

# The Frequency and Effective Factors of Exclusive Breastfeeding for the First Six Months in Babies Born in Erzincan Province in 2016

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**Cite this article as:** Salcan S, Topal I, Ates I. The Frequency and Effective Factors of Exclusive Breastfeeding for the First Six Months in Babies Born in Erzincan Province in 2016. *Eurasian J Med* 2018. DOI 10.5152/eurasianjmed.2018.18310

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Received: August 7, 2018

Accepted: August 9, 2018

Available Online Date: November 30, 2018

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DOI 10.5152/eurasianjmed.2018.18310

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## ABSTRACT

**Objective:** The World Health Organization emphasizes that it is essential that infants be fed only breast milk for the first six months. This study is designed to investigate the frequency of exclusive breastfeeding and the related factors during the first six months in infants born in 2016 in Erzincan province.

**Materials and Methods:** Our study is a cross-sectional study, and the study population consisted of 2166 babies born in 2016, and registered with the family physicians. The sample size was calculated as 635 with a 95% confidence interval and 3% error margin, assuming that the frequency of exclusive breastfeeding in first six months is 30%. The family physicians were randomly selected. Mothers included in the study were determined by random sampling method. The data were collected by interviewing the mothers individually, and then analyzed in the SPSS (IBM, SPSS Corp.; Armonk, NY, USA) 21.0 package program.

**Results:** In this study, the rate of infants who received only breast milk for the first six months was calculated as 45.7%. The average period of exclusive breastfeeding was  $4.4 \pm 2.03$  months. It was observed that the children of mothers with prenatal and postnatal education received only breast milk for longer time. Also, mothers who do not work, those who do not use tobacco after birth, and those without depression also fed their children with only breast milk for longer time. In pacifiers or bottle users, infants receiving other nutrients after birth had a lower rate of exclusive breastfeeding for the first six months.

**Conclusion:** In our study, it has been observed that to increase the rate of exclusive breastfeeding, it is necessary to increase the education before and after the birth; to not use any other nutrients, pacifier, or bottle after delivery; and to spend adequate time with the baby.

**Keywords:** Exclusive breastfeeding, frequency, effective factors

## Introduction

The breast milk is one of the most important nutrient sources for the growth and development of a healthy baby in the first year of his/her life. Breast milk is a natural product that meets all nutritional needs of the baby for the first four to six months. It is economical, clean, and always available at proper temperature. The breast milk is secreted in the proper quantity and quality according to the needs of each baby. Even the ingredients of the milk show variations according to the time of birth [1]. Furthermore, it meets the varying needs of the baby during the growing-up period [2]. In addition to these benefits of breastfeeding, it has been proven that the breast milk has long-term protective effects on chronic illnesses, and positively affects the cognitive development [3]. The antibodies the breast milk contains ensure immunity against infectious diseases, and reduce the prevalence of nutritional deficiencies. Other important fact is that breastfeeding helps to develop a close bond between mother and child [4].

Breastfeeding is also beneficial for mother's health. It helps to reduce postpartum complications, and allows the mother to return to the bodyweight before the pregnancy. Breastfeeding reduces the risk of breast cancer and ovarian cancer. It does not require any preparation, and does not add any additional burden on the family budget as it is free [5-8].

The World Health Organization (WHO), the United Nations Children's Fund (UNICEF), and the American Academy of Pediatrics report that infants need only breastfeeding for the first six months, and after that adequate supplementary nutrition is recommended [9-11]. It is estimated that 1.3 million baby deaths per year can be prevented by feeding only mother's milk for the first

<b>Table 1. Characteristics of the mother and the child</b>			
Mother	n (%)	Babies	n (%)
<u>Educational status</u>		<u>Type of delivery</u>	
Illiterate	8 (1.3)	Vaginal	248 (39.1)
Literate	15 (2.4)	C/S	387 (60.9)
<u>Primary</u>		<u>Time of delivery</u>	
High school	219 (34.5)	Pre-term	116 (18.3)
University	212 (33.4)	Term	494 (77.8)
<u>Monthly income</u>		<u>Post-term</u>	
<2000 TL	251 (39.5)		25 (3.9)
2001-4000 TL	264 (41.6)	<u>Pacifiers</u>	
>4001	120 (18.9)	Yes	313 (49.3)
<u>Working status</u>		<u>No</u>	
Yes	138 (21.7)		322 (50.7)
No	497 (78.3)	<u>Bottle use</u>	
		Yes	289 (45.5)
		No	346 (54.5)
		<u>Supplementary food</u>	
		0-4 months	72 (11.3)
		4-6 months	166 (26.1)
		6-8 months	379 (59.7)
		8 months and later	18 (2.1)

