



Infant and Young child feeding practices among mothers of rural Haryana

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Abstract

Background: *Infant and Young child feeding practices are the most important determinant of growth in 6-23 months age group. Children who falter in their growth during this critical period of growth and development lag behind and don't reach their true intellectual and physical growth potential.*

Material & Methods: *A community based cross-sectional study was conducted in Community Development Block, Beri, district Jhajjar, Haryana over the period of one year. In the present study 400 mothers of children aged 6-23 months were selected with multistage random sampling method and interviewed using structured questionnaire for Infant and Young Child Feeding (IYCF) practices. Data were analyzed with using SPSS-20.0, Chi-square, bivariate and multivariate logistic regression tests.*

Results: *73.8% mothers' timely initiated breastfeeding at birth. 41% mothers did not exclusively breastfeed their babies up to 6 months. Age appropriate complementary feeding was started in 50.7% children. MMF among breastfed and non-breastfed was 61.75% and 48.3% respectively. MDD and MAD was observed in 47.3% & 40.8%. Mother's educational status, mode of delivery, place of delivery and socio-economic status were significant factors associated with IYCF practices.*

Conclusion: *compliance to IYCF practices has shown slight improvement since the last NFHS survey in 2015-2016 but still well below the WHO recommended guidelines for Infant and Young Child Feeding so a comprehensive approach needs be adopted to improve infant and young child feeding. It is recommended to undertake actions in the areas concerning policies, health systems and community.*

Keywords: *IYCF, Practices, Rural community.*

Introduction

Malnutrition is a problem of staggering size worldwide and continues to threaten the health and wellbeing of millions in India. The prevalence of malnourished children is highest in the world. High proportion of undernutrition combined with

the large population base, had made India the country with the largest number of stunted, underweight and wasted children. Malnutrition is widespread across the country in all states. Haryana is one of the prosperous states in India and second highest contributor of grains to

country's central pool. High economic growth in the state is accompanied by a significant reduction in rural poverty and improved human development indicators. Despite significant development, Haryana exhibits high rates of undernutrition and Malnutrition continues to be a development challenge in Haryana. The ongoing programmes are making efforts to improve nutrition but anaemia and undernutrition among children and pregnant women are rising alarmingly in Haryana. India has issued the National Guidelines on Infant and Young Child Feeding in 2006 and enacted the Infant Milk Substitutes Feeding Bottles, and Infant Foods (Regulation of Production, Supply and Distribution) Act 1992, (IMS Act) which was further amended in 2003. Now according to the most recent guidelines for enhancing optimal Infant and Young child feeding practices (2013) it is defined as a set of well-known and common recommendations for appropriate feeding of newborn and children under two years of age.¹

Infant and young child feeding practices remain far from optimal during 2005-06 indicating early initiation of breast feeding was only 22 percent, exclusive breastfeeding 17 percent and introduction of complementary feeding after 6 month of age is found to be only 43 percent in the state (NFHS-3). NFHS-4, 2015-16 report reveals that some improvements have been observed in IYCF practices indicating the initiation of breastfeeding within one hour in 42.4 percent cases and 6 months of exclusive breastfeeding in 50.3 percent cases² Early and exclusive breastfeeding along with appropriate complementary feeding is recognized as one of the most effective interventions for child survival particularly to address morbidity and mortality related to three major problems i.e. neonatal infections, diarrhea and pneumonia. While breastfeeding provides optimal nutrition to child, improvements in complementary feeding can reduce stunting and related burden of disease. Exclusive breastfeeding prevents 13% of estimated under-five mortality and

complementary feeding prevents another 6% of same.³ Most of the studies conducted in India have focused on mainly the breastfeeding aspects and not the dietary diversity and diet frequency aspects, which are important in IYCF, so that's why this study was planned with the objective to assess the IYCF practices among mothers having children in the age bracket of 6-23 months in the rural field practice areas of PGIMS, Rohtak.

Material and Methods

A community based cross-sectional study was conducted in Community Development Block, Beri, district Jhajjar, Haryana over the period of year from April 2016 to March 2017 by house to house visit. Mothers having children aged 6-23 months were included in the study. Mothers who did not consented, mentally unsound, migrants residing for less than one year in study area during the data collection period were excluded from the study. Sample size was calculated, considering prevalence of exclusive breastfeeding to be 50%, using formula $4PQ/L^2$ taking precision to be 5% and level of confidence to be 95%. Thus, total 400 mothers were studied using random sampling technique. A predesigned, pretested semi-structured schedule mainly based on the standard IYCF indicators given by WHO was used for data collection. The pre-test was done in similar settings but not included in the main study of 5% of the sample size. These questions provided the information needed to assess the adequacy of IYCF practices using key (8 core and 2 optional) indicators. As per WHO recommendations, information was collected about the child's diet in the previous 24 hours by Recall Method. For carrying out this study, optimal feeding practices were assessed based on the compliance to WHO recommended practice for each indicator and other variables like parity, mode of delivery, place of delivery, literacy, religion, working status, income, and family support were included. Data was analyzed by using Statistical Package for Social Sciences (SPSS) version 20.0

Operational definitions⁴

1. Early Initiation of Breastfeeding: Proportion of children born in the last 24 months who were put to the breast within one hour of birth in normal delivery and preferably within four hours in caesarean sections.

