

# Nutritional Status and Feeding Practices in Relation to IYCN Policy Among Children under 2 Years of Age in Tertiary Care Centre

Swati Mohan Gadappa<sup>1</sup>, Manas Kumar Behera<sup>2</sup>

## ABSTRACT

**Introduction:** Nutritional status of under-5 children is an indicator of the health status of the nation. Malnutrition has its root in maternal health as well as feeding practices in the community. Study was planned with the objective to determine the incidence of feeding practices i.e. breast feeding and complementary feeding and malnutrition in 0-24 months age children according to Infant and Young Child Nutrition [IYCN] policy of WHO.

**Material and methods:** A non-experimental descriptive study was conducted in an urban tertiary centre including children between 0-24 months of age. Their clinical examination, anthropometry, WHO classification of malnutrition and dietary information was recorded on structured questionnaire.

**Results:** Of the 125 children, 44% were malnourished. Exclusive Breast Feeding was given by only 36.8% mothers. Colostrum feeding was practiced in 83.2% children. Prolactal consumption was noted in 54.4% children. 52% mothers initiated Breast Feeding in first hour of birth, of which 59% children had no malnutrition. Only 38% children received complementary feeding between 6-9 months of age. Complementary feeding with continued Breastfeeding till 1 year of age was noted in 71% children. Relation between age of starting complementary feeding and malnutrition was statistically significant [ $p=0.020$ ]. Minimum dietary diversity was noted in 47.2% children.

**Conclusion:** Breast feeding initiation within 1<sup>st</sup> hour of birth and Complementary feeding at 6 months are imperative to prevent malnutrition. The relation between early and delayed complementary feeding and malnutrition was statistically significant, thus emphasizing that optimum timing of initiating complementary feeding along with breast feeding play a key role in preventing malnutrition.

**Keywords:** Breast feeding, complementary feeding, malnutrition

## INTRODUCTION

Infant and young child feeding practices are of prime importance to maintain the nutritional status of children between 0-24 months of age and are often influenced by traditional practices. Infant and young child feeding practices, malnutrition and child survival rates in the country are interlinked. Emphasis on improving these practices is an imperative step for better development and health of children.<sup>1</sup> Infection and malnutrition during the peak period of development in the first two years of life affect the growth potential of children. Breastfeeding is a basic human activity, vital to infant and maternal health and of immense economic value to households and societies.<sup>2</sup> Breastfeeding lowers mortality associated with bloody and chronic diarrhoea and confers apparent protection at least upto 3 months after weaning.<sup>3</sup> Breast feeding provides abundant benefits to the mother and child both in first 6 months of life. However, thereafter complementary feeding is required for optimal growth of the child. Higher rates of malnutrition have been observed in 12-24 months children in low socioeconomic

population in India. The WHO recommends that, infants should be exclusively breastfed upto first six months of life and thereafter provided complementary foods with continuation of breastfeeding upto two years of age.<sup>4</sup> Country wide National Family Health Survey II (NFHSII) data show mean underweight prevalence increases from 11.9% among infants fewer than six months of age to 58.4% at 12-23 months of age.<sup>5</sup> Of 1000 children born in Maharashtra 38 do not live to see their first birth day (IMR- Infant Mortality Rate = 38). Total 58 children succumb by five years of age (Under Five Mortality Rate = 58). This implies that younger the child, higher the chances of morbidity and mortality. Most deaths contributing to U5MR occur before completion of three years (Table-1).

Through the above data, the initiation of breast feeding and complementary feeding play a significant role in malnutrition at 0-2 years. Thus the need for studying the feeding pattern and practices is imperative for prevention of malnutrition.

Aims and Objectives of the study were to determine the incidence of feeding practices i.e. breast feeding and complementary feeding in 0-24 months age children according to IYCN policy, to determine the incidence of malnutrition in children below 2 years and to correlate nutritional status with feeding practices in children of age 0-24 months.

## MATERIAL AND METHODS

Non-experimental descriptive study was conducted in the Department of Pediatrics of a tertiary care centre over a period of 3 months after obtaining requisite permission of the Ethics committee of the hospital. 125 children of 0-24 months age, attending the Pediatric out patient department were included in the study; of which 36 were between 0-6 months and 89 were of 7-24 months age. Children who were sick, had chronic ailments, preterm children, syndromic children and children who were not accompanied by their mother/immediate caretaker were excluded from this study. Parents were explained about the study by investigating pediatrician and informed consent was obtained from parents of all patients included in the study.

