Evaluating Infant Complementary Feeding Pattern and Some Related Factors in Health Care Centers of khorramabad, West of Iran, in 2017

Khatereh Anbari [1], Zohreh Tajabadi [2], Parastoo Baharvand [3] ,Mostafa Bazvand [4], Babak Khodadadi [5]

(1) Associate Professor, Social Determinants of Health Research Center, Lo¬restan University of Medical Sciences, Khorramabad, Iran.
(2) Student Research Committee, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
(3) Assistant Professor, Department of Community Medicine, Lorestan University of medical Sciences, Khorramabad, Iran.
(4) Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran.
(5) Young Researchers and Elite Club, Khorramabad Branch, Islamic Azad University, Khorramabad, Iran.

CORRESPONDING AUTHOR: *Babak Khodadadi, Young Researchers and Elite Club, Khorramabad Branch, Islamic Azad University, Khorramabad, Iran.*
Email: khodadadi.b@lums.ac.ir - Tel: +989122118601

DOI: ***10.2427/12831***
Accepted on May 21, 2018

ABSTRACT

Objective: Inappropriate starting of complementary feeding is an important factor leading to infant growth delay and malnutrition. This study was aimed to determine the complementary feeding pattern and some related factors in health care centers in Khorramabad.
Methods: This cross-sectional study, included 300 one year old infants who had referred to nine health care centers in Khorramabad by multistage sampling. In present study, we used a questionnaire included individual information about mothers and infants and a checklist for evaluating breastfeeding and complementary feeding. Chi-square test and one way ANOVA were used to analyze the data.
Results: In present study, 50.7% of infants were girls and 60.3% of cases were the first infant in their family. 59.3% of infants were delivered by cesarean. Average age of starting complementary feeding was 0.5 8.5. 75.7% of infants had exclusive breastfeeding up to first six months of their life. Among most cases, the first complementary food was rice flour porridge (29.3%) and almond porridge (15.7%). Most mothers had acquired necessary information about complementary feeding by using booklets (20.7%) and physician guidance (16.7%). There was a statistically significant relationship between age of starting complementary feeding and mother's education (P=0.043) level and employment status (P=0.001).
Conclusion: Related authorities should begin comprehensive and effective education by using novel training strategies to raise mothers' knowledge about age of starting complementary feeding and how to do it at health care centers.

Key words: Complementary Feeding, Infant, Mothers Practice

INTRODUCTION

The optimal growth and development of infant are dependent on proper feeding and appropriate diet. High prevalence of malnutrition and its association with infant mortality and growth deficiency are among the most important health related problems in developing countries [1]. Children are the most sensitive and vulnerable social group to malnutrition, so it is important to be concerned about their feeding status [2]. Studies have reported that inappropriate feeding leads to reduced resistance to infections, increased morbidity and mortality and also physical and mental retardation among children [3]. Since high rate growth during infancy is associated with defined changes in organ function, inappropriate complementary feeding may exert adverse effects on child growth and development [4].

Exclusive breastfeeding is sufficient for infant normal growth up to the end of four or even six months after birth. So it is necessary to start feeding semisolid foods to infant after sixth month. Complementary feeding is considered as feeding foods other than breast milk to infant [5]. Complementary feeding should begin when infant cannot receive sufficient energy and nutrients from breast milk. Complementary feeding usually takes long during 6-24 month after birth, an important course at which child malnutrition may initiate [6].

Although many efforts have been made by health trustees in different countries, the process of lowering malnutrition rate has been promoted by slow rate among children [7]. In most cases infant growth rate is normal up to until 3-6 month after birth and stops during ablactation course and starting complementary feeding which may lead to height shortness and cachexia [8].

It seems that early or late starting complementary feeding is among the most important causes of infant growth delay [9]. Evidence indicate that culture status, thoughts, traditional dietary habits and available foodstuffs affect complementary feeding patterns in different regions of the world [10]. For example in Africa, beans are used as first complementary food for initiating complementary feeding among 50% of children [11] while in England people use cereals [12]. Infant complementary feeding pattern is affected by cultural, social and economic condition and formed by food availability and mother's knowledge [13].

Several studies carried out in different regions of Iran have demonstrated that infant complementary feeding is initiated by using rice flour porridge [14]. Other foodstuffs such as beans and eggs are added to infant diet gradually. Appropriate complementary feeding should be rich in energy, protein, iron, zinc, calcium, vitamin A, vitamin C, etc. [15]. Also it should be clean, intact, and without any additive material. Complementary food should be prepared and eaten by infant easily [15]. Mothers should start their infant complementary feeding using foods in few amounts and increase its amount gradually [16].

