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

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Abstract

Background: Breast-feeding practices play an important role in reducing mortality and morbidity among children. The optimal infant and young child feeding practices during the first 2 years of life is of paramount importance.

Objective: To study infant and young child feeding practices with special emphasis on infant young child feeding indicators in a field practice area of Rural Health Training Centre (RHTC), Gujarat, India.

Materials and Methods: A descriptive cross-sectional study conducted for 6 months, i.e., from Jan 2013 to July 2013, at the RHTC. A total of 300 eligible mothers having children aged 0-23 months were approached through house to house visit by convenient sampling method and data collected regarding infant young child feeding practices.

Result: Of the total 300 studied children, 120 were below 6 months and 180 children were of 6-23 months age group. Of the 120 children who belonged to less than 6 months age group, the majority (94.2%) were put on breast-feeding within 1 hour of birth, while only 4.2% children were given prelacteal feed. Ninety-five percent children were exclusively breast-fed for 6 months. All mothers of children who belonged to 12-23 months age group continued breast-feeding upto 2 years. Of all, 59.8% started complementary feeding at 6 months. Of 180 children belonging to 6-23 months age group, 28.3% were fed from four or more food groups whereas 71.7% from less than four. Minimum meal frequency (MMF) was adequate in 95.6% while minimum acceptable diet (MAD) was observed in 28.3% of children.

Conclusion: This study revealed reasonably good infant and young child feeding practices, but a few indicators especially the MAD indicator is poor and it shows the inadequacy of minimum dietary diversity combined with MMF among the children studied.

KEYWORDS: Infant young child feeding (IYCF), breast-feeding, minimum dietary diversity, prelacteal feed

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Introduction

The optimal infant and young child feeding practices during the first 2 years of life is of paramount importance as this period is the "critical window" for the promotion of health, good growth, behavioral and cognitive development. Optimal infant and young child feeding practices include initiation of breast-feeding within 1 hour of birth, exclusive breast-feeding for the first 6 months, and continuation of breast-feeding for 2 years or more, along with nutritionally adequate, safe, age

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appropriate, responsive complementary feeding starting at 6 months.[1] Breast-feeding strengthens emotional security and affection creating a strong bond between the mother and the child, which in turn promotes psychosocial development of a child. To ensure good nutrition status of the infant as well as the mother, maternal nutrition plays a vital role. Breast-feeding is nature's way of nurturing the child. It provides learning and development opportunities to the infant. Breast milk also leads to increased intelligence quotients and better visual acuity due to the presence of special fatty acids in it.[2]

Approximately, 1.4 million deaths of children under the age of 5 years worldwide can be attributed to suboptimal breast-feeding. Almost 6% of under-five mortality can be prevented by the timely introduction of complementary feeding.[3] It was estimated that about one-fifth of overall under-five mortality can be averted if 90% infants are covered with an inclusive package of interventions to promote, protect, and support the optimal infant young child feeding (IYCF) practices.[3] A large proportion of children become vulnerable to stunting, poor cognitive development, and significantly increased risk of infectious diseases, such as, diarrhea and acute respiratory infection due to the poor complementary feeding practices.[4]

It has been established that because of the best bioavailable iron in breast milk, exclusive breast-feeding prevents anemia and infections particularly the diarrheal infections in the child. The need of introducing cereal-based foods in the diet of infant after the age of 6 months can be correlated with the fact that enzyme amylase appears in the seventh month of the infant.[5] The mother's risk for excess postpartum bleeding is decreased if breast-feeding is initiated early, which in turn lowers the risk for anemia. Exclusive breast-feeding delays next pregnancy, boosts mother's immunity and reduces the insulin needs of diabetic mothers. Breast-feeding also provides protection from breast and ovarian cancers and osteoporosis.[6]

This has an enormous impact in a developing country, like India, with a high burden of disease and low access to safe water and sanitation. The recent studies conducted even in developed countries have also emphasized the role of IYCF practices in reducing child mortality.[7] A global strategy for infant- and young child-feeding has been devised by the World Health Organization (WHO) and United Nations Children Fund. Based on these guiding principles, the Government of India, in collaboration with international agencies, has adopted the culturally acceptable IYCF guidelines, which were incorporated in the Integrated Management of Neonatal and Childhood Illness Programme.[8]

These guidelines recognize appropriate infant feeding practices to be crucial for improving nutrition status and decreasing infant mortality in all countries. WHO offers three recommendations for IYCF practices for children aged 6-23 months: continued breast-feeding or feeding with appropriate calcium-rich foods if not breast-fed; feeding solid or semisolid food for a minimum number of times per day according to age and breast-feeding status; and including foods from a minimum number of food groups per day according to breast-feeding status.

