

Exclusive Breastfeeding Duration, Breastfeeding Continuation and Associated Factors Among Turkish Mothers: A Baby-friendly Hospital Study From Konya, Turkey

Türk Anneler Arasında Sadece Anne Sütüyle Besleme Süresi, Emzirmenin Devamı ve İlişkili Faktörler: Türkiye, Konya'da Bir Bebek Dostu Hastane Çalışması

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Abstract

Introduction: Identifying and understanding the factors on exclusive breastfeeding duration and continuation at the community level in a clinician's setting is vital for designing interventions to improve. The objective of this study was to evaluate the factors associated with exclusive breastfeeding time and total continued breastfeeding period among mothers in the middle region of Turkey.

Materials and Methods: A questionnaire form including; information about women's and children's socio-demographic characteristics and breastfeeding habits was used.

Results: A total of 1041 mothers were included in the study. Exclusive breastfeeding time and total continued breastfeeding period were found as 5.45 ± 1.98 /month and 17.56 ± 8.17 /month, respectively. On the other hand, most of the mothers (74.9%) exclusively breastfed their children more than 6 months while only 35% of mothers continued breastfeeding over 24 months. Current study showed that types of first prelacteal feeds, maternity age (30-40 years of age), socioeconomic status, single child birth and doctor/nurse as the source of knowledge about benefits of breastfeeding were strongly associated with the exclusive breastfeeding time of ≥ 6 months. In addition, young mothers (20-30 years of age), primiparous, breast milk as the first prelacteal feed, lower educational level, low socioeconomic status, nuclear type of family status and doctor/nurse as the source of knowledge about benefits of breastfeeding were found to be strongly associated with total continued breastfeeding period of ≥ 24 months.

Conclusions: Certain factors can be associated with exclusive breastfeeding duration and breastfeeding continuation. So, community-based proposals should be prepared by working on the determined factors to improve breastfeeding duration.

Öz

Giriş: Bir toplumda, sadece anne sütü ile besleme süresi ve bunun devam ettirilmesine ilişkin faktörlerin belirlenmesi ve anlaşılması, anne sütü ile besleme süresini iyileştirmeye yönelik müdahalelerin planlanması açısından hayati önem taşır. Bu çalışmanın amacı, Türkiye'nin orta bölgesindeki annelerin sadece anne sütüyle besleme süresi ve toplam devam eden emzirme süresi ile ilişkili faktörleri değerlendirmektir.

Gereç ve Yöntem: Çalışmaya alınan kadın ve çocukların sosyo-demografik özellikleri ve emzirme alışkanlıklarını içeren bir anket formu kullanılmıştır.

Keywords

Exclusive breastfeeding duration, associated factors, breastfeeding continuation, community, country

Anahtar kelimeler

Sadece anne sütüyle besleme, ilişkili faktörler, emzirmeye devam edilmesi, toplum, ülke

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Bulgular: Çalışmaya toplam 1041 anne dahil edildi. Sadece anne sütüyle besleme süresi ve toplam devam eden emzirme süresi sırasıyla $5,45\pm 1,98$ ay ve $17,56\pm 8,17$ ay olarak bulundu. Diğer taraftan, annelerin çoğu (%74,9) çocuklarını 6 aydan fazla anne sütüyle beslerken, annelerin yalnızca %35'i 24 ay boyunca emzirmeye devam etmişti. Mevcut çalışma; ilk beslenme türü, analık yaşı (30-40 yaş), sosyoekonomik durum, tek çocuk doğum ve emzirmenin faydaları hakkında bilgi kaynağı olarak doktor/hemşirenin olmasının 6 ay≤ sadece anne sütüyle beslenme süresi ile kuvvetli olarak ilişkili olduğunu göstermiştir. Ayrıca, genç anneler (20-30 yaş), primiparlar, ilk besin olarak anne sütü verilmesi, düşük eğitim düzeyi, düşük sosyoekonomik durum, çekirdek aile durumu ve emzirmenin faydaları hakkında bilgi kaynağı olarak doktor/hemşirenin olmasının 24 ay≤ toplam emzirme süresi ile güçlü bir şekilde ilişkili olduğu bulunmuştur.