Several studies have demonstrated that mother's knowledge about complementary feeding is not enough. Mother's knowledge about complementary feeding is so important because time of starting complementary feeding, how to do it, type of food selection, food amount and food keeping are dependent on mother's knowledge and good performance [17].

In addition to mother's knowledge, time of starting complementary feeding is among the factors affecting child growth during first year of life [17]. Since infant complementary feeding patterns are affected by community culture and social status, it is necessary to evaluate this problem in different conditions and regions. Results of these studies lead to promoting infant health levels by determining optimal age of starting complementary feeding, monitoring of infant growth, and determining optimal complementary foods. So the present study aims to evaluate complementary feeding pattern among the infants who referred to health care centers of Khorramabad city (a city in west of Iran) during 2016-2017.

MATERIALS AND METHODS

This cross-sectional study carried out from Januarys to April 2017 at health care centers of Khorramabad, west of Iran involving mothers of infants under 1 year of age using questionnaire to evaluate infant complementary feeding status. The required sample size in the original study was calculated to be 306 infants according to estimated average formula for similar cross-sectional studies carried out about complementary feeding with 95% confidence interval (CI) and significance level of 0.05. This study sample was drawn from the total population of mother-infant pairs who referred to health care centers during the period of the study. Multistage sampling was used to select three health care centers in each three part (north, center, south) of the city. The mothers who were competent to give informed constant had normal, healthy and under 1 year of age infant, and lived in Khorramabad city and its suburbs. The study protocol and consent form were approved by Ethics Medical Committee of Lorestan University of Medical Sciences.

For collection of data on socio-demographic characteristics, midwifery, giving birth history and infant complementary feeding status a well-designed questionnaire was used (Cronbach's alpha: 0.74). Variables related to midwifery and giving birth history included birth rate, delivery type and infant anthropometry indices at birth and present. Variables related to infant complementary feeding status were selected based on the ministry of health standards and scientific resources and included manner and age of starting complementary feeding, type of breastfeeding up to sixth month and starting complementary feeding, manner of adding new

foods to the previous one, complementary food firmness and volume and mother knowledge source about infant complementary feeding.

Data were analyzed using independent t test and one-way analysis of variance (ANOVA) analysis. The results were presented as proportion, mean, standard deviation (SD) and frequency distribution. The normality of data was investigated with Kolmogorov Smirnov test. The software Excel 2013 (Microsoft, US) and SPSS 21 (IBM, US).

RESULTS

In the present study has evaluated the complementary feeding status of 300 one year old infants who were referred to health care centers of Khorramabad city for receiving their MMR vaccine. Among all subjects, 50.7% were girl and 49.3% were boy. Most infants (60.3%) were the first child, 28.3% were the second one and the remaining were the third and fourth one (Table 1). Also 59.3% of childbirths were cesarean and 40.7% were natural birth.

TABLE 1. Sexual, birth order and type of childbirth distribution of the infants

VARIABLE		ABUNDANCE (N)	FREQUENCY (%)
SEX	Male	152	50.7
	Female	148	49.3
Birth order	First	181	60.3
	Second	85	28.3
	Third	29	9.7
	Fourth	5	1.6
childbirth	Natural	122	40.7
	Cesarean	178	59.3

The present study demonstrated that the average birth weight among subjects was 3.4 ±0.31 kilograms (3 – 4.3 kilograms). The average newborn's head circumference was 35.2±1.25 centimeters (33 – 37 centimeters). The average current infant weight 10.8 ± 0.048kilograms (10 – 11.8 kilograms), and the average current height was 75.2 ± 1.2 centimeters (74 – 85.1 centimeters).

The present study found that the average mother age was 25.4 ± 4 years old (17 – 36 years old). Most mothers (63%) and also most fathers (63%) had a college degree. Also 32.7% of mothers had a job.

This study found that 75.7% of infants received only breast milk during the first six months of life, the remaining received synthetic milk (12.7%) and breast milk in combination with synthetic milk (11.6%). Also the average age of introduction of complementary feeding for infants was 5.5 months of age (5 – 6 months). Totally the age of introduction of complementary feeding for infants was 5 months of age among 51.7% of subjects and 6 months of age among 48.3% of them. Also 219 infants (73%) continued receiving breast milk after initiation of complementary feeding and most infants (40%) received breast milk 9 times a day during the period complementary feeding. The milk used for feeding the infant concurrently with complementary feeding was breast milk (51.7%), synthetic milk (17.7%), the combination of breast and synthetic milk (18.7%), and other types of milks (12%).

