

## Frequency of Exclusive Breastfeeding and Its Affecting Factors in Tehran, 2011

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**Abstract-** This study was designed to assess the frequency of exclusive breastfeeding in two health centers of Shahid Beheshti University of Medical sciences in Khak Sefid, Tehran, Iran. A total of 175 mothers, referred for the third dose of their infants' DPT vaccination program participated in the study by completing a questionnaire regarding characteristics of their pregnancy, delivery and exclusive breastfeeding within the first six months of birth. Two-variable analysis and logistic regression test were applied to evaluate factors influencing exclusive breastfeeding. Results indicated that the frequency of exclusive breastfeeding, i.e., breastfeeding within the first six months of birth without the use of any other food with or without vitamin supplementation, was 31.17% (95% CI=23.77% - 38.57%), which means 48 infants of 154 >179 days old. Among 154 infants (>179 days old) 48 did not have a history of being separated from their mothers. In logistic regression analysis, the variables which were directly associated with exclusive breastfeeding, with 0.05 significance level of alpha, included breastfeeding within the first hour of birth, eight times or more breastfeeding per day and receiving breastfeeding education during pregnancy. Variables with a negative association with breastfeeding included lack of breast milk, presence of a breast problem that could hinder breastfeeding, bottle feeding, physician or family's advice not to breastfeed and infant's refusal to breastfeed. Frequency of breastfeeding within the six months of birth is less than similar frequencies which are obtained by asking about breastfeeding on the day of the interview. It is recommended to apply real frequency for assessment, evaluation and programming of exclusive breastfeeding during the first six months of birth.

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### Introduction

Infancy is one of the most sensitive stages of life which demands accurate and even meticulous care. After-birth nutrition and the first years of life are the two influencing factors of a healthy growth and development of infants. Breastfeeding, on its own, is able to meet all nutritional requirements of infants from the birthday to the end of the sixth month of life (1). The World Health Organization (WHO), since 1991, has defined exclusive breastfeeding – that is the infant only receives breast milk without any additional food or drink, not even water. In exclusive breastfeeding, the infant can receive vitamins, minerals and medication but water, fruit juice

or other liquid intake, formula and complementary foods should be avoided. Mothers' awareness regarding effective care during this period of infant's life as well as changing or even discarding wrong beliefs, traditions and attitudes and increasing maternal self-confidence (in terms of infant care) are all of paramount importance, and have a great influence on exclusive breastfeeding. Recent studies show that the early initiation of breastfeeding can reduce neonatal mortality to 22% (2). Breastfeeding has been included in health programs of the Ministry of Health (MOH) of Iran in recent years. Several studies reported that different factors influence non-exclusive breastfeeding including mother's belief regarding her insufficient milk, lack of family support to

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provide a favorable condition for breastfeeding, return to work after delivery (3). Moreover, providing necessary education during pregnancy and quickly after delivery, infant's health, number of children and mother's age are some of the most influential factors in selecting feeding method (4). Mothers, in pregnancy, receive advertisements from formula producing companies, information regarding complementary foods, different types of formula and feeding accessories, while they are not informed about breast pump, milk storage and anything that could help exclusive breastfeeding (5). Education and practice concerning skin contact, mother and baby care and avoiding complementary foods unless in certain medical conditions play a role in breastfeeding and its success rate (6). American Academy of Family Physicians (AAFP), American Academy of pediatrics (AAP) and American Academy of breastfeeding medicine (AABM) unanimously claim that education and physicians' support of breastfeeding in intrapartum care has a supportive role to promote breastfeeding and improve educational methods in establishment and continuation of breastfeeding in America (7). Given the importance of exclusive breastfeeding and different statistics regarding the increase (8) or decrease in breastfeeding in recent years in Iran, this study was conducted to evaluate exclusive breastfeeding, associated factors and strategies to expand this essential issue of infancy.

Therefore, this study was designed to evaluate the present condition of exclusive breastfeeding in certain areas of Tehran, results of which may play a part in developing effective strategies for promoting breastfeeding.

## Materials and Methods

A total of 175 mothers from Khak Sefid (Tehran, Iran), referring to Imam Hassan and Nader public health and treatment centers for the third dose of infants' vaccination program from October to December 2011, entered the study by completing a questionnaire consisted of 56 questions concerning pregnancy, delivery and infant health including exclusive breastfeeding during the first six months of birth. The aforementioned centers are covered by the Shahid Beheshti University of Medical Sciences. This self-authorized questionnaire consisted of 52 or 56?? Questions considering mother and infant's demographic information, obstetric and delivery history as well as education received by mother. Obstetricians and nurses are working in the so-called centers, having passed two

sessions of education within 15 days, collected data about 50 participants as a pilot project. Afterwards, the final questionnaire was developed and made available for the interviewers in charge of collecting data.