<b>Table 2. Characteristics of the mother related to this pregnancy</b>			
Characteristics	n (%)	Characteristics	n (%)
<u>Number of pregnancy</u>		<u>Postnatal support /assistance</u>	
1 <sup>st</sup> pregnancy	228 (35.9)	Yes	418 (65.8)
2 <sup>nd</sup> and later	407 (64.1)	No	217 (34.2)
<u>Planned pregnancy</u>		<u>Postpartum Depression</u>	
Yes	582 (91.7)	Yes	128 (20.2)
No	53 (8.3)	No	507 (79.8)
<u>Working in first six months after delivery</u>		<u>Prenatal breastfeeding training</u>	
Yes	71 (11.2)	Yes	468 (73.7)
No	564 (88.8)	No	167 (26.3)
<u>Postnatal tobacco use</u>		<u>Postnatal breastfeeding training</u>	
Yes	55 (8.7)	Yes	495 (78.0)
No	580 (91.3)	No	140 (22.0)

six months, which should then be followed by appropriate supplemental nutrients [12].

According to the Turkey Demographic and Health Survey (DHS) 2008 data, the rate of exclusive breastfeeding was 69%, while it was reported to be 58% in 2013 [4, 13]. This rate decreases as the age of baby increases, and decreases up to 10% in infants aged 4-5 months. This research also shows that 10% of infants who are younger than 2 months receive water, water-including fluids, and juice in addition to breast milk.

This study is designed to investigate the frequency of exclusive breastfeeding during the first six months, and the factors that affect it in infants born in 2016 in Erzincan province.

### Materials and Methods

Our study is a cross-sectional prevalence study conducted on infants born in 2016 in Erzincan province. According to the data obtained from the Erzincan Health Directorate, the number of babies born in 2016 in Erzincan province who were registered with the family physicians was

2166. The sample size was calculated using the Epi Tools Program. The rate of exclusive breastfeeding during the first six months was assumed 30%, and the sample size was calculated as 635 with 95% confidence interval and 3% error margin. The family physicians were randomly selected. Mothers included in the study were determined by the random sampling method. Written informed consent was obtained from mothers included in the study. The questionnaire contained questions about the sociodemographic characteristics of mothers, information about their pregnancy, and the baby's breastfeeding and nutritional status. The data were collected after obtaining the required permissions using face-to-face interviews in selected healthcare facilities between November 2017 and January 2018. Ethics committee approval was received for this study from the ethics committee of Erzincan University School of Medicine (Number: E.37842).

### Statistical Analysis

The collected data were evaluated using the IBM Statistical Package for the Social Sciences for Windows 21.0 program (IBM SPSS Corp.; Armonk, NY, USA). Descriptive statistics and chi-square test were used for data analysis.  $P < 0.05$  was defined as statistically significant.

### Results

The average age and the number of the children of the participating mothers were found to be  $30.1 \pm 5.3$  and  $2 \pm 0.93$ , respectively. When the characteristics of mother and infants are examined, it was revealed that 34% of mothers are primary school graduates, 41.3% of mothers had a monthly income between 2001 and 4000 TL, 61.2% of infants were born with cesarean section, and 52.4% was the rate of using pacifier and bottle (Table 1).

In Table 2, the characteristics of the mothers related to this pregnancy are summarized. According to the obtained data, 35.3% of the mothers were primipar, and 91.4% of them planned this pregnancy. In the first six months after delivery, 9.1% worked. Among them, 8.3% had smoked, and 20.2% experienced depression. A total of 73.8% and 74.3% had prenatal and postnatal breastfeeding training, respectively.

The proportion of infants who received only breast milk for the first six months was 45.7% (290). The average duration of feeding with only breast milk was  $4.4 \pm 2.03$  months. When asked why did they use additional nutrition during the first six months, they replied: absence/inadequate volume of breast milk, inadequate weight gain of the baby, crying of the baby, or discomfort of either mother or the baby in following rates, 58.6%, 15.9%, 7.6%, and 6.9%.