Sonuç: Belirli faktörler, sadece anne sütüyle besleme süresi ve emzirmenin devamı ile ilişkili olabilir. Bu nedenle emzirme süresini iyileştirmek için belirlenen faktörler üzerinde çalışılarak toplum temelli öneriler hazırlanmalıdır.

Introduction

Breast milk is the universally preferred nutrition for the newborn human infant. All mothers are encouraged to exclusively breastfeed by health care professionals and government policies. The benefits are numerous and include nutritional, psychological, convenient/ready to feed, economical, ecological and immunological (1). Events that influence the nutritional profile of breast milk for the neonate include pre-conceptual dietary habits, through pregnancy and finally to postpartum and lactation (2). Breastfeeding has also been shown to improve neurodevelopment outcomes (3), decrease gastrointestinal and upper respiratory infections (4) and lower the risk of sudden infant death syndrome (5,6).

Exclusive breastfeeding without supplementation according to the World Health Organization is recommended for the first 6 months of life (7). Also, Republic of Turkey Ministry of Health policy on exclusive breastfeeding stresses on the fact that infants should be breastfed from birth till they are 6 months old (8). Breastfeeding is considered one of the strategies that most contributes to the prevention of child death, with the potential to save more than 800,000 children under 5 years of age per year worldwide (9). In addition, a systematic review of the literature strongly encourages continued breastfeeding due to the known empirical benefits such as improved immune and gastrointestinal function, enhanced dietary nutrition, and overall psychological well-being for both the infant and mother (7,10). The literature describes numerous factors associated with not initiating exclusive breastfeeding or with discontinuing it before age 6 months that are lower maternal age, low socioeconomic status and educational attainment, unsupportive work environment, inadequate care

during birth and in the postnatal period, low birth weight, perceived insufficient milk supply, previous negative experiences with breastfeeding or attitudes regarding exclusive breastfeeding before birth (11-13). Consequently, it has been observed that standardized interventions to promote the practice and increase the duration of breastfeeding do not reach the same level of effectiveness when they are implemented in different communities (14). For this reason, determining the relative importance of the factors on exclusive breastfeeding is essential.

Cross-sectional and case-control studies from Turkish mothers revealed that the most frequently reported problems were having breastfeeding problem (24.5%) (15), inadequate weight gain of newborn (15.7%) (16), lack of knowledge and experience about breastfeeding (17.8%) (17). Again, these studies showed that women stated the problems about the nipple (7.7%) (16), pain/sensitivity (3.9%) (18), swelling/fullness/engorgement (10.8%) (19), and mastitis (5.6%) (19). So, these studies showed that women experienced a lot problem with breastfeeding and that prenatal education, counseling and monitoring was used in reducing problems.

Identifying and understanding the effect of various factors contributing to breastfeeding practice at the community level is vital for designing interventions to address related problems. Taking all of these factors into account, we developed a questionnaire form to investigate the variables that influence exclusive breastfeeding. The objective of this study was to evaluate the factors which effect the exclusive breastfeeding time ≥ 6 months and total continued breastfeeding period ≥ 24 months among mothers with children aged over than 24 months in the middle region of Turkey.

Materials and Methods

Study design

A prospective study was conducted between October 2019 and March 2020 at a secondary healthcare hospital in Turkey. The hospital received baby friendly hospital status in 2003 and since then, it has been offering postnatal breastfeeding education for mothers. The mothers with an age of >18 years and the children with an age of >24 and <50 months were included in the study. Our inclusion criteria were delivering a healthy newborn, birth occurring at the gestational age of 37 weeks or more, providing informed consent, living in the urban or rural area of Konya, being able to communicate/speak in Turkish, not using any drugs that would be likely to affect breast milk during breastfeeding period, having an intention to breastfeed, not having a history of chronic diseases for mother and child, and not required hospitalization after birth such as in newborn intensive care unit. Infants lower than 2500 g at birth, with an Apgar score of 7 or lower, and those with congenital anomalies or serious disease or those necessitating intensive care were excluded from the study.