To the calculated frequency of exclusive breastfeeding, 21 infants < 180 days old or history of being separated from the mother were excluded from the population denominator of the study. Use of vitamin supplementation was not considered in this calculation. However, frequency of exclusive breastfeeding with or without the use of herbal medicine was measured.

The *t*-test and Odds ratio were applied for the two-variable analysis and logistic regression test in a multi-variable analysis in order to evaluate the correlation between the independent variables and exclusive breastfeeding. Independent variables in a two-variable equation with  $P < 0.2$  entered the regression model. As is, and perfect predictor variables were excluded from the final model. Data were kept confidential and analyzed by Stata V.9.

## Results

The average age of participants was  $27.01 \pm 5.36$  years old with the mean marriage age of  $20.50 \pm 4.01$  years old and  $1.52 \pm 0.68$  times of pregnancy. Diploma was the most frequent degree of education (47.43%), and 111 participants had diploma or higher degree of education. A total of 137 mothers (78.29%) received breastfeeding education via classes held in the hospital (61.31%) and health care centers' staff (33.58%), were the most frequent sources of education. Thus, more than one source of education was used. 17 mothers had a history of the infant-mother separation (9.77%). Among 175 participants, 54 (30.86%) had vaginal delivery, 121 (69.14%) (95% CI=62.23%-75.05%) underwent caesarean section, 41 (23.43%) had general and 80 (45.71%) had local anesthesia. None of the 1 deliveries occurred out of the hospital. Forty-eight (27.43%) mothers had their last delivery in Arash educational hospital and 29 (16.57%) in Pars or Al-Qadir private hospitals.

Frequency of exclusive breastfeeding (breast milk only within the first six months of birth with or without vitamin supplement) was seen in 48 infants of 154 with more than 179 days of age and no history of mother-infant separation (31.17%, 95% CI=23.77%- 38.57%). To the calculated frequency of exclusive breastfeeding, 21 infants with less than 180 days of age and history of mother-infant separation were excluded from the denominator population. Also, 36 (23.38%) infants of 154

(prone to exclusive breastfeeding) had been exclusively breastfed within the first six months of life without

receiving vitamin supplementation, which would even be better if they did.

**Table 1. Logistic regression test of exclusive breastfeeding**

variable	Variable levels	Exclusive breastfeeding (percentage) absolute frequency		Two-variable analysis		Multi- variable analysis	
		Yes	No	Odds ratio (95% CI)	P- value	Odds ratio (95% CI)	P- Value
<b>Mother's history of being breastfed</b>	No	46 (95.8)	113 (89.0)	2.85	0.16	4.50	0.24
	Yes	2 (4.2)	14 (11.0)	( 0.61-26.7)	--	( 0.37-55.4)	--
<b>History of previous breastfeeding</b>	Yes	27 (56.3)	46 (36.2)	2.24	0.01	3.96	0.17
	No	21 (43.7)	81 (63.8)	(1.1-4.71)	--	( 0.54-29.11)	--
<b>Receiving breastfeeding education in pregnancy</b>	Yes	27 (56.3)	24 (18.9)	5.52	0.0000	9.56	0.009
	No	21 (43.7)	103 (81.1)	(52.2 -12.11)	--	(1.8-51.7)	--
<b>Presence of a company in breastfeeding education</b>	Yes	35 (72.9)	10918 (85.8)	0.44	0.04	2.20	0.35
	No	13 (27.1)	(14.2)	(0. 18-1.10)	--	(0.4- 11.8)	--
<b>Type of hospital</b>	Educational	9 (18.8)	39(30.7)	1.92	0.11	1.69	0.51
	Non-educational	39(81.2)	88 (69.3)	(0.81-4.94)	--	(0.35-8.31)	--
<b>Breastfeeding in the first hour of birth</b>	Yes	33 (68.8)	66 (52.0)	2.03	0.04	*	*
	No	15 (31.2)	61 (48.0)	(0.96-43.4)	--	--	--
	8 times or more	48 (32.2)	101 (79.5)	25.3	0.0007	*	*
<b>Times of breastfeeding per day</b>	Less than 8 times	0 (0.0)	26 (20.5)	(3.17 -30.2)	--	--	--
<b>Taking medications for stimulating milk production</b>	Yes	7 (14.6)	43 (33.9)	0.33	0.01	1.09	0.93
	No	41 (85.4)	84 (66.01)	(0.12-0.84)	--	(0.15-7.89)	--
<b>Lack of breast milk</b>	Yes	0 (0.0)	23 (18.1)	0.04	0.0000	*	*
	No	48 (100)	104 (81.9)	(0.0-0.37)	--	--	--
<b>Presence of a breast problem which could hinder breastfeeding</b>	Yes	0 (0.0)	24 (18.9)	0.04	0.001	*	*
	No	48 (100)	103 (81.1)	(0.0-0.35)	--	--	--
<b>Use of bottle feeding</b>	Yes	0 (0.0)	61 (48.0)	0.01	0.0000	*	*
	No	48 (100)	66 (52.0)	(0.0-0.09)	--	--	--
<b>Physician's advice not to breastfeed ++</b>	Yes	1 (2.1)	70 (55.1)	0.02	0.0000	0.01	0.000
	No	47 (97.9)	57 (44.9)	(0.002-0.17)	--	(0.001-0.013)	--
<b>Infant's refusal to breastfeed</b>	Yes	2 (4.2)	39 (30.7)	0.09	0.002	0.04	0.003
	No	46 (95.8)	88 (69.0)	(0.01-0.41)	--	--	--