**Research Design:** Children were assessed through clinical examination and anthropometry including height/length, weight, weight for height z-score which were plotted on

<sup>1</sup>Associate Professor, <sup>2</sup>Professor and HOD, Department of Pediatrics, Smt. Kashibai Navale Medical College and General Hospital, Pune, Maharashtra, India

**Corresponding author:** Dr Swati Gadappa, 601/B3, Runwal Seagull Township, Handewadi Road, Hadapsar, Pune, Maharashtra. 411028, India

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WHO growth charts accordingly children were classified in No Malnutrition, moderate acute malnutrition (MAM) and severe acute malnutrition (SAM). Children were weighed using Pediatric Digital weighing machine and Length, Height were measured by Infantometer and Stadiometer respectively. Information regarding Breastfeeding (Received Colostrum/prelacteals/time of initiation of 1<sup>st</sup> breast feeding/duration of exclusive breast feeding), complementary feeding (age of initiation/type of first food) and 24 hour dietary recall were obtained from the mother of the child through a structured questionnaire. Through the obtained data we emphasized on the Core Indicators of IYCF i.e. 1. Early initiation of breast feeding. 2. Exclusive breastfeeding under 6 months. 3. Continued breastfeeding at 1 year. 4. Introduction of solid, semi-solid or soft foods. 5. Minimum dietary diversity: It is proportion of children with 6–23 months of age who received foods from four or more food groups of the seven food groups in the last 24 hours: (i) cereals, legumes (ii) pulses and nuts (iii) milk and milk products (iv) meat, poultry (v) eggs (vi) vitamin A rich fruits and vegetables; and (vii) other vegetables.<sup>1</sup> Minimum dietary diversity was calculated in children 6-24 months age.

### STATISTICAL ANALYSIS

Data was analysed using SPSS Software. Chi square test was used for selective data evaluation.

### RESULTS

Total 125 children between 0-24 months were included in the study with sex distribution of 70 males and 55 females. Based on the age, children were categorized into Group 1 of 0-6 months (23M:13F) and Group 2 of 7-24 months (47M:42F) The mean age in group1 was 3.98 months and in group 2 was 14.95 months. Amongst 125 children, 70 children (56%) had no malnutrition (group1 n=17, group 2 n=53). Whereas, 21.6% (n=27, Group1=11, group2=16) had Moderate acute malnutrition and 22.4% (n=28, Group1=8, group 2=20) had Severe acute malnutrition. Thus the overall incidence of malnutrition in this study was 44%.

Colostrum feeding was practiced in 83.2% children. Also prelacteal consumption was noted in 54.4% children. The commonest prelacteals were honey and jaggery water. Exclusive Breast feeding upto 6 months was given by only 36.8% (n=46) mothers. 52% (n=65) mothers initiated breast feeding within 1<sup>st</sup> hour of birth, while 18.4% (n=23) initiated breast feeding after 24 hours, of which 5 mothers started BF after >72 hours. 59% of children (n=38) who received Breast feeding within 1<sup>st</sup> hour of birth were not malnourished, whereas 54% and 52% children who were breastfed at 1-24 hours and >24 hours respectively, were not malnourished. However, the relation between duration and onset of breast-feeding with malnutrition in children upto 24 months was not statistically significant (p=0.582, p=0.099 respectively).

Complementary feeding with continued Breastfeeding till 1 year of age was noted in 71% children. Only 38% of children received Complementary feeding between 6-9 months age, as compared to 48.8% children who were started on complementary feeding before 6 months of age, in some cases on day1 of life. The children who received complementary feeding at 9 months of age and beyond, 60% had severe acute malnutrition. The correlation between age of starting complementary feeding and malnutrition was found to be statistically significant (p=0.020) (Figure-1). Minimum dietary diversity Score (<=4 food groups) was noted in 47.2% children. Of these children, 42.4% were malnourished. There was no correlation between minimum dietary diversity and malnutrition (p=0.87).