The National Family Health Survey (NFHS-3) has provided useful national- and state-level information on the IYCF practices.[9-11] Available data showed a gross interstate variation. However, the NFHS was not designed to provide district-level data. Most of the studies conducted in India have focused on mainly the breast-feeding aspects and not the dietary diversity and diet frequency aspects, which are important in IYCF.

With this background, this study was undertaken to assess the IYCF practices with special emphasis on IYCF indicators, among children aged less than 2 years at the Dabhoda Rural Health and Training Centre (RHTC) of GCS Medical College, Ahmedabad, Gujarat, India.

Materials and Methods

It was a descriptive study of cross-sectional design conducted for 6 months, that is, from January 2013 to July 2013 at the RHTC of the department of Community Medicine of GCS Medical College, Ahmedabad. This RHTC is located in Dabhoda and it caters population of about 15,000 in the field practice area by providing primary and promotive health care. Study population comprised of mothers having children of age group 0-23 months. A total of 300 eligible mothers were approached through house-to-house visit to participate in the study by convenient sampling method. They were informed about the purpose of study and informed consent was obtained from the mothers. The data were collected by interview method using a pretested schedule. Permission for the study was obtained from Institutional Ethics Committee of GCS Medical College, Ahmedabad, Gujarat. Data were analyzed through Epi-info software. WHO indicators for assessing infant and child feeding practices were used.

A pretested questionnaire mainly based on the standard questionnaire on IYCF practices given by WHO was used for data collection.[9] These questions provide the information needed to calculate the key 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 into seven types, that is, cereals, legumes and nuts, dairy products, meat products, egg, vitamin A-rich fruits and vegetables, and other fruits and vegetables. Children less than 24 months were included in the study after obtaining verbal informed consent from the mothers.

Results

The study revealed that half of the mothers (50.7%) belonged to the age group of 21-25 years. Majority of mothers (70.3%) had education up to primary level. About a quarter

Table 1: Distribution of mothers according to socio-demographic characteristics (n = 300)

Characteristics		Frequency (%)
Age groups	15–20	01 (0.3)
(in years)	21–25	152 (50.7)
	26–30	146 (48.7)
	30–35	01 (0.3)
Religion	Hindu	227 (75.7)
	Muslim	60 (20.0)
	Christian	13 (4.3)
Educational status	Illiterate	55 (18.3)
	Primary schooling	211 (70.3)
	Secondary schooling	28 (9.3)
	Higher secondary schooling	5 (1.7)
	Graduation	1 (0.3)
Occupation	Housewife	190 (63.3)
	Service	31 (10.3)
	Labor	79 (26.3)
Type of family	Nuclear family	239 (79.7)
	Joint family	61 (20.3)
Socio-economic	Class I	00 (0.0)
status	Class II	08 (2.7)
	Class III	27 (9.0)
	Class IV	233 (77.7)
	Class V	32 (10.7)
Place of delivery	Home	07 (2.3)
	Hospital	293 (97.7)
Type of delivery	Cesarian delivery	57 (19.0)
	Normal delivery	240 (80.0)
	Instrumental delivery	03 (1.0)

of them were labourer by occupation. Almost 80% of them belonged to nuclear family whereas 97% of them were of lower socio-economic status. Most of the deliveries were conducted at hospital (97.7%) (Table 1).

Of the total 300 studied children, 120 children were below 6 months and 180 children belonged to 6–23 months age group.

As shown in Table 2, the core indicator of IYCF revealed very good IYCF practices. Of the 120 children who belonged to less than 6 months age group, the majority (94.2%) were put on breast-feeding within 1 hour of birth, whereas only 4.2% of children were given prelacteal feed. Of the studied children, 95% children were exclusively breast-fed for 6 months. All mothers of children who belonged to 12-23 months age group continued breast-feeding upto 2 years. The findings revealed that 59.8% started complementary feeding at the age of 6 months. Seven food groups were used to find out minimum dietary diversity; of 180 children belonging to 6-23 months age group, 28.3% were given food from four or more groups whereas 71.7% were given food from less than four groups. Minimum meal frequency (MMF) was adequate in 95.6% whereas minimum acceptable diet (MAD) was observed in 28.3% children.

Regarding optional indicator of IYCF (Table 3), all the mothers stated to have ever breast-fed their child and continued breast-feeding up to 2 years. There was not a single child who was never breast-fed. Age-appropriate breast-feeding was observed in all children. The difference in proportions between male and female children was not significant at the level of 0.05 by c²-test for any of the IYCF practice indicator status.

