula feeds for non-breastfed children)

\*\* Minimum diet diversity is based on 7 food groups of: (1) grains, roots, tubers; (2) vitamin A rich fruits and vegetables; (3) flesh foods such as meat, fish and poultry; (4) legumes, nuts and seeds; (5) eggs; (6) other fruits and vegetables (7) dairy products<sup>14</sup>

In our study 98.9 % of mothers had given colostrum to their children while only 1.1% had not given it. It implies that because of increased awareness, the myths associated with colostrum feeding has reduced in community. 28.5% of mothers had given pre-lacteal feeds to their children. Majority, 71.5% had not given any pre-lacteal feedings. 83.5% of mothers had started breastfeeding within one hour after birth while 16.5% had started after one hour of birth.

**DISCUSSION**

The present study was carried out in the urban slum, field practice area of Navodaya Medical College, Raichur. The study was done to assess the feeding practices of mothers of children aged less than two years and factors influencing it.

The milk secreted during the first few days after child birth is called colostrum which is highly nutritious and contains anti- infective factors. It is the first immunization that the child receives after birth. In the present study 98.9% of mothers had given colostrum to their children. It may be due to the high institutional delivery where breastfeeding would have been initiated in facilities and disappearing of

the misbelief and practice of discarding colostrum. The literacy status of mother and Socio-economic status of mothers had shown statistically significant (<0.05) association with colostrum feeding practice. The study conducted by Katara PS<sup>15</sup> and Thakur N et al<sup>16</sup> showed colostrum feeding practice as 87% and 82.5% respectively. In study conducted by Khan S et al<sup>17</sup> only 8% had given colostrum and 76.3% mothers had discarded colostrum and even in Oche et al<sup>18</sup> 47% mothers did not give colostrum as it was thought to be impure. This gross disparities between different regions in colostrum feeding practice might be the result of prevailing local customs and beliefs of people.

WHO and UNICEF<sup>19</sup> recommend early initiation of breastfeeding within one hour of birth. In the present study, 83.5% mothers breastfed their children within one hour of birth. As per DLHS-4 (2015-16) of Karnataka<sup>20</sup> 65.2% breastfed within one hour of birth. The high level in our study compared to these reports may be due to high institutional delivery in our area, which is 83.2%. Contrasts to our study results were found in the study of Raval D et al<sup>21</sup> and Katara PS et al<sup>15</sup>. The study conducted by Nawaz AS et al<sup>22</sup> in rural area of Raichur showed only 58% children were breastfed within one hour because their study showed, 34% of infants born at home. Lack of

knowledge in mothers and family members regarding it results in delay in initiation of breastfeeding.

In the current study 28.5% children were given pre-lacteal feeds. Mothers had given honey, castor oil and pasteurized milk as pre-lacteal feeds to the children. In a study by Rani Jet al<sup>23</sup> 24.7% of respondents had fed their children with pre-lacteal feeds. Study done by Das N et al<sup>24</sup> in west Bengal showed 42.1% and study done by Khan S et al<sup>17</sup> showed as high as 90% because of ignorance or due to belief that pre-lacteal feeds act as laxatives. An appropriate health education during peri-natal period regarding danger of pre-lacteal feeds is essential.

The present study shows that 46.7% of mothers practiced EBF in contrary to the results of Parashar A et al<sup>25</sup> which is 94.9%. The NFHS-4<sup>26</sup> reports show that in India EBF practice rate as 54.9% for 0-5 months. The reports of DLHS-4<sup>20</sup> of Karnataka is much higher than our study results and national level (74.5 %). In the studies done by Khan AM et al<sup>27</sup>, Benjamin et al<sup>28</sup> EBF rate for 6 months was 57.1% and 57.7% respectively. Lack of awareness of benefits of optimal EBF in mothers, assumption of insufficient breast milk are the reasons for low practice of EBF. It is important for parents to know the short term and long-term benefits of EBF to both mother and child.

Improper complementary feeding practice is one of the main reasons for malnutrition. only in the current study 17.3 % of mothers had initiated complementary feeding at 6 months of child birth. Most common reason for delayed introduction of complementary feeding (CF) was that, most mothers felt their milk was enough for baby. In the study conducted by Nawaz et al<sup>22</sup> and Rao S et al<sup>29</sup> 69.25% and 77.5% respectively mothers had initiated CF at 6 months of child birth. In a study by Katara PS et al<sup>15</sup> only 27% of mothers had initiated complementary feeding at 6 months of child birth.

Dietary diversity relates to nutrient adequacy and a diet variety which are the two main components of diet quality. Minimum diet diversity (MDD) is the proportion of children 6-23 months of age who receive food from 4 or more food groups in the previous day. In the current study MDD is 35.5% which is high compared to study results of Udoh EE et al<sup>30</sup> (29.6%). Our study result show similar to the study done by Khan AM et al<sup>27</sup> (32.6%) and contrary to study reports of Das N et al<sup>24</sup> (83.3%). This indicator indicates whether child is receiving complete and balanced diet or not. Lacking of minimum diet diversity in children food predisposes them to being stunted and underweight.

Minimum meal frequency (MMF) is the proportion of children 6-23 months age group who were fed with at least minimum number of times in the

previous day. MMF plays a role in determining the nutritional status of the child thus ensures the appropriate growth and development. Our study shows MMF of 50.85% in the study area. Compared to present study, MMF is very less in the study of Udoh EE et al<sup>30</sup> (36.7%) but similar to study done by Khan AM et al<sup>27</sup> (48%). Contrary to our study MMF was more in study done by Das N et al<sup>24</sup> and Parashar A et al<sup>25</sup> 87.5% and 77.8% respectively.

## CONCLUSION

Lack of adequate knowledge in mothers, culturally prevailing misconceptions, lack of sustained support and motivation of mothers particularly working mothers prevent them from properly feeding their children. Emphasis should be given to infant and young child feeding education programs during all contacts with eligible mothers. The study by Sethi V et al<sup>31</sup> had shown that improvement in feeding practices was possible through proper utilization of existing health services, helping mothers to understand the rationale of practices so that good feeding practices can be substantial. The study shows giving importance to female literacy, improving socioeconomic condition of mothers in the community will bring greater changes in the practice of optimal IYCF practices.

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