Feeding Under 2 Children at El-Mansoura University Hospital: Practices and Problems

Lila Y. Abo-Salem*, Hoda M. Nafee*

Abstract The study was conducted on 121 children who attended the out-patient clinic at El-Mansoura University Children Hospital. The objectives were to identify the common problems in feeding practice of children under 2 years of age, to estimate the proportion of children potentially at risk for nutritional and other health problems, and to characterize such a vulnerable group in terms of demographic variables. Data were collected through interviewing the children's mothers/caregivers, children's nutritional as well as health status were investigated using IMCI format and weight for age criteria. The results revealed that 64.5% of the study samples were exclusively breastfed, 17.4% artificially fed babies, and 47.1% of children were receiving less number of breast feeds per day. Insufficient and unbalanced complementary feeding was obvious among the studied sample. Either early or delayed weaned children constituted 18.2%. The common health problem of the studied sample as diagnosed by pediatrician were. diarrhea & vomiting (44.6%), ARI (38.8%), low weight (15.7%), and 14% had anemia. Training courses for first-level health workers on IMCI in order to emphasize the guidelines for appropriate feeding practices and how to support complementary feeding as part of mothers' teaching in an out-patient basis is recommended.

INTRODUCTION

Feeding is a critical aspect of caring for infants and young children. Appropriate feeding practices stimulate bonding with the caregiver and psycho-social development. They lead to improved nutrition and physical growth, reduced susceptibility to common childhood infections and better resistance to cope with them. Improved health outcomes in young children have long-lasting health effects throughout the life-span, including increased performance and productivity, and reduced risk of certain non-communicable diseases.[1,2]

Adoption of recommended breast-feeding and complementary feeding behaviors and access to the appropriate quality and quantity of foods are essential components of optimal nutrition for infants and young children between ages 6 and 24 months.[3,4]

The benefits of breast-feeding for both children and mothers in terms of nutrition, immunological protection, anti-infective/biochemical/ anti-allergic, and emotional satisfaction have been widely documented.[5] Exclusive Breastfeeding for 6 months is the optimal way of feeding infants and an unequalled way of providing ideal food for the healthy growth and development of

*Pediatric Nursing Faculty of Nursing, Mansoura University

infants. Thereafter infants should receive complementary foods with continued breastfeeding up to 2 years of age or beyond.[6]

To enable mothers to establish and sustain exclusive breastfeeding for 6 months, WHO and UNICEF recommend:

- Initiation of breastfeeding within the first hour of life
- Exclusive breastfeeding i.e., the infant only receives breast milk without any additional food or drink, not even water
- Breastfeeding on demand – i.e., as often as the child wants, day and night
- No use of bottles, teats or pacifiers. (1)

When breast milk is no longer enough to meet the nutritional needs of the infant, complementary foods should be added to the diet of the child. Complementary feeding should be **timely**, meaning that all infants should start receiving foods in addition to breast milk from 6 months onwards. It should be **adequate**, prepared and given in a *safe* manner, meaning that measures are taken to minimize the risk of contamination with pathogens. And they should be given in a way that is **appropriate,** meaning that foods are of appropriate texture and given in sufficient quantity.[7]

According to the Global Strategies of Infant and Young Child Feeding, "Inappropriate feeding practices and their consequences are major obstacles to sustainable socio-economic development and poverty reduction. Governments will be unsuccessful in the effort to accelerate economic development in any significant long term sense until optimal child growth and development, specially through appropriate feeding practices is ensured".[8,9]

Nutritional vulnerability during the period of 6-24 months results from the poor nutritional quality of the foods offered relative to nutritional requirements [10], high prevalence of diarrhea and respiratory infections and their interaction [11,12]. It is also the result of the quantity of foods offered, frequency with which they are fed and responsiveness of the mother

or caregiver to the needs of the child during feeding.[13]

Nurses who works with children and young people have an important role in screening or undertaking nutritional trigger assessment, can identify children who are already malnourished or are at risk of becoming so. However, it is important for the nurse to be able to recognize major or minor health problem that might be related to poor feeding practice and to take appropriate action.[14]

Aim of the study:

1. To identify the common problems in feeding practice of children less than 2 years of age who attend the out-patient clinic at El-Mansoura University Children Hospital during the period of. March, April & May 2007.
2. To estimate the proportion of children potentially at risk for nutritional problems, and other health problems and to characterize such a vulnerable group in terms of demographic variables.