Based on the results of present study, using rice flour porridge was initiated from 6 months of age among 51.3% of subjects and 5 months of age among the remaining infants (48.7%). Using vegetable porridge was started from 6 months of age among 54.3% of infants and 7 months of age among 45.7% of them. Using almond porridge (Harrireh in Persian language) was started from 5 months of age among 48.3% of subjects from 6 months of age among the remaining infants. Mothers were started using red or white meat from 6 months of age in 0.3% of cases, 7 months of age in 32.3% of cases, 8 months of age in 36.7% of cases and 9 months of age in 30.6% of remaining. Using egg yolk was initiated from 8 months of age among 41.3% of subjects, 9 months of age among 38.7% and 10 months of age among 20% of them. Using beans was initiated from 8 months of age among 43% of infants, 9 months of age among 35.3% and 10 months of age among 21.7% of them. Using natural juices was started from 6 months of age among 54% of infants and 7 months of age among 46% of them. The starting time for rice glaze in 53.7% of cases was from 6 months of age and 46.3% from 7 months of age. Using vegetable soup was started from 6 months of age among 51.7% of infants and 7 months of age among 48.3% of them. Using almond Harrireh in combination with porridge was started from 6 months of age among 49.3% of infants and 7 months of age among 50.7% of them. Using different kind of breads was started from 8 months of age among 39% of subjects, 9 months of age among 37.3% and 10 months of age among 23.7% of them. (Chart 1).

The first complementary foods were rice flour (29.3%), almond Harrireh (15.7%), a combination of porridge, almond Harrireh and glazed rice (11.7%), vegetable porridge (8%) and vegetable soup (7%). The first complementary foods were egg yolk only among 5.7% of subjects, glazed rice and almond Harrireh among 5.7% and other foods among 5.3% of them. (Chart 2).

Our results showed that infants had a history of using iron drip (72.3%), multivitamins (72.3%) and vitamin A+D supplements (73.7%) (Chart 3).

This study found that the time interval between using new foods and previous food was 4 days among most cases, 5-7 days (28%) and 3 days (20%). This time interval was more than 7 days among 17% of infants. Also 46% of mothers had used native foods for their infant feeding.

CHART 1. Frequently distribution age of onset nutritional supplement in the infants studied by type of food

