

Original article:

Complementary feeding practices in rural community: A study from block Doiwala district Dehradun

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Abstract:

Introduction: Optimal Infant and Young Child-Feeding (IYCF) practices are crucial for nutritional status, growth, development, health and ultimately the survival of infants and young children. Present study analyses the CF practices in terms of timings, quality, frequency and consistency in children below two years of age.

Methods: A community based, cross-sectional study was conducted to assess the CF practices among mothers of children below 2 years of age(N= 336)in the block Doiwala of Dehradun district. Proportions were calculated to analyze various indicators.

Observation: Study showed that 87.3% children of above six months of the age were on CF at the time of study, although timely CF was initiated only in 70.1% of them. 36.4% of children were given complementary food in liquid consistency, only 17.2% children were given green leafy vegetables. Study highlighted that currently 25.1% children, below six month of the age were put on early complementary feeding as mother perceived "not having enough milk", or have to "resume their jobs" etc.

Conclusions: Study indicates towards early initiation of CF by high percentage of mothers. Which can have detrimental effect on children. Inappropriate practices regarding quality, consistency and frequency of CF are commonly prevalent.

Key-words: Complementary Feeding, Quality, consistency

Introduction:

Optimal infant and Young child-feeding(IYCF) practices are crucial for nutritional status, growth, development, health and ultimately the survival of infants and young children¹. World Health organization(WHO) has recommended exclusive breast-feeding(BF) for the first six months, addition of complementary feeds(CF) at 6 months with continued BF till at least 2 years^{2,3}.If these feeding practices followed appropriately can decrease Infant Mortality by 19% and can prevent malnutrition especially in developing countries as ours⁴. Complementary feeds bridge the energy gap, vitamin A gap and Iron gap which arises in breastfed infants at 6 month³. In areas with poor food or water hygiene, early introduction of

complementary foods is associated with increased morbidity for diarrhoeal diseases^{5,6}. Too long a delay in introducing appropriate complementary food may, however, lead to nutritional deficiencies of Iron, Zinc, calcium and sometimes vitamin A and riboflavin⁷. CF is required in appropriate quantity, quality, frequency and consistency to fulfil the recommendations adequately.

The National Family Health Survey (NFHS-III) has provided useful national and state level information on the Infant feeding practices⁸. Available data showed a gross inter-state variation. However, the NFHS was not designed to provide district-level/Block level data. With this background, in the scarcity of in-depth researches on the subject, the present study was conducted to understand the

Infant Young child feeding practices and knowledge of ASHA workers viz-a-viz knowledge and practices of mothers in the rural area. The present research paper analyses only the one aspect of the study i.e about complementary feeding practices in the rural communities. Present work was planned to study CF practices in terms of timings, quality, frequency and consistency in children below two years of age and to analyze the prevalence of appropriate feeding as per the age of children.

Material and Methods:

A community based, cross-sectional, descriptive study was conducted by Department of Community Medicine, HIHT University from March 2012 to July 2012. Study was conducted in the block Doiwala, which is the field practice area of department, in the district Dehradun of Uttarakhand state in India.

Block Doiwala has total 168 villages including hamlets. For each of these Village/hamlets one ASHA has been appointed by Department of Health and Family Welfare, Government of Uttarakhand. Main role of ASHA is to provide

health education & demand generation for public Health services. From each of the village/hamlet two mothers were selected. These mothers were randomly selected from the list of mothers with children below 2 years of age, available with ASHAs. ASHA of the village facilitated the process of identification of selected mother’s house.

Data was collected using pre-designed, semi-structured questionnaire. Questionnaire was administered by the authors and other trained investigators. All the information was collected by interviewing the mother/other responsible caregivers at their home. All feeding practices for children were elicited using the 24 –hour recall method, except for initiation of complementary feeding or termination of breastfeeding for which historic recall was used.

Quantity of food was assessed by showing standard 150 ml Katori. The consistency of food assessed by showing WHO teaching aid⁹.

Appropriateness of feed was assessed according to Integrated Management of Neonatal and Childhood Illness(IMNCI) Guidelines ¹⁰.

Age-specific ‘appropriate feeding’ as per the IMNCI guidelines-			
Age-group (months)	Breastfed	Type of food	Frequency and amount
0–5	Yes	Only breast Milk	8 times or more per 24 hours
6–11	Yes	Solid/semi-solid/soft food	Minimum 1 <i>katori</i> 3 times
	No	Solid/semi-solid/soft food	Minimum 1 <i>katori</i> 5 times
12–23	Irrespective of status	Solid/semi-solid/soft food	Minimum 1.5 <i>katori</i> 5 times
* <i>Katori</i> ≈150 g			

Analysis of the data was done using SPSS software (version 19.0).Simple proportions were calculated for assessing various indicators.

The Institutional ethics committee of HIHT University approved the study.

