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Short Research Article

Title- Complementary feeding practices amongst children aged 6-18 months in tribal parts of Maharashtra, India- requires to be complemented aptly

Abstract

Aim- The present study was carried out to document the complementary feeding practices in the view of understanding reasons of delayed or deficient practices in children aged six-18 months, from tribal regions of Maharashtra.

Study design: This was a descriptive, cross sectional study

Place and Duration of Study- This study was conducted during February 2015- October 2015 in selected blocks from three tribal districts of Maharashtra viz. Amravati, Gadchiroli and Nandurbar

Methodology-. In each study village, five children in the age group of six to18 months were selected using random sampling from anganwadi register and mothers of these children were interviewed. Total 75 mothers were interviewed. Data entry and statistical analysis were performed using the Microsoft Excel and SPSS. Percentages and cumulative percentages were applied to find the results.

Results:

Majority of children (65%) were introduced to top feeding around six-seven months, which is a recommended age for initiation of top feeding. While in one fifth of cases (20%) delayed top feeding was observed. Delayed commencement of top feeding was found to be mainly associated with mothers own beliefs, misconceptions and in some cases child's sickness, unwillingness of

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child for eating, lack of knowledge with mothers regarding initiation of top feeding. Only 13.3% of children were fed minimum number of times as per WHO and UNICEF (2007) indicators. Fruits were totally missing in the diet. Instead, junk food was offered to more than half of the children while 14 children were given tea!

Conclusion- The overall picture indicates that although a majority of mothers were unaware regarding appropriate feeding practices for meeting the child's nutritional requirements. Top feeding practices are found to be deficient in terms of under feeding and lack of nutritionally balanced diet in the studied children.

Keywords-complementary feeding, child malnutrition, tribal areas, feeding practices

Introduction-

With growing age, a child's nutritional needs also increase. As breast milk is no longer enough to meet the nutritional needs of the infant, complementary foods are required to be added to the diet of the child. The time period in six to 24 months of age is a very vulnerable period in which malnutrition starts in many infants, contributing significantly to the high prevalence of malnutrition in children below five years of age. Growth faltering incipiently worsens from around six months of age and results in malnutrition in later months and years[1]. The link between malnutrition and child feeding practices has been widely recognized. Late introduction of weaning food by Indian mothers is a well documented fact and is considered to be a major cause of malnutrition[2-3].

Malnutrition and micronutrient deficiencies during weaning period are reported from various developing countries[4-5] as well. A study by Chirmulay *et al.* (2002) showed that, there was a significant relation of nutritional status of preschool children to feeding practices. Exclusive

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breast-feeding was beneficial only up to six months age. After this age, it lost its advantage[5]. Children above one year age exclusively fed on breast had a high prevalence of malnutrition. 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[6]. The research evidence over the last few decades has clearly identified causes of high child mortality and also the remedies, which are effective and feasible for implementation at a large scale, in the community. Exclusive breastfeeding stands out as a single most effective intervention for child survival[7], while improving complementary feeding is viewed as a major contributor to reduce anemia and stunting as well[8]. Additional 6% child deaths can be prevented with appropriate complementary feeding[9].
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.

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[10]. Breastfeeding and weaning practices vary among different regions and communities. Data from Rapid Survey of Children (RSoC,2014), reveals that introduction of complementary feeding along with continued Breastfeeding in six to eight months age in rural India is almost half (47.1%)[11].

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 in the view of understanding reasons of delayed or deficient practices in children aged six-18 months, from tribal regions of Maharashtra.

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Material and Methods

This was a descriptive and cross sectional study conducted in a selected block from three tribal districts of Maharashtra viz. Amravati, Gadchiroli and Nandurbar, covering 75 mothers having children in the age group of six to 18 months.

Selection of districts and blocks was based on two criteria. Districts with highest percentage of malnutrition in the state as per DLHS-3 and presence of civil society organizations involved in the Nutrition Rights Coalition. 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 areas from Amaravati (two blocks), Nandurbar, Gadchiroli, and Pune (one block each). In each block, five villages were randomly selected out of larger sample of villages. Further in each study village, five children in the age group of six to18 months were selected using random sampling from anganwadi register and mothers of these children were interviewed. Interview schedule was used to conduct interviews of mothers. Dietary recall of child for one day was also taken, for understanding current diet of the child as well as for cross checking information given by mothers regarding variety and frequency of food given to children. Data was collected during February 2015-March 2015. Data entry and statistical analysis were performed using the Microsoft Excel and SPSS. Percentages and cumulative percentages were applied to find the results.