Table 2: Core indicator

IYCF indicator	Status	Male no. (%)	Female no. (%)	Total no. (%)	χ²-Test (<i>P</i> -value)
Early initiation of breast feeding among children less	Yes	71 (93.4)	42 (95.5)	113 (94.2)	0.96
than 6 months ($n = 120$)	No	05 (6.6)	02 (4.5)	07 (5.8)	
	Total	76 (100.0)	44 (100.0)	120 (100.0)	
Prelacteal feeding among children less than 6 months	Given	03 (3.9)	02 (4.5)	05 (4.2)	0.88
(n = 120)	Not given	73 (96.1)	42 (95.5)	115 (95.8)	
. ,	Total	76 (100.0)	44 (100.0)	120 (100.0)	
Exclusive breast feeding among children less than	Done	72 (94.7)	42 (95.5)	114 (95.0)	0.86
6 months (<i>n</i> = 120)	Not done	04 (5.3)	02 (4.5)	06 (5.0)	
	Total	76 (100.0)	44 (100.0)	120 (100.0)	
Continued breast feeding among children from 12 to	Yes	47 (100.0)	48 (100.0)	95 (100.0)	NA
23 months ($n = 95$)	No	00 (00.0)	00 (00.0)	00 (00.0)	
	Total	47 (100.0)	48 (100.0)	95 (100.0)	
Minimum meal frequency among children from 6 to	Adequate	90 (98.9)	82 (92.1)	172 (95.6)	0.07
23 months ($n = 180$)	Not adequate	01 (1.1)	07 (7.9)	08 (4.4)	
	Total	91 (100.0)	89 (100.0)	180 (100.0)	
Minimum dietary diversity among children from 6 to	Adequate	22 (24.2)	29 (32.6)	51 (28.3)	0.28
23 months (<i>n</i> = 180)	Not adequate	69 (75.8)	60 (67.4)	129 (71.7)	
, ,	Total	91 (100.0)	89 (100.0)	180 (100.0)	
Minimum acceptable diet among children from 6 to	Adequate	22 (24.2)	29 (32.6)	51 (28.3)	0.28
23 months (<i>n</i> = 180)	Not adequate	69 (75.8)	60 (67.4)	129 (71.7)	
	Total	91 (100.0)	89 (100.0)	180 (100.0)	

Table 3: Optional indicator

IYCF indicator	Status	Male no. (%)	Female no. (%)	Total no. (%)
Children ever breast-fed (n = 300)	Yes	167 (100.0)	133 (100.0)	300 (100.0)
, ,	No	00 (0.0)	00 (0.0)	00 (0.0)
Continued breast feeding at 2 years	Yes	91 (100.0)	89 (100.0)	180 (100.0)
(n = 180)	No	00 (0.0)	00 (0.0)	00 (0.0)
Age appropriate breast-feeding	Yes	167 (100.0)	133 (100.0)	300 (100.0)
(n = 300)	No	00 (0.0)	00 (0.0)	00 (0.0)
Predominant breast-feeding under 6 months	Yes	76 (100.0)	44 (100.0)	120 (100.0)
(n = 120)	No	00 (0.0)	00 (0.0)	00 (0.0)

Discussion

Of the total studied children, the majority (94.2%) were put on breast-feeding within 1 hour of birth. National Family Health Survey - 3 (NFHS-3) data at the national level^[10] and also at Delhi[11] showed as 23.4% and 21.7%, respectively, which is quite lower than our study. A study from West Bengal[12] had shown it much lower as 13.6%. An epidemiological evidence of a causal association between early initiation of breastfeeding and reduced infection-specific neonatal mortality has also been documented. [13] Breast-feeding was initiated within 1 hour in only 8% cases among Paroja community in Orissa^[14] whereas 60% babies were breast-fed within 1 hour of birth in Tanzania.[15]

In this study, prelacteal feed was given to 4.2% of the studied children, which was much lower than that found in the NFHS-3 data at the national level (57.2%)[10], in Delhi state (45.7%)^[11], in a study conducted at Uganda (43%)^[16], and in another study from West Bengal (26.7%)[12]. Although this practice has been found to be prevalent across the cultures, there is an international consensus that providing other liquids in addition to breast milk in the first 6 months of life is unnecessary and harmful.[17]

Exclusive breast-feeding was done by 114 (95.0%) of 120 children under 6 months of age. This was far better than the figures reported by NFHS-3 data, both at national level^[10] (46.4%), from Delhi^[11] (34.5%) and also to the study from West Bengal (57.1%).[12] A study from slum of Delhi has shown that only 20% children below 6 months were exclusively breast-fed.[18]