Study Design

The study design follows cross-sectional approach.

Subjects & Methods:

The study was conducted in the out-patient clinic of El-Mansoura University Children Hospital during the period of March, April & May 2007.121 children aged less than two years who attend the clinic to seek medical advice and their care-givers were included in the sample. The data was collected using a pre-tested and pre-structured questionnaire. The mothers were interviewed to collect information regarding socio-demographic factors as age of caregiver, education, occupation and family income. Child's feeding as; is the child under six months breastfed? If yes how many times per 24 hours, is the child breastfed during night?, does the child receive any other food? and weaning practices. Nutritional status of the child was assessed using weight for age criteria. The growth chart of weight for age were utilized to identify children with weight loss. The weight of the subjects was recorded

using weighing scale with minimal clothing and bare feet. Assessment of child's health status using IMCI format **(**integrated management of childhood illness) whom their age range between 2momth and up to 5 years, and identification of the health problem as diagnosed by pediatrician. The statistical analysis of data done by using SPSS program, statistical packing of social science version 10 and EPI information program on Window 98. The first part was descriptive in form of frequency and portions, while the second part was analyzed by using chi-square for comparing the differences between two groups or more. The p value was significant if ≤ 0.05 on confidence interval 95%.

Results:

A total of 121 children constituted the study sample. Male to female children ratio was 6: 5. Above half of the sample (58.7%) aged 2 up to 6 months of age while 22.3% belong to the age group6 up to 12 months.

Table (2) describe the demographic data of caregivers. About one third of caregivers (32.2%) were either 20-<25, or 25-30 years of age with just above one quarter (26.4%) were aged 30 years or more. As regards education of care givers, more than half of the sample(54.5) had secondary education, while illiteracy was among 10.7% of them. Majority (89%) of them were not working. Nearly two thirds (66.1%) of families' income/month was 200 to less than 500 Egyptian pounds, while 22.3% were receiving less than 200.

Tables (3) illustrate the type of feeding of the study sample during the first 6 months of life. Children who received exclusive breast feeding were 64.5% while 35.5% either received artificial feeding or started weaning before 6 months. Nearly one fifth of the sample (19.8%) were unable to give exclusive breast feeding because of insufficient breast milk.

Table (4) illustrate the problems in feeding practices. It was revealed that 47.1% of children were receiving less number of breast feeds per day (i.e. less than 8 breastfeeds in 24 hours for infants under six months as recommended by IMCI for children from 2 months to 5 years). Children either weaned

before 6 months of age or delayed weaned constituted 18.2% of the sample. Artificially fed babies constituted 17.4% of the sample. Caregivers either used the bottle in feeding their children or unable to prepare special food for them were 14.9% of the sample.

Table (5) describe the problems in feeding practice in relation to the family income. Majority of the mothers with low income (less than 200 pounds/month) were providing their children less number of breast feeds,25.9% of them weaned their children before 6 months, nearly half of them (48.1%) giving unbalanced diet and none of them giving artificial feeding. The common problems of feeding practice among families who were receiving 200 to less than 500 pounds/month were: less number of breast feeds/day (43.8%), giving unbalanced diet (35%), decrease number of complementary feeds/day (33.8%), and artificial feeding (22.5%). The only problem which has statistically showed to be related to income was "less number of breast feeds/day ($x^2 = 11.87$, p=.007)