Questionnaire

This study aimed to determine breastfeeding knowledge and practice among mothers. A two-page questionnaire form was designed by the researcher on the basis of published research and guidance. Content validity was assessed by breastfeeding experts, including breast feeding educators and lactation specialists. The questionnaire was revised according to the suggestions of clinical experts in maternity care. The questionnaires were completed by face-to-face interviews with the mothers. A pilot study was undertaken with 20 women who had just given birth to check whether the questionnaire was understandable and pragmatic. The questionnaire included five sections. The first section included information about women's socio-demographic characteristics, i.e. mothers' current age, mothers' age at birth, parity, number of children, level of education, socioeconomic status of the family/income, residence, employment, family status and smoking. The second section included questions about the children, such as age, gender, plurality of pregnancy, mode of delivery in each pregnancy, place of delivery, no of

ever born children/number of previous pregnancies, exclusive breastfeeding time and total continued breastfeeding period. The third section included questions about breastfeeding status for each child, i.e. types of first prelacteal feeds, initiation time of breastfeeding after delivery, breastfeeding counseling before/after delivery, sources of information that the woman may have accessed about breastfeeding and the knowledge about the exclusive breastfeeding time and total continued breastfeeding period. Additionally, ≥ 6 months for the knowledge about the exclusive breastfeeding time and ≥ 24 months for the knowledge about the total continued breastfeeding period were considered as true answers.

The socioeconomic status of the family was classified as low with a monthly income of less than 2,000 TL, as moderate with a monthly income of between 2,001-5,000 TL and as high with a monthly income of more than 5,000 TL.

Statistical Analysis

SPSS version 22.0 software (SPSS Inc. Chicago, IL, USA) was used for data entry and analysis. Descriptive statistics were used to summarize the demographic characteristics of participants. Categorical data were presented as frequencies (%) and proportions which were analyzed using Chi-square test. We examined effect sizes of exposure variables as well as *p*-values of correlation analysis before including the variables in the multivariate logistic regression model. Statistical significance was inferred at $p < 0.05$.

Results

Demographic and socioeconomic characteristics of mothers

A total of 1041 mothers were included in the study. Table 1 shows the demographic and socioeconomic characteristics of the mothers. The mean current age of mothers and mothers' age at birth were 34.4 ± 6.56 years and 26.5 ± 5.36 years.

Demographic and clinical characteristics of children and mother-children pair

Majority of the mothers were multiparous (65.4%), unemployed (60.1%) and nonsmoker (94.4%). About 49.5% had low level of education (elementary or less). Additionally, about 58.7% had a moderate

socioeconomic status with a monthly income of between 2,001-5,000 TL. Also, 73.1% of mothers had 1 child or 2 children. About 51.6% of mothers lived in urban areas and 74.2% of family status was nuclear type.

A total of 1041 children of which 541 (52%) were girls and 500 (48%) were boys, were included in the study (Table 2). The mean age and birth weight of children were 3.1 ± 1.8 years and 3014.48 ± 564.40 g respectively. Majority of children (95.9%) were single

child birth. Additionally, the most of the mothers delivered in a hospital (97.5%) and went through vaginal delivery (66.2%). Also, 54.5% children were the 1. or 2. child of the family while only 4.1% were 5. or more.

