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Original Research Article

Infant and young child feeding practices in children aged fifteen to twenty months

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ABSTRACT

Background: Infant and young child feeding (IYCF) practices plays a very crucial role in early child growth and development. We aimed to find the prevalence of optimal IYCF practices and correlate with the anthropometric measures.
Methods: This hospital based cross sectional study, involving 345 children aged between 15 to 20 months from April 2018 to April 2020 whose mothers were interviewed using a pre-validated questionnaire.
Results: The prevalence of optimal IYCF practices were comparable with the published data. Higher maternal education, higher socio-economic status was significantly associated with better IYCF indicators.
Conclusions: Improved IYCF practices have the potential to improve child's nutritional status.

Keywords: Infant, Child nutrition, Anthropometry, Malnutrition, Maternal education

INTRODUCTION

Infant and young child feeding practices (IYCF) impact growth, development, cognition and eventually survival of the infant and young children. WHO and UNICEF endorses sufficient and safe complementary feeding starting after 6 months of life while continuing breastfeeding up to 2 years of age/beyond.[1] About 20 million children did not receive exclusive breastfeeding for first 6 months and 13 million did not get timely and appropriate complementary feeding, according to national family health survey (NFHS-4) data for year 2016.[2] The high prevalence of malnutrition in countries like India is attributed to inappropriate complementary feeding practices such as not starting complementary foods at 6 months of age, inadequate macro-micronutrients intake from staple based complementary foods and failure to increase amount, frequency of food with increasing age.

The objective of our study was to estimate the proportion of compliance to optimal IYCF practices and their determinants among study population and to correlate association with anthropometric measurements i.e., weight, height and weight for height.

METHODS

This hospital based cross-sectional study was done in a tertiary care hospital, Puducherry after getting approval from institutional ethics committee between April 2019 to April 2020. All children between fifteen to twenty months of age who come to paediatrics well baby clinic was included in the study. Children with chronic organic illness and not accompanied by mother were excluded from the study.

The sample size was calculated based on the prevalence of the IYCF indicators of NFHS-4 national data.[2] The indicator with the least prevalence among all the

indicators was chosen for this purpose. Accordingly, the prevalence of the children receiving an adequate diet was 9.6%. Assuming the error as 3%, population size as 1, 00,000 and confidence interval as 95%, the estimated sample size using Epi-info software was 344.

A semi-structured pre-validated questionnaire based on IYCF indicators was made. After informing the details of the study to the mother, consent was obtained and mother was interviewed by principal investigator after getting basic demographic details. The response variables included all the 8 core IYCF indices as defined by WHO-UNICEF: initiation of breastfeeding within one hour of delivery, exclusive breastfeeding until 6 months of life (EBF), continued breastfeeding until 1 year of life, appropriate initiation of complementary feeding (CF) at 6 months, minimum dietary diversity (MDD), minimum meal frequency (MMF), minimum acceptable diet (MAD), consumption of iron-rich or iron-fortified foods. Nutritional assessment was done by standard anthropometric measurements as per the WHO guidelines and classified based on SD classification using WHO Child growth standards. The child was weighed with minimum clothes using an electronic weighing scale (Digitech weighing scales, India limited) to the nearest 10 grams. The child was held on the infant meter (Indo-surgical height measuring scales) and the length was measured to the nearest 1 cm. Using a non-stretchable inch tape adjusting over the reference points (above the supra-orbital ridges in front and most prominent part of the skull at the back) head circumference was measured to the nearest 1 mm. The mid-arm circumference (MAC) was taken with measuring tape, midway between the acromion and olecranon process with the arm hanging by the side of the body in the right arm to the nearest 1 mm. All the children below 2 SD from the reference median (median<2 SD) on the basis of weight for age, height for age, weight for height were classified as underweight, stunted and wasted respectively.

Data management and statistics

Data were entered into excel sheet and analysed. Proportions, odds ratio and Chi square test was used for data analysis for qualitative variables, and p value less than 0.05 was considered significant.

RESULTS

The study included 345 children aged between fifteen to 20 months, out of which 205 were males (59.4%) and 140 were females (40.6). Majority (63%) of children were born to mothers who were literates or educated beyond primary education and (71%) belonging to middle class families. 51.9% of children were born via caesarean section compared to 48.1% of normal vaginal delivery.

66.4% of children were put to breast within one hour of birth. Exclusive breastfeeding until 6 months was given in 51% of children and 69.9% of children were continued to be breastfed at one year. Appropriate initiation of complementary feeding was done in 82% of children and 46.1% children received minimum acceptable diet.

Table 1: Proportion of IYCF indicators.

