ORIGINAL ARTICLE

Feeding Practices of Infants and Young Children according to whom Indicators at Children Hospital, Islamabad

MUHAMMAD IMRAN[1], NIGHAT JABEEN[2], SHAFAT KHATOON[3]

ABSTRACT

Background: Children require adequate amounts of essential nutrition for their growth and development. WHO has designed well set guidelines to assess feeding practices of infants i.e., (Guidelines for assessing infant and young child feeding, IYCF). The core points of these guidelines are early initiation of breastfeeding, exclusive breastfeeding under 6 months of age, continuous breastfeeding till 1 year of age, introduction of soft foods, semi-solid and solid foods to children with minimum dietary diversity, meal frequency, acceptable diet and use of iron rich foods.

Aim: To determine feeding practices of children between 6-24 months of age as per WHO IYCF practice guidelines.

Place and duration of a study: Study was carried out at Pakistan Institute of Medical Sciences (PIMS), Islamabad, Children Hospital, Lactation management clinic from 20/03/2012 to 20/09/2012.

Methods: 305 mother-baby pairs were included. . Baseline information of the child and mother, information regarding WHO IYCF practices was entered in the proforma. The outcome of our study was assessed via a scoring system with reference to current IYCF practices of mothers.

Results: The mean score for IYCF practices was 3.58±1.39. IYCF practice scores were poor, good and ideal in 152(49.8%), 143(46.9%) and 10(3.3%) respectively. The mean IYCF practices score was not significantly different between rural-urban residence or the professional status; p= >0.05. IYCF practices were better among more educated and good income families.

Conclusion: There is insufficient knowledge of breastfeeding and complementary feeding regarding infants and young children's in mothers Contributing factors include education of mother and socio-economic factors.

Keywords: Breast feeding, Child-feeding practices, Infant-feeding practices, Pakistan; WHO indicators

INTRODUCTION

Children require adequate amounts of essential nutrition for their growth and development. WHO has designed well set guidelines to assess feeding practices of infants i.e., (Guidelines for assessing infant and young child feeding, IYCF). The core points of these guidelines are early initiation of breastfeeding, exclusive breastfeeding under 6 months of age, continuous breastfeeding till 1 year of age, introduction of soft foods, semi-solid and solid foods to children with minimum dietary diversity, meal frequency, acceptable diet and use of iron rich foods.

First suck within half an hour of birth is considered early initiation of breastfeeding. Exclusive breastfeeding is giving breast milk only and no other liquids under 6 months of age. Complementary feeding practices are inadequate in most of the developing countries, resulting in a significant nutritional decline between 6 and 18 months of age.

[1]*Consultant Pediatrician Paediatrics Riphah Int.Hospital Islamabad*
[2]*Assistant Professor, Department Of Paediatrics, HBS General Hospital and Medical College, Islamabad.*
[3]*Assistant Professor Medicine, SZABMU, P.I.M.S, Islamabad*
Correspondence to Dr. Shafat Khatoon, Email: dr.shifa.mustafa@hotmail.com Cell: 0336-1054336

Inadequate addition of supplementary food to infants lead to undernourished status and the risks of infections increase that in turn cause severe morbidity and mortality[2].

Overall malnutrition is responsible for 53% death of children under 5 years of age worldwide, 30% of these deaths are directly attributable to respiratory infections and 27% of the deaths are caused by diarrhea[3].

Complementary food including solid and semi solids given to the child besides milk, the purpose of complementary food is to transfer the child from breast milk to family diet. The timing of start of complementary foods is from 6 months[4].

Exclusive breast feeding is sufficient to meet the demands of growing infant till 6 months of age after this age, the caloric requirements are no longer met by breast milk alone, hence supplementary foods, rich in iron are introduced after 6 months and continued breastfeeding is recommended[5].

Evidence shows that malnutrition increases from 6 to 18 months, which is a period of complementary feeding. Inappropriate feeding practices like delayed introduction of complementary foods, low energy and nutrient density of foods offered, feeding in small

amount at meals and food restrictions due to cultural beliefs are common in Asia[6].

The Pakistan Demographic and Health Survey (DHS) 2006-07 revealed that the rate of initiation of breastfeeding, exclusive breastfeeding, complementary feeding and continued breastfeeding was 27.3%, 37.1%, 39.2% and 79.0% respectively.[7]IYCF practices are very crucial to assess nutritional status of infants and children, because its and indicator for the ultimate survival including growth and development of children.[8] Timely addition of adequate supplementary feed to lactating infants can reduce 6% of under-five mortality. According to estimation almost one-fifth of overall under-five mortality can be prevented if 90% of infants are covered with optimal IYCF practices. A study to evaluate the IYCF practices of mothers of children between 6 and 24 months presenting to Children Hospital. With this evidence we will be able to recommend timely and optimal complementary feeding, hence by addressing malnutrition the rates of infections and hospital visits may be reduced. On the other hand the disease burden and associated costs on the community and health infrastructure can be decreased.