Breastfeeding information of mother-children pair

The mean exclusive breastfeeding time and total continued breastfeeding period were 5.45 ± 1.98 months and 17.56 ± 8.17 months, respectively. The most common types of first prelacteal feeds was breast milk (91%) and the second one was infant formula (7.2%) (Table 3). Additionally, 780 (74.9%) children had exclusive breastfeeding time for more than 6 months while 676 (65%) children had a total continued breastfeeding period for less than 24 months. Breastfeeding initiation was 68.6% within 1 hour of birth and 24.6% within 1 to 3 hours of birth in the study population. Additionally, majority of mothers (67.6%) did not receive counseling on breastfeeding before delivery while 65.9% received after delivery. Also, doctor/nurse (60.4%) were the most common source of knowledge about benefits of breastfeeding in our study. On the other hand, while 84% of mothers responded incorrectly to the question of exclusive breastfeeding time, majority of mothers (89%) responded incorrectly to the question regarding total continued breastfeeding period definition.

Table 1. Demographic and socioeconomic characteristics of mothers

Variables	Frequency (n=1041)	Percentages (%)
Mothers age (current)		
20-30 years	355	34.1
30-40 years	629	60.4
> 40 years	57	5.5
Mothers age (at birth)		
20-30 years	822	79
30-40 years	198	19
> 40 years	21	2
Parity		
Primiparous	360	34.6
Multiparous	681	65.4
Number of children in family		
1-2	761	73.1
3-4	262	25.2
5 and more	18	1.7
Educational level		
Elementary or less	515	49.5
Secondary school	198	19.1
High school	132	12.7
University	196	18.7
Family socioeconomic status		
Low	283	27.2
Middle	611	58.7
High	147	14.1
Residence		
Urban	537	51.6
Rural	504	48.4
Employment status		
Employed	415	39.9
Unemployed	626	60.1
Family status		
Nuclear	772	74.2
Extended	269	25.8
Smoking		
Smoker	58	5.6
Non-smoker	983	94.4

Table 2. Demographic characteristics of children and mother-children pair

Variables	Frequency (n=1041)	Percentages (%)
Gender		
Girls	541	52
Boys	500	48
Plurality		
Single child birth	998	95.9
Twins	43	4.1
Mode of delivery		
Vaginal	689	66.2
Caesarean section	352	33.8
Place of delivery		
Hospital	1015	97.5
Home	26	2.5
No. of ever born children		
1-2	567	54.5
3-4	431	41.4
5 and more	43	4.1

Additionally, the mean initiation of supplementary feeding time and infant formulas were 5.9 ± 1.73 months and 54.8 ± 86 days, respectively.

*Student t-test and ANOVA were used for statistical analyses.

Comparison of breastfeeding durations between groups

Student t-test and ANOVA revealed that older mothers with an age of > 40 years at birth had the shortest total continued breastfeeding period (10.60 ± 8.05 months, $p=0.003$) while multiparous had the longest one (18.37 ± 7.93 months, $p=0.003$) (Table 4). Also, mothers with an educational level of elementary/less and university had the longest total continued breastfeeding period (18.29 ± 8.08 and

18.04 ± 7.91 months, respectively, $p=0.024$). On the other hand, mothers from rural areas and nonsmokers breastfeed their babies longer than the other groups (21.10 ± 8.51 and 17.83 ± 8.08 months, respectively, $p=0.037$ and 0.001). Additionally, exclusive breastfeeding time and total continued breastfeeding period were significantly shorter in twins (3.65 ± 2.29 and 11.59 ± 8.88 months) than single child births (5.54 ± 1.92 and 17.86 ± 8.02 months, $p<0.001$ for all). Findings about the types of first prelacteal feeds revealed that babies who were given infant formula as the first prelacteal feed had the shortest exclusive breastfeeding time (3.20 ± 2.87 months) and total continued breastfeeding period (10.49 ± 9.04 months) when compared the other groups ($p<0.001$ for all). Also, the babies in whom breastfeeding was initiated after 1 day had the shortest exclusive breastfeeding time (4.23 ± 2.90 months) and total continued breastfeeding period (11.41 ± 9.44 months) and a significant statistical difference was achieved ($p<0.001$, for all).