**Table 3.** The relationship between exclusive breastfeeding for first six months and the characteristics of mother and the baby

Characteristics	Exclusive breastfeeding for first six months, n (%)	p	Characteristics	Exclusive breastfeeding for first six months, n (%)	p
<u>Monthly income</u>		0.80	<u>Pacifiers</u>		0.002
<2000 TL	147 (58.6)		Yes	150 (47.9)	
2001-4000 TL	152 (57.6)		No	215 (66.8)	
>4001 TL	66 (55.0)		<u>Postnatal tobacco use</u>		0.002
<u>Working status</u>		0.30	Yes	21 (38.2)	
Housewife	291 (58.6)		No	344 (59.3)	
Working	74 (53.6)		<u>First time of breastfeeding</u>		0.11
<u>Type of delivery</u>		0.43	First hour	282 (59.7)	
Normal	147 (59.3)		1-3 h	59 (52.7)	
C/S	218 (56.3)		After 3 h	24 (47.1)	
<u>Time of delivery</u>		0.04	<u>Postpartum depression</u>		0.004
Pre-term	43 (36.8)		Yes	59 (46.1)	
Term	238 (48.3)		No	306 (60.4)	
Post-term	9 (36.0)		<u>Postnatal use of additional nutrients</u>		0.008
<u>Postnatal working status</u>		0.000	Yes	54 (46.2)	
Worker	23 (32.4)		No	311 (59.6)	
Non-worker	342 (60.6)		<u>Pacifiers</u>		0.000
<u>Postnatal education</u>		0.04	Yes	108 (37.4)	
Yes	295 (57.8)		No	257 (74.3)	
No	70 (50.0)				

When the sociodemographic characteristics of the mothers participating in the study were taken into account, no significant relationship between the age of the mother and the number of children ( $p=0.13$ ,  $p=0.58$ ; respectively) was observed. When the education level was assessed, university graduates had the highest rate of exclusive breastfeeding during the first six months after birth. This rate was found as 56% in mothers who received postnatal support/assistance. There was no significant relationship between education status and postpartum support/assistance and exclusive breastfeeding for the first six months. Although the relationship between monthly income, working status, and exclusive breastfeeding for the first six months was not significant, it was observed that the rate of receiving breast milk decreases as the income level increases, and this rate is higher in non-working mothers (Table 3). When prenatal and postnatal education status was assessed, it was found that the rate of exclusive breastfeeding was higher (58.1%) in mothers who received prenatal education, although it was not statistically

significant. However, this rate was significantly higher in mothers who received postnatal education ( $p=0.04$ ).

While there was no statistically significant difference in terms of maternal and postnatal characteristics between the first six months of breastfeeding and the type of delivery and planned pregnancy, there was a significant difference with the birth time, postnatal working status, postpartum smoking, and depression. In those who had a term birth, mothers who did not work during the postpartum period had a higher rate of exclusive breastfeeding ( $p=0.04$ ,  $p<0.01$ ). Similarly, in infants of mothers without smoking and depression, the rate of exclusive breastfeeding during the first six months was higher.

When postnatal nutritional status was examined, the rate of breastfeeding only during the first six months was higher in those who breast fed the baby within first hour after delivery. However, this difference was not statistically significant

( $p=0.10$ ). Infants who were not given any other food after birth were significantly more likely to receive only breast milk. There was a significant correlation between using pacifier or bottle and exclusive breastfeeding for the first six months ( $p<0.01$ ), and the rate of exclusive breastfeeding was found significantly lower in pacifier or bottle users (Table 3). There was no significant relationship between breastfeeding and breastfeeding frequency ( $p=0.14$ ). However, the rate of exclusive breastfeeding was found higher (60.6%) in mothers that breastfeed for 10-20 min.

## Discussion

It is very important to start breastfeeding early, and continue it for the first six months because of the positive effects of breastfeeding on infant, mother, and community health. It is expected that the mortality in children aged under 5 years will be reduced by 13% in developing countries by using exclusive breastfeeding for the first six months after birth [14].

Breast milk should be given to baby immediately within the first half hour after birth [1]. In our study, breastfeeding rates were 74.3% in the first hour, and the rate of exclusive breastfeeding during first six months was found to decrease as the duration of breastfeeding increased. In the study of Unsal et al. [15], the rate of breastfeeding was found to be 71.3% within the first hour, and it was observed that early breastfeeding positively affected exclusive breastfeeding for the first six months. This ratio was found to be 74.2% in the study of Catak et al. [16] conducted in Burdur. In a study conducted in the UK, it was reported that 77.7% of mothers started breastfeeding within the first hour after delivery [17]. In the study of Bolat et al. [18], the rate of starting to breastfeed within the first hour was found to be 56.9%, and it was found that the infants who were breast fed in the early period had an increased rate of exclusive breastfeeding during the first six months.