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

Results

Initiation of complementary feeding

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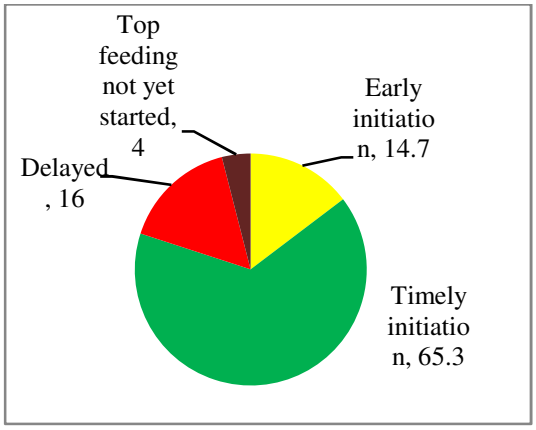
The age of introduction of top feeding (henceforth complementary feeding would be referred as top feeding) ranged between 3-7months. In 15% childrentop feeding was initiated early, in 3-5 months. Majority of children (65%) were introduced to top feeding around 6-7 months, which is a recommended age for initiation of top feeding. While in one fifth of cases (20%) children, delayed top feeding was observed (figure I). Out of these, 16% children were provided top feeding in the 8-14 month age while in case of 4% children top feeding was not yet started. Even though delayed top feeding is observed in only one fifth of the sampled children, situation is quite alarming considering its implication on child growth.

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



Information regarding Initiation of top feeding

Most of the respondents rightly answered that top feeding should be initiated around sixth month. It was observed that considerable number of mothers (75%) received guidance about top feeding from Anganwadi worker while 20% mothers did not receive guidance from anybody.

Reasons of delayed top feeding

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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 those 20% (n=15), four mothers had never been to school and belonged to lower SES. Ten out of 15 mothers received guidance from anganwadi worker regarding top feeding. Seven were girls and eight were boys. About 14 mothers were working, mostly on their own farm, and five had started working within one month of delivery. Most of the children were started feeding after 10 months.

In majority of the cases, it was found that delayed commencement of top feeding was mainly associated with mothers own beliefs, misconceptions and in some cases child's sickness, unwillingness of child for eating, lack of knowledge with mothers regarding initiation of top feeding. Some of the responses given by mothers were-

"Child can eat only after one year. Now child is small and breastfeeding is sufficient for him (1 year child)…",

"Taste is not developed in child in at 6months so we started it late by 9th month…",

"We had fear of chocking food in child's throat as well had no information regarding what should be given to child (9month child)…" ,

"Child spits out on eating food other that breast milk (13months)…", "Child was underweight since birth so we started late….",

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"Child was not well; he had loose motions so we started late (8months)…".

In few cases where caretaker is grandmother, her influence on feeding practice was also observed to be a major reason for delayed top feeding.

Food introduced at the time of starting top feeding in the children -

In most of the children, top feeding was started with dal rice. *Soji,* milk as well as solid food such as Poli, Bhakari were also used for initial feed. In many children junk food 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 were given biscuits to begin with top feeding.

Current feeding pattern in the children –

Food frequency was taken for understanding current dietary intake of children by taking 24 hours recall. Type and frequency of food given to the child was cross tabulated with current age of children in two groups, children in 6-12 months (41 children) and children in 13-18 months (34 children). Frequency of food in most of the children from both age groups was 2 to 3 times a day. Only 13.3% of children were fed minimum number of times as per WHO and UNICEF (2007) indicators[12]. Further, 10 children in both age groups were given food only once in a day. Most of the children were offered dal rice (on an average 63%) and about 42% of children were also given *Poli/Bhakari.* It has been specifically observed that *dal* rice or *Poli bhaji*, which is offered to the child, is not specially prepared for children in semi solid form.