PATIENTS AND METHODS

This study is designed as cross sectional. This study was conducted at Pakistan Institute of Medical Sciences (PIMS), Islamabad, Children Hospital, Lactation management clinic. It conducted between 20/03/2012 to 20/09/2012. It was conducted on 305 baby-mother pairs. Sampling technique used was non-probability, consecutive. Study population included infants and young children's of both sexes, ages ranging from 6 to 24 months and mothers of those infants and young children were included in the study.

All the infants and children with chronic illnesses, cardiac, renal, nervous system abnormalities and children with recurrent hospital admission for illnesses like diarrhea, pneumonia, febrile states (based on previous record) were excluded.

Data collection procedure: Before taking interview, an informed consent was taken from each parent/guardian. Those fulfilling inclusion and exclusion criteria were enrolled in the study. All the study related information was collected on a pre-designed proforma. Baseline information of the child and mother was asked and noted. Information was collected from respondent regarding WHO IYCF practices. Mother's education, family income, living area was asked. The interview was administered by the trainee himself. The outcome of study was assessed with reference to a scoring system named IYCF practices of mothers.

Data analysis: Data was entered and analyzed using SPSS software version 11.0. Descriptive statistics were used to calculate mean and standard deviations from continuous variables like age. Frequencies and percentages were calculated for categorical variables i.e. child sex, education of mother, family income, residence and maternal working status and IYCF practices. The results were described and also shown in the form of tables and graphs.

RESULTS

The age of the children ranged from 6 to 24 months with a mean age of 13.87±5.60 month. 139(45.6%) were males and 166 (54.4%) were females. The maternal age ranged from 17 to 45 years with a mean age of 27.47±4.68 years. 262(85.9%) mothers were housewives and 43(14.1%) were professional. 144(47.2%) lived in rural areas and 161(52.8%) lived in urban areas. 68(22.3%) mothers were illiterate, 92(30.2%) were educated upto primary, 89(29.2%) were educated upto Matriculate/ FA, 56(18.4%) were graduate/ postgraduate mothers.

204(66.9%) had a family income of <10000; 68(22.3%) had an income of Rs 10000-25000 and 33(10.8%) had an income of >25000.

IYCF practices:

- 198 (64.9%) initiated breast feeding within one hour; 89 (29.2%) initiated after 1-24 hours and 18(5.9%) initiated after 1 day
- 208(68.6%) thought that the baby should be exclusively breastfed under 6 months of age.
- 174(57%) answered yes and 131(43%) answered No.
- The age of starting complementary feed was before 4 months in 61(20%), between 4-6 months in 156(51.1%), between 6 to 8 months in 65(21.3%) and after 8 months in 23(7.5%)
- Dietary diversity was present in 82(26.9%) children and 223(73.1%) used < 4 food group
- Staple foods (cereals, rice, potato) were used in 292 (95.7%) children
- Milk products (milk, cheese, and yogurt) were used in 279(91.5%) children.
- Animal source foods (liver, meat, chicken, fish, egg) were used in 150 (49.2%) children.
- Vitamin A rich fruits/vegetables were used in 80 (26.2%) children.
- Foods made with oil and butter was used in 28 (9.2%) children.
- Pulses, legumes, nuts were used in 8 (2.6%) children.

- Meal frequency was <3/day in 72(23.6%); 3-4 times a day in 184(60.3%); and >4 times a day in 49(16.1%).
- When asked 65(21.3%) answered Yes and 240(78.7%) answered No.

The score for IYCF practices ranged from 0 to 7 with a mean score of 3.58±1.39. The median and mode scores were 4 and 3 respectively. 152 mothers had poor IYCF practice scores; 143(46.9%) had good IYCF practice scores and 10(3.3%) had ideal IYCF practice scores

Among the 144 rural mothers the mean IYCF practices score was 3.44±1.447 and the mean score for 161 urban mothers was 3.7±1.33. This difference was not statistically different; p= 0.107.

Among the 262 housewife mothers the mean IYCF practices score was 3.54±1.37 and the mean score for 43 professional mothers was 3.814±1.48. This difference was not statistically different; p= 0.235.