Factors associated with exclusive breastfeeding time of ≥ 6 months

Multivariate logistic regression analysis revealed that breast milk as the first prelacteal feeds ($p<0.001$), mothers' age between 30-40 years ($p=0.049$), all the socioeconomic status of the family ($p=0.001$, $p=0.008$, and $p=0.034$), being single child birth ($p=0.001$), and knowledge from doctor/nurse about benefits of breastfeeding ($p=0.015$) were statistically associated with exclusive breastfeeding time (Table 5).

Factors associated with total continued breastfeeding period of ≥ 24 months

Multivariate logistic regression analysis revealed that mothers' age between 20-30 years ($p=0.013$), being multiparous (0.027), breast milk as the first prelacteal feeds ($p=0.001$), having one child or 2 children ($p=0.022$), having secondary school education ($p=0.012$), having low socioeconomic status

Table 3. Breastfeeding information of mother-children pair

Variables	Frequency (n=1041)	Percentages (%)
Types of first prelacteal feeds		
Brest milk	947	91
Infant formula	75	7.2
Sugar water	15	1.5
Cow milk	4	0.3
Exclusive breastfeeding time		
<6 months	261	25.1
≥ 6 months	780	74.9
Total continued breastfeeding period		
<24 months	676	65
≥ 24 months	365	35
Initiation of breastfeeding		
1 hr>	714	68.6
1-3 hr	257	24.6
3-24 hr	35	3.4
1-3 day	35	3.4
Breastfeeding counseling before delivery		
Yes	337	32.4
No	704	67.6
Breastfeeding counseling after delivery		
Yes	686	65.9
No	355	34.1
Source of knowledge about benefits of breastfeeding		
Doctor/nurse	629	60.4
Media	138	13.3
Society	274	26.3
Knowledge about exclusive breastfeeding time (6 months\leq)		
True answer	166	16
Wrong answer	875	84
Knowledge about total continued breastfeeding period (24 months\leq)		
True answer	115	11
Wrong answer	926	89

of the family ($p=0.001$), having nuclear family status ($p=0.026$), being the 1. or 2. child ($p=0.027$) and 3. or 4. child ($p=0.043$) of the family, and knowledge from doctor/nurse about benefits of breastfeeding ($p=0.019$) were statistically associated with total continued breastfeeding period (Table 6).

Discussion

In this study, an attempt was made to establish whether some maternal, child and family characteristics, which we believed might influence the exclusive breastfeeding time and

continuation, actually had the expected impact. In our study, the mean exclusive breastfeeding time and total continued breastfeeding period were found as 5.45 ± 1.98 months and 17.56 ± 8.17 months, respectively. On the other hand, most of the mothers (74.9%) breastfed their children more than 6 months while only 35% of mothers continued breastfeeding over 24 months. Recent study showed that types of first prelacteal feeds (breast milk), mothers' age at birth (30-40 years), family socioeconomic status, single child birth and doctor/nurse as the source of knowledge about benefits of breastfeeding were

Table 4. Comparison of exclusive breastfeeding time and total continued breastfeeding period between related groups