+Breastfeeding education out of pregnancy period or absence of education

++Family or physician's advice not to breastfeed

\* Excluded variables from the final model of the multi- variable analysis

That is to say, of 48 exclusively breastfed infants 12 or one fourth had received vitamin supplementation, and 36 or three-fourths had not. In addition, 60 infants (38.96%) of 154 (prone to exclusive breastfeeding) had been breastfed with or without formula and other herbal medication, but surely they had not received any other food supplement.

The most prevalent reasons for use of any food supplement other than breast milk in the first 180 days of birth were physician's advice (28.13%), crying and agitation (26.88%) and family advice (21.88%). Seventy-three (41.71%) mothers had a history of breastfeeding. The most prevalent reasons for termination of breastfeeding before 2 years of age were lack of mother's tendency to breastfeeding (25.93%) and an insufficient amount of breast milk (20.37%). A total of 137 mothers (78.29%) received breastfeeding education. According to mother's view, the most effective method was face education (63.43%). 56.57% of mothers had their first time of breastfeeding within the first hour after delivery, and 92.00% first breastfed their infants during the first 24 hours of birth. Fifty (28.90%) of mothers received medications for stimulating milk production (77.36%). The mean age of infants was 184 days (120-205 days). 41 infants (24.70%) had a history of breastfeeding refusal; the most prevalent reasons for which were infant's naughtiness (36.84%), nasal congestion (22.81%), local pain in the site of vaccination (14.04%) and flat or retroverted nipple (10.53%).

Table 1 shows variables in logistic regression test, which are directly associated with exclusive breastfeeding, with 0.05 significance level of alpha including breastfeeding within the first hour of birth, 8 or more times of breastfeeding per day and receiving breastfeeding education in pregnancy. Variables negatively correlated with exclusive breastfeeding were lack of breast milk, presence of a breast problem that could hinder breastfeeding, bottle feeding, physician or family's advice and infant's refusal. Value of Pseudo R Square in the final model was 0.7.

## Discussion

Frequency of breastfeeding in the current study was 31.17%. In a study (2006) carried out in seven states of the US, less than 30% of six-month infants were fed by MARD milk (9). However, the mean of exclusive breastfeeding in the first six months of birth in some states of the US is merely 6.9% (10). Although 68% of mothers had already started breastfeeding, the highest

percentage of exclusive breastfeeding within the first six months of birth was 25.3% in Washington DC, USA, and the lowest was 4.6% in Mississippi, USA. Overall, frequency of breastfeeding in the USA is 72.7%, but exclusive breastfeeding within the first six months of age is less than 20% (10). Although 76% of women in England start to breastfeed, this figure drops to 48% after six weeks, and only 25% continue breastfeeding until the end of the sixth month. According to reports from USA and England, supporting and educating mothers play an effective role to increase these figures (10,11).

This study indicated that the factors which positively affect exclusive breastfeeding are breastfeeding within the first hour of birth, 8 or more times of breastfeeding per day and providing mothers with education on breastfeeding during pregnancy. On the other hand, several factors such as lack of breast milk, presence of a breast problem, bottle feeding, family and physician's advice not to breastfeed and infant's refusal had a negative effect on exclusive breastfeeding. Other studies have shown different factors affecting this issue. Coutinho *et al.*, designed a study in Brazil to evaluate the effect of education in baby-friendly hospitals to promote breastfeeding, in which education within the first 48 hours of birth? Was shown to be highly effective (12).

However, results of a study which examined performance of such hospitals in Tehran were not favorable (13). Results of a study in Gorgan, Tehran, Iran, showed that 44.4% of infants received completely exclusive breastfeeding, and the most important reason to quit breastfeeding was infant's stomachache and grandmother's advice not to breastfeed (14). The study conducted in Mazandaran, Tehran, Iran, showed that initiation of breastfeeding immediately after birth was 99.6%, and its continuation until six months of age was reported to be 99.2%. However, exclusiveness of breastfeeding was not examined (15).

Several studies concerning initiation of breastfeeding and its duration were conducted in Tehran and other provinces, some of which have only examined the association of breastfeeding with one affecting factor. Limited studies have evaluated the prevalence of exclusive breastfeeding and its affecting factors.

Given the importance of breastfeeding in the first hour of birth as well as proper education to promote breastfeeding, authors hope to seek effective measures for development of this issue by means of educational interventions.

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