IYCF indicator, (n=345)	Percent (%)
Early initiation of breastfeeding	66.4
Exclusive breastfeeding in children less than 6 month	51
complementary feeding at 6-8 month	82
Continued breastfeeding at 1 year	69.9
Minimum meal frequency	60.9
Minimum acceptable diet	46.1
Minimum dietary diversity	63.5
Consumption of iron rich foods	71
Pre-lacteal feeds	13.6

Female sex, maternal educational and socio-economic status statistically significant determinants associated with early initiation of breast feeding within 1 hour of birth (Table 2). Female sex (70%), higher maternal educational status (60%) and higher maternal socioeconomic status (65%) were significant determinants associated with EBF. No association was found in mode of delivery in study. 2/3 of graduated mothers did not give exclusive breastfeeding until 6 months. As mother's educational status increased EBF rates decreased.

Table 3 shows 32.7, 17.3 and 13.3% were underweight, stunted and wasted respectively. We found that failure exclusive breastfeeding for 6 months was strongly associated with under-weight. Even though percentage of wasted and stunted were higher among the children who were not exclusively breastfed for 6 months there was no statistical significance. Most of the children who were underweight, stunted and wasted did not meet minimum dietary diversity recommended.

Table 2: Determinants of early initiation breastfeeding (<1 hour).

Factor	Initiation within 1 hour, N (%)	Not initiated within 1 hour, N (%)	P value
Sex, (n=345)			
Female, (n=140)	102 (72.8)	38 (27.2)	0.035
Male, (n=205)	127 (61.9)	78 (38.1)	OR-1.6
Socioeconomic status, (n=345)			
Upper class, (n=6)	6 (100)	0	0.001
Upper middle, (n=128)	116 (90.6)	12 (9.4)	
Lower middle, (n=117)	79 (67.5)	38 (32.5)	

Continued.

Factor	Initiation within 1 hour, N (%)	Not initiated within 1 hour, N (%)	P value
Upper lower, (n=54)	21 (38.9)	33 (61.1)	
Lower, (n=40)	7 (17.5)	33 (82.5)	
Mode of delivery, (n=345)			
Normal vaginal delivery, (n=166)	112 (67.5)	54 (32.5)	0.679
Caesarean section, (n=179)	117 (65.4)	62 (34.6)	
Mothers' education, (n=345)			
Illiterate, (n=3)	0	03 (100)	
Pre-primary, (n=56)	23 (41.1)	33 (58.9)	
Primary, (n=120)	74 (61.7)	46 (38.3)	0.001
Secondary, (n=64)	51 (79.7)	13 (20.3)	
Senior secondary, (n=61)	45 (73.8)	16 (26.2)	

P<0.05 is significant

Table 3: Association between the IYCF indicators and under-nutrition.

IYCF indicator	Status	Underweight (<2SD), n=113, p value		Stunting (<2SD), n=60, p value		Wasting (<2SD), n=46, p value	
Early initiation of breastfeeding, (n=345)	Yes (229)	57 (24.8)	0.001	33 (14.4)	0.04	23 (10.0)	0.01
	No (116)	56 (48.2)		27 (23.2)		23 (19.8)	
Exclusive breastfeeding in children less than 6 months, (n=345)	Done (176)	45 (25.5)	0.004	24 (13.6)	0.06	22 (12.5)	0.64
	Not done (169)	68 (40.2)		36 (21.3)		24 (14.2)	
Introduction of complementary feeding at 6-8 months, (n=345)	Done (283)	88 (31.0)	0.161	43 (15.1)	0.02	28 (9.8)	0.001
	Not done (62)	25 (40.3)		17 (27.4)		18 (29.0)	
Continued breastfeeding at 1 year, (n=345)	Yes (241)	61 (25.3)	0.001	33 (13.7)	0.006	18 (7.4)	0.001
	No (104)	52 (50.0)		27 (25.9)		28 (26.9)	
Minimum meal frequency, (n=345)	Given (210)	49 (23.3)	0.001	27 (12.8)	0.006	13 (6.1)	0.001
	Not given (135)	64 (47.4)		33 (24.4)		33 (24.4)	
Minimum acceptable diet, (n=345)	Given (210)	23 (10.9)	0.001	13 (6.1)	0.001	7 (3.3)	0.001
	Not given (135)	90 (66.6)		47 (34.8)		39 (28.8)	
Minimum dietary diversity, (n=345)	Given (159)	27 (16.9)	0.001	24 (15.1)	0.001	15 (9.4)	0.001
	Not given (186)	86 (46.2)		36 (19.4)		31 (16.7)	
Consumption of iron rich foods, (n=345)	Yes (245)	67 (27.3)	0.001	35 (14.2)	0.01	30 (12.2)	0.35
	No (100)	46 (46.0)		25 (25.0)		16 (16.0)	