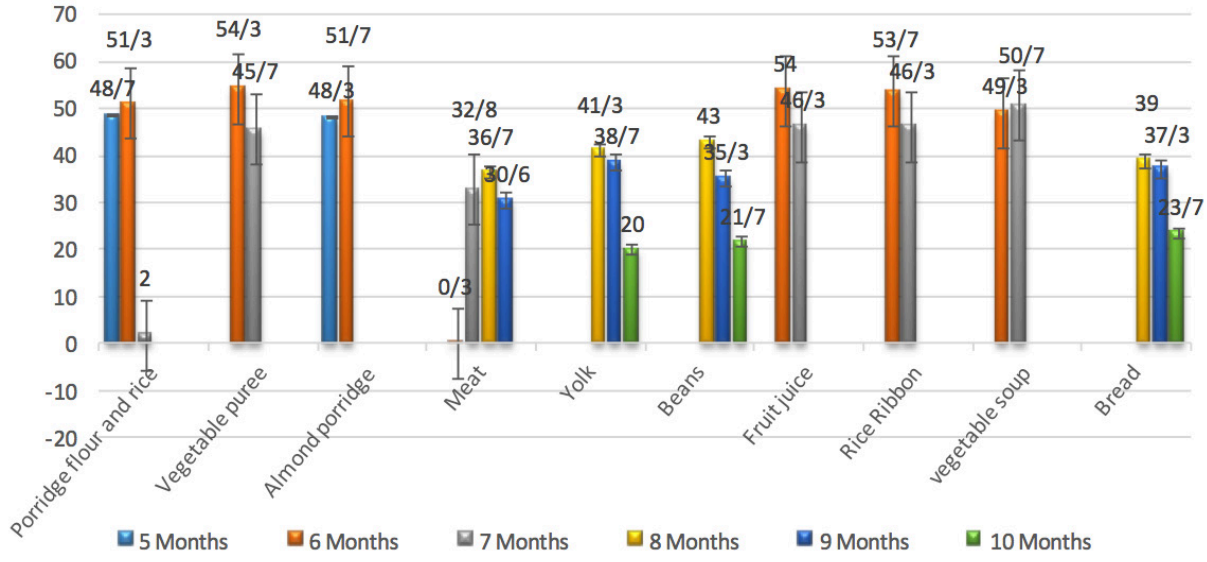
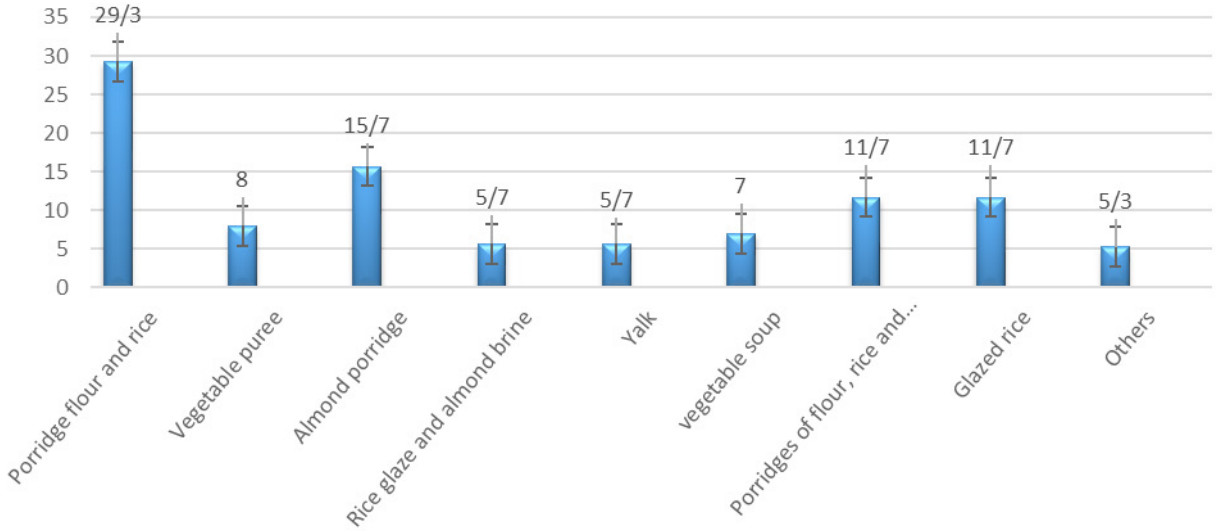


CHART 2. Frequently distribution first food used at the beginning of feeding in the infants studied



The amount of complementary food at the beginning of complementary feeding was equal to a spoon (24.3%), a tea spoon (14%) and a jar spoon (21%). This amount was more than 2 spoons only among 17.6% of subjects. Most mothers (34.3%) were used ready foods continuously for feeding their infants, others were used these foods often (34%), rarely (26.3%) and never (5.3%). The present study found that 65.3% of mothers were used species in their infant foods. Also complementary food consistency at the beginning of complementary feeding was liquid in 49.3%, semisolid in 38.7% and solid in 12% of cases. Our study found that most mothers (28%) kept their infant food in the refrigerator for 3-5 hours, others kept for 6-12 hours (25.3%), 12-24 hours (19%) and more than 24 hours (13.3%). Only 14.3% of mothers kept their infant foods in the refrigerator for less than 3 hours. Among all mothers, 23.3% of them (n=70) insisted on feeding the infant. In this study, 32.3% of mothers (n=134) prepared separated foods for their infants. The age of initiating daily meals for infants was 10 months (31.7%), 11 months (38.7%) and 12 months of age (29.7%). All subjects had used daily meals.

The present study found that most mothers (20.7%) had used booklets to receive necessary information about infant complementary feeding. The remaining subjects had used doctor's information (16.7%), newspapers and magazines (12.7%) and vaccination cards (12.3%). The least used sources in this field were internet (4.7%), radio and television (5.3%), poster and pamphlets (5.3%). Only

CHART 3. Relative frequency distribution eating nutritional supplements in infants studied