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Overall local vegetables, non vegetarian diet, even local produce such as *Ragi* or other nutrient rich grains (*Jowar, Varai,* etc) which are less expensive and easily available were not being offered to the children. Fruits were totally missing in the diet. Instead, junk food was offered to more than half of the children while 20% children were given tea! Positively, breast feeding was also found to be continued in almost all the children as yet.

Discussion

In this study, timely initiation of top feeding was observed in most of the children, while delayed top feeding was observed in only one fifth of the sampled children. Similar trend were reported by few other studies including study by Deshpande Jayant *et al*. (2010)[13], in rural India. Although most of the children received top feeding fairly on a right time, overall top feeding practices were found to be deficient in terms of food frequency, type/choice of food and sometimes form of food (consistency) was found to be inadequate for growth.

Though not reported by mothers, as observed by investigators, feeding food in an 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. Ideally introduction of top feeding should be done with liquid or semi Solid food. However solid food such as *Poli, Bhakari* has been reported as an initial top feed. The similar observations were reported by Rahalkar A. *et al* (2014)[14] in their rural study. 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. Junk food was also fed often to the children, which is definitely a matter of concern. Total 14 children were given tea. Chaudhary *et al* (2007)[15] in their study in Pakistan, noted the similar observation. Tea is definitely not recommended food for children in

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this age. As observed, information regarding top feeding has been passed on by AWW very 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 3 respondents mentioned about home visits by AWW[16]. Ten out of 15 mothers who delayed top feeding in child, had also received some level of information from AWW. Proper guidance and follow up by AWW might have helped ensuring timely top feeding in these children. .

Conclusion and recommendation

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 are 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. Based on the study findings, we recommend that:

- **Focused programme for improving overall complementary feeding practices** -Along with public awareness programmes for breast feeding practices, it is essential to introduce a focused programme for improving overall top feeding practices as well. This health message should be widely given using various modes of reaching people, including electronic and print media.
- **Home visits by Anganwadi worker for individualistic counseling and food demonstrations to mothers-** With proper capacity building, AWWs can play a significant role in providing guidance as well as in conducting such demonstrations for

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mothers and more importantly for regular follow up of mothers regarding top feeding, as one of her crucial tasks, as per ICDS guidelines. 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 individualized 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-** Mothers should be guided to make food soft, palatable and nutritionally balanced. They can also be suggested the use of cheap and easily available local resources, as food for the child.

References –

1. Mahmood SE, Srivastava A, Shrotriya VP, Mishra P. Infant feeding practices in the rural population of north India. J Fam Community Med 2012;19:130-5

2. Kushawaha K, Mathur G, Prakash O. (1987) Infant feeding practices of peri-urban areas of Gorakhpur. Indian Pediatr, 24: 899-901
3. Khan ME. (1990) Breastfeeding and weaning practices in India. Asia Pacific Pop J, 5: 71-8
4. Akram DS. Weaning practices in Karachi. J Med Assoc 2005; 28: 124-6.

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5. Chirmulary D, Nisal R. Nutritional status of tribal under five children in Ahmad Nagar District, Maharashtra in relation to weaning/ practices. Indian pediatr 2002; 30: 215 -22.

6. World Health Organization. The World Health Report 2005: Make every mother and child count, WHO, Geneva, 2005.Available at: *http://www.who.int/whr/2005/en/index.html.Accessed on 27 August 2009*.

7. Bhutta ZA, Ahmed T, Black RE *et al.* What works? Interventions for maternal and child under nutrition and Survival. *Lancet* 2008; 371 : 417-440.

8. Darmstadt GL, Bhutta ZA, Cousens S, Adam T, Walker N, de BL. Evidence-based, cost-effective interventions: how many newborn babies can we save? *Lancet* 2005; 365: 977-988.

9. Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS, and the Bellagio Child Survival Study Group. How many child deaths can we prevent this year? *Lancet* 2003; 362: 65-71.

10. World health organization. Complementary feeding. http://www.who.int/nutrition/topics/complementary_feeding/en/ (accessed on 17May2015)

11. Ministry of Health and Family Welfare. Government of India. *Rapid survey of Children,* Ministry of Health and Family Welfare, 2013-14.