Observation and Results :

In the present research Infant and young child feeding practices were studied on total 336 children, among them maximum(48.6%) were children up to six months of the age. 36.3% were in 6-12 month of age group followed by 15.2% in 1-2 years age. Approximately two third of them were from joint family and almost similar number of children were from families living Below Poverty line. 63% mothers of these children were educated upto 10th class or above. Approximately 97% of the mothers were housewife. (Table-1)

Table-2 shows that at the time of interview 74.8% children below six months of the age were on exclusive breastfeeding. Rest of the children (25.2%) were on complementary feeding with or without breastfeeding, which is inappropriate practice for that age group. Most common cause of starting early complementary feeding was mothers' perception of "Not having enough milk"(63.4%). Other reasons for starting early complementary feeding were resumption of job by mother; baby used to cry a lot, Mother or the child was sick etc.

Among the children above six month of age 87.3% were on complementary feeding, however in 12.7 % of cases, complementary feeding was not started at the time of the study. Most important reasons for delayed complementary feeding were regurgitation/vomiting by the child, mother did not know the exact timing of starting complementary feed, mother felt her milk is sufficient for the baby, elderly of the family suggested for starting complementary feeding only after one year etc.

As per table-3 -Study has reported that 41 children out of total 163 (25.1%) below six months of the age were started with the early Complementary feeding. Although initiating early CF(i.e before six months) is not an appropriate practice, yet it is analysed to understand the details of the situation.

Amongst children above six month of the age (87.3%)were on complementary feeding at the time of study.

Most of the below six months children were given complementary feeding, three times a day(40.8%) ,liquid in consistency(58.5%), in separate container by caregiver(89.8%). Only very few of them were given green-leafy vegetable(6.1%) or egg/Non-veg food(2.0%)as CF.

Amongst children above six months of age, almost 35% were getting CF less than 3 times a day, 44.4% children of 6-12 month age were getting CF in liquid consistency. Marketed weaning food was given maximally in 6-12 months old children (55.6%).Very few children (14/173) were reported to be receiving egg/non vegetarian food. Green leafy vegetables were reported to be consumed by 10% and 25.5% children of 6-12 months and 13-24 months of age children respectively.

Statistical analysis-

Using chi-square test appropriate feeding practices were significantly related with maternal education ($p < 0.05$) but not with sex of child, family type or socioeconomic status. Consistency of CF was also found to be significantly associated with maternal education ($p < 0.004$) but not with other variables like sex of child, family type or socioeconomic status. However Early complementary feeding was significantly associated with type of family ($p < 0.05$), which was more prevalent in nuclear families.

Discussion :

Appropriate Infant and young child feeding practices are the key interventions to achieve the Millennium Development Goal -1 and 4 which address child malnutrition component of the targets and mortality respectively^{1,11} .

Table-1 Socio-demographic Profile of the children (N=336)	
Variable	Frequency No. (%)
Age of children(in months)	
0-6	163(48.5)
6-12	122(36.3)
12-18	42(12.5)
18-24	9(2.7)
Sex of children	
Male	175(52.1%)
Female	161(47.9%)
Mother's Education	
Illiterate	35(10.4%)
Below 10 th	90(26.8%)
10 th pass	70(20.8%)
12 th pass	67(19.9%)
Graduate and above	74(22.0%)
Family type	
Joint	215(64.0%)
Nuclear	121(36.0%)
Socioeconomic status	
APL	64(19.0%)
BPL	221(65.8%)
No card available	51(15.2%)

Timing of complementary feeding:

Present study showed that 87.3% mothers were giving complementary feeding at the time of study to children above six months of the age, while 12.7% children were still on exclusive breast feeding. Amongst those who were started with CF, in 70.1% cases it was started at six month of age as recommended. This figure is appreciably higher than the reported figure from Delhi slums¹² and in a clinic based study of GTM Hospital¹³ (16.6% and 17.5% respectively).Reasons for this difference could be increased awareness in the population especially after deployment of ASHA workers and

because of various educational programme run by HIHT university and other agencies for promoting appropriate IYCF practices in the block.

Table-2 Age wise Infant and young child feeding practices					
Age of children(months)	No. Of children				
	Total	Exclusively breastfeeding	Breastfeeding and consuming complementary food	Consuming complementary food but not breastfeeding	Appropriate feeding
<2	62	48	8	6	48(77.4%)
2-3	49	35	1	13	35(71.4%)
4-5	52	39	5	8	39(75%)
6-8	60	10	39	11	39(65%)
9-12	62	6	52	4	52(83.8%)
13-24	51	6	27	18	27(52.9%)
Total	336	144	132	60	240(71.4%)

Delayed Complementary Feeding :

In the present study 13% of cases had delayed initiation of CF, which is much lower than the reports of 77% from Delhi¹². However the Commonest reason reported for delayed CF in our and Delhi study are the same i.e. an unsuccessful attempt at feeding i.e. “the child used to vomit everything”. This is actually not vomiting but the fact the child tries to bring out the food put on the front of the tongue. Hence, mother should be educated that child has to develop the taste of food and if they attempt and keep the food on child’s tongue, the child slowly will like it and start swallowing. Other reasons in our study were that mother felt her milk was enough for the baby, elderly in the family suggested to start CF after one year only etc. This indicates that various misconception in the community are hindering the correct feeding practices which need to be removed by intensive health educational programmes and training of village level functionaries.