Among the illiterate mothers the IYCF practices were poor in 47(69.1%), good in 19(27.9%) and ideal in 2 (3%). Among the primary educated mothers the IYCF practices were poor in 49(53.3%), good in 43(46.7%) and ideal in 0. Among the Matriculate/FA educated mothers the IYCF practices were poor in 41(46%), good in 45(50.5%) and ideal in 3(3.4%). Among the graduate/ postgraduate mothers the IYCF practices were poor in 15(26.8%), good in 36 (64.2%) and ideal in 5(9%). This difference was statistically significant; p= 0.00

Among the families with a monthly income upto 10000 rupees the IYCF practices were poor in 117(57.4%), good in 82(40.2%) and ideal in 5(2.4%). Among the families with a monthly income between 10000 to 25000 rupees the IYCF practices were poor in 27(39.7%), good in 37(54.4%) and ideal in 4(5.9%). Among the families with a monthly income > 25000 rupees the IYCF practices were poor in 8(24.2%), good in 24(72.7%) and ideal in 1 (3%). This difference was statistically significant; p= 0.00

Table 1: Mean IYCF practices score between rural and urban mothers

Residence	N	Mean	Std. Deviation
Rural	144	3.44	1.447
Urban	161	3.70	1.331

P value=0.107

Table 2: Mean IYCF practices score between housewives and professional mothers

Mothers work status	N	Mean	Std. Deviation
Housewife	262	3.54	1.37
Professional	43	3.814	1.48

P value=0.235

Table 3: The IYCF practices score and maternal education level

Mother education level	IYCF		
	<3/7= poor	4-6/7= good	7/7= ideal
Illiterate (68)	47(69.1%)	19(27.9%)	2 (3%)
Primary (92)	49(53.3%)	43(46.7%)	0 (0%)
Matric/FA (89)	41(46%)	45(50.5%)	3 (3.4%)
Graduate/postgraduate (56)	15(26.8%)	36(64.2%)	5 (9%)
Total	152	143	10

P value=0.00

Table 4: The IYCF practices score and maternal education level

Family income	IYCF		
	< 3/7= poor	4 to6/7= good	7/7= ideal
Up to 10000 (204)	117(57.4%)	82(40.2%)	5(2.4%)
10000-25000 (68)	27(39.7%)	37(54.4%)	4(5.9%)
>Rs 25000 (33)	8(24.2%)	24(72.7%)	1(3%)
Total	152	143	10

P value=0.002

DISCUSSION

Essential nutrition is the basic necessity of life and responsible for growth, development and ultimate survival of infants and young children. IYCF practices are crucial for nutritional status assessment of infants and young children, designed by WHO[10] worldwide, 1.4 million children aged under five years (under-five mortality) die due to suboptimal breastfeeding and almost 6% of under-five mortality can be prevented timely introduction of complementary feeding[11]. It was also estimated that almost one-fifth of overall under-five mortality can be averted by prevailing, promoting and supporting IYCF practices in if 90% of infants. Similarly poor complementary feeding practices to irreversible outcomes like stunning and cognitive impairments and increase risk of infection related morbidity and mortality[12].

Through IYCF practice guidelines, WHO recommends early initiation and exclusive breastfeeding for the first six months of life and continuation for two years or more, along with complementary feeding from 6th month of life i.e., nutritionally-adequate, safe and age-appropriate[13].

Through this study we have tried to find out current feeding practices in infants and young children with reference to IYCF practices in our local setup. The rate of early initiation of breastfeeding according to Demographic and Health Survey (DHS) 2006-07 was 46% which was less than reported by our study i.e., 64.9%. It means early initiation of breast feeding is practicing in our local setup.

Similarly exclusive breastfeeding under 6 months age was 14% reported by DHS which was much lower the result of our study i.e., 68.6%. It means exclusive breast feeding is also being practiced in our study population. Continuous breast feeding up to 1 year of life was in 96% reported by DHS survey while it was observed in 57% of our study population. It means this practice is observed but is less prevailing. Introduction of weaning like soft, semisolid and solid complementary food with rich nutritive values at 6 months was seen in 62% in DHS survey while in our study this rate was 27.3%. It means in our practices mothers stat complementary food to their infants and young children relatively late and it may an important reason for malnourishment and high infection vulnerability in our children. Other parameters include minimum dietary diversity which was seen in 5% only while in our study it was seen in 26.9%. Similarly minimum meal frequency found in 41% in DHS report and in 60.3% in our study. Minimum acceptable diet was received by 3% according to DHS survey while in our study it was 21.3%. In brief the overall breast feeding and weaning practices were better in our study as compared to the DHS survey report. One reason of that might be due to the fact that our study primarily included mothers from the city of Islamabad and 52.8% population was urban where mothers are more likely to be educated and have better family income and socioeconomic status.

Our study also revealed that the practice of initiation of breastfeeding within first hour of birth was more common (64.9%) than the corresponding national (DHS) and West Bengal (23.5%) data of the NFHS. Along with education and socioeconomic status religious believes may also contribute an important factor in early breast feeding initiation, because Islam encourages this and whole of our study population was Muslim.