Table (6) describe the problems in feeding practice in relation to the caregivers' age. All the mothers under 20 years of age were giving their children less number of complementary feeds/day, more than half either giving less number of breast feeds/day or weaned their children before 6 months and 36.4% of the sample were providing unbalanced diet. Nearly one third (30.8%) of the mothers in the age group 20 to less than 25 years were giving their children less number of breast and complementary feeds/day as well as unbalanced diet. Mothers in age group 25 to less than 30 years were giving their children less number of breast feeds and unbalanced complementary diet (43.6%) and (46.2%) respectively. The common problems in feeding practice among mothers who were thirty years and more were: less number of breast feeds (68.8%), delayed weaning (37.5%) and

Weaning before 6 months (31.3%).The feeding problems found to be related to caregivers' age were: less number of breast feed /day (p=0.013), using bottle in feeding(p=0.02), delayed weaning (p = 0.007) and decrease number of complementary

feeds/day (p = 0.001)

Table (7) shows that all the sample stated that breast feeding is important but only 19% of them gave a complete answer for why it is important, while 57.9%. of them provided incomplete answers.

Table (8) shows that the common health problems of the studied sample were: diarrhea & vomiting, ARI, low weight and anemia (44.6%), (38.8%), (15.7%), (14%) respectively

Discussion:

Adequate nutrition in infancy and early childhood is fundamental to the development of each child's full human potential. It is well recognized that the period from birth to two years of age is a "critical window" for the promotion of optimal growth, health and behavioral development. Longitudinal studies have shown that this is the peak age of growth retardation, deficiencies of micronutrients, and common childhood illnesses[15,17].

Exclusive breast feeding up to 6 months and continued breast feeding for 6-12 months was identified as the single most effective intervention that could prevent 13-15% child deaths all over the world. This coupled with adequate complementary feeding could prevent 19% of all child deaths[18]. . Currently, 35% of babies the world over are exclusively breast-fed during the first four months. In India about 20% babies at six months are exclusively breast-fed[19]. Status of breast feeding in Alexandria in1997 described that, 42.2% of infants below 4 months were exclusively breast-fed [3+20], while the present study shows higher rate (64.5%) it could be because of 100% of the caregivers are aware that breast feeding is important (see table 7). In addition, this may be attributed to the tenets of Islam which, through the Koran, provide Muslims with clear instructions to breast-feed their children for two whole years [6].

It is a critical to understand that inappropriate feeding practices are intimately related to malnutrition which fuel child deaths[15]. The adequacy of complementary feeding not only depends on the availability of a variety of foods in the household, but also on the feeding practices of caregivers.[11] Nearly

one third (32.2%) of the under 2 children of sample were receiving inadequate complementary feeding which is in accordance with another study carried out in Navajo, USA[21]**.** Also, 35.5 % of children were receiving food low in essential nutrients and high in calories that replaces age-appropriate nutrient dense food needed for growth and development this could be because the majority of the families in the sample (88.4%) had monthly income less than 500 Egyptian Pound (table 2) and also same result in Ethiopia [22]**.**

Artificially fed babies constituted 17.4% of the study sample. None of them were from low income families, whereas other reported 27%. The economic factors might have played an important role in influencing the use of artificial feedings because it is costly which is consistent with other study.[21]

It was found that, growth is not improved by complementary feeding before six months even under optimal conditions (i.e., nutritious, microbiologically safe) and also tend to display beast feeding[23], 18.2% of the study sample started complementary feeding before six month of age.

A food intake history revealed that neither breast nor complementary feeds were sufficient to meet the caloric needs for young children during this period of rapid growth which may lead to malnutrition. It was estimated that 30% of the world's children are malnourished in terms of being underweight. National Family Health Survey data highlights the critical period when growth faltering occurs to be six months to 2 years.[24] The prevalence of malnutrition among the study sample was 15.7% by weight-for age, while it was 25.4% in other study(24) and in India 47% of all children below 3 years of age were found to be undernourished.[19]

RECOMMENDATIONS

1. Training courses for first-level health worker about IMCI in order to emphasize the Guidelines for appropriate feeding and how to support complementary feeding as part of mothers' teaching in an out-patient basis.