2. Exclusive Breastfeeding under 6 months: Proportion of infants 6–23 months of age who were fed exclusively with breast milk for the first 6 months of life.

3. Continued Breastfeeding at 1 year: Proportion of children 12–15 months of age who are fed breast milk.

4. Introduction of Solid, Semi-solid or Soft foods: Proportion of infants 6–23 months of age who received timely solid, semi-solid or soft foods.

5. Minimum Dietary Diversity: Proportion of children 6–23 months of age who receive foods from 4 or more food groups.

6. Minimum Meal Frequency: Proportion of breastfed and non-breastfed children 6–23 months of age, who receive solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more.

7. Minimum Acceptable Diet: Proportion of children 6–23 months of age who receive a minimum acceptable diet i.e. minimum meal frequency and minimum diet diversity (apart from breast milk).

8. Continued Breastfeeding at 2 years: Proportion of children 20–23 months of age who are fed breast milk.

9. Bottle Feeding: Proportion of children 6–23 months of age who are fed with a bottle.

10. Consumption of Iron Rich Food: Proportion of children 6–23 months of age who received iron rich foods.

Results

The age of mothers ranged from 18 years to 40 years with mean age of 24.97 ± 3.41 years. 98.6% study subjects were Hindus by religion. (Table 1). Most of study subjects (86.3%) got themselves registered with in first trimester. Other MCH

services availed by study subjects shown in Table 1. In 6-12 months slab there were 41.5% infants in which 21.75% were males and 19.75% were females. 93.8% were born at term gestational age, 17% were of low birth weight in which 9.25% males and 7.75% females. 73.8% mothers initiated breastfeeding at birth as per the recommendations with little difference among the two sexes. 5% of the children could not be given colostrum because of medical reasons like sick baby, sick mother and delayed milk secretion. The practice of pre-lacteal feeding was observed among 33.3% mothers. The major types of pre-lacteal feeds were ghutti (41%), honey (36%), animal milk (8%) and sweetened water (3%). In 49% of the mothers who didn't initiate timely breastfeeding to their newborns, the main reasons cited were medical reasons like mother's inability to feed following caesarean sections, sick baby and low birth weight baby. In another 36% of mothers, delayed milk secretion was found to be the main reason. Cultural beliefs i.e. significant rituals and ceremonies performed after the child birth accounted for delayed initiation in 10% of mothers. The rest of the 5% mothers said that the baby went to sleep just after birth, so they couldn't initiate timely breastfeeding. Mode of delivery and place of delivery were factors affecting timely initiation of breastfeeding. Exclusive breastfeeding was observed to be 59.2%; males (31.75%) and females (27.50%). 85.8% of infants were fed adequately i.e. 8-10 times in a day. Maternal education status, mode of delivery and pre-lacteal feeds given at birth were significantly associated with exclusive breastfeeding. 50.7% mothers started complementary feeding at the recommended age while 49.3% had delayed complementary feeding with little variation observed among male and female children. Mother's educational status was observed to be a significant factor affecting timely introduction of complementary foods. Minimum Meal Frequency was observed to be 61.7% and 48.3% among breastfed and non-breastfed children. Maternal education and age of the child

were observed to be significant independent variables affecting MMF among breastfed children while none of the factors was found to be associated with non-breastfed children. Minimum diet diversity was found to be adequate among 47.3% children i.e. who received recommended Minimum Diet Diversity which includes seven food groups recommended by WHO. Mother’s educational level and socio-economic status were

observed to be major factors influencing MDD. When both, the minimum diversity and the minimum meal frequency are fulfilled, the child is considered to have met the recommended Minimum Acceptable Diet. The practice of MAD in the study area was observed to be adequate among 40.8% with no variation in both sexes. (Table 2,3)

Table 1

SOCIODEMOGRAPHIC CHARACTERISTICS		
Prenatal visits	<4	96(24)
	>4	302(76)
Type of delivery	Institutional	386(96.5)
	Home	14(3.5)
Mode of delivery	Normal	342(85.5)
	Caesarean	58(14.5)
Age	≤25 years	194 (48.5)
	>25 years	206(51.5)
Literacy	Illiterate	58(14.5)
	Primary	139(34.7)
	Secondary	97(24.3)
	Graduation and above	106(26.5)
Family type	Nuclear	136(34)
	Joint	264(66)
Employment status	Employed	22(94.5)
	Unemployed	378(5.5)
Socioeconomic status	I. Upper	68(17)
	II. Upper middle	92(23)
	III. Middle	104(26)
	IV. Lower middle	89(22.2)
	V. Lower	47(11.8)