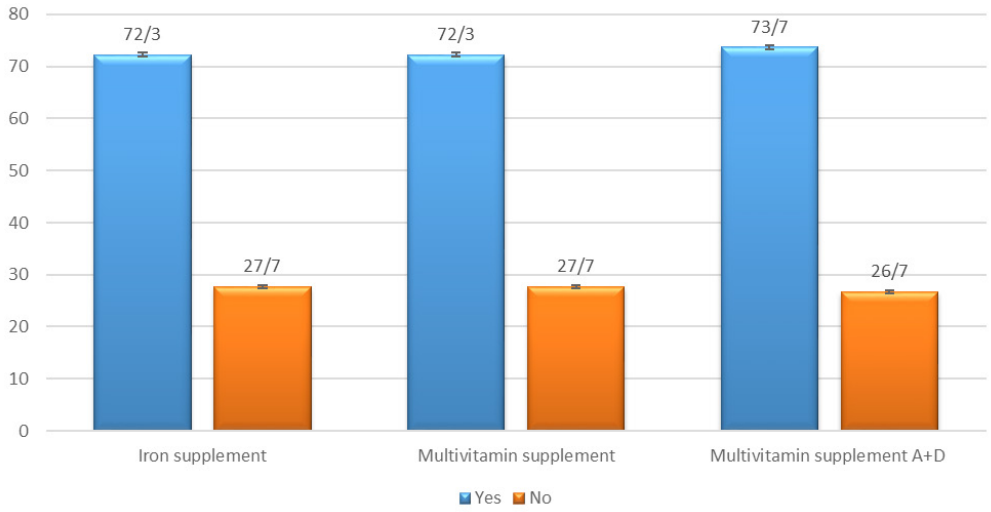
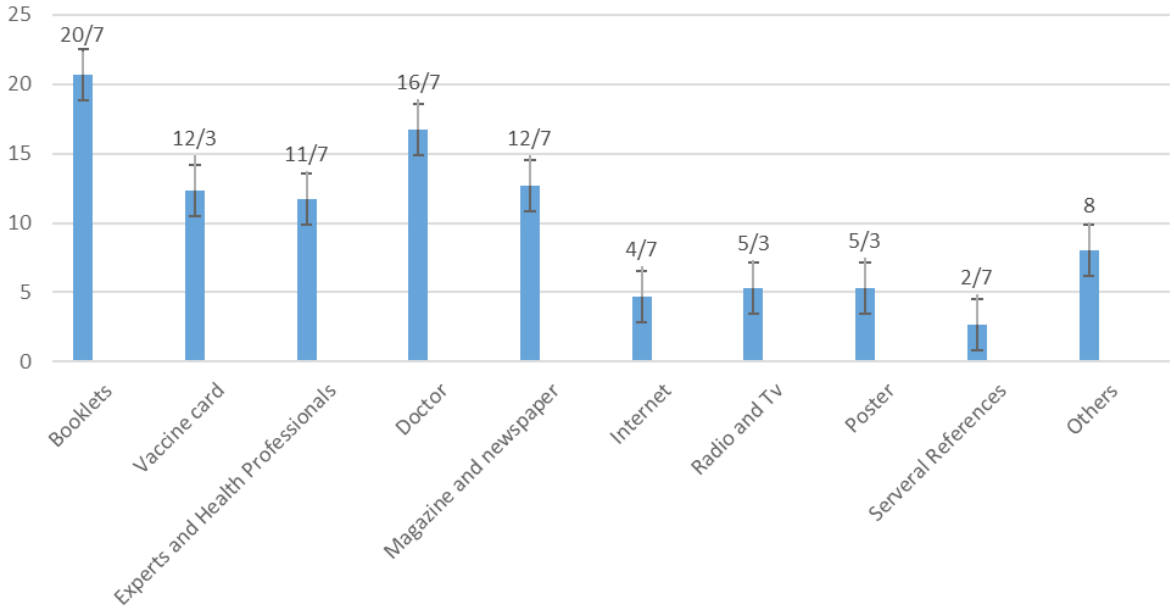


CHART 4. Frequency distribution Source of knowledge of the mothers of the infants studied on how to supplement



11.7% of mothers had received necessary information from health staffs. (Chart 4)

Evaluated some related factors which affects infant complementary feeding status. The average age of starting complementary feeding did not show any statistically significant difference between boys and girls based on independent T-test (P=0.269). Also there was not any statistically significant association between the age of starting complementary feeding and infant birth rate (P=0.653).

Also there was not any statistically significant association between mother age and the age of starting complementary feeding (P=0.339) but there was a statistically significant association between mother education level and the age at which complementary feeding was started based on one way ANOVA. The age of starting infant complementary feeding was significantly lower among mothers with secondary education and diploma (5.3 months of age) and academic education (5.47 months of age) than others (P=0.043).

Also infants whose mothers had a job had started receiving their complementary food in significantly lower ages (5.3 months of age) than infants whose mothers did not have any job (5.7 months of age), this association was significant based on T-test (p=0.001).

DISCUSSION

Exclusive breastfeeding provides optimal growth and development of infant during first six months of life. On the other hand complementary feeding along with breastfeeding plays an important role in preparation and mental development of infant [6]. This study assessed infant complementary feeding status among mother-infant pairs in Khorramabad, Iran. This study showed that most mothers had continued breastfeeding as the complementary feeding began and went on.