DISCUSSION

According to IYCF guidelines, Government of India recommends that initiation of breastfeeding should begin immediately after birth, preferably within one hour. In our study 66.4% of infants started breast feeding within 1 hour of birth. NFHS-4 data at the national level and at Tamil Nadu showed it as 41.5% and 55.4% respectively.[2] The determinants that revealed positive association with early initiation of breastfeeding within one hour were female sex, higher maternal educational and higher socio-economic status. A study done in India using NFHS-4 data showed there was a significant correlation between early initiation of breastfeeding and maternal education, socioeconomic status, mode and place of delivery, type of delivery assistance given and counselling given during the antenatal visits.[3]

Exclusive breastfeeding for 6 months in study was 51% as compared to the national average of 54.9%.[2] Study data was comparable with regional Tamil Nadu data of 48.3%. A study done in rural area of Kollam, Kerala reported exclusive breastfeeding for 6 months rate of 60%.[4] The EBF rates were higher in children belonging to educated mothers, upper-middle-class compared to lower class families

Introduction of solid, semi-solid or soft foods at 6 to 8 months (complementary feeding) rate in our study was 82% which was very high compared to national data of 42.7% and Tamil Nadu (67.5%).[2] The most common reason for delayed complementary feeding was family issues (51.6%) and local customs (38.7%) in children who did not introduce complementary feeding appropriately. Continued breastfeeding at 1 year in the study population was 69.9%. In present study minimum dietary diversity (MDD) was 63.5 which were very high compared to national data of 22%.[2] A study done in rural Madhya Pradesh had MDD prevalence of 47.8.[5] In our study there was significant association between the sex and MDD, 68% boys had minimum dietary diversity compared to 47% in girls.

In the index study minimum meal frequency (MMF) was 60.9% which was very high compared to national data of 36%. MMF of Tamil Nadu and Pondicherry according to NFHS 4 was 52.3% and 46.3 respectively[10] A study done in Berhampur, south Odisha had MMF prevalence of 52.03%. MMF was higher in children belonging to higher socioeconomic status.[6] In our study there was significant association between the sex and MMF, 62% boys had minimum dietary diversity compared to 55% in girls. Minimum acceptable diet (MAD) was 46.1% which was very high compared to national data of 9.6%. MAD of Tamil Nadu and Pondicherry according to NFHS 4 was 30.7% and 31.1% respectively.[2] Consumption of iron-rich foods in our study population was 71%. National data of consumption iron-rich foods was as low as 18% which is very low compared to our study as well as Tamil Nadu (58.5%).[2]

Prevalence of underweight, stunting and wasting in our study population was 32.7%, 17.3%, 13.3% respectively, national data for prevalence based on NFHS 4 data 37.3%, 46.9% and 20.4% which is high compared to our study.[2] In our study, we formulated an association between the IYCF indicators and the anthropometric measurements. We found that there was a significant association between the under-nutrition and all infant and young child feeding practice indicators.

CONCLUSION

Poor adherence to IYCF indicators correlated with undernutrition in children and modifiable risk factors like higher maternal education, higher socio-economic status was significantly associated with IYCF indicators like early initiation of breastfeeding, exclusive breastfeeding until 6 months and appropriate initiation of complementary feeding. Non modifiable risk factors like female gender were associated with better rates of IYCF indicators. Improved IYCF practices have the potential to improve child survival and nutritional status in India.

Study did not measure the duration of breastfeeding and hence could not comment on the correlation of early initiation of breastfeeding, exclusive breastfeeding and total duration of breastfeeding. We did not measure the age of initiation of complementary feeding and type of food used for complementary feeding. Though all the study participants were delivered in our hospital and are from the local population, they may be assumed to represent community, but a well-designed community-based study is recommended for policy making.

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REFERENCES

1. Locks LM, Dahal P, Pokharel R, Joshi N, Paudyal N, Whitehead RD, et al. Infant and Young Child Feeding (IYCF) Practices Improved in 2 Districts in Nepal during the Scale-Up of an Integrated IYCF and Micronutrient Powder Program. Curr Dev Nutr. 2018;2:(6):nzy019
2. International Institute for Population Sciences (IIPS) and ICF. 2017. National Family Health Survey (NFHS-4), 2015-16: India. Mumbai: IIPS.
3. Senanayake P, O'Connor E, Ogbo FA. National and rural-urban prevalence and determinants of early initiation of breastfeeding in India. BMC Public Health. 2019;19(1):896.
4. Bhattathiry MM, Kumari S. A Study on the Infant and Young Child Feeding Practices among Mothers in A Selected Rural Area of Kollam, Kerala. Int J Health Sci Res IJHSR. 2016;6(1):26-30.
5. Jain S, Borle A, Agrawal SS, Mishra MK, Gupta SK, Bathama V. Assessment of infant and young child feeding practices among mothers in rural Madhya Pradesh. 2014;5(4):419-23.
6. Karmee N, Satapathy SP, Tripathy RM. Infant and young child feeding practices among mothers attending an Urban Health Training Centre (UHTC): a cross-sectional (mixed methodology) study in Berhampur, South Odisha, India. Int J Contemp Pediatr. 2017;5(1):161-8.

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