Variables	Frequency (N)	Percentages (%)	Exclusive breastfeeding time (months)	P value	Total continued breastfeeding period (months)	P value
Mothers age (at birth)						
20-30 years	822	79	5.49 ± 2.01	0.114	17.17 ± 8.17	0.003
30-40 years	198	19	5.32 ± 1.82		19.30 ± 7.89	
> 40 years	21	2	3.82 ± 2.65		10.60 ± 8.05	
Parity						
Primiparous	360	34.6	5.34 ± 2.18	0.163	16.54 ± 8.36	0.003
Multiparous	681	65.4	5.54 ± 1.80		18.37 ± 7.93	
Educational level						
Elementary or less	515	49.5	5.64 ± 2.03	0.297	18.29 ± 8.08	0.024
Secondary school	198	19.1	5.41 ± 2.08		17.40 ± 8.43	
High school	132	12.7	5.46 ± 1.43		15.57 ± 8.13	
University	196	18.7	5.28 ± 2.09		18.04 ± 7.91	
Family socioeconomic status						
Low	283	27.2	5.75 ± 1.70	0.196	16.59 ± 7.78	0.044
Middle	611	58.7	5.35 ± 1.98		17.98 ± 8.43	
High	147	14.1	5.48 ± 2.25		18.64 ± 7.63	
Residence						
Urban	537	51.6	5.44 ± 2.01	0.877	17.41 ± 8.15	0.037
Rural	504	48.4	5.51 ± 1.87		21.10 ± 8.51	
Smoking						
Smoker	58	5.6	5.26 ± 2.29	0.478	13.94 ± 8.51	0.001
Non-smoker	983	94.4	5.47 ± 1.95		17.83 ± 8.08	
Plurality						
Single child birth	998	95.9	5.54 ± 1.92	<0.001	17.86 ± 8.02	<0.001
Twins	43	4.1	3.65 ± 2.29		11.59 ± 8.88	
Types of first prelacteal feeds						
Brest milk	947	91	5.64 ± 1.76	<0.001	18.18 ± 7.81	<0.001
Infant formula	75	7.2	3.20 ± 2.87		10.49 ± 9.04	
Others	19	1.8	5.61 ± 0.82		16.0 ± 7.59	
Initiation of breastfeeding						
1 hr>	714	68.6	5.60 ± 1.98	<0.001	17.95 ± 7.86	<0.001
1-3 hr	257	24.6	5.38 ± 1.63		17.87 ± 8.41	
3-24 hr	35	3.4	5.08 ± 1.94		17.40 ± 6.44	
1-3 day	35	3.4	4.23 ± 2.90		11.41 ± 9.44	

strongly associated with the exclusive breastfeeding time of ≥ 6 months.

Also, mothers age at birth (20-30 years), primiparous, types of first prelacteal feeds (breast milk), lower numbers of children in family, secondary school of educational level, low socioeconomic status, nuclear type of family status and doctor/nurse as the source of knowledge about benefits of breastfeeding were found to be strongly associated with the total continued breastfeeding period of ≥ 24 months.

Our data suggested that; mothers with an age of 30-40 years at birth, multiparous, mothers with an educational level of elementary or less, mothers with higher socioeconomic status, mothers from rural areas and nonsmokers had the longest total continued breastfeeding period. Additionally, mothers who had single child births other than twins and mothers who had initiated breast milk as the first prelacteal feeds within the first 1 hour of life had the longest exclusive breastfeeding time and total continued breastfeeding period.

Table 5. Variables associated to the exclusive breastfeeding time of ≥ 6 months based on the multivariate logistic regression model

Variables	OR	%95 CI	p value
Types of first prelacteal feeds			
Brest milk	0.170	0.090-0.319	<0.001
Infant formula	0.652	0.074-9.121	0.301
Suger water	0.712	0.061-8.353	0.787
Cow milk	0.601	0.054-9.543	0.537
Mothers age (at birth)			
20-30 years	0.659	0.404-1.076	0.096
30-40 years	0.128	0.017-0.988	0.049
> 40 years	0.542	0.458-1.124	0.137
Family socio-economic status			
Low	0.525	0.290-0.952	0.001
Middle	0.407	0.208-0.794	0.008
High	0.272	0.128-0.576	0.034
Plurality			
Single child birth	4.128	1.756-9.700	0.001
Twins	3.124	0.637-14.170	0.217
Source of knowledge about benefits of breastfeeding			
Doctor/nurse	0.636	0.339-1.193	0.015
Media	2.078	0.415-11.541	0.478
Society	3.564	0.529-17.215	0.321

Republic of Turkey Ministry of Health policy sought to promote exclusive breastfeeding from birth to six months and one of the strategies adopted to realize exclusive breastfeeding was the baby friendly hospital initiatives. Also, the ministry suggests extending the total breastfeeding period up to 24 months and above.