The present study found that complementary feeding had been started at five months old among 51.7% of infants and at six months old among 48.3% of them. Average age of starting complementary feeding was 5.5 months old. In study by Shahbazi et al. reported that complementary feeding had been started at the end of 6 months among 76.3% of infants in Semnan. Also in that study the average age of starting complementary feeding was 5.86 months old [19]. Average age of starting complementary feeding was reported 7.3 months old in Zabol study [21] and 4.3 months old in Italia study [22].

As mentioned above, in present study concluded that age of starting complementary feeding was 5.48 months old which is recommended by WHO. According to several studies, end of the first six months old after birth is the optimal age of starting complementary feeding [23-25]. So khorramabad possess an appropriate status in this sense. As a greater percentage of women have a job in some European countries such as Italia and America, it seems that this can be a social reason leading to lower average age of starting complementary feeding in these countries.

This study found that the most prevalent complementary food were rice porridge and almond harireh, respectively. The study by Jowkar et al; reported that the most common first complementary food was rice, almond harireh and porridge (among 17.1% of cases), respectively In Ilam [26]. Similar finding to our study, in Tanzania province study, the most prevalent complementary food was rice flour porridge [27]. Researchers recommend using cereals for complementary feeding of most infants. It is better to use rice for starting complementary feeding because it is easy to digest and less potential for developing allergies.

Our study found that breastfeeding was continued after starting complementary feeding for several times in 73% of cases. About 51.7% of mothers used only their breast milk as complementary feeding started but 12% of cases used also other types of milks such as livestock milk which is an inappropriate pattern for complementary feeding. It has been suggested to use livestock milk after first year of life. The present study found that mothers also used spices in complementary food which is not in accordance with appropriate pattern of complementary feeding. References suggest not using sugar and salts in infant foods. The study carried out by Jowkar et al. found that most mothers had added spices to complementary foods [26].

Also in present study the interval between using new food and previous food was 5-7 days (suggested interval) only in 2.1% of cases. The interval between using new foods and previous foods was four days and three days in 35% and 20% of cases, respectively which is not matched with appropriate pattern of complementary feeding.

Jowkar et al; also reported that most cases in their study didn't regard standard interval (5-7 days) between using new and previous foods [26]. So it seems that mothers should receive more education in this field.

Also results of present study demonstrated that 38.7% of mothers had started their infant complementary feeding with semisolid foods and 12% started with solid foods. Fesharaki et al. reported that mothers had little knowledge about adding foodstuffs to infant food and also intervals between new and previous food in Birjand [28] while mothers possess infant vaccination card which contains some tables with information about adding different foodstuffs to infant food. This is affected by different cultures. Also experiences and recommendations of other people may affect infant feeding. So it is necessary for mothers to receive enough oral education in these fields. Also mothers should know that they should act based on the booklets given to them.

In our study milk used for infant feeding was breast milk among 51.7% of cases, powdered milk among 17.7% of cases, combination of breast milk and powdered milk among 18.7% of cases and other types of milks among 12% of cases.

Fesharaki et al. reported that milk used for infant feeding at first year of life was breast milk among 71.3% of cases, powdered milk among 6.5% of cases, livestock milk among 1.5% of cases and combination of all these three types among 20.7% of cases [28]. Due to the fact that many years have passed since the implementation of the national breastfeeding project and the mother's education, these rates are not particularly favorable in the current study. So it is necessary to determine and remove mediating factors which can limit breastfeeding.

In present study 72.3% of infants had the history of using iron supplements during 4-6 months old (which is optimal age for using iron supplements), 73.7% of cases had used vitamin A+D drip after 15 days old and 72.3% of cases had used multivitamins during optimal age.

The study carried out by Fesharaki et al. reported that average age of starting supplemental iron was 5.4±1.3 months old in Birjand, also 88.8% of cases had started using iron at optimal age [28]. A study carried out in Ali Asghar hospital of Zahedan showed that only 37.7% of cases had started using iron and multivitamins at optimal age. So in comparison to that study, our cases had better performance in this field [29]. Also results of a study carried out in the west of Tehran, 84% of mothers had started using multivitamins after 15 days old for their infants [30].

So our results demonstrated that some of mothers have not started complementary feeding to their infants at optimal

age. This may be because of inadequate education and recommendation for first referral to the health care centers at 2 months old and less advertising about the importance of starting and continuation time for using multivitamins.

