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**Title:** The frequency and effective factors of exclusive breastfeeding for the first six month in babies born in Erzincan province in 2016

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### Introduction:

The breast milk is one of the most important nutrient sources when baby grows and develops in a healthy way in the first year of life. Breastmilk is a natural product that meets all nutritional needs during the first 4 to 6 months of the baby's life that contains growth factors. In addition, breast milk is economical, clean and always available for the baby 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 can 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 beneficial effects of breastfeeding, it has been proven that the breast milk has long-term protective effects on chronic illnesses and affects the cognitive development in a positive way [3]. Through the antibodies that the breast milk contains, immunity against infectious diseases is ensured and the prevalence of nutritional deficiencies is reduced. Another important feature that should not be underestimated is the fact that the breastfeeding helps to develop a close connection between mother and child [4].

Breastfeeding also has important benefits for mother's health. It helps to reduce postpartum complications and allows the mother to return the bodyweight before the pregnancy. Breastfeeding reduces the risk of breast cancer and over 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 (AAP) report that infants only need breastfeeding for the first six months and that adequate supplementary nutrition is recommended after the first six months. It is estimated that 1.3 million baby deaths per year can be prevented by feeding only mother's milk for the first six to six months, followed by appropriate supplemental nutrients [12].

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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 the year of 2013 [4, 13]. This rate decreases as the age of baby increases, and is lowered up to 10% in infants aged 4-5 months. This research also shows that 10% of infants who are younger than 2 months old 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 6 months and the factors that affects 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, it was determined that the number of babies born in 2016 in Erzincan province who were registered to the family physicians was 2166. The sample size was calculated using the Epi Tools Program. The rate of exclusive breastfeeding during the first 6 months was assumed to be 30% and the sample size was calculated as 635 with 95% confidence interval and 3% error margin. The family physicians who were randomly selected. Mothers included in the study determined by random sampling method. The questionnaire contains questions about the sociodemographic characteristics of mothers, information about their pregnancy, and the baby's breastfeeding and nutritional status. The data were collected using the face-to-face interview technique in selected healthcare facilities between November 2017 and January 2018, after obtaining the required permissions. The collected data were evaluated using the SPSS for Windows 21.0 program (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.). 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 their 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 and 41.3% of mothers had a monthly income between 2001-4000 TL; 61.2% of infants were born with cesarean section, and the rate of using pacifier and bottle was 52.4% (Table 1).

In Table 2, the characteristics of the mothers related to this pregnancy are summarized. According to the table data, 35.3% of the mothers were primipar and 91.4% of them planned this pregnancy. In the first 6 months after delivery, 9,1% worked. 8.3% of them had smoked and 20.2% of them experienced depression. 73.8% and 74.3% had prenatal and postnatal breastfeeding training, respectively.

The proportion of infants who received only breast milk for the first 6 months was 45.7% (290). The average duration of feeding with breast milk only was  $4.4 \pm 2.03$  months. When asked why they used additional nutrition during the first 6 months, they replied as absence/inadequate volume of breast

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milk, inadequate weight gaining of the baby, crying of the baby or either mother or the baby was uncomfortable in following rates, 58.6%, 15.9%, 7.6% and 6.9%.

When the socio-demographic characteristics of the mothers participating in the study were taken into account; there was no significant relationship between the age of the mother and the number of children (p: 0,13, p: 0,58; respectively). University graduates had the highest rate of exclusive breastfeeding during the first 6 months after birth when the education level was assessed. This rate was found as 56% in mothers received postnatal support / assistance. There was no significant relationship between education status and postpartum support /assistance and exclusive breastfeeding for the first 6 months. Although the relationship between monthly income, working status and exclusive breastfeeding for the first 6 months were not significant, it was observed that the rate of receiving breast milk decreases as the income level increase 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 received prenatal education, although it was not statistically significant. However, this rate was significantly higher mothers received postnatal education (p: 0.04).

While there was no statistically significant difference between the first 6 months of breastfeeding and the type of delivery and planned pregnancy in terms of maternal and postnatal characteristics; 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, infants of mothers without smoking and depression the rate of exclusive breastfeeding during the first 6 months was higher.

When postnatal nutritional status was examined, the rate of breast feeding only during the first 6 months was higher in those who breast fed the baby within first 1 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 breast milk only. There was a significant correlation between using pacifier or bottle and exclusive breastfeeding for the first 6 months (p <0,01) and the rate of exclusive breastfeeding was found as 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 as higher (60,6%) in mothers that breastfeed for 10 -20 minutes.

# Discussion:

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

Breastmilk 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 6 months was found to be decreased as the duration of breastfeeding increase. In the study of Ünsal et al. the rate of breastfeeding was found to be 71.3% within the first hour and it was observed that

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early breastfeeding had a positive effect on exclusive breastfeeding for the first 6 months [15]. This ratio was found to be 74.2% in the study of Çatak et. al conducted in Burdur. [16] 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. the rate of starting to breastfeed within the first hour was found to be 56.9% and it was found that infants who started to breast-feed in the early period had an increased rate of exclusive breastfeeding during the first 6 months [18]

According to the 2013 report of TDHS, the rate of exclusive breastfeeding during the first 6 months was 30.1% [4] This ratio was found to be 32.9% in the study of Arslan et. al. conducted in a family health center [19]. In a cross-sectional study performed by Ünsal et. al. including 5003 mothers, the ratio of exclusive breastfeeding for the first six months was reported as 8.7% [15]. 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 6 months was found as 45.7%. This rate may be higher than many studies. We assert that the developments in mother and baby friendly hospitals may have caused the increase in this area.

