

## Infant and Young Child Feeding (IYCF) Practices in Rural Area of Nagpur



### Medical Science

**KEYWORDS :** Feeding practices, Nutrition, Minimum acceptable diet, Breastfeeding

**Sameer H Golawar**

Associate Professor, Dept. of Community Medicine, Govt. Medical College, Nagpur

**Debashish R Parmar**

Assistant Professor, Dept. of Community Medicine, Govt. Medical College, Nagpur

**Bhagwat N Dahiphale**

Medical Officer, District Hospital, Ahmednagar

### ABSTRACT

**Introduction:** Infant and young child feeding practices are multidimensional and age specific. The period between birth and two years is widely recognized as a critical period because of the need for appropriate nutrition to support the rapid rate of physical growth and brain development. **Objective:** To assess Infant & Young Child Feeding practices among children aged (0-23 months) in rural area of Nagpur using WHO 2008 IYCF indicators. **Methods:** A descriptive cross-sectional study conducted from December 2014 to March 2015 in three villages of a sub center Patansavangi in rural area of Nagpur district. A total of 363 children of 0-23 month of age were studied for infant and young child feeding practices using a standard pretested & pre-validated questionnaire. **Result:** Of the total 363 studied children, 58.67% were put on breast-feeding within 1 hour of birth, while only 4.13% children were given prelacteal feed. All studied children were exclusively breast-fed for 6 months. 86.13% mothers of children who belonged to 12–23 months age group continued breast-feeding up to 2 years. About 73.53% started complementary feeding at 6 months. Of 270 children belonging to 6–23 months age group, 30.75% were fed from four or more food groups whereas 69.25% from less than four. Minimum meal frequency (MMF) was adequate in 62.59% while minimum acceptable diet (MAD) was observed in 17.78% of children. Only 30.00% of children received iron rich food. **Conclusion:** This study reveals that although the exclusive breastfeeding rate is satisfactory in this study population, other indicators are not at acceptable levels. The findings clearly highlight the importance of imparting health education to mother and family members about correct IYCF practices

### INTRODUCTION

Infant and young child feeding practices are multidimensional and age specific. The period between birth and two years is widely recognized as a critical period because of the need for appropriate nutrition to support the rapid rate of physical growth and brain development<sup>1</sup>. Under nutrition is estimated to cause 3.1 million child deaths annually. Globally in 2013, 161.5 million children under 5 were estimated to be stunted; 50.8 million were estimated to have low weight-for-height<sup>2</sup>. Malnutrition has been responsible, directly or indirectly, for 60% of all deaths among children less than 5 years of age in India annually<sup>3</sup>. As per World Health Organization (WHO)<sup>4,5</sup> recommendation all infants should be initiated with breastfeeding within one hour of birth and exclusively breastfed from birth until 6 months of life. Thereafter, infants should be introduced to nutritionally adequate and safe complementary foods with contin-

ued breastfeeding up to two years or beyond. Exclusive breastfeeding up to 6 month can prevent up to 13% of the estimated under five deaths and appropriate complementary feeding can prevent almost 6% of under-five mortality<sup>6</sup>. Yet despite of all the potential benefits, only about two fifths of infants worldwide are exclusively breastfed for the first six months of life, and only around two thirds are introduced to solid foods in a timely manner<sup>7</sup>. Improving infant and young child feeding practices in children 0–23 months of age is therefore critical to improved nutrition, health and development of children. WHO and UNICEF developed population based core and optional indicators which allow assessment of the situation regarding both breastfeeding and complementary feeding problems. Considering paucity of literature on all core and optional indicators of IYCF practices in rural Nagpur present study was carried out.

