E3 Journal of Medical Research Vol. 4(2). pp.023-027, May, 2015
Available online @ http://www.e3journals.org
ISSN 2276-9900 © E3 Journals 2015

Full length research paper

Assessing the infant's breastfeeding in Hamadan city Iran

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Accepted Jan 10, 2015

Breastfeeding is the normal way of providing young infants. This study aimed to assess the situation regarding infant's nutritional pattern in Hamadan city of Iran. A Cross sectional study on 1200 mothers and her infants recruited in urban health care centers in Hamadan city, Iran. The criteria for entry to the study were: all babies at the end of the 1 to 12 month of life who was healthy. The percentage of breastfeeding initiating within an hour after delivery was 46.3%, the percentage of the exclusive breastfeeding from 1st month to 6th month were 93% and 68% respectively, the most common breastfeeding timing method was on demand (72.3%). Maternal educational levels, mother's age, parity, infant's gender and breastfeeding education were associated with a longer duration of exclusive breastfeeding (p = 0.000). Majority of mothers (82.9%) had started complementary feeding at recommended time. Majority of mothers were giving home made foods. Frequency of complementary feeds was less then recommended in about 56.3% mothers. Majority of mothers (52.5%) had started new supplementary food without any interval. Our results are relatively satisfactory with regards to the overall duration and situation of Breastfeeding, while complementary feeding status is unsatisfactory according to WHO objectives.

Keywords: Infant Nutrition; Hamadan; Iran

Introduction

Breastfeeding is a basic, simple and cost effective means of nourishing a baby, the health benefits of breast milk for both infant and mothers have been well established (Gartner et al., 2005; Kramer et al.,2000; Labbok 2001; fewtrell 2004). Breast milk changes from the colostrums of the first few days of nursing to mature milk over the 6 months following birth, and it protects against the gastrointestinal tract and respiratory organs infections as well as providing immune protection (Chezem et al., 2003; Bhandari et al.,2003). also, studies indicates that exclusive breastfeeding has a protective effect against allergic diseases and non-transmissible chronic diseases (Van Odijk et al., 2003; Davis 2001).Exclusive breastfeeding is recommended for 6 months after birth (Wen et al., 2009; Coutinho et al., 2005). The total duration of breastfeeding is correlated with many factors, such as breastfeeding support, the mother's age, education, working conditions, social class, economic status, smoking and the infant's demand (Hornell *et al*., 1999). Attitudes towards breastfeeding have varied in the past, but over the last 20 years both the short- and long-term advantages of maternal milk have been recognized (Edmond et al., 2006; Owen et al.,2005; Marild et al.,2004). Breastfeeding is a well accepted behavior in the Iran culture (Marandi *et al*., 1993). At a national level, 90% and 57% of infants were breastfed at one and two-years of age, respectively. Exclusive breastfeeding rates at 4 and 6 months of age at national

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Table 1. Baseline characteristics of study subjects

Variable	N(%)
Maternal age	
9yrs	680(56.7)
30-34 yrs	230(19.2)
>35 yrs	263(21.9)
missing	27(2.2)
Mother's education	
<= 5 yrs elementary school	65(5.4)
Middle school	537(44.7)
Secondary school	398(33.2)
University degree	200(16.7)
Occupation	
Stay-at-home	1060(52.5)
Working	140(11.7)
Number of pregnancies	
1	630(52.5)
>= 2	570(47.5)
Type of delivery	
Vaginal delivery	743(62)
Caesarean delivery	457(38)
Timing of early infant-to-breast contact	
1 h pp	540(46.3)
>1 h pp	660(53.7)
Breastfeeding Education	
Yes	1150(95.8)
No	50(4.2)

level averaged 56.8% and 27.7% (Olang *et al.,* 2009).The timely introduction of complementary foods during infancy is necessary for both nutritional and developmental reasons, and to enable the transition from milk feeding to family foods. Complementary feeding period is the period during which other foods or liquids are provided along with breast milk (Agostoni *et al.,* 2008). Solid foods are progressively introduced in the baby's diet after the 6 month of birth (Nicklaus 2009). For infants who are receiving breast milk, complementary food represent any beverage, semisolid, or solid food offered (Dewey et al., 2008). The aim of this study was to assess the current pattern (2007-2008) regarding infant aged 1–12 months nutritional pattern in Hamadan city of Iran.