Table 2: IYCF Practices

IYCF practices	YES	NO
Timely Initiation of Breastfeeding	295 (73.8)	105 (26.2)
Exclusive Breastfeeding	237(59.2)	163(40.8)
Timely Complementary Feeding	203(50.7)	197(49.3)
Continued breastfeeding at one-year (12-15 months) n=202	167(82.67)	35(17.33)
Continued breastfeeding at two years (20-23 months) n= 116	71(61.2)	45(38.8)
Minimum Meal Frequency breastfed (6-23 months)	192(61.7)	119(38.3)
Minimum Meal Frequency non breastfed (6-23 months)	43(48.3)	46(51.7)
Minimum Diet Diversity	189(47.3)	211(52.7)
Minimum Acceptable Diet	163(40.8)	237(59.2)
Consumption of iron rich foods	155(38.4)	245(61.1)

Table 3 IYCF and Associated Factors

IYCF PRACTICES	VARIABLES	aOR[95%CI]	P value	
Timely initiation of Breastfeeding	Mode of delivery	Normal	Reference	
		Caesarean	3.288[1.785-6.057]	
Exclusive Breastfeeding	Place of delivery	Home	Reference	
		PHC/CHC/Civil	1.624[0.423-6.231]	0.03
		PGIMS	1.888[1.088-3.276]	0.02
		Private hospital	0.678[0.380-1.281]	0.24
	Mode of delivery	Normal	1.951[1.084-3.513]	0.026
		Caesarean	Reference	
	Mother's education	Illiterate	Reference	
		Read & Write	1.574[0.617-4.013]	0.342
		Primary	0.308[0.029-3.266]	0.329
		Middle	1.545[0.665-3.58]	0.312
Secondary		2.190 1.045-4.587 [0.038	
Timely Complementary Feeding	Mother's education	Graduate & above	1.436[1.045-4.587]	0.245
		Illiterate	0.842[0.485-1.462]	0.541
		Read & Write	0.480[0.244-0.947]	0.03
		Primary	0.215[0.023-1.987]	0.175
		Middle	0.711[0.367-1.379]	0.313
		Secondary	1.451[0.813-2.592]	0.209
Minimum Meal Frequency (MMF) for Breastfed Children	Mother's education	Graduate & above	Reference	
		Read & Write	0.544[0.255-1.162]	0.116
		Primary	0.187[0.016-2.178]	0.181
		Middle	0.338[0.150-0.759]	0.009
		Secondary	0.635[0.316-1.275]	0.201
	Age of child (months)	6-11	0.550[0.278-1.089]	0.806
		12-17	Reference	
		18-23	3.203[1.665-6.612]	0.00
			3.229[1.584-6.581]	0.01
Minimum Diet Diversity	Socio-economic Status	Upper	2.702[1.241-5.883]	0.012
		Upper middle	2.540[1.241-5.312]	0.013
		Middle	2.489[1.206-5.136]	0.014
		Lower middle	1.085[0.510-2.307]	0.833
		Lower	Reference	
Minimum Acceptable Diet	Socio-economic Status	Upper	2.546[1.018-6.366]	0.04
		Upper middle	2.345[1.006-5.468]	0.04
		Middle	1.347[1.503-7.453]	0.03
		Lower middle	1.220[0.529-2.816]	0.641
		Lower	Reference	

Discussion

Timely initiation of breastfeeding at birth was slightly higher when compared to DLHS-4 data for district Jhajjar (66.3%)⁵ and NFHS-4, India (41.6%)⁴ and Haryana (42.4%).⁶ Our study finding was reported to be higher when compared with the study conducted by Parashar et al⁷ in Shimla. Mothers who delivered normally had 3.2 times higher odds to timely initiate breastfeeding at birth than mothers who gave birth by caesarean section. Similar observation had been reported in

the study done by Patel et al (2011)⁸. Emergency and planned caesarean sections may adversely affect breastfeeding initiation, milk supply and infant breastfeeding receptivity compared to vaginal deliveries. Mothers who delivered in peripheral government health facilities reported 1.5 times higher odds and mothers who delivered in tertiary care centre reported 1.8 times higher odds to initiate breastfeeding at birth than mothers who delivered at home. Similar finding was observed in the study done by Tewabe, T⁹ in