Several studies have proved that partial breastfeeding was associated with raised risk of morbidity and mortality in infancy and early childhood. Even plain water introduction has reported to interfere with breastfeeding.[15] By avoiding practice of introducing plain water to newborn and infants almost 15% increase in the exclusive breastfeeding rate could be achieved. Bottle-feeding practices are highly discouraged due to risk of exposure to pathogens and interference with successful breastfeeding[16].

In our study, infants aged 6–8 months, who received soft, semi-solid or solid food, in addition to breast milk, was low (21.3%). This low percentage may be due to increased use of 'other types of milk. It is also worthwhile to notice that the percentage of complementary feeding before 6 months age was about 71% but on the other hand it does not match the reported exclusive breast feeding rate misreported by the mothers may be one aspect of it.

By reviewing feeding practices it was observed that there was late initiation of breastfeeding, relatively low rates of exclusive breastfeeding, and delayed complementary feeding practices. Giving water, honey, butter and 'milk other than breast milk' to breastfed babies were the limiting factors for exclusive breastfeeding. That's why the main area of improvement include inappropriate complementary feeding practices, early introduction, low frequency, and inadequate amount of solid or semi-solid food.

Feeding practices of infants and young children define their nutritional status while infant mortality rate and under-five mortality rate are inversely proportional to their good nutritional status. In other words by improving feeding practices and nutritional support health of our youngest population may be promoted[3]. A number of factors may contribute to these malpractices including poverty, ignorance and lack of knowledge about balanced diet.

Recommendation: In order to achieve healthy feeding practices and future healthy nation it is recommended that area-specific awareness and education programmes need to be planned for mothers, families, care-givers, health and nutrition workers by protecting, promoting, and sustaining the optimal IYCF practices in Pakistan.

CONCLUSION

The Infant and young child feeding practices observed in this study are far from the ideal situation and the likely factors behind that might be an insufficient knowledge of breastfeeding and complementary feeding of infants and young children among mothers. Other factors may be the socio-economic factors especially low income. It is the need of time to arrange programmes for raising awareness and educating mother, families, caregivers and health care worker to about healthy feeding practices and built a healthy nation.

.

REFERENCES

1. Saha KK, Frongillo EA, Alam DS, Arifeen SE, Persson LA, Rasmussen KM. Appropriate infant feeding practices result in better growth of infants and young children in rural Bangladesh. *Am J Clin Nutr* 2008;87:1852–9.
2. Bachou H, Tumwine JK, Mwadime RKN, Tylleskar T. Risk factors in hospital deaths in severely malnourished children in Kampala, Uganda. *BMC Pediatrics* 2006;6:7.
3. UNICEF Millennium Goal No. 4 Reduce Child Mortality http://www.unicef.org/mdg/childmortality.html [Accessed June 2010]

4. World Health Organization. Indicators for assessing infant and young child feeding practices: conclusion of a consensus meeting, held on 6–8 November 2007 in Washington, DC, USA. Geneva: World Health Organization; 2008. p. 19.
5. Shahid A, Ahmed M, Khan MW, Khan MH, Arshad M. Infant feeding: Beliefs and Practices of mothers. *Professional Med J* 2009;16:274-8
6. Senarath U, Dibley MJ. Complementary feeding practices in South Asia: analyses of recent national survey data by the South Asia Infant Feeding Research Network. *MCN* 2012;8:5–10.
7. National Institute of Population Studies (NIPS) [Pakistan] and Macro International Inc. Pakistan Demographic and Health Survey 2006-07. Islamabad, Pakistan: National Institute of Population Studies and Macro International Inc; 2008.
8. Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E et al. What works? Interventions for maternal and child undernutrition and survival. *Lancet* 2008;371:417–40
9. Sinhababu A, Mukhopadhyay DK, Panja TK, Saren AB, Mandal MK, Biswas AB. Infant- and Young Child-feeding Practices in Bankura District, West Bengal, India. *J Health Popul Nutr* 2010;28:294–9.
10. Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E, et al. What works? Interventions for maternal and child under nutrition and survival. Lancet. 2008;371:417–40.
11. 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.
12. World Health Organization Complementary feeding of young children in developing countries: a review of current scientific knowledge. Geneva: World Health Organization; 1998. p.237. (WHO/NUT/98.1).
13. World Health Organization Global strategy for infant and young child feeding. Geneva: World Health Organization; 2003. p. 41.
14. International Institute for Population Sciences National family health survey (NFHS 3), 2005–06: India. V. II. Mumbai: International Institute for Population Sciences; 2007. p. 168.
15. Sachdev HP, Krishna J, Puri RK, Satyanarayana L, Kumar S. Water supplementation in exclusively breastfed infants during summer in the tropics. Lancet. 1991;337:929–33.
16. Pan American Health Organization Guiding principles for complementary feeding of the breastfed child. Washington, DC: Pan American Health Organization; 2003. p. 37.