Methods

A Cross sectional study was carried out in May 2007 to March 2008, in Hamadan, the largest city of Hamadan province in the north-west of the Islamic Republic of Iran, to provide detailed information on 1-12 months infant feeding pattern. The sample of this study comprised 1200 infants (604 boys and 596 girls) who received health care at 16 health care centers randomly selected from all urban health care centers in Hamadan city, Iran. The criteria for entry to the study were: all babies at the end of the 1 to 12 month of life who were healthy. All mothers were given an information about the study and those willing to participate were being asked to complete the questionnaires. The first part of questionnaire included demographic data and the second part involved the collection of data regarding information on infant (type of birth, initiation of breastfeeding, exclusive breastfeeding, formula feeding, age of introducing of complementary feeding, type of food, variety of food, additional food interval, complementary feeding problem and etc). The study was approved by the Ethical Committee of Hamadan University of Medical Sciences. The data were collected by two health workers who were trained in the specifics of collecting data. The groups were compared using the Student's t-test for the continuous variables and the chi-square test (or Fisher's exact test if required) for the categorical variables. P values of 0.05 or less were considered statistically significant. Data Processing and statistical analysis were performed using SPSS version 18.0.

Results

As shown in table 1, the mean average of the mother's age was 26.7 ± 4.8, more than half of the mothers (58%) were lower than 29 years of age. As many as 16.7% of the mothers had received university-level education, whereas 5.42% had only school level education, most mothers (88.3%) were not employed. Findings indicated that the majority of mothers (52.5%) were nulliparous and (62%) had normal vaginal deliveries. The percentage of breastfeeding initiation within an hour after delivery was, on average, 46.3%, whereas (53.7%) of mothers had waited more hours before introducing the breastfeeding. The primary reason for not breastfeeding immediately after birth was lack of milk, other reason included because of a caesarean section. 47.5% of mothers had already breastfed their infants from breast milk. Majority of infants (87.35%) had breastfeeding (BF). Figure 1 shows the percentage of the feeding type.