According to the 2013 report of TDHS, the rate of exclusive breastfeeding during the first six months was 30.1% [4]. This ratio was found to be 32.9% in the study of Arslan et al. [19] conducted in a family health center. In a cross-sectional study performed by Unsal et al. [15] on 5003 mothers, the ratio of exclusive breastfeeding for the first six months was reported as 8.7%. This rate was found to be 36% in a thesis conducted in Istanbul [20]. This rate was found to be 35.9% in a prevalence study conducted in Bangladesh, and 34.8% in a study conducted in Ethiopia [21, 22]. In our study, the rate of exclusive breastfeeding for the first six months was

found as 45.7%. This rate may be higher than that in other studies. We assert that the developments in mother- and baby-friendly hospitals may have caused this increase.

In our study, the rate of exclusive breastfeeding was found higher in mothers who had prenatal breastfeeding training. In the study of Seid et al. [22], the rate of exclusive breastfeeding was found 3.8 times higher in mothers who had training before the delivery. In the study of Onbasi et al. [23], the rate of exclusive breastfeeding during the first six months was significantly higher in mothers who received prenatal training. In our study, the rate of exclusive breastfeeding in the first six months was significantly higher in mothers who received postpartum education indicating that the training should not be limited to prenatal education, and postnatal education should also be added.

When the study group was assessed in terms of working status, the rate of exclusive breastfeeding was found significantly lower in those who worked after the delivery. In the study of Orun et al. [24], the rate of exclusive breastfeeding during the first one-and-a-half months was found significantly lower in those who worked after delivery when compared to that in housewives. In the study of Hossain et al. [21], it was reported that the rate of exclusive breastfeeding was 1.64 times higher in housewives.

According to the 2008 TDHS, 11% of pregnant women and 17% of lactating women smoke [13]. In our study, the rate of postpartum smokers was 8.7%, and the rate of exclusive breastfeeding was significantly lower in their infants. In the study of Haug et al. [25], the frequency and duration of breastfeeding were found significantly lower in smoking women, suggesting that nicotine has inhibitory properties on prolactin, and decreases the volume of breast milk. Similarly, the study of Lande et al. [26] showed that only non-smokers had significantly higher breastfeeding rates during the first four months than those who smoked. In our study, the rate of exclusive breastfeeding in the first six months was found to be significantly lower in mothers who had postpartum depression. In studies conducted in Canada and the United States, depressive mothers have been shown to be more unsuccessful in terms of breastfeeding [27, 28].

The study of Howard et al. [29] revealed that the use of pacifiers and feeding bottles negatively affects breastfeeding, and should not be used in breastfeeding infants. In some studies, their use has been shown as the reason for the early start of supplementary food [20, 30]. In

our study, the rate of exclusive breastfeeding in the first six months was significantly lower in infants who were given pacifiers, feeding bottles, and feedings other than breast milk (water, zembem, food, etc.). Similarly, in the studies of Unsal et al. [15] and Arslan et al. [19], the infants using pacifier and bottle had significantly lower rates of exclusive breastfeeding during the first six months.

As a result, postpartum working, smoking and depression, receiving additional nutrients other than the breast milk, and pacifier and bottle use had a negative effect on exclusive breastfeeding during the first six months. To better understand the importance of breast milk, prenatal education should be increased, and maintained postnatally. It is important to educate the mother about the effects of pacifiers and bottle use on breastfeeding. They should be informed and convinced that there is no need for any additional nutrients including water for the first six months. It should be acknowledged that the maternal psychological support is necessary, and the mother should spend adequate time with her baby to ensure the continuity of breastfeeding, and the regulation of labor policies to create the necessary time.

**Ethics Committee Approval:** Ethics committee approval was received for this study from the ethics committee of Erzincan University School of Medicine (Number: E.37842)

**Informed Consent:** Written informed consent was obtained from the patients who participated in this study.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept – I.T.; Design – S.S.; Supervision – I.A., I.T.; Resource – S.S., I.T.; Materials – S.S., I.T.; Data Collection and/or Processing – S.S., I.A.; Analysis and /or Interpretation – S.S.; Literature Search – I.T., I.A.; Writing –S.S. I.T., I.A.; Critical Reviews – I.A.

**Conflict of Interest:** The authors have no conflicts of interest to declare.

**Financial Disclosure:** The authors declared that this study has received no financial support.

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