Another purpose of our study was evaluating factors associated with age of starting complementary feeding to infants that, there was only a significant correlation between mother's education and employment status and age of starting complementary feeding. Our results showed that mothers who had lesser education levels and also who had a job, had started complementary feeding at early stages.

In this study results showed that there is not statistically significant relationship between gender, birth rate, mother's age and age of starting complementary feeding. It seems predictable that employed mothers start complementary feeding at early ages to compensate some parts of their infant required food. Hendricks et al; reported that mother's with college education had continued exclusive breastfeeding up to six month old and started complementary feeding after six month old –based on American children's academy recommendation-. Also these mothers had used lesser soft drinks, chocolates, desserts and more fruits in their infant diet [31]. This may be because of more interest and learning of mothers in these ages that made them more sensitive to education received from health care centers, so they had more effective learning. In this study they didn't find any significant relationship between birth rate, parent's job, father's age and education levels, family income and age of starting complementary feeding.

In present study, 20.7% of mothers had acquired necessary information from booklets and 16.7% of them from physicians; other cases were used vaccination cards, health experts and so on.

Fesharaki et al. reported that in their study mothers commonly had acquired necessary information from health care centers [28]. Also in one study reported that friend's information was the main source for mothers to acquire necessary awareness [20]. So it seems that health experts play an important role in raising mother's knowledge about infant complementary feeding, but in our study it had less importance.

CONCLUSION

The present study indicates that despite of holding routine training programs in Khorramabad city, there are still several problems in infant complementary feeding so may be training mothers by different ways such as videos or showings is more effective. Unfortunately it seems that mothers do not have enough information about importance of infant complementary feeding and how to do it, maybe in part due to community believes and culture and also failure in mother's training. On the other hand related authorities should begin comprehensive and effective education for community to raise mother's knowledge about exact age of starting complementary feeding and its importance; because starting complementary feeding on time plays an important role in infant growth and early starting of complementary feeding leads to decreased growth indexes.

Acknowledgement

We would like to appreciate the deputy of Research and Technology of Lorestan University of Medical Sciences.

Conflict of interest

The authors declare no conflict of interest.

References

1. Udoh, E E, Amodu O K. Complementary feeding practices among mothers and nutritional status of infants in Akpabuyo Area, Cross River State Nigeria. Springerplus. 2016; 5(1):2073-2092.
2. Hickson, M. Malnutrition and ageing. Postgraduate Medical Journal, 2006; 82(963):2–8.
3. Essential Nutrition Actions: Improving Maternal, Newborn, Infant and Young Child Health and Nutrition. Geneva, Switzerland: World Health Organization; 2013.
4. Monte CM. Giugliani ER. Recommendations for the complementary feeding of the breastfed child. J. Jornal de Pediatria. 2004; 80(5):131-141.
5. Walsh A, Kearney L. Dennis N. Factors influencing first-time mothers' introduction of complementary foods: a qualitative exploration. BMC Public Health, 2015; 15. 939-950.
6. Motee A, Jeewon R. Importance of Exclusive Breastfeeding and Complementary Feeding among Infants. Current Research in Nutrition and Food Science. 2014; 2(2):56-72
7. Arthur SS, Nyide B, Soura AB, Kahn K, Weston M, Sankoh O. Tackling malnutrition: a systematic review of 15-year research evidence from INDEPTH health and demographic surveillance systems. Global Health Action. 2015; 8: 10.3402/gha.v8.28298.
8. Nutrition, infant and young child .Child and Adolescent Health and Development, World Health Organization. Available from http://www.who.int/child-adolescent-health/ NUTRITION/complementary.htm. Accessed July 13, 2007.
9. Basnet S, Sathian B, Malla K, Koirala DP. Reasons for early or late initiation of complementary feeding: a study in Pokhara. American Journal of Public Health Research. 2015; 3(4):69–75.
10. Uvere P.O., Ene-Obong H.N. (2013) Complementary Local Foods for Infants in Developing Countries. In: Watson R., Grimble G., Preedy V., Zibadi S. (eds) Nutrition in Infancy. Nutrition and Health. Humana Press, Totowa, NJ.
11. Trehan I, Benzoni NS, Wang AZ, Lucy BB , Theresa NN, Ulemu K C, et al. Common beans and cowpeas as complementary foods to