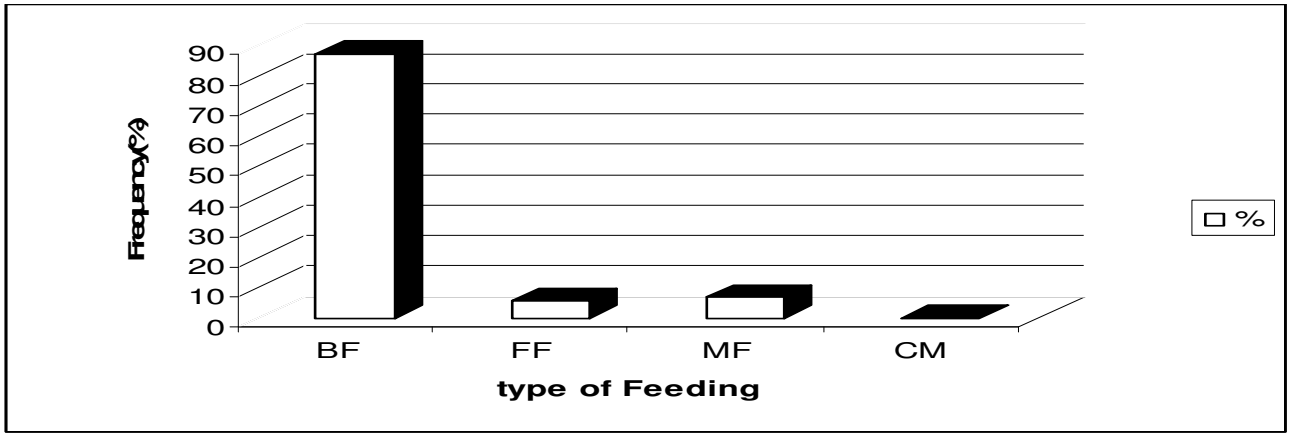

Figure 1. Rate (%) of the feeding type of 1-12 months infant in Hamadan City of Iran (BF= Breastfeeding; FF = Formula feeding; BFF = Breast & Formula feeding; CMF = Cow Milk Feeding)

Table 2. Presents what encouraged women to choose breastfeeding

Variable	N(%)
Media	495(42.4)
Health personel	213(17.7)
Mother	135(12.7)
Husband	26(2.2)
Relative	9(0.7)
Missing	304(25.3)

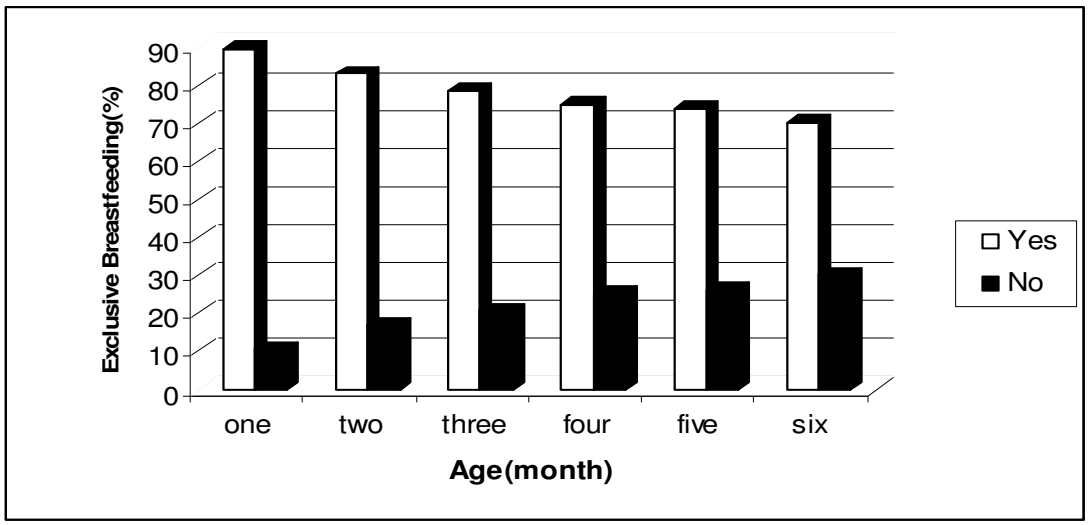

Figure 2. Rate (%) of exclusive breastfeeding throughout the first 6 months of life in 1-2 month infants in Hamadan city of Iran

The percentage of the exclusive breastfeeding from first to 6th month were presented in figure 2. The most common breastfeeding timing method was on demand (72.3%). Factors such as, maternal educational levels, mother's age, parity, the infant's gender and breastfeeding education were associated with a longer duration of exclusive breastfeeding ($p = 0.000$). A majority of mothers (95.8%) reported that they received information about breastfeeding at pregnancy. Table 2 shows what encouraged women choose breastfeeding

as reported by the mothers, the three highest ranked reasons were the media, health personal and mothers. Majority of infants (93.1%) have received Multivitamin and A-D vitamins drops in the first 6 month of life. The percentage of introducing the complementary feeding at the 1st, 2nd , 3rd, 4th, 5th, 6th and 7th month were 0.00, 0.38%, 0.13%, 0.49%, 12.30%, 82.9% and 3.8% respectively (figure 2). Majority of the mothers (82.9%) introduced complementary foods at the end of 6 month after birth, table 2 presents complementary feeding practice. The most used supplementary food was cow's milk and rice flour (44.8%). There were no interval between starting one supplementary food and the other in 52.5% of the cases. Also 78.2% of samples started feeding in the amount of one spoon and increased it gradually. The majority of mothers (68%) did not add sugar and salt to food. 91% knew the safe time for keeping cooked food in the refrigerator. The source of information about supplementary feeding in 72% of mothers was health care providers.