2. Children's nutritional status and growth should be monitored to avoid serious adverse consequences in the future and nutritional counseling to provide information for parents in order to improve the quality of their children's diet.

3. Promotion of proper infant-feeding practices through mass media and public health campaign should be emphasized.

Summary

The study sample included 121 child who attended the out-patient clinic of El-Mansoura University Children Hospital, their mother were interviewed and children were assessed using IMCI format. The collected data revealed that, 64.5% of the study sample were exclusively breastfed, 17.4% artificially fed babies, 47.1% of children were receiving less number of breast feeding per day, insufficient and unbalanced complementary feeding was obvious among the studied sample. Either early or delayed weaned children constituted 18.2%. The common health problem of the studied sample were; diarrhea& vomiting(44.6%), ARI (38.8%),, low weight (15.7%), and anemia(14%). Training courses for first-level health worker about IMCI in order to emphasize the guidelines for appropriate feeding practices and how to support complementary feeding as a part of mothers' teaching in an out-patient basis was recommended.

Table (1): General characteristics of the sample

Characteristics	No=121	%
Gender:		
▪ Male	66	54.5
▪ Female	55	45.5
Age:		
▪ 2 up to 6 months	71	58.7
▪ 6 up to 12 months		
▪ 12 up to 18 months	27	22.3
▪ 18 to 24 months	17	14.0
	6	5.0
Birth order:		
▪ 1st	46	38
▪ 2nd	46	38
▪ 3rd	23	19
▪ 4th	5	4

Table (2): Demographic data of mothers/caregivers

Data	N0=121	%
Age:		
▪ Less than 20 years	11	9.1
▪ 20-	39	32.2
▪ 25-	39	32.2
▪ 30 & more	32	26.4
Education:		
▪ Illiterate	13	10.7
▪ Primary	11	9.1
▪ Preparatory	15	12.4
▪ Secondary	66	54.5
▪ University	16	13.2
Occupation:		
▪ Working	13	10.7
▪ Not working	108	89.3
Family income/month in Egyptian pound:		
▪ Less than 200	27	22.3
▪ 200-	80	66.1
▪ 500-	8	6.6
▪ 800&more	6	5

Table (3): Type of feeding during the first 6 months of life

Type of feeding	No.= 121	%
1- Exclusive breast feeding	78	64.5
2- Not exclusive (Artificial feeding and early weaning)	43	35.5
Cause*:*		
▪ Insufficient breast milk	24	19.8
▪ Child' hospitalization	5	4
▪ Problem in the mother's breast	4	3.3
▪ Twins	4	3.3
▪ Baby refused mother's breast	3	2.5
▪ Mother's work	3	2.5

Table (4): the common problems in feeding practice

Problems	No.	%
▪ Less number of breast feeds/day	57	47.1
▪ Weaning before 6 months	22	18.2
▪ Artificial feeding only	21	17.4
▪ Use bottle in feeding	18	14.9
▪ No breast feeding at night	6	5
▪ Delayed weaning	22	18.2
▪ Giving unbalanced diet	43	35.5
▪ Decrease number of complementary feeds/day*****		
▪ No special prepared food for the child	39	32.2
	18	14.9

***** The number of complementary feeds is less than 3 times /day for breast feed babies and 5 times /day for artificially feed babies during the 2nd six month of life and less than 5 times/day for both during the 2nd year

