

Original Research Article

Complementary feeding practices among mothers of children aged six months to two years admitted in a tertiary care hospital

Madhu G. N., Harish S.*

Department of Pediatrics, Kempegowda Institute of Medical Sciences, Bangalore, Karnataka, India

Received: 10 December 2017

Accepted: 18 December 2017

*Correspondence:

Dr. Harish S.,

E-mail: hari.stanley06@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Optimal infant and young child feeding (IYCF) is an evidence-based measure for improving child nutrition and child survival. After 6 months of exclusive breast feeding, introduction of appropriate complementary feeds is essential. To ensure desirable growth and development of children, complementary feeding should be timely, culturally acceptable, nutritionally adequate, safe and responsive. Objective of this study was to assess the complementary feeding practices among the mothers of children between 6 months and 1 year of age with respect to the time of introduction, quantity and quality.

Methods: This is a hospital based cross sectional survey among the mothers of children aged 6 months to 2 years admitted in pediatric wards at KIMS Bangalore during a study period of 6 months. A predesigned questionnaire was used for the collection of data. Details including socio demographic profile of the family and feeding practices of the infant were collected in detail.

Results: Out of the 200 participants, 59% were males. 74.5% of the respondent mothers were housewives. Complementary feeds were started at appropriate time in 64.5% of the cases. The feeds were adequate in amount and frequency in 34.5% of the children. Bottle feeding was noted in 33.5% of the cases.

Conclusions: Apart from the timely introduction of complementary feeds to infants, emphasis also should be given to the adequacy and quality of the feeds with respect to nutrients. Health professionals should focus on counseling the mothers on appropriate complementary feeding during antenatal, delivery, postnatal, and immunization services.

Keywords: Complementary feeds, Cereals, Infants, Weaning

INTRODUCTION

An appropriate diet constitutes the most important component for proper growth and development of children. The first two years of life are a critical window for ensuring optimal child growth and development.^{1,2} Lack of adequate nutrition during this period can lead to impaired cognitive development, compromised academic performance, and low economic productivity which become difficult to reverse later in life. Improving infant and young child feeding (IYCF) practices in children aged less than 2 years is therefore critical in improving nutrition, growth and development.³ Poor feeding

practices along with high rates of infectious diseases, are the major causes of malnutrition during the first two years of life. An infant is vulnerable during the second six months when breast milk alone is no longer sufficient to meet the child's nutritional requirements and complementary feeding should be started.

The World Health Organization recommends exclusive breast feeding for the first six months of life, with the addition of complementary feeds at six months along with continued breast feeds until at least the age of two years.⁴ Complementary feeds needs to be started after 6 months of age when child needs additional source of

nutrients other than breast milk. Initiating complementary feeds too early or too late can lead to malnutrition. The early initiation of complementary feeds can lead to decrease in breast milk consumption and increased risk of infections such as diarrhoea and respiratory tract infections which further leads to weight loss and malnutrition.

To be nutritionally adequate, the complementary foods should contain all food groups: the staple, proteins, vitamins and minerals.⁵ As per the recommendations of National Institute of Nutrition, the choice of complementary foods should be based on locally available food items, using simple cooking methods and minimal cost. They should be acceptable in taste and consistency and child must gradually be introduced to healthy foods eaten by the rest of the family. Complementary feeds are also influenced by cultural factors, beliefs, and knowledge of parents on appropriate practices.⁶

Problems associated with complementary feeding include poorly time of introduction (too early or too late), bottle-feeding and infrequent feeding. Similarly, safe preparation and proper storage of complementary foods, and hygiene practice are also the important determinants of proper complementary feeding practices along with psychosocial care. Inadequate antenatal care, mode of delivery, and lack of postnatal contacts by health workers were among the most consistent predictors of inappropriate feeding in South Asian countries, like in Bangladesh, India, Nepal, Pakistan, and Sri-Lanka.⁷⁻¹⁰ Hence, the present study was undertaken to find out the practices of complementary feeding among the children aged six months to two years.

METHODS

The study was conducted in the Department of Pediatrics, Kempegowda Institute of Medical Sciences located in Bengaluru, India. The hospital caters to urban, semi-urban and rural patients in and around Bengaluru. A descriptive cross-sectional study was conducted between January 2017 and June 2017. The sample population included 200 mothers of children aged 6 months to 2 years, admitted in Pediatric ward. They were interviewed using a pre-designed questionnaire. Children born preterm and those with known reason for failure to thrive were excluded. The age group of study subjects was selected based on WHO recommendation on complementary feeding.

Adequacy and appropriateness of complementary practices were assessed according to the recommendation of WHO.¹¹ Complementary food must be started at six months of age (180 days) while continuing to breastfeed. The energy needed from complementary foods for infants of developing countries are approximately 200kcal per day at 6-8 months of age, 300 kcal per day at 9-11 months of age, and 550 kcal per day at 12-23 months of

age. The appropriate number of meals of complementary foods should be provided 2-3 times per day at 6-8 months of age and 3-4 times per day at 9-11 and 12-24 months of age. The details in the questionnaire were entered in excel sheet and analyzed.