### Material & Methods

IYCF Indicators	Status	Male	Female	Total	P value
Early initiation of breast feeding (n=363 )	Given	120 (64.17)	93(52.84)	213 (58.67)	0.03
	Not given	67(35.83)	83(47.16)	150(41.33)	
	Total	187 (100.0)	176(100)	363(100.0)	
Prelacteal feeding (n=363 )	Given	10(5.35)	05(2.84)	15 (4.13)	0.2
	Not Given	177(94.65)	171(97.16)	348(95.87)	
	Total	187(100.0)	176(100.0)	363 (100.0)	
Exclusive breast feeding among children less than 6 months (n= 93 )	Done	50 (100.0)	43 (100.0)	93(100.0)	NA
	Not done	00(00.0)	00(00.0)	00(00.0)	
	Total	50(100.0)	43(100.0)	93(100.0)	
Continued breast feeding among children from 12 to 23 months(n=202 )	Yes	91(84.25)	83(88.29)	174(86.13)	0.4
	No	17(15.74)	11(11.71)	28(13.87)	
	Total	108(100.0)	94(100.0)	202(100.0)	
Introduction of solid, semi-solid or soft foods 6-8 months(n= 34 )	Yes	12(66.67)	13(81.25)	25(73.53)	0.3
	No	06(33.33)	03(18.75)	09 (26.47)	
	Total	18(100.0)	16(100.0)	34(100.0)	
Minimum dietary diversity among children from 6 to 23 months (n=270)	Adequate (>4)	42(30.66)	41(30.83)	83 (30.74)	0.9
	Inadequate(<4)	95 (69.34)	92(69.17)	187 (69.26)	
	Total	137(100.0)	133(100.0)	270(100.0)	
Minimum meal frequency among children from 6 to 23 months (n= 270)	Adequate	84(61.31)	85(63.91)	169(62.59)	0.6
	In Adequate	53(38.69)	48(36.09)	101(37.41)	
	Total	137(100.0)	133(100.0)	270(100.0)	
Minimum acceptable diet among children from 6 to 23 months (n= 270 )	Adequate	26(18.97)	22(16.54)	48(17.78)	0.6
	In Adequate	111(81.03)	111(83.46)	222(82.23)	
	Total	137(100.0)	133(100.0)	270(100.0)	
Consumption of iron-rich or iron-fortified foods(n= 270 )	Given	41(29.92)	40(30.07)	81(30.00)	0.9
	Not given	96(70.08)	93(69.93)	189(70.00)	
	Total	137(100.0)	133(100.0)	270(100.0)	

Present observational descriptive cross-sectional study was conducted from December 2014 to March 2015 in three villages of a sub centre Patansavangi in rural area of Nagpur. For sample size estimation Comprehensive Nutritional survey of Maharashtra (CNSM)<sup>8</sup> conducted by International Institute of Population Sciences, Mumbai in 2012, was taken as reference. As per this survey assuming the proportion of introduction of solid/semisolid/soft foods at 6-8 months as 51.50%, with 10% relative precision and 95% confidence interval, estimated sample size was 362. Patansavangi was selected by multi stage random sampling method, from the district Nagpur. This sub centre had three villages with overall population of 10854 and had 363 (0-23 months) children. It was decided to include all 363 children from the selected sub centre. House to house survey was done in the selected villages. Informed consent was obtained from eligible mothers after explaining the nature and purpose of the study. A pretested questionnaire mainly based on the standard questionnaire on IYCF practices given by WHO was used for data collection<sup>9</sup>. These questions provide the information needed to calculate both core and optional indicators of IYCF. As per WHO recommendations, information was collected about the child's diet in the previous 24 hours, which included the type of food items and the number of times they had consumed. Food items were categorized in seven types, that is, cereals, legumes and nuts, dairy products, flesh foods, egg, vitamin A rich fruits and vegetables, and other fruit and vegetables. Data was analysed using statistical software Epi Info 7.

**Result:**

The study group comprised of 363 under two years children, out of which 187 (51.51%) were males and 176 (48.49%) were females.