### DISCUSSION

The World Health Organisation, in its Infant and young child nutrition policy, highlights the need for emphasis on basic feeding practices to prevent malnutrition which is a major worldwide cause of childhood mortality especially in children below two years of age. Thus we carried out this study in our outpatient department in children mainly attending for immunization. Small sample size, selection bias and lack of maternal and demographic data are some of the limitations of our study. We found exclusive breast feeding upto 6 months was given by only 36.8% mothers. These findings are supported by previous studies from different parts of the world.<sup>7,8</sup> However, the low prevalence of EBF at six months of age in our study was substantially lower than previous studies<sup>7</sup> but higher than recent studies from India (7.8% and 16.5%).<sup>9,10</sup> Studies indicate the prevalence of exclusive breastfeeding at six months is generally low in low resource countries and varies from 9%<sup>10</sup> to 40%.<sup>12</sup> In our study, 52% and 18.4% mothers initiated breast feeding within 1 hour and after 24 hours of birth respectively. Vijayalakshmi et al demonstrated that only 36.9% of the mothers had initiated breastfeeding within an hour.<sup>13</sup> Delay in initiation of breastfeeding as cited by the mothers were attributed to delay in shifting the mothers from labour room, babies were

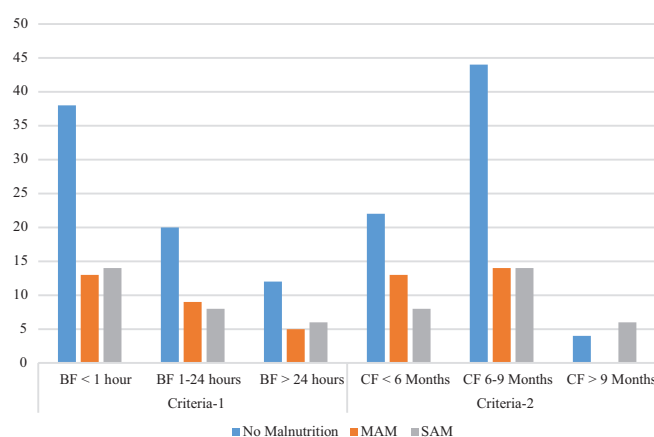


Figure-1: Relation of Malnutrition to Feeding Practices

Indicators	Maharashtra 1998 NFHSII	Maharashtra 2005 NFHS III	India 2005 NFHS III
Initiation of BF in <1 hour	23%	52%	53%
0-6 months Exclusive BF	7%, 4-5months	53%, <5months	46%, <5months
Appropriate CF at 6-9 months	31%	48%	56%
Malnutrition 0-3 years	50%	40%	46%

Table-1: National Family Health Survey Data [Govt. Of India]<sup>6</sup>

in neonatal ICU, Caesarean section and family restriction. This is higher than the studies conducted from different parts of the world ranging from 6.3% to 31%.<sup>14,15</sup> However, the data in various studies in India shows that initiation rates vary from 16% to 54.5%.<sup>16</sup> The relation between duration and onset of breast-feeding with malnutrition in children upto 24 months was not statistically significant in our study. However, in a study by Rasanian et al, 72(20.3%) children where breast-feeding was initiated within two hours of birth while in 56(15.82%) children it was delayed beyond two days of delivery. Delay in initiation of breastfeeding was associated with severe malnutrition.<sup>17</sup>

The incidence of providing complementary feeding with continued Breast feeding till 1 year of age was 71%. In our study, only 38% of children received Complementary feeding between 6-9 months age. 48.8% and 60% of children receiving early and delayed complementary feeding respectively, had malnutrition. In our study, the correlation between age of starting complementary feeding and malnutrition was found to be statistically significant ( $p=0.020$ ). Similarly, in a study by Rasanian et al, complementary foods were started at optimum age in 42.9% children, started early (<4 months) in 24.5% children while in rest it was delayed beyond six months. Severe malnutrition was significantly higher in children where weaning was delayed.<sup>17</sup> Assenso,<sup>18</sup> while assessing the effect of prolonged breast feeding on the nutritional status, observed considerably lower nutritional status of children who continue to receive the breast milk upto 2nd and 3rd year of life in comparison with fully weaned children in the same year. Thus, early as well as late initiation of Complementary feeding is clearly associated with malnutrition. We noted a tendency to feed mainly milk, cereals and legumes as complementary foods, with lesser emphasis on fruits and vegetables. Gautam et al demonstrated a lower proportion of infants with minimum meal diversity (35%).<sup>19</sup> A study in South Asian countries reported that the children of 6–23 months had received minimum dietary diversity (82%), India (15%), Sri Lanka (71%).<sup>19</sup> Sakaa et al in a study in Ghana demonstrated an MDD in 34.8% children of 6-23 months age.<sup>20</sup> The high percentage of malnutrition in these children may be attributed to the faulty food consistency which is traditionally fed to children as well as to less emphasis on iron and vitamin rich food groups in our country.