RESULTS

A total of 200 mother-child pairs were surveyed and all of them consented to participate in the study, giving a response rate of 100%. Majority of the children were between 12 to 17 months (42%). Male to female ratio was 1.4:1. Most of them were first child in the family. Most of the mothers had done their secondary schooling. We observed that 74.5% of the respondent mothers were housewives (Table 1). Most of the children were from nuclear family (58%).

Table 1: Socio demographic profile of the study participants (n=200).

Socio-demographic factors	N (%)
Child's age in months	
6 to 11 months	56 (28%)
12 to 17 months	84 (42%)
18 to 23 months	60 (30%)
Gender	
Males	118 (59%)
Females	82 (41%)
Birth order	
1	82 (41%)
2	74 (27%)
3	34 (17%)
>3	10 (5%)
Mothers education	
Illiterate	24 (12%)
Primary school	58 (29%)
Secondary school	76 (38%)
University/ college	42 (21%)
Mother's occupation	
Housewife	149 (74.5%)
Working	51 (25.5%)
Socio-economic status	
Lower	21 (10.5%)
Upper lower	62 (31%)
Lower middle	74 (37%)
Upper middle	33 (16.5%)
Upper	10 (5%)
Type of family	
Nuclear family	116 (58%)
Joint family	84 (42%)

Among the study participants, majority (64.5%) had started complementary feeds in the recommended time of 6 months. 24% had initiated complementary feeds early and 11.5 % had started them late. Only 34.5% of the mothers gave complementary feeds to their children in

adequate quantity and frequency. 10.5% of the mothers started only on commercially available complementary foods, while majority (66%) initiated weaning with home-made foods (Table 2).

Table 2: Complementary feeding practices (n=200).

Complementary feeding practices	N (%)
Time of starting complementary feeds	
< 6 months	48 (24%)
At 6 months	129 (64.5%)
> 6 months	23 (11.5%)
Adequacy of complementary feeds	
Adequate	69 (34.5%)
Not adequate	131 (65.5%)
Types of complementary feeds	
Commercial feeds	21 (10.5%)
Home-made feeds	132 (66%)
Commercial + Home-made feeds	47 (23.5%)

Table 3 shows the hygiene practices of the mothers in food preparation and during feeding. 4% of the mothers did not routinely wash their hands and utensils before feeding. Only 66% of mothers washed the child's hands before feeding. Bottle feeding was practiced by 33% of the mothers.

Table 3: Hygiene practices during feeding (n= 200).

	N (%)
Clean hands and utensils before feeding	192 (96%)
Wash hands of children before feeding	132 (66%)
Cover foods after cooking	169 (84.5%)
Treatment/boiling of drinking water	122 (61%)
Used feeding bottle to feed child	67 (33.5%)

Figure 1 shows the variety of complementary feeds introduced by mothers to children in different age groups. Most of the mothers had started cereals and pulses (home- made/ commercial) before 12 months age.

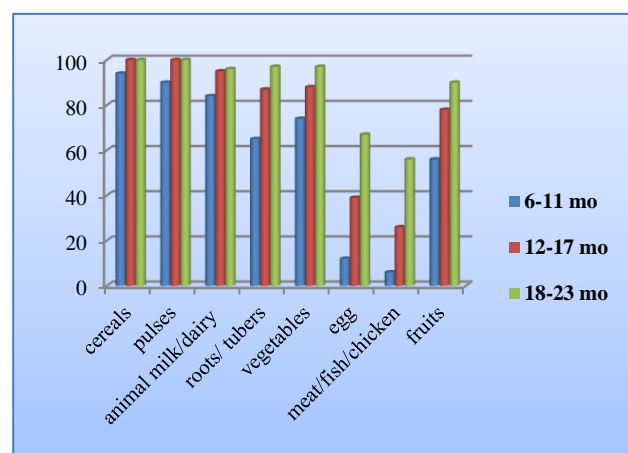


Figure 1: Varieties of foods used for complementary feeding by age groups.

DISCUSSION

In the present study, 64.5% of the mothers had started complementary feeds at the recommended time of six months. Aggarwal et al, in a prospective study of 200 parents observed that only 17.5% of mothers had started complementary feeding at the recommended time. In a study done by Sethi et al from the slums of Delhi, 16.6% of the parents had initiated extra feeds at the right time.¹² The most common reason given for early initiation in the present study was that the mother felt the feeds were not sufficient for the baby. The most common reason given for late initiation was unsuccessful attempt at feeding like child developing vomiting, followed by lack of knowledge about inadequacy of exclusive breastfeeding after 6 months.

