Status of Complementary feeding practices for under-two children In tribal districts of Maharashtra

12 months onwards

From 12 months, food as consumed by the rest of the family can be offered to the children

6 months to 12 months

- 6 months to 1 year- semi solid complementary food
- Introduction of semi solid complementary foods along with breastfeeding after 6 months of age
- 2-3 meals per day for infants aged 6-8 months;
- 3-4 meals per day for infants aged 9-12 months

First six months

- Breastfeeding should start early, within one hour after birth.
- Breastfeeding should be exclusive for six months.
- Appropriate complementary feeding should start from the age of six months with continued breastfeeding up to two years or beyond.

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Introduction

With growing age, a child's nutritional needs also increase. Since breast milk is no longer enough to meet the nutritional needs of the infant, complementary foods need to be added to the diet of the child. The transition from exclusive breastfeeding to family foods is referred to as complementary feeding[1]. The World Health Organization (WHO) has issued guidelines regarding infant and child feeding practices, which encourage the promotion of exclusive breast feeding for the first 6 months and initiation of complementary feeding (introduction of solid foods) thereafter.

The time period between 6 to 18-24 months of age is a very vulnerable period in which malnutrition starts in many young children, contributing significantly to the high prevalence of malnutrition in children below five years of age world-wide. Growth faltering incipiently worsens from around 6 months of age and results in malnutrition in later months and years[2]. The link between malnutrition and child feeding practices has been recognized. Late introduction of weaning food by Indian mothers is a well documented fact and is considered to be a major cause malnutrition[3-4].

Malnutrition and micronutrient deficiencies during weaning period are reported from various developing countries[5-6] as well. The World Health report 2005 has reported that under nutrition is an underlying cause of an estimated 53 per cent of all under-five deaths[7].

In this entire context, ensuring adequate and timely introduction of complementary feeding along with continued breastfeeding could help prevent under-nutrition in children and also improve child survival. Complementary feeding should be timely, meaning that all infants should start receiving foods in addition to breast milk from 6 months onwards. It should be adequate, meaning that complementary foods should be given in proper amounts, frequency, and consistency and using a variety of foods to cover the nutritional needs of the growing child while maintaining WHO recommends that infants start receiving complementary foods at 6 months of age in addition to breast milk, initially 2-3 times a day between 6-8 months, increasing to 3-4 times daily between 9-11 months and 12-24 months with additional nutritious snacks offered 1-2 times per day, as desired[1].

However, in India, breastfeeding in rural areas appears to be shaped by the beliefs of a community, which are further influenced by social, cultural, and economic factors[1]. Breastfeeding and weaning practices vary among different regions and communities. The DLHS-3 data reveals that introduction of complementary feeding along with continued Breastfeeding in 6-9 month age is only 23.9%[8].

Hence, continuous vigilance over infant feeding practices in the community is necessary for timely interventions, to ensure optimal growth and development. The present study was carried out to document the complementary feeding practices and to understand reasons of delayed or deficient complementary feeding practices among mothers from tribal regions of Maharashtra. This information will be useful for making region or community specific interventions as well as for policy makers for the formulation of interventional programs in the future. This study was conducted in three tribal districts of Maharashtra viz; Amravati, Gadchiroli and Nandurbar. Findings of the study will be used as an input in community action undertaken by Nutrition Rights Coalition, which is a group of 6 civil society organizations working on the issue of malnutrition in selected areas in Maharashtra[1].

Methodology

Objectives of the study :

1. To document the complementary feeding practices among mothers having children of 6-18 months age from three selected tribal districts of Maharashtra
2. To understand reasons for delayed or deficient complementary feeding practices among mothers.

Sampling :

This descriptive-cross sectional study was conducted in one block each from three tribal districts of Maharashtra viz. Amaravati, Gadchiroli and Nandurbar, i.e. a total of three blocks.

Selection of districts/blocks :

Selection of districts and blocks was based on two criteria. Firstly, districts with the highest percentage of malnutrition in the state were prioritized. The second criterion was presence of civil society organizations involved in the Nutrition Rights Coalition, which could facilitate collection of information, as well as use the emerging findings in their work on child nutrition.