Table (5): Problems in feeding practice in relation to Family income

Income / Problems	200<		500 <200 to		800<500 to		800 & more		Total		χ^2	p
	No.= 27	%	No.= 80	%	No.= 8	%	No.= 6	%	No.=121	%	χ^2	p
Less number of breast feeds/day	19	70.4	35	43.8	3	37.5	0	0	57	47.1	11.87	0.007*
Weaning before 6 months	7	25.9	15	18.8	0	0	0	0	22	18.2	4.22	0.23
Artificial feeding only	0	0	18	22.5	1	12.5	2	33.3	21	17.4	6.89	0.07
Use bottle in feeding	7	25.9	14	17.5	0	0	0	0	21	17.4	4.3	0.22
No breast feeding at night	3	11.1	3	3.8	0	0	0	0	6	5	3.15	0.36
Delayed weaning	7	25.9	12	15	2	25	1	16.7	22	18.2	1.89	0.59
Giving unbalanced diet	13	48.1	28	35	1	12.5	1	16.7	43	35.5	4.67	0.19
Decrease number of complementary feeds/day	8	29.6	27	33.8	2	25	2	33.3	39	35.5	0.36	0.94
No special prepared food for the child	4	14.8	11	13.8	2	25	1	16.7	18	14.9	0.74	0.86

Table (6): **Problems in feeding practice in relation to Caregivers' age**

Age / Problems	20 years<		25 <20 to			30<25 to	30years& more		Total		χ^2 p	
	No. =11	%	No.= 39	%	No.= 39	%	No.= 32	%	No.=12 1	%	χ^2	p
Less number of breast feeds/day	6	54.5	12	30.8	17	43.6	22	68.8	57	47.1	10.63	0.013*
Weaning before 6 months	6	54.5	2	5.1	4	10.3	10	31.3	22	18.2	19.57	0.001***
Artificial feeding only	1	9.1	8	20.5	8	20.5	4	12.5	21	17.6	1.59	0.66
Use bottle in feeding	5	45.5	6	15.4	4	10.3	3	9.4	18	14.9	9.38	0.02*
No breast feeding at night	1	9.1	1	2.6	2	5.1	2	6.3	6	5	0.99	0.8
Delayed weaning	0	0	5	12.8	5	12.8	12	37.5	22	18.2	11.98	0.007**
Giving unbalanced diet	4	36.4	12	30.8	18	46.2	9	28.1	43	35.5	3.08	0.37
Decrease number of complementary feeds/day	11	100	12	30.8	10	25.6	6	18.8	39	32.2	2 6.6	0.001***
No special prepared food for the child	1	9.1	5	12.8	7	17.9	5	15.6	18	14.9	0.73	0.86

Table (7): Mothers' Knowledge in relation to children's feeding

Area of knowledge	No. =121	%
Ideal number of breastfeeds/day		
• Correct answer	56	46.3
• Incorrect answer	45	37.2
Is breast feeding important?		
• Yes	121	100
• No	0	0
Importance of breast feeding		
• Complete answer	23	19
• Incomplete answer	70	57.9
• Incorrect answer	28	23.1
Does the child have to receive complementary feeding before 6 months?		
• Yes	21	17.4
• No	100	82.6

Table (8): Distribution of the sample according to health problems

Health problems*	No.= 121	%
Low weight	19	15.7
Anemia	17	14
Diarrhea & vomiting	54	44.6
Acute Respiratory Infection(ARI)	47	38.8
Developmental Retardation	16	13.2
Others	26	21.5

*Some children had more than one health problem,

References:

1. **WHO** Child and Adolescent Health and Development "Infant and Young Child Feeding and Nutrition" 2000-2004.
2. **Nepal K, Mahal S**. Complementary Feeding Practices and its impact on Nutritional Status of Under Two Old Children in Urban Areas of the Kathmandu ,Nepal .J.Nepal Health Research Council. 2004(1):87-97.
3. **Lutter CK**, **Rivera JA**. Nutritional Status of Infants and Young Children and Characteristics of Their Diets**.** The American Society for Nutritional Sciences. J. Nutr. 2003; 133:2941S-9S,

4. **Strivatava N, Sandhu A**. Index for Measuring Child Feeding Practices India J .Pediatric ;2007; 74:363-78,

5. **Kamel NM et al.** Current status of breast-feeding in Alexandria governorate: a community-based study Eastern Mediterranean Health Journal.1997;3:511-8

6. **Al-Awadi F, Amine E.** Recent Trends in Infant Feeding Patterns and Weaning Practices in Kuwait .Eastern Mediterranean Health Journal.1997;3(3):501-10, .