Discussion

We investigated infant nutritional patterns in a group of infants between 1-12 month of age in a urban area in Hamadan city of Iran. Findings of this study suggest that 98.7 percent of mothers initiated breastfeeding, less than half of mothers (46.3%) initiated breastfeeding immediately after delivery. This finding is consistent with the Demographic Health Survey (DHS) statistics in 2000 that about 90% of the infants in Iran received any breastfeeding (Olang *et al*., 2009).UNICEF statistics in 2001, and the Centre for Breastfeeding Information (CBI) statistics in 2003 disclosed that 98 percent of mothers in Iran initiated breastfeeding, and the exclusive breastfeeding rates at three and six months of age were 67.1 percent and 56 percent respectively (Zareai *et al*., 2007) Research from the United States, Europe and Australia reveal that the initiation or the ever breastfeeding rate varies between 60% and 99% (Cattaneo *et al*., 2006).Breastfeeding were reported for majority of infant (87.35%) with no formula use. After the first month of life, the percentage of EBF begins to gradually decrease until reaching 75% and 68% in the 4th and 6th month respectively, It is satisfactory and could be explained by old traditions and good education that support breastfeeding in this area, even though still not in line with the WHO recommendations. A decline in exclusive breastfeeding after the fourth month is common elsewhere in the world (Agampodi *et al*., 2007).

The most common breastfeeding timing method (72.3%) was on demand. Current recommendations are to feed babies on demand, therefore, there is no prescribed pattern for breastfeeding babies (Kent, 2009).Factors such as, maternal educational levels, mother's age, parity, the infant's gender and breastfeeding education were associated with duration of exclusive breastfeeding (p = 0.000). In other studies several factors, such as: very strong desire to breastfeed; being born in an Asian country; older maternal age, maternal education, intended duration of breastfeeding, socio demographic factor positively associated with breastfeeding (Forster et al., 2006; Scott et al.,1999; Yeoh *et al*., 2007).Majority of mothers (82.9%) had started complementary feeding at recommended time and untimely introduction of complementary feeding was seen in 17.1% of child. In Rebhan study there was a considerable variety concerning the time when complementary feeding was introduced (Rebhan *et al*., 2009). Supplementary feeding accompanied with breast feeding in 95.8% of the infants. majority of mothers were giving home-made foods. Frequency of complementary foods was less then recommended in about 56.3% infants. Majority of mothers (52.5%) had started new supplementary food without any interval. The most used supplementary food was Ferni (a soft porridge made with cow's milk and rice flour).Cow's milk is not a good source of iron and should not be used before 12 months (Agostoni *et al*., 2008). Among fruits, "bananas" were used more. Among vegetables, cooked potatoes and carrots were mostly used. Positive relationship between variety and adequacy of the diet and nutritional status have been observed in child populations (Steyn *et al.,* 2006).Majority of mothers (76.4%) were introduced iron drop with complementary feeding regularly. During the second 6 months of life, iron requirements rise rapidly, and dietary intakes between 8 mg/day to 11 mg/day are needed (Dube *et al*., 2010).

Conclusion

Our results are relatively satisfactory with regards to the overall duration and situation of Breastfeeding, while complementary feeding status is unsatisfactory. Promotion of breastfeeding and especially complementary feeding with education, better counseling with parents and improvement in adherence to the WHO recommendations are still needed.

Acknowledgements

This study was supported by a grant from the Hamadan University of Medical Sciences in Iran. We gratefully acknowledge the time and effort given by the mothers and health workers to our studies.

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