Since year 2012, as part of 'Nutrition Rights Coalition', a group of civil society organizations have been implementing the process of Community Based Monitoring and Action (CBMA) related to ICDS selected rural and urban areas. At present the process is being implemented in five rural blocks (15 villages in each block making total 75 villages) and two urban areas (total 39 clusters), which includes selected rural areas in Amaravati (two blocks), Nandurbar, Gadchiroli, and Pune (one block each) and selected urban slum areas of Nagpur and Mumbai, covering total 114 habitations. Amaravati, Gadchiroli and Nandurbar districts have among the highest percentage of cases of severe and moderate underweight children in the state. One block each from these three tribal districts was selected for the study.

Selection of villages :

In each block, 5 villages were randomly selected out of the larger sample of project villages.

Selection of children :

Further in each study village, 5 children in the age group of 6-18 months were selected using random sampling method from anganwadi register and mothers of these children were interviewed. In total, 75 mothers were included in the study.

Districts	Blocks	Villages	Study sample
Amaravati	Dharni	Five villages per block	Five children in each village, in the age group of 6-18 months.
Nandurbar	Dhadgaon		
Gadchiroli	Kurkheda		
Total	**3**	**15**	**75**

1 : The 'Nutrition Rights Coalition' is a coalition of 6 civil society organizations working on Nutrition Rights in Maharashtra, - Amhi Amachya Arogyasathi (Nagpur and Gadchiroli), Janarth (Nandurbar), Rachana Trust (Pune), Lok Seva Sangam (Mumbai) and Khoj (Amaravati)- which are involved in carrying out the activity of CBMA, and a network of CSOs is coordinated by SATHI, Pune.

Tool for data collection :

A structured questionnaire was used to conduct interviews of mothers. Data was collected during February 2015- March 2015. Socioeconomic status (SES) was calculated as low if total score is less than 50%, medium if total score is between 51%-75% and as high if the total score is more than 75%.

Ethical considerations :

Informed consent was taken from each participant prior to conducting the interview and the purpose of the study was explained to them.

Study findings

1. Socio economic profile of respondents

In this study, majority of the respondents (67%) were working in agriculture, either on their own farm or working as agricultural laborer and 14% started working within 1 month of delivery. **More than half (57.3%) belonged to lower socio economic class.** About one third of the respondents had never been to school. Majority were multiparous (64%). Among the 75 children included, 39 were males and 36 were females. **The mean and median age of the sample children was 12 months.** Further 41 children were under 12 months and 34 were in the age group of 12-18 months (Table 1).

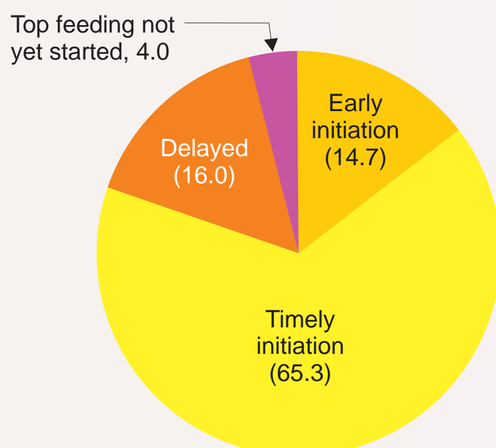
Table 1 : Socio economic profile of the respondents

Socio economic profile (n=75)	Number (%)
Own farm	**57(76.0)**
Have Ration Card	**70 (93.3)**
Yellow (BPL)	57(81.4)
Orange (APL)	12(17.1)
White	1(1.4)
Own house	**70 (93.3)**
Pucca	5(6.7)
Semipucca	33(44.0)
Kuchcha	37(49.3)
Own vehicle	**35 (46.7)**
Cycle	22(62.9)
Scooter/motorcycle	15(42.9)
Auto/cycle rickshaw	2(5.7)
Four wheeler	2(5.7)
Education of mother	**52(69.3)**
Never been to school	23(30.7)
Primary 1to 7th	18(24.0)
High school 7th to 10th	22(29.3)
Higher secondary 11th to 12th	12(16.0)
Occupation of Mother	**50(66.4)**
Housewife	25(33.3)
Work on own farm	43(86.0)
Wage laborer	7(14.0)
SES	
Low(0-6)	43(57.3)
Medium(7-9)	26(34.7)
High(>9)	6(8.0)