7. **WHO**. Nutrition; Infant and Young Child "Complementary Feeding" 2000-2004.

8. **World Health Organization** . Global Strategy for Infant and Young Feeding Geneva: WHO, 2003.

9. **Al-Bustan MK, Holi BR**. Socioeconomic and Demographic Factors Influencing Breast feeding among Kuwaiti Women. Genus 2000, 44:265-76 ,

10. **Cassio TG ,Dommarco JR. Macias HM, Monterrubio E, Sepulveda J.** Poor Compliance With Appropriate Feeding Practices in Children Under 2 Year in Mexico. American Society for Nutrition J Nutr. 2006; 136:2928-33,

11. **Wang X, Wang Y, Kang C**. Feeding Practices in 105 Counties of Rural China.J Child: Care, Health, and Development. 2005; 31(4):417-23,

12. **Bani Al, Saeed AW, Othman AA**. Diarrhea and Child Feeding Practices in Sudia Arabia. J Tropic Pediat. 2002 ;27(8):213-29.

13. **PAHO/WHO. Guiding** Principle for Complementary feeding of the Breast Feed Child. Washington D C:PAHO/WHO;2003

14. **Dewey KB, Brown KH**. Updates on Technical Issues Concerning Complementary Feeding of Young Children in Developing Countries and Implication for Intervention Programs. Food and Nutrition. 2003; 24(1):5-28.

15. **Royal College of Nursing**. Malnutrition "What nurses working with children and young people need to know and do?" April 2006. RCNONLINE www.rcn.org.uk

16. **Dewey K, Lutter C**. Guiding principles for complementary feeding of breast fed child. whqlibdoc.who.int/paho/2004/a85622.pdf

17. **UNICEF**.The State of the Worlds Childern. New York; UNICEF;2005

18. **Piwoz EG, Huffman SL, Quinn VJ.** Promotion and Advocacy for Improved Complementary feeding :Can We Apply the Lessons Learned FROM Breast feeding ? Food and Nutrition Bulletin. 2003 ;24(1)129-44 .

19. **Anita K, Singh S, Talwar R, Rasania SK, Badhan SR, Mehra MA.** Study of malnutrition among children aged 6 months to 2 years from a resettlement colony of Delhi. Indian J of Med Science. 2003, 57; 286-9.

20. **Hafez G, Bagchi K**. Promotion of Breast feeding Through MCHsERVICES AND Primary Health care .Proceedings of the Inter country Consultation, Tehran, Islamic Republic of Iran. .Alexandria: World Health Organization; Regional Office for the Eastern Mediterranean; 1995

21. **French J.G**. Relationship of Morbidity to **the** Feeding Patterns of Navajo Children from Birth Through Twenty-Four Months. Am J Clin Nutr.1967;20,375-85.

22. **Arimond M, Ruel M.** Summery Indicators for Infant and child Feeding Practices : An example for the Ethiopia Demographic and Health Survey 2000, Washington DC,FANTA,AED;2002

23. **Cohen R.J, et al.** Effect of age of introduction of complementary food on infant breast milk, total energy intake and growth: a randomized intervention study in Honduras. Lancet 1999; 344, 288-93.

24. **Tada Y, Keiwkarnka B, Pancharuniti N, Chamroonsawasdi K. Nutritional** status of the preschool children of the Klong Toey slum, Bangkok. Southeast Asian J Trop Med Public Health. 2002 Sep; 33(3):628-37.