Rate of exclusive breast-feeding was found to be lower than this study in Bangladesh[19] whereas only 31% tribal mothers practiced exclusive breast-feeding at Kware, Nigeria.[20] The proportion of exclusively breast-fed tribal babies was found to be reasonably good (67.4%) in a study at Thane, Maharashtra as compared to this study. [21] Exclusive breast-feeding up to 6 months was not done in 23.4% children in Jabalpur.[22] Proportion of exclusively breastfed babies is much less than the proportion in rural areas of West Bengal as revealed in NFHS-3 (57.1%). Studies have reported that about one-fourth of the children who received liquids and solids, along with breast-feeding at 0-6 months of age, remained at risk for infectious diseases and undernutrition.[3,23]

In our study, the complementary feeding was started at 6 months in 59.8% children. A wide variation in the proportion of children who received complementary feeding at 6 months of age was reported from two other studies done in India, that is, 71.7% in Kolkata^[24] and 38.7% in Allahabad.^[25] Introduction of complementary feeding at 6 months of age is very crucial for proper preventing malnutrition in infants. In a study conducted in Bangladesh, 13% Garo mothers started complementary feeding before 6 months of age.[26] Surprisingly, exclusive breast-feeding was practiced for a long period of 1 year and supplementary foods were introduced only after the child attained about 1 year of age in a tribal community of Orissa.[14]

About 40% of the mothers did not start complementary feeding in time in this study. In a tribal area of Andhra Pradesh, 48.8% infants were given complementary feeding early (<6 months)[27] whereas 16.3% were given as late as >9 months. Complementary feeding was started by 48% tribal mothers in Mysore district.[28] Supplementary feeding was, however, started by 6 months in majority of the children (84.5%) in Jabalpur study.[22]

Continued breast-feeding at 1 year was being done by 95 (100%) of 95 children between 12 and 23 months. This was guite higher as compared with a study from West Bengal, which showed that 91.1% children, between 12 and 23 months, were continuing breast-feeding.[12] Continuation of breast-feeding at 1 year of age was found to be much high in a study on a tribal population in Mysore district, Karnataka.[28]

Minimum dietary diversity (MDD) indicator is the proportion of children of 6-23 months of age who receive foods from four or more food groups from a total of seven food groups, such as, dairy products, legumes and nuts, flesh foods, eggs, vitamin A-rich fruits and vegetables, cereals and tubers, and other fruits and vegetables.[9] This indicator reveals whether the child is receiving a complete and balanced diet or not. MDD was observed in only 28.3% children between 6 and 23 months age group.

Minimum Meal Frequency (MMF) indicator is the proportion of breast-fed and non-breast-fed children aged 6-23 months who receive solid, semisolid, or soft foods (but also including milk feeds for non-breast-fed children) the minimum number of times or more. [9] For breast-fed children, the minimum number of times varies with age (two times if 6–8 months and three times if 9–23 months). For non-breast-fed children, the minimum number of times does not vary by age (four times for all children aged 6–23 months). MMF was observed in the majority (95.6%) of children aged 6–23 months

Minimum Acceptable Diet (MAD) indicator is the proportion of children aged 6–23 months who receive at least the MDD as well as at least the MMF according to the definitions mentioned above. [9] This was found to be adequate only in 28.3% of the 6- to 23-month-old children.

NFHS-3 finds that only 44% breast-fed children are fed at least the minimum number of times recommended and only half of them also consume food from three or more food groups. Feeding recommendations are followed even less often for non-breast-feeding children. Overall only 21% of breast-feeding and non-breast-feeding children are fed according to the IYCF recommendations. [29]

NFHS-3 data from Delhi have reported that only 55% of children aged 6–23 months are fed the recommended minimum times per day and 48% are fed from the appropriate number of food groups. Only 34% are fed according to all three recommended practices.^[11]

Very few studies have been conducted in Gujarat, with focus on IYCF indicators in the rural areas. This study can contribute significantly in developing future strategies to improve IYCF indicators. Due to limited resources available, the authors could study comparatively smaller sample. Further studies are required to support the findings.

Conclusion

This study revealed reasonably good infant and young child feeding practices, but a few indicators especially the MAD indicator is poor and it shows the inadequacy of MDD combined with MMF among the children studied. Educating the families about correct IYCF practices is the need of the hour in order to combat child malnutrition. This study recommends for proper education of mothers about IYCF guidelines.

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