reduce environmental enteric dysfunction and stunting in Malawian children: study protocol for two randomized controlled trials. Trials. 2015; 16:520-532.
12. Finnamore HE, Whelan K, Hickson M, Shovlin CL. Top dietary iron sources in the UK. The British Journal of General Practice. 2014; 64(621):172-173.
13. Lindsay AC, Machado MT, Sussner KM, Hardwick CK, Peterson KE. Infant-feeding practices and beliefs about complementary feeding among low-income Brazilian mothers: a qualitative study. Food AND Nutriton Bulletin. 2008; 29(1):15-24.
14. Shafieian T, Latiff LA, Mary Huang Soo Lee, Mazidi M, Ghayour Mobarhan M, Tabatabaei G, et al. Determinants of Nutritional Status in Children living in Mashhad, Iran. International Journal of Pediatrics, 2013; 1(2):9-18.
15. Abeshu MA, Lelisa A, Geleta B. Complementary Feeding: Review of Recommendations, Feeding Practices, and Adequacy of Homemade Complementary Food Preparations in Developing Countries – Lessons from Ethiopia. Frontiers in Nutrition. 2016; 3:41-50.
16. Prell C, Koletzko B. Breastfeeding and Complementary Feeding: Recommendations on Infant Nutrition. Deutsches Ärzteblatt International. 2016; 113(25):435-444.
17. Mohammadhossini S, Hosseini N, Moghimi M, Fouladi M. Knowledge and Practice of Mothers, Regarding the Supplementary Nutrition of Breast-fed Infants, Yasuj, Iran. Iranian Journal of Neonatology. 2013; 4(4):28-33.
18. Shehzad K. Neonatal birth-weights and reference intervals in sonographically monitored normal fetuses. International Journal of Health Sciences. 2011; 5(2):27.
19. Shahbazi A, Ghorbani R, Frivar F, Shah-Hoseini AR. A survey on the starting age of complementary feeding and some of its associated factors in the breast-feeding infants (Semnan, Iran). koomesh. 2007. 9 (1):59-67. [Persian]
20. Imani M, Mohammadi M. Infant supplementation pattern and its effective factors in urban and rural areas of Zabol. Journal of South medicine. 2002; 4(2):150-156.
21. Giovannini M, Riva E, Banderali G, Scaglioni S, Veehof SH, Sala M, et al. Feeding practices of infant through the first year of life in Italy. Acta Paediatrica. 2004; 93 (4):492-497.
22. Qasem W, Fenton T, Friel J. Age of introduction of first complementary feeding for infants: a systematic review. BMC Pediatrics. 2015; 15:107-128.
23. Tamiru D, Belachew T, Loha E, Mohammed S. Sub-optimal breastfeeding of infants during the first six months and associated factors in rural communities of Jimma Arjo Woreda, Southwest Ethiopia. BMC Public Health. 2012; 12:363-372.
24. Carletti C, Pani P, Monasta L, Knowles A, Cattaneo A. Introduction of Complementary Foods in a Cohort of Infants in Northeast Italy: Do Parents Comply with WHO Recommendations? Nutrients. 2017; 9(1):34-45.
25. Razavi V, Nikkhah S, Pourabdollahi P, Dastgiri S. Mothers Knowledge, Attitude and Practice on Nutrition in Infants and Adolescents. J Urmia Univ Med Sci. 2001; 12(2):129-137.
26. Kulwa KBM, Mamiro PS, Kimanya ME, Mziray R, Kolsteren PW. Feeding practices and nutrient content of complementary meals in rural central Tanzania: implications for dietary adequacy and nutritional status. BMC Pediatrics. 2015; 15:171-182.
27. Garcia de Lima Parada CM, De Barros Leite Carvalhaes MA,Jamas MT.Complementary feeding practices to children during their first year of life. Revista Latino-Americana de Enfermagem 2007; 15(2):282-289.
28. Imani M. Effect of maternal social factors in appropriate use of additive oral Ferrous Sulfate drops. Tabib-E-Shargh, Journal of Zahedan University of Medical Sciences and Health Services. 2000; 2(1-2): 31-38. [Persian].
29. Najm Abadi SH, Kaffashi A. Feeding patterns in the first two years of life in west of Tehran. Razi Journal of Medical Sciences. 1999; 3(6): 239-245. [Persian]
30. Hendricks K, Briefel R, Novak T, Ziegler P. Maternal and child characteristics associated with infant and toddler feeding practices. Journal of the American Dietetic Association. 2006; 106(1): 135-148.
31. Erkkola M, Pigg HM, Virta-Autio P, Hekkala A, Hypponen E, Knip M, Virtanen SM. Infant feeding patterns in the Finnish type I diabetes prediction and prevention nutrition study cohort. European Journal of Clinical Nutrition. 2005; 59(1): 107-113.

*