2. Initiation of complementary feeding– Top feeding was delayed in 20% of the children

The age of introduction of top feeding (henceforth complementary feeding would be referred as top feeding) ranged between 3-7 months. In 15% children (top feeding was initiated at 3-5 months (early initiation). Majority of children (65%) were introduced to top feeding at around 6-7 months, which is the recommended age for initiation of top feeding. However **in one fifth of cases (20%), delayed top feeding was observed** (figure1). Out of these, 12 children were provided top feeding at 8-14 months age, however **top feeding was not yet started in case of 3 children** (two with 10months and one with 17 months of age). Even though delayed top feeding is observed in only one fifth of the sampled children, the situation is quite alarming considering its implication on child growth.

Figure 1: Distribution of age of top feeding (%)



3. Information regarding initiation of top feeding- Majority of mothers had knowledge about initiation of top feeding around sixth month

To a large extent, initiation of top feeding is dependent on mother's own understanding or knowledge regarding top feeding as well as information received from family members, health workers, and such. **Most of the respondents (80%) rightly answered that top feeding should be initiated around sixth month.** Further, **considerable number of mothers (75%) received information about top feeding from Anganwadi worker** while rest of the mothers did not receive information from anybody.

4. Reasons for delayed top feeding

Fifteen (20%) children, who had delayed top feeding were analysed in relation to socio economic characteristics of their families as well as maternal characteristics which included mother's education, occupation, knowledge regarding top feeding, and parity etc.

Out of these 15 children, four mothers had never been to school and seven belonged to lower SES. 10 out of 15 mothers received information from anganwadi worker regarding top feeding. 7 were girls and 8 were boys. About 14 mothers were working, mostly on their own farm, and five had started working within 3 months of delivery. Most of the children were started feeding after 10 months of age.

Regarding delayed commencement of top feeding, the following responses were given by mothers-

Mother's beliefs and misconceptions

- *Child can eat only after 1 year. Now the child is small and **breastfeeding is sufficient** for him (1 year child)*
- *The child was having breastfeeding so we didn't introduce top feeding to child (10 month child)*
- ***By 6 months, the child has not developed** taste for top feed, so we started it late by 9th month.*
- ***Child is too tiny e**ven at 9 months, hence top feeding is not started.*

Fear of child falling ill

- *We had **fear of choking** due to food getting stuck in child's throat hence we were not giving him top feeding (10 month child)*
- *We had fear of choking food in child's throat as well had no information regarding what should be given to child (9 month child)*
- *We had **fear of child falling ill** if we give him any top feed (10 month child)*

Child is sick or unwilling to eat food offered

- ***Child does not like eating** food other than breast milk (13 month child)*
- ***Child spits out** on eating food other that breast milk (13 months)*
- ***Child was not well;** he had loose motions so we started late (8 months)*
- ***Child was underweight** since birth so we started late. Child was not also not willing to eat before (11 month child)*

The majority of mothers of children with delayed initiation of top feeding expressed one or more of the above reasons. In few cases where caretaker is grandmother, her influence on feeding practice was also observed to be a major reason for delayed top feeding. Overall delayed commencement of top feeding was mainly associated with the beliefs, misconceptions of various mothers, and in some cases the child's

sickness, unwillingness of child to eat, lack of knowledge among mothers regarding initiation of top feeding.

As observed, information regarding initiation of top feeding provided to mothers by AWW at the time of vaccination was found to be helpful, however continuous follow up by AWW is essential, as 10 out of 15 mothers who delayed top feeding in child, had also received some level of guidance from AWW. Follow up might have helped ensuring timely top feeding in these children. On similar lines, it should be noted that, as per ICDS guidelines, Nutrition and Health Education is a key element of the work of AWW which should be done by conducting home visits and meetings with mothers group. However, as noted in the study, information regarding top feeding has been passed on briefly to mothers at the time of vaccination or when mothers visit Anganwadi for collecting THR. Another study (February 2015) conducted by Nutrition Rights Coalition in the same tribal districts of Maharashtra, reported that out of 30 only 4 respondents mentioned about home visits by AWW[9].