Ethiopia. While studying factors which might have influenced exclusive breastfeeding in this study, it was found that maternal education status, mode of delivery and pre-lacteal feeds given at birth were significantly associated with exclusive breastfeeding. Higher rates have been reported in studies conducted by Prashar et al.⁸ and Chandwani et al.¹⁰. Another study done by Padmanabhan¹¹ showed it to be as low as 33.6%. Exclusive breastfeeding found to be higher in the present study when compared to the national and state level figures because of the fact that information regarding optimal breastfeeding practices was given to mothers during antenatal (68%) and postnatal periods (69%) through frontline health workers. Educated mothers had 2 times higher odds to exclusively breastfeed babies than their uneducated counterparts. This study, and several other studies conducted in different parts of the country (Kaushik et al, Reddy et al.^{12,13} have confirmed that the level of education of mothers is a factor that is strongly associated with exclusive breastfeeding. Immediate attention should be provided to mothers with no or less education with alternative supportive and educational interventions like prenatal education and counselling. Health professionals can play an important role to encourage mothers for exclusive breastfeeding. Mothers who delivered by normal vaginal delivery were found to have 2 times higher odds to exclusively breastfeed their babies than who delivered by caesarean section. Present study finding is supported by study done by Saed et al.¹⁴. This could be due to delayed initiation of breastfeeding in mothers having caesarean deliveries. Infants who were given pre-lacteal feeds at birth had 1.6% lesser odds to be exclusively breastfed for 6 months which is consistent with study done by Reddy et al.¹³. Thus, the practice of pre-lacteal feeding is a risk factor for early cessation of breastfeeding. Timely introduction of complementary foods in the present study area found to be comparable with DLHS-4. Similar observations have been reported from studies done by Gautam et al, Jain et al.^{15,16}

Less educated mothers were found to have 48% lesser odds for timely introduction of complementary foods than their educated counterparts in current study. Other studies have also suggested significant association of maternal literacy and timely initiation of complementary feeding; Faridi et al & S. Rao.^{17,18} Educated mothers have a better understanding of nutrition education than less educated mothers or without formal education. Maternal education and age of the child were observed to be significant independent variables affecting MMF among breastfed children while none of the factors was found to be associated with non-breastfed children. This practice was higher when compared to studies done Khan et al¹⁹, Padmanabhan et al¹¹. But lower when compared with studies done by Kaushik et al showed it as 67.3% and 81.3% among breast fed and non-breastfed children respectively.¹² The children born to mothers who had a secondary level education were found to have 1.15 times higher odds [aOR 1.15; 95 % CI (0.184-7.169)] of feeding diversified foods. The similar positive impact of education on diverse feeding practices is also reported in previous studies in Nepal,²⁰ Ethiopia.²¹ This could be due to the fact that the educated mothers are more likely to have proper information (media exposure) and understand the educational messages given by the community health workers. Similarly, babies born in high (upper) socio-economic class were observed to have 2.7 times higher odds [aOR= 2.702, CI= 1.241- 5.883, p= 0.01] to be fed with minimum diverse diet than those who belonged to the lower socio-economic class. The 2011 Ethiopian DHS56 also reported that children from a family of the highest wealth quintile were more likely to be fed on four or more food groups. This could be attributed to the fact that children from a family of higher monthly income might feed on diversified foods as their families could be more likely to afford diversified foods as compared to children from a low household income. Iron rich foods in the form of green leafy vegetables were consumed by 38.47%

of children. So, in the present study, the reason for deficient MDD could be attributed to lack of awareness about nutritional requirements for infants and young children, affordability to a food product. MAD was higher than the national & the state figures in the recent data from NFHS-4.5,6. Our study finding is higher when compared with studies done by Jain et al¹⁶, Khan et al¹⁹. On the other hand, Khanna et al, reported a higher prevalence of MAD (65.95%) than the present study.²² Mother's educational status and socio-economic status were found to be significantly associated with providing adequate diet (MAD). Less educated mothers had two times lesser odds [aOR= 0.711, CI= 0.367 -1.379, p= 0.03] to provide adequate diet than their educated counterparts. Similarly, mothers who had education up to primary level had 46.1% (aOR= 0.461, CI= 0.257-0.827, p=0.00) lesser odds than their educated counterparts. This finding is supported by studies done by Shrestha et al and Karman et al^{20,23} but in Cs et al., mother's education was negatively associated with minimum acceptable diet.²⁴ babies born in high socio-economic class were observed to have 2.5 times higher odds [aOR= 2.546, CI= 1.018- 6.366, p= 0.04] to receive adequate diet than lower class which is consistent with the study done by Saaka et al²⁵

Conclusion

The study concluded that compliance to IYCF practices has shown slight improvement in feeding practices since the last NFHS survey in 2015-2016 but still well below the WHO recommended guidelines for Infant and Young Child Feeding. Mother's educational status, mode of delivery, place of delivery and socio-economic status were significant factors associated with IYCF practices. Therefore, these factors need to be addressed to ensure optimal feeding practices among study population.

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