**Table 2: Optional Indicators**

IYCF Indicators	Status	Male	Female	Total	P Value
Children ever breastfed (n=363)	Yes	187(100.0)	176(100.0)	363(100.0)	NA
	No	00	00	00(00.0)	
	Total	187(100.0)	176(100.0)	363(100.0)	
Continued breastfeeding at 2 years from 20-23 months(n= 92)	Yes	42(95.45)	40(83.33)	82(89.13)	0.06
	No	02(4.55)	08(16.67)	10(10.87)	
	Total	44(100.0)	48(100.0)	92(100.0)	
Age-appropriate breastfeeding(n=363)	Yes	91(48.66)	83(47.16)	174(47.93)	0.7
	No	96(51.34)	93(52.84)	189(52.07)	
	Total	187(100.0)	176(100.0)	363(100.0)	
Bottle feeding(n=363)	Yes	02(1.07)	03(1.70)	05(01.38)	0.6
	No	185(98.97)	173(98.30)	358(98.62)	
	Total	187(100.0)	176(100.0)	363(100.0)	
Milk feeding frequency for non-breastfed children(n=17)	≥ 2	02(33.33)	07(63.64)	09(52.94)	0.2
	< 2	04(66.67)	04(36.36)	08(47.06)	
	Total	06(100.0)	11(100.0)	17(100.0)	

All 363 (100.0%) mothers stated to have ever breast-fed their child. Out of 92 children of 20-23 months majority 82(89.13%) received breast milk during previous day. The difference in proportions between male and female children was found significant.

Of all 363 infants and young children of 0-23 months 174(47.93%) received age appropriate breastfeeding during previous day whereas 189(52.07%) didn't receive it. 5 (1.38%) children were fed with a bottle during previous day. Out of 17 non breast-fed children of 6-23 months 9 (52.94%) received at least 2 milk feeds during previous day whereas 8(47.06%) didn't receive it.

**DISCUSSION**

Of the total studied 363 children, 58.67% were put on breast-feeding within 1 hour of birth. This finding was similar with studies done by Satija M et al<sup>10</sup> (56.7%), Sapra D et al<sup>11</sup> (57%), Jain

Mean age of the study subject was 12.42 + 7.64 months, (Range 0-23 months). Sex ratio was 941 females per 1000 males. Majority of study subjects 257 (70.80%) were Hindu by religion and 179 (49.31%) belonged to upper lower class (IV) by socio-economic status. 268 (73.83 %) mothers of study subjects were in age group of 20-24 yrs. (Range: 16 - 32 yrs.), 190 (52.34 %) were illiterate and 210 (57.85%) were homemaker by occupation. 96.42% of study subjects were delivered in institution. Low birth weight was recorded in 107 (30.49 %) of the study subjects.

**Table 1: Core Indicators**

Out of all 363 studied subjects only 213(58.67 %) were put on breast feeding within one hour of birth. Statistically significant difference was found between male and female for early initiation of breast feeding. Prolactal feeding was given to 15 (4.13%) of study subjects. All 93 infants of 0- 5 months received only breast milk during previous day. Continued breastfeeding at one year was being done by 174 (86.13%) children of 12 and 23 months age group. The findings also revealed that 73.53% started complementary feeding at the age of 6 months. Seven food groups were used to find out minimum dietary diversity an indicator of balanced diet, merely 83 (30.75%) were given food from four or more groups whereas 187(69.25%) were given food from less than four groups. Minimum meal frequency (MMF) was adequate in 169 (62.59%) whereas minimum acceptable diet (MAD) was observed in 17.78% children. 81 (30.00%) received iron rich food during previous day whereas majority 189(70.00%) didn't receive it.

S et al<sup>12</sup> (67%), CNSM<sup>8</sup> (67.6%), DLHS 4 Maharashtra<sup>13</sup> (72.8%), DLHS 4 Nagpur<sup>14</sup> (73.2%). Lower proportion was found in studies done by Sinhababu A et al<sup>15</sup> (13.6%), Khan AM et al<sup>16</sup> (37.2%), Dasgupta A et al<sup>17</sup> (31.4%), Das N et al<sup>18</sup> (34.2%) and NFHS III<sup>19</sup> (46.1%). In this study, prolactal feed was given to 4.13% of the studied children, Common prolactal practiced were sugar water, honey; jaggery water. Finding was much lower than that found in a study conducted by Sapra D et al<sup>11</sup> (88%), NFHS III<sup>19</sup> at the national level (57.2%) and Sinhababu A et al<sup>15</sup> (26.7%). Prevailing social custom and unawareness were the reasons given by mother for prolactal feed. Exclusive breastfeeding in infants of 0-5 months was found in 100% of study subjects indicating effective implementation of IYCF practices in community. Finding were consistent with Jain S et al<sup>12</sup> (84.9%), Chandwani H et al<sup>20</sup> (95%), CNSM<sup>8</sup> (98.6%) Continued breast-feeding at 1 year was being done by 86.13% of children. This was quite higher as