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., the rate of exclusive breastfeeding was found 3.8 times higher in mothers who had training before the delivery [22]. In the study of Onbasi et. al., it was stated that the rate of exclusive breastfeeding during the first 6 months was significantly higher in mothers who received prenatal training [23]. In our study, the rate of exclusive breastfeeding in the first 6 months was significantly higher in mothers received postpartum education indicating that the training should not be limited to prenatal education and postnatal education should be added.

When the study group was assessed in terms of working status, the rate of exclusive breastfeeding was found as significantly lower in those who worked after the delivery. In the study of Orun et al, the rate of exclusive breastfeeding during the first 1-1,5 months was found as significantly lower in those who worked after delivery when compared to housewives [24]. In the study of Hossain et al., it was reported that the rate of exclusive breastfeeding was 1.64 times higher in housewives [21].

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 the infants of smokers. In the study of Haug K et al., the frequency and duration breastfeeding were found as significantly lower in smoking women, suggesting that nicotine has inhibitory properties on prolactin and decreases the volume of breast milk [25]. Similarly, the study of Lande et al. showed that non-smokers only had significantly higher breastfeeding rates during the first 4 months than those who smoked [26]. In our study, the rate of exclusive breastfeeding in the first 6 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 Haward et al revealed that the use of pacifiers and feeding bottles negatively affects breastfeeding and should not be used in breastfeeding infants [29]. In some studies, the use of pacifiers and bottles 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 6 months was significantly lower in

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infants who were given pacifiers, feeding bottles and feedings other than breast milk (water, zemzem, food, etc.). Similarly, in the studies of Unsal et al. and Arslan, it was stated that infants using pacifier and bottle had significantly lower rates of exclusive breastfeeding during the first 6 months [15, 19].

As a result; postpartum working, smoking and depression, receiving additional nutrients other than the breast milk, pacifier and bottle use had a negative effect on using exclusive breastfeeding during the first 6 months. In order 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 and they should be informed and convinced on that there is no need for any additional nutrients including water for the first 6 months. It should be acknowledged that the maternal psychological support is necessary and the mother should spend an adequate time with her baby in order to ensure the continuity of breastfeeding, and the regulation of labor policies to create the necessary time.

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Table 1: Characteristics mother and the child

Mother	N(%)	Babies	N(%)	
<b>Educational Status</b>		Type of Delivery		
Illiterate	8 (1,3)	Vaginal	248(39,1)	
Literate	15 (2,4)	C/S	387(60,9)	
Primary	219(34,5)	Time of Delivery		
High school	181(28,5)	Preterm	116(18,3)	
University	212(33,4)	Term	494(77,8)	
<b>Monthly Income</b>		Post-term	25 (3,9)	
<2000 TL	251(39,5)	<u>Pacifiers</u>		
2001-4000 TL	264(41,6)	Yes	313(49,3)	
4001<	120(18,9)	No	322(50,7)	
Working status		Bottle Use		
Yes	138(21,7)	Yes	289(45,5)	
No	497(78,3)	No	346(54,5)	
		<b>Supplementary Food</b>	Supplementary Food	
		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)	

Table:2 Characteristics of the mother related to this pregnancy

Characteristics	N(%)	Characteristics	N(%)	
Number of Pregnancy		Postnatal support		
		/assistance		
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)	
Planned Pregnancy		Postpartum		
		Depression		
Yes	582(91,7)	Yes	128(20,2)	
No	53 (8,3)	No	507(79,8)	
Working in first 6		Prenatal breastfeeding		
months after deliver	y	training		
Yes	71(11,2)	Yes	468(73,7)	
No	564(88,8)	No	167(26,3)	
	· · · · ·	Postnatal		
Postnatal tobacco us	e	breastfeeding traini	ing	

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Yes	55 (8,7)	Yes	495(78,0)
No	580(91,3)	No	140(22,0)



Table 3. The relationship between exclusive breastfeeding for first 6 months and the characteristics of mother and the baby

Characteristics	Exclusive breastfeeding for first 6 months n(%)	р	Characteristics	Exclusive breastfeeding for first 6 months n(%)	р
Monthly		0,80	<u>Pacifiers</u>		0,002
<u>Income</u>					
<2000 TL	147 (58,6)		Yes	150(47,9)	
2001-4000 TL	152(57,6)		No	215(66,8)	
4001 TL<	66(55,0)		<b>Postnatal Tobacco</b>		0,002
			<u>use</u>		
<b>Working Status</b>		0,30			
			Yes	21(38,2)	
Housewife	291(58,6)		No	344(59,3)	
Working	74(53,6)		First time of		0,11
			breastfeeding		

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<u>Type of</u> Delivery		0,43	First hour	282(59,7)	
Normal	147(59,3)		1-3. hours	59(52,7)	
C/S	218(56,3)		After 3 hours	24(47,1)	
			<u>Postpartum</u>		
Time of		0,04	<u>Depression</u>		0,004
<u>Delivery</u>					
Preterm	43(36,8)		Yes	59(46,1)	
Term	238(48,3)		No	306(60,4)	
Post-term	9(36,0)				
<u>Postnatal</u>		0,000	Postnatal use of		0,008
working status			<u>additional</u>		
			<u>nutrients</u>		
Worker	23(32,4)		Yes	54(46,2)	
Non-worker	342(60,6)		No	311(59,6)	
<u>Postnatal</u>		0,04	<u>Pacifiers</u>	108(37,4)	0,000
<b>Education</b>			Yes	257(74,3)	
Yes	295(57,8)		No		
No	70(50,0)				

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