Table 6. Variables associated to the total continued breastfeeding period of ≥ 24 months based on the multivariate logistic regression model

Variables	OR	%95 CI	p value
Mothers age (at birth)			
20-30 years	1.737	1.122-2.689	0.013
30-40 years	0.438	0.044-4.339	0.480
> 40 years	0.621	0.034-3.581	0.351
Parity			
Primiparous	0.523	0.294-0.930	0.537
Multiparous	0.245	0.071-0.852	0.027
Types of first prelacteal feeds			
Brest milk	0.254	0.110-0.586	0.001
Infant formula	1.169	0.213-0.871	0.521
Suger water	3.748	0.254-55.403	0.336
Cow milk	1.382	0.310-4.915	0.817
Number of children in family			
1-2	1.628	1.073-2.469	0.022
3-4	0.336	0.102-0.741	0.501
5 and more	0.451	0.381-0.907	0.105
Educational level			
Elementary or less	1.112	0.688-1.798	0.665
Secondary school	0.470	0.261-0.847	0.012
High school	0.632	0.321-1.244	0.184
University	0.432	0.412-1.027	0.098
Family socio-economic status			
Low	2.243	1.399-3.596	0.001
Middle	1.362	0.773-2.401	0.285
High	1.924	1.000-3.705	0.050
Family status			
Nuclear	1.674	1.060-2.559	0.026
Extended	0.561	0.239-1.743	0.097
No. of ever born children			
1-2	0.523	0.294-0.930	0.027
3-4	0.515	0.270-0.980	0.043
5 and more	0.504	0.210-1.209	0.125
Source of knowledge about benefits of breastfeeding			
Doctor/nurse	0.583	0.295-1.149	0.019
Media	0.125	0.089-0.542	0.711
Society	0.321	0.103-1.281	0.104

The Turkey Demographic and Health Survey reported that the rate of exclusive breastfeeding time was 58% in the first two months of life and 10% in the 4th-5th months. However, there is a decrease in the rate of exclusive breastfeeding time in the first 6 months of life between 2008-2013 (41.6%-30.1%) in Turkey (20). Similarly, Yanikkerem et al. reported a lower percentage of 15.2% for the women who planned to breast feed for 6 months in their study population (15). Also, they reported that 53.8% of woman received information about breastfeeding from doctors/nurse and uptake of breast feeding within the first 1 hour of birth was 65.9% (15). On the other hand, Şencan et al. reported the mean breastfeeding duration as 14.4 ± 6.0 months in their study (18). Different from these studies, the mean exclusive breastfeeding time and total continued breastfeeding period were found to be higher in our study (5.45 ± 1.98 /month and 17.56 ± 8.17 /month, respectively). Also, 74.9% of the mothers exclusively breastfed their babies ≥ 6 months in the recent study. Additionally, we found that 60.4% of mothers received information about breast feeding from doctors/nurse and initiation of breastfeeding in the first 1 hour of life was 68.6%. In a systematic review of literature conducted on Turkish mothers, Karaçam et al. examined the breastfeeding problems encountered in the postpartum period and the influence of interventions related to these problems in their study (21). In this systematic review, it was observed that a significant portion of women (24.5%) experienced breastfeeding problems and these problems varied by maternal factors and factors related to breast milk, baby, and breast. Also, they reported that 17.8% and only 1.2% of mothers suffered the lack of maternal knowledge of breastfeeding technique and going back to work, respectively (21). Similarly, in our study, doctor/nurse as the source of knowledge about benefits of breastfeeding was found to be significantly correlated with the exclusive breastfeeding time of ≥ 6 months and the total continued breastfeeding period of ≥ 24 months.