compared with studies done by Sapra D et al<sup>11</sup> (47.8%) and Dasgupta A et al<sup>17</sup> (43.3%) but lower as compared to CNSM<sup>8</sup> (91.9%), Das N et al<sup>18</sup> (100%). 73.53% of the mothers had introduced solid/semisolid/soft food at age of 6-8. This finding was comparable to CNSM<sup>8</sup> (73.53%), Lower proportion was found by Das N et al<sup>18</sup> (66.6%), Dasgupta A et al<sup>17</sup> (36.0%), NFHS III<sup>19</sup> (40.7%), DLHS 4 Maharashtra<sup>13</sup> (48.1%), DLHS 4 Nagpur<sup>14</sup> (50%). Minimum dietary diversity (MDD) was adequate in 30.74% study subjects. Khan AM et al<sup>16</sup> and Dasgupta A et al<sup>17</sup> observed adequate minimum dietary diversity in 32.6% and 46.0% study subjects respectively. Minimum meal frequency (MMF) was observed in 62.59% study subjects. This finding was consistent with studies done by Jain S et al<sup>12</sup> (67.6%), CNSM<sup>8</sup> (62.59%), Das N et al<sup>18</sup> (87.5%), Dasgupta A et al<sup>17</sup> (78.0%). Lower proportion was found by Khan AM et al<sup>16</sup> (48.6%). Minimum acceptable diet was found to be adequate only in 17.78% of the 6- to 23-month-old children. This finding was consistent with studies done by Khan AM et al<sup>16</sup> (19.7%), Chandwani H et al<sup>20</sup> (28.3%), Jain S et al<sup>12</sup> (32.8%), CNSM<sup>8</sup> (17.78%). Iron rich or iron fortified food was given to 30 % study subjects during previous day. Lower proportion was reported in CNSM<sup>8</sup> as (15.2%). All 363 mothers stated to have ever breast-fed their child similar findings were reported by Chandwani H et al<sup>20</sup>. 89.13% study subjects received continued breastfeeding at two year during previous day. This finding was consistent with study done by Chandwani H et al<sup>20</sup> (100%), Das N et al<sup>18</sup> (94.6 %), Sinhababu A et al<sup>15</sup> (88.6%). Lower proportion was found in CNSM<sup>8</sup> (71.5%). These findings indicate the need for scaling up promotion of breastfeeding to the second year of life while continuing to provide children with nutritionally adequate and safe complementary foods. Age appropriate breastfeeding during previous day was found in 47.93 % study subjects. This finding was consistent with study done by CNSM<sup>15</sup> (72.8%), DLHS 4 Maharashtra<sup>16</sup> (53.5%), DLHS 4 Nagpur<sup>17</sup> (58.3%). Use of bottle for feeding during previous day was observed in 1.38 % mothers. Higher proportion was reported by Das N et al<sup>18</sup> (28.1%), Khan AM et al<sup>16</sup> (26.5%), SatijaM et al<sup>10</sup> (25.8%). In this study very few infants and young children received any food or drink from a bottle probably due to the effective monitoring and implementation of the National Regulation that discourage bottle feeding practice.

**Conclusion:** This study reveals that although the exclusive breastfeeding rate is satisfactory in the study population, other indicators are not at acceptable levels. The findings clearly highlight the importance of imparting health education to family members and to mother right from antenatal period on infant and child feeding practices with equal emphasis on frequency and diversity of meal.