## CONCLUSION

Breast feeding must be initiated within 1<sup>st</sup> hour of birth to prevent malnutrition. Lactation support should be available at all hospitals. Optimal timely complementary feeding should be started at 6 months. Also emphasis of providing variety of food groups to the child is desirable for achieving the growth potential of child who is the future torchbearer of the nation.

## REFERENCES

1. WHO. Indicators for assessing infant and young child feeding practices. Part1. 2008.
2. In fact Canada. Breastfeeding: a human right. Human and legal rights of breastfeeding women and children. 1997. (Cited 2014 July 25). Available from: <https://www.infactcanada.ca/humright>.
3. Kramer MS, Kakuna R. the optimal duration of exclusive breast feeding, a systematic review, WHO, Geneva, Switzerland. 2002. WHO/NHO/01.08
4. WHO. Exclusive breastfeeding for six months best for

babies everywhere'. World Health Organization; 2011.

5. Boramma G, S.R.Nigudgi, R. Kapatae, S. Reddy. To assess the nutritional status of children in relation to time of onset of breastfeeding and weaning among zero to two years. *J.Evolution Med.Dent.Sci.* 2013;2:3118-3121.
6. National Family Health Survey(NFHS-3:2005-2006). Ministry of Health and Family Welfare, Government of India. 2006.
7. Abdul Ameer AJ, Al-Hadi A-HM, Abdulla MM. Knowledge, attitudes and practices of Iraqi mothers and family child-caring women regarding breastfeeding. *East Mediterr Health J.* 2008;14:1003–14.
8. Simard I, O'Brien HT, Beaudoin A, et al. Factors influencing the initiation and duration of breastfeeding among low-income women followed by the Canada prenatal nutrition program in 4 regions of quebec. *J Hum Lact.* 2005;21:327–37.
9. Tiwari R, Mahajan PC, Lahariya C. The determinants of exclusive breastfeeding in urban slums: a community based study. *J Trop Pediatr.* 2009;55:49–54.
10. Bandyopadhyay M. Impact of ritual pollution on lactation and breastfeeding practices in rural West Bengal, India. *Int Breastfeed J.* 2009;4:2.
11. Ulak M, Chandyo RK, Mellander L, Shrestha PS, Strand TA. Infant feeding practices in Bhaktapur, Nepal: a cross-sectional, health facility based survey. *Int Breastfeed J.* 2012;10:1.
12. Madhu K, Sriram C, Ramesh M. Breast Feeding Practices and Newborn Care in Rural Areas: A Descriptive Cross-Sectional Study. *Indian J Community Med.* 2009;34:243–6.
13. Poreddi Vijayalakshmi, T Susheela, D Mythili. Knowledge, attitudes, and breast feeding practices of postnatal mothers: A cross sectional survey. *Int J Health Sci (Qassim).* 2015; 9:364–374.
14. Dongre AR, Deshmukh PR, Rawool AP, Garg BS. Where and How Breastfeeding Promotion Initiatives Should Focus Its Attention? A Study from Rural Wardha. *Indian J Community Med.* 2010;35:226–9.
15. Chaudhary RN, Shah T, Raja S. Knowledge and practice of mothers regarding breast feeding: a hospital based study. *Health Renaissance.* 2011;9:194–200.
16. Agarwal S, Srivastava K, Sethi V. Maternal and New-born Care Practices Among the Urban Poor in Indore, India: Gaps, Reasons and Possible Program Options. Urban Health Resource Center; New Delhi: 2007.
17. Rasanian SK, Sachdev TR. Nutritional Status and Feeding Practices of Children Attending MCH Centre. *Indian Journal of Community Medicine.* 2001;26;(2001-07 - 2001-09)
18. Assenso-Okyere WK. Large differences in nutritional status between fully weaned and partially breast-fed children beyond the age of 12 months. *Eur J Clin Nutr* 1996;50:171-7.
19. Kapil Prasad Gautam, MandiraAdhikari, ReshamBahadur Khatri, Madhu Dixit Devkota.Determinants of infant and young child feeding practices in Rupandehi, Nepal. *BMC Res Notes.* 2016;9:135.
20. Saaka M, Wemakor A, Abizari AR, Aryee P. How well do WHO complementary feeding indicators relate to nutritional status of children aged 6-23 months in rural Northern Ghana? *BMC Public Health.* 2015;15:1157.

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