Early complementary feeding :

In the children below six months of age it was observed that 25.2% were already started with CF

at the time of study, which is inappropriate practice. This is a significantly higher percentage in comparison to 5.5% reported in a clinic based study from Delhi in the year 2007. This indicates mothers’ tendency for starting CF at early stage of life and their ignorance about it’s harmful effect on children. Several studies showed that partial breastfeeding was associated with increased risk of child morbidity and mortality^{1,14,15}. About one-fourth of the children who received liquids and solids, along with breastfeeding at 0-6 months of age, remained at risk for infectious and undernutrition(14,15).

Table-3 Complementary feeding practices			
Complementary Food Indicators	Age wise complementary feeding practices		
Frequency of weaning food per day	0-5 months (N=41)	6-12 months (N=106)	13-24 months (N=45)
One time	10(24.4%)	4(4.4%)	7(14.9%)
Two times	11(28.6%)	33(36.7%)	9(19.1%)
Three times	15(40.8%)	25(27.8%)	17(40.4%)
more than three	5(18.4%)	28(31.1%)	12(25.5%)
Consistency of Complementary food			
Liquid	24(58.5%)	48(44.4%)	7(19.1%)
semi solid	15(36.6%)	47(48.9%)	28(63.8%)
solid	2(4.9%)	11(6.7%)	10(21.3%)
Giving marketed weaning food			
yes	1(2.0%)	60(55.6%)	17(36.2%)
No	40(97.9%)	46(44.4%)	28(63.8%)
Giving green leafy vegetables			
Yes	3(6.1%)	14(10.0%)	12(25.5%)
No	38(93.8%)	91(90.0%)	33(74.5%)
Giving egg /non-vegetarian food			
Yes	1(2.0%)	10(4.4%)	4(8.5%)
No	40(97.9%)	96(95.5%)	41(91.5%)
Method of giving feed			
With bowl & spoon by other person /separate container	36(89.8%)	75(72.2%)	17(36.1%)
Child by himself	2(4.0%)	26(22.2%)	21(48.9%)
In same vessels with other members of the family	3(6.1%)	5(5.6%)	7(14.9%)

Frequency, consistency of complementary feeding-

As per the present study almost 65% children above six months of the age were getting CF more than 3 times a day but in 36.4% cases consistency was thin. A clinic based study from Delhi¹³ reported lesser percentage of children on appropriate frequency(39.3%) and more on thin feeds(62%), further a study by sethi in the year 2003¹² reported appropriate frequency of CF by only 6.6% mothers and appropriate consistency of

CF by 30% mothers. It indicates that over the period of time people have started adopting correct practices under the influence of wider health education in this area.

Quality of complementary feeding –

Marketed weaning food was given maximally in 6-12 months old children(55.6%), which is unnecessary as homemade food is considered to be more appropriate, secondly marketed weaning food

being costly, so people tend to make it thinner in consistency. Hence this practice of giving marketed weaning food should be reduced until unless medically advised.

Green leafy vegetables were reported to be consumed by 10% and 25.5% children of 6-12 months and 13-24 months of age children respectively. As leafy vegetables are not only the source of Iron they also provide fibres to avoid constipation. As present study shows that it is given as CF in very small percentage of children, so there is need to create awareness on the importance of including Green leafy vegetable with lemon as one of the choices for CF.

Very few children (14/173) were reported to be receiving egg/non vegetarian food in the study. As many of the parents consider egg/non-veg as heavy food item so they avoid it giving as CF even if the other family members consume it, so there is need to overcome this misconception, and it should be promoted for at least those families who are Non-Vegetarian. As egg/Non-vegetarian foods are good source for meeting out the protein requirement of the children.

A study in Bangladesh documented that the frequency, amount, energy-density, and diversity of food remained important issues in complementary

feeding¹⁶ and the same has been reported from the present study also, accept that overall prevalence of CF is found to be appreciably high with 70% timely complementary feeding.

It has been reported from various studies that traditional beliefs and practices, besides lack of knowledge regarding current feeding recommendations, might also play a part^{17,18} hence such issues must be taken care off while planning health educational activities.

Conclusion

Overall prevalence of CF is good in the block Doiwala, District Dehradun however there is a need to inform the community about the timing, consistency, frequency and quality of Complementary food items.

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