## References:

1. Mukuria AG, Kothari MT, Adberrahim N. Infant and Young Child Feeding Update. Calverton, Maryland: ORC Macro; 2006.
2. WHO, 2009. Global health risks: mortality and burden of disease attributable to selected major risks Available at: [http://www.who.int/healthinfo/global\\_burden\\_disease/GlobalHealthRisks\\_report\\_full.pdf](http://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf)
3. Government of India. Introduction. National guidelines on infant and Young child feeding: Ministry of women and child development (Food & Nutrition board) Govt. of India. 2<sup>nd</sup> edition Ministry of Women and Child Development (Food & Nutrition board) : New Delhi ; 2006 : 9 -28
4. World Health Organization. Indicators for assessing infant and young child feeding practices. Part I: Definitions. Conclusion of a consensus meeting held 6-8 November 2007 in Washington, DC, USA. Geneva WHO 2008.
5. World Health Organization. Indicators for assessing infant and young child feeding practices. Part III: Country Profile. Geneva WHO 2010.
6. Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS; Bellagio Child Survival Study Group. How many child deaths can we prevent this year? Lancet 2003; 362:65-71
7. Adopting optimal feeding practices is fundamental to a child's survival, growth and development, but too few children benefit - <http://data.unicef.org/nutrition/iycf.html>
8. Government of Maharashtra, Fact Sheet for Maharashtra : (2012) Comprehensive

- sive Nutritional Survey in Maharashtra (CNSM) , International Institute for population sciences, Mumbai; 2012 : 1-6
9. WHO, UNICEF, USAID, AED, UCDAVIS, IFPRI. Definitions. Indicators for assessing infant and young child feeding practices. Geneva : World Health Organization;2008 :1-19
10. Satija M, Sharma S, Chaudhary A, Kaushal P, GirhardS. Infant and young child feeding practices in a rural area of North India. Asian Journal of Medical Sciences 2015; 6(6): 60-65
11. Sapra D, Ray S, Jindal A, Patrikar S. Infant and young child feeding practices amongst children referred to the paediatric outpatient department. Medical journal armed forces India. 2015; 71:359-362
12. Jain S, Borle A, Agrawal SS, Mishra MK, Gupta SK, Bathma V. Assessment of Infant and Young Child Feeding Practices Among Mothers in Rural Madhya Pradesh. Natl J Community Med 2014; 5(4):419-23.
13. Government of India, National Fact sheet India DLHS 4 (2012-13) State fact sheet for Maharashtra, International Institute for population sciences, Mumbai
14. Government of India, National Fact sheet India DLHS 4 (2012-13) District fact sheet for Nagpur, International Institute for population sciences, Mumbai
15. Sinhababu A, Mukhopadhyay DK, Panja TK, Saren AB, Mandal NK, Biswas AB. Infant- and young child-feeding practices in Bankura district, West Bengal, India. J Health Popul Nutr 2010; 28:294-9.
16. Khan MF, Kayina P, Agrawal P, Gupta A, Kannan AT. A study on infant & young child feeding practices among mothers attending an urban health center in East Delhi. Indian j Public Health 2012; 56:301-4.
17. Dasgupta A , Nayia S, Ray S, Ghosal A, Pravakar R, Ram P. Assessment of Infant and Young Child Feeding practices among mothers in Kolkata : A cross sectional study Int J of Bio Med Res. 2014; 5(1):3855-3861
18. Das N, Chattopadhyay D, Chakraborty S, and Dasgupta A. Infant and young child feeding perceptions and practices among mothers in a rural area of West Bengal, India. Ann Med Health Sci Res 2013; 3:370-375.
19. Government of India, National Fact sheet India : (2005 - 06) National Family Health Survey (NFHS III) New Delhi : MoHFW, Govt. of India ; 2007 : 1-3
20. Chandwani H, Prajapati A, Rana B, Sonaliya K. Assessment of infant and young child feeding practices with special emphasis on IYCF indicators in a field practice area of Rural Health Training Centre at Dabhoda, Gujarat, India. Int J Med Sci Public Health 2015; 4:1414-1419