5. Nature of foods given while initiating top feeding among children

In most of the children, top feeding was started with dal rice. Soji, milk, Take Home Ration (THR) mix, Poli, Bhakari and milk were also used for initiating top feeding. **In many children low nutritive quality processed foods such as biscuits, Kurkure, chivda, bread, khari, toast, Chocolates, etc comprised initial top feeding**, which is certainly inappropriate food for babies to start with. **More than half of the children (44) were given biscuits to begin top feeding.** It was observed that in many cases dry biscuits are handed over to a child, even as young as 6 months age.

Top feeding has not yet been started in 3 children aged more than 10 months..

Case 1 :

Supriya, who resides in a village in Gadchiroli, is aged 10 months and belongs to lower SES, her mother has completed primary education and works on their own farm. She started working within 3 months after delivery. She has a total of 4 children, Supriya is her 4th child. While talking about reasons of such delay in starting top feed, her mother told that she believed that the child can start eating top food only after one year of age!

Case 2 :

Radha is 17 months old and belongs to lower SES. Residing in a village in Nandurbar, her mother has never been to school. She works on own farm and also as a laborer on others' farm, beginning work on the 8th day of her delivery. Radha was underweight at the time of birth. The Mother often stays in a nearby village for work, and the grandparents take care of Radha. Since birth Radha was given milk powder, as her mother had inadequate breast milk. Even at the 17th month she was not introduced to top feeding. Regarding delayed top feed, her mother explained that she does not eat. Radha was observed to be too skinny, probably a malnourished child with stick like hands and feet and distended belly.

Case 3 :

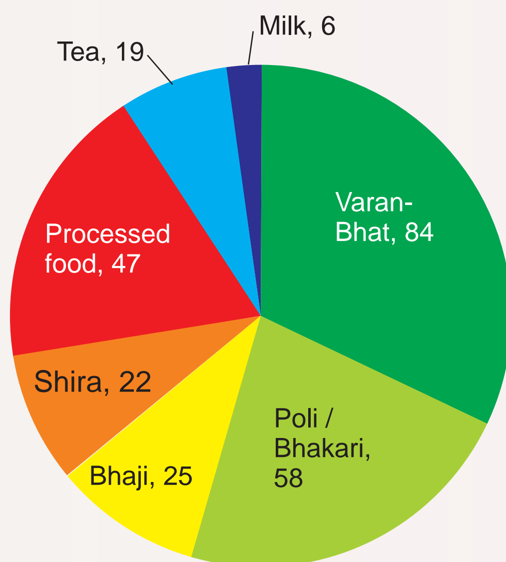
Ganesh is the 5th child of his mother, who has never been to school, belongs to lower SES and works on a farm in a village of Nandurbar district. She started working after 3 months of delivery.

It is essential to note here that the mother has one oldest 7 year old child and Ganesh, 10 months old, is the 5th, the other three children did not survive. Regarding top feeding his mother said that, breast feeding is sufficient till one year.

Ideally introduction of top feeding should be done with liquid or semi solid food. However solid food such as Poli, Bhakari has also been reported as an initial top feed. Though not reported by mothers, administration of food in inappropriate form would be one of the reasons for delayed top feeding, with experiences like child does not eat, choking of food in throat, vomiting etc. On an average, twice a day top feeding was provided, which is in accordance with the WHO guidelines.

6. Current feeding pattern in the children- Top feeding practices are found to be deficient in terms of food frequency, food choice and form of food

Figure 2: Current feeding practices(%)



To understand the current dietary intake of children, food frequency during 24 hours on the previous day was enquired about. Mothers were asked about the diet intake of child a day before the interview. Type and frequency of food given to the child was cross tabulated with current age of children classified in two groups, children in 6-12 months (36 children) and children in 13-18 months (33 children). Frequency of food in most of the children from both age groups was 2 to 3 times. **Only 13.3% of children were fed minimum number of times as per WHO and UNICEF (2007) indicators[2].** Ideally food frequency should have been increased in the second group to 4 to 6 times per day, keeping in view their growing age. However the findings did not show such trend. Further, **10 children in both age groups were given top food only once in a day.** Regarding type of food, it was observed that, most of the children were offered dal rice (on an average 84%) and about 58% children were also given Poli/Bhakari (Figure 2). It has been specifically observed that cooked food in solid form such as dal rice or Poli bhaji, which is offered to the child, is not specially cooked for child appropriately in semi solid form.