Globally, a recent study about the associations between breastfeeding and outcomes in children or mothers from 28 systematic reviews and meta-analyses reported that breastfeeding at 6 months of age was significantly higher in low and lower-middle income countries than upper-, middle- and high-income countries (9). The global analyses show that

more than 80% of neonates receive breast milk in nearly all countries around the world. However, only about half begin breastfeeding within the first hour of life (9). On the basis of the data from the year of 2008 in Turkey revealed that prevalence of exclusive breastfeeding between 0 to 5 months and breastfeeding at 12 months were 41.6% and 74.2%, respectively (9). However, this prevalence was lower as 21.6% between 20-23 months of age.

The data about the factors that associated with exclusive breastfeeding showed that high-income and better-educated women breastfeed more commonly than do those in low-income groups with fewer years of formal education (22-24). Likewise, our data suggested that high-income and better-educated mothers had higher total continued breastfeeding periods. This is because, more highly educated mothers may have more control over their schedule or work environment, which may provide the support needed to breastfeed for a longer time. On the other hand, the studies that examining the effect of multiparity on breastfeeding initiation showed a positive association with multiparity (25,26). In this current study, multiparous mothers had the longest total continued breastfeeding period and a positive correlation was found between these two parameters. A large volume of literature was available to examine delivery mode in relation to breastfeeding. Despite some heterogeneity in the categorization of delivery types, vaginal delivery was consistently associated with significant increases in both breastfeeding initiation and continuation (26,27). Also, some studies have shown that planned cesarean delivery in particular is associated with a significant decrease in breastfeeding initiation (26). However, in our study we did not find any association between the mode of delivery and exclusive breastfeeding time or total continued breastfeeding period. This may be due to the lower percentages of caesarean deliveries in our study population. Mothers who received education on breastfeeding were 41% more likely to initiate and continue breastfeeding than women who received no such educational opportunities (28,30). In this study, we showed that doctor/nurse as the source of knowledge about benefits of breastfeeding was strongly associated with exclusive breastfeeding time or total continued breastfeeding period. Smoking is one of the strongest and most consistent factors that

associated with shorter periods of breastfeeding. The studies revealed that smoking among breastfeeding women was significantly associated with both shorter duration and reduced milk production (31,33). Similarly, our results showed that smokers had the shortest total continued breastfeeding period. However, the percentage of smokers (5.6%) was lower than the nonsmokers in our study.

Limitations of our study were; firstly, the information obtained from mothers could be subject to recall bias. Secondly, this study cannot determine cause and effect on breastfeeding practice. Lastly, timing of the study period is also a limitation of our study as results of the cross-sectional time period.

Conclusion

Current study showed that breast milk as the first prelacteal feed; younger mothers' age, primiparous, single child birth and doctor/nurse as the source of knowledge about benefits of breastfeeding were strongly associated with the exclusive breastfeeding time of ≥ 6 months and the total continued breastfeeding period of ≥ 24 months. So, such factors may influence exclusive breastfeeding, including some characteristics of the mother and the baby, recommendations of healthcare professionals and recommendations of other individuals in the family's social setting. As a result, these related factors should be investigated and community-based proposals should be prepared by working on the determined factors. Finally, there is a need to test the effectiveness of new breastfeeding promotion programs in order to achieve the goals of exclusive breastfeeding and continuation as recommended by World Health Organization.

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Ethics

Ethical Approval: Ethical clearance was sought and obtained from KTO Karatay University, Medical Faculty Ethical Committee (IRB Number: 41901325-050.99). Participants of the study were asked to provide informed voluntary written consent. Assent was also signed by parents for participants under the age of 18 years to be included in the study.

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Author Contributions: EKA designed and conducted research. EKA analyzed data and wrote the paper. EKA has primary responsibility for the final content. EKA provided essential material. All authors read and approved the final manuscript.

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