Feeding frequency based on the breastfeeding status of a child 6-23 months is an important indicator of infant and young child feeding practices and an important aspect in complementary feeding. In a similar study in Nigeria, only 37.3, 49.7 and 51.2% of the infants were fed according to these requirements at age 6-8, 9-11 and 12-24 months respectively.¹³ The results of the present study is comparable to a study from Allahabad where 38.7% of children received proper complementary feeding.¹⁴

10.5% of mothers started complementary feeds with commercial preparations. WHO/UNICEF also advocate that mothers should be encouraged to feed their infants with locally available home prepared foods which contain calories, proteins, minerals and vitamins. These nursing mothers had preference for commercial weaning foods because they felt that they save time, convenient and taste better. 33.5% of the mothers used bottle to feed the baby. This is much more than the 11% seen in the study by Bhonsle et al.¹⁵

However, bottle feeding of children is not recommended as it is associated with infections in children including gastroenteritis, respiratory tract infections and urinary tract infections.

Cereals and legumes constituted the majority of complementary feeds given in children, particularly less than 12 months. Vegetables and fruits were used to a lesser extent. A study conducted among children in Northern Uganda similarly reported that majority of the respondents were given cereals in the last 24 hours. However, the proportion that gave fruits and vegetables were lower. The proportion that gave meat and milk /milk products were even much lower than that of the present study (1.8 and 0.5%) respectively.¹⁶

Cereal based foods alone are not sufficient; in order to prevent micronutrient deficiencies, milk, meat products, legumes, fruits and vegetables should be integral parts of the complementary foods of children. Breast feeding should also be continued up till two years in order to further support their growth.¹⁷

CONCLUSION

The study finding indicated that there is still a gap between ideal patterns of complementary feeding practice in Bangalore with the WHO recommendation. This finding highlights the importance of providing feeding advice during prenatal visits to improve the suitable feeding practices. Education of females also may also help in achieving good complementary feeding practices in community and creating a healthier generation in the future.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. WHO. Indicators for assessing infant and young child feeding practices: part I in Proceedings of the Conclusions of a Consensus Meeting, WHO, Washington, DC, USA. 2008.
2. Aggarwal A, Verma S, Faridi MMA, Dayachand. Complementary feeding: reasons for inappropriateness in timing, quantity and consistency. *Indian J Pediatr*. 2008;75(1):49-53.
3. WHO. Progress towards developing simple indicators: assessing infant and young child feeding WHO, Geneva, Switzerland. 2006.
4. World Health Organization. Global strategy for infant and young child feeding. Geneva, WHO, 2003. Available at http://www.who.int/nutrition/publications/infantfeeding/infant_feeding.
5. Elizabeth KE. Current concepts on nutritional requirements of infants and children. *Ind J Pract Pediatr*. 2011;13(1):5-11.
6. World Health Organization. Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals. Geneva: World Health Organization, 2009:99.
7. Khan ME, Donnay F, Tarigopula UK, Aruldas K. Shaping demand and practices to improve family health outcomes: findings from a quantitative survey, population council, New Delhi, India. 2013.
8. Saleh F, Ara F, Hoque MA, Alam MS. Complementary feeding practices among mothers in selected slums of Dhaka city: a descriptive study. *J Health Population Nutr*. 2014;32(1):89-96.
9. Radwan H. Patterns and determinants of breastfeeding and complementary feeding practices of Emirati mothers in the United Arab Emirates. *BMC Public Health*. 2013;13(1):171.
10. Khanal V, Sauer K, Zhao Y. Exclusive breastfeeding practices in relation to social and health determinants: a comparison of the 2006 and 2011 Nepal Demographic and Health Surveys. *BMC Public Health*. 2013;13(1):958.
11. The breast-feeding promotion network of India. Introducing solids (complementary feeding) Available at http://www.bpni.org/breastfeeding/introcomplementary_feeding.html.
12. Sethi V, Kashyap S, Seth V. Effect of nutrition education of mothers on infant feeding practices. *Indian J Pediatr*. 2003;70:463-6.
13. Olatona, Adenihun, Adeniyi. Complementary feeding knowledge, practices, and dietary diversity among mothers of under-five children in an urban community in Lagos State, Nigeria. In *J MCH AIDS (IJMA)*. 2017;6(1):46.
14. Kumar D, Goel NK, Mittal PC, Misra P. Influence of infant-feeding practices on nutritional status of under-five children. *Indian J Pediatr*. 2006;73:417-21.
15. Bhosle NA, Deshpande SG, Zodpey SP, Jog SN. Infant feeding practices in urban population: a clinic based study. *Indian J Med Sci*. 1997;51:396-8.
16. Mokori A, Orikushaba P. Nutritional status, complementary feeding practices and feasible strategies to promote nutrition in returnee children aged 6-23 months in Northern Uganda. *S Afr J Clin Nutr*. 2012;25(4):173-9.
17. Sandoval-Priego AA, Reyes-Morals H, Perez-Cuevas D, Abrego-Blass R, Orrico-Torres ES. Family strategies of life associated with malnutrition in children less than 2 years of age. *Public Health of Mex*. 2003;44:1-9.

Cite this article as: Madhu GN, Harish S. Complementary feeding practices among mothers of children aged six months to two years admitted in a tertiary care hospital. *Int J Contemp Pediatr* 2018;5:97-100.