Vegetable was served to only 12 out of 33 children in the 12-18 month age group. **Overall local vegetables, non vegetarian items (like eggs, chicken or mutton stock etc) even local produce such as *Ragi, mataki, vatana* and *pavta dal* or other nutrient rich grains (*Jowar, Varai, sattu* etc) which are less expensive and easily available were not being offered to the children. Fruits were totally missing in the diet. Instead, low nutritive quality processed food was offered to nearly half of the children (47%)** while it was noted that **19% children were given tea as a weaning food!** Tea is definitely not recommended food for children in this age. The hazards of tea include its content of tannic acid which impairs iron absorption. Tea also reduces the appetite; hence its use should be discouraged. Positively, breast feeding was also found to be continued in almost all the children at present, as recommended by WHO to continue it till 2 years. **Consumption of low nutritive quality processed food in children was more in Amaravati compared to other to tribal districts.**

Among children who received top feeding fairly on the right time, the overall pattern of top feeding was often found to be deficient in terms of food frequency, type/choice of food, and sometimes the consistency of food was found to be inappropriate. As mentioned earlier, in many families, food is not specially prepared for children; same food which is cooked for other adult family members is offered to child as well. This can be attributed to the fact that most of the respondents belonged to low socioeconomic class and lacked knowledge regarding feeding practices.

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2 : Minimum number of times: Fed solid or semi-solid food at least twice a day for breastfed children aged 6-8 months, 3 or more times for breastfed children aged 6-23 months, and 4 or more times including milk feed for non-breastfed children during the previous day.

Conclusion and Recommendations

The overall picture indicates that although a majority of mothers are aware of the right timing for introducing top feeding and they started top feeding after 6 months, they were unaware regarding appropriate feeding practices for meeting the child's nutritional requirements. Top feeding practices are found to be deficient for growth in terms of under feeding and lack of nutritionally balanced diet in the studied children. Further, delayed commencement of top feeding was found to be mainly linked with beliefs, misconceptions of various mothers and in some cases child's sickness, unwillingness of child for eating etc. This also emphasizes the need for proper counseling or guidance to mothers by AWW regarding the same.

Based on the study findings, we recommend that :

- **Focused programme for improving overall complementary feeding practices-** On the whole, the study emphasizes that, along with public awareness programmes for breast feeding practices, it is essential to introduce a focused programme for improving overall complementary feeding practices as well. This health message should be widely given using various modes of reaching people, including electronic and print media. Creating awareness about its advantages will further strengthen and support this common practice in rural and tribal communities. No opportunity should be missed by doctors and health workers to educate the rural or tribal women on the benefits of complementary feeding.

- **Home visits by Anganwadi worker for individualistic counseling and food demonstrations to mothers-** Going beyond this, mothers should be shown demonstration of preparing appropriate food for children from main family ingredients to make it soft, palatable and nutritionally balanced. With proper capacity building, AWWs can play a significant role in providing guidance as well as in conducting such demonstrations for mothers and more importantly for regular follow up of mothers regarding top feeding, as one of her crucial tasks. AWW must make home visits at least 2 to 3 times, since the child is around 6 months of age, till such a time that the child starts eating properly.

- **Desirability of a second Anganwadi worker-** Since individualistic counseling is important, keeping in mind various existing responsibilities of AWW, it would be desirable to have second AWW to give individualized counseling to each mother and to follow up regarding nutritional status of the child.

- **Guidance regarding appropriate feeding practices and use of local resources-** Families in which the same food which is cooked for other adult family members is offered to the child, need to be guided on feeding food with at least proper consistency and increasing the frequency of food in a day. They can also be suggested the use of cheap and easily available local resources, as food for the child.

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This study has been conducted as part of a project supported by the Narotam Sekhsaria Foundation.
Report by Nutrition Rights Coalition (NRC)

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Printed by : N.R. Enterprises

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Narotam Sekhsaria Foundation