



Research Article/Özgün Araştırma

The effect of individual breastfeeding training on breastfeeding behaviors and traditional practices: A randomized controlled trial

Bireysel emzirme eğitiminin emzirme davranışlarına ve geleneksel uygulamalara etkisi: Randomize kontrollü çalışma

Ayşegül DURMAZ<sup>1</sup>, Emel SEZİCİ<sup>2</sup>

<sup>1</sup>Kütahya University of Health Sciences, Faculty of Health Sciences, Department of Midwifery, 43100, Kütahya-Turkey  
<sup>2</sup>Kütahya University of Health Sciences, Faculty of Health Sciences, Department of Nursing, Department of Child Health and Diseases Nursing, 43100, Kütahya-Turkey

**Atf gösterme/Cite this article as:** Durmaz A, Sezici E. The effect of individual breastfeeding training on breastfeeding behaviors and traditional practices: A randomized controlled trial. *ADYÜ Sağlık Bilimleri Derg.* 2022;8(2):106-115. doi:10.30569.adiyamansaglik.1079363

**Abstract**

**Aim:** This study aims to determine the effect of individual breastfeeding training on breastfeeding behaviors and traditional practices.

**Materials and Methods:** The research was of randomized controlled design. The study was conducted at the family health centers in Kütahya, Turkey. A total of 304 mothers were recruited into the study, 152 in the intervention group and 152 in the control group. The Chi-Square Test, Mann-Whitney U Test and Kruskal-Wallis Test and Multinomial logistic regression were performed.

**Results:** After the training, the rates of the mothers whose breastfeeding duration and frequency were sufficient, who breastfed their babies in the correct position, who did not have any breastfeeding problems, and whose babies latched onto the breast correctly were significantly higher in the training group than were the rates of the mothers in the control group ( $p<0.05$ ).

**Conclusion:** The individual breastfeeding training had an implication in improving breastfeeding behaviors and reduced harmful traditional practices.

**Keywords:** Breastfeeding; Training; Behavior; Practices.

**Öz**

**Amaç:** Bu çalışma, bireysel emzirme eğitiminin emzirme davranışlarına ve geleneksel uygulamalara etkisini belirlemeyi amaçlamaktadır.

**Gereç ve Yöntem:** Araştırma randomize kontrollü çalışma olarak tasarlandı. Araştırma Türkiye'nin Kütahya ilindeki aile sağlığı merkezlerinde gerçekleştirilmiştir. Eğitim grubunda 152 ve kontrol grubunda 152 olmak üzere toplam 304 anne çalışmaya dahil edilmiştir. Ki-Kare, Mann-Whitney U, Kruskal-Wallis ve Multinomial lojistik regresyon testleri yapılmıştır.

**Bulgular:** Eğitim sonrasında müdahale grubundaki annelerde emzirme süresi ve sayısı yeterli olanların, doğru pozisyonda emzirenlerin, emzirme sorunu yaşamayanların, memeyi doğru tutan bebeklerin oranı kontrol grubundakilerden önemli düzeyde yüksektir ( $p<0,05$ ).

**Sonuç:** Bireysel emzirme eğitimi, emzirme davranışlarını iyileştirmede ve zararlı geleneksel uygulamaları azaltmada etkilidir.

**Anahtar Kelimeler:** Emzirme; Eğitim; Davranış; Uygulamalar.

**Yazışma Adresi/Address for Correspondence:** Ayşegül DURMAZ, Kütahya University of Health Sciences, Faculty of Health Sciences, Department of Midwifery, 43100, Kütahya-Turkey, E-mail: [aysegul.durmaz@ksbu.edu.tr](mailto:aysegul.durmaz@ksbu.edu.tr)

**Geliş Tarihi/Received:**25.02.2022 **Kabul Tarihi/Accepted:**11.06.2022

**Yayın Tarihi/Published online:**30.08.2022



## Introduction

The United Nations Convention on the Rights of the Child affirms that a child has the right to adequate nutrition and to the highest standards of health.<sup>1</sup> The United Nations International Children's Fund (UNICEF), the World Health Organization (WHO) and the American Academy of Pediatrics (AAP) recommend that infants be exclusively breastfed for the first six months of their life.<sup>1-3</sup> Breast milk is critical importance in improving infant wellbeing. Breast milk protects the infants against neonatal complications, respiratory tract infections, diarrhea and other illnesses.<sup>4</sup> Exclusively breastfeeding can save about 1.5 million infants each year.<sup>5</sup> However, between 2015 and 2020, the rate of infants aged 0-6 months who are exclusively breastfed is approximately 44% worldwide.<sup>1</sup>

In Turkey, breastfeeding initiation rates are high, but maintenance of exclusively breastfeeding durations is low.<sup>6</sup> The 2013 Turkey Demographic and Health Survey (TDHS) reported that the rate of exclusive breastfeeding for infants aged 0-6 months was 30.1%, while this rate was reported 41% in TDHS 2018.<sup>7,8</sup> These data show that despite the recommendations of the AAP and WHO, mothers in our country do not adequately feed their babies exclusively breastfeeding for the first six months.<sup>9,10</sup>

Even mothers who willingly initiate breastfeeding tend to start giving complementary foods to their babies a few weeks after the birth or to abandon breastfeeding altogether. Health professionals have an important role in starting and maintaining breastfeeding.<sup>11</sup> The support offered by healthcare professionals along with breastfeeding training has the potential of helping mothers in general to overcome the barriers that stand in the way of breastfeeding.<sup>12</sup> In addition, healthcare professionals need to be aware of the breastfeeding traditional practices.<sup>13</sup> By being so, they can support beneficial traditions and help mothers to participate in their own care. At the same time, they can prevent the use of harmful traditional practices that have adverse effects on health.<sup>14</sup>

This study aims to determine the effect of individual breastfeeding training on breastfeeding behaviors and traditional practices.

The hypotheses of the study:

- H0a: The breastfeeding training has not an effect the behaviors of mothers toward breastfeeding.
- H0b: The breastfeeding training has not an effect on the use of traditional breastfeeding practices.
- H1a: The breastfeeding training has an effect the behaviors of mothers toward breastfeeding.
- H1b: The breastfeeding training has an effect on the use of traditional breastfeeding practices.

## Materials and Methods

### Study design

The study was conducted using a randomized controlled experimental design. The research was conducted between February 2018 and October 2018 in Kütahya a family health centers (FHC's). The RCT is registered at ClinicalTrials.gov with ID NCT04705675. The design, conduct and reporting of this study adheres to the Consolidated Standards of Reporting Trials (CONSORT) guidelines.

### Setting and sample

The study universe consisted of all of the mothers presenting at the FHC's in Kutahya over the period February 1, 2018-October 31, 2018. Those who met the inclusion criteria were recruited. Power was calculated using the G Power 3.1 program. In the power analysis performed at a confidence interval of 95% and a margin of error of plus/minus 5%, sample size was calculated as a total of 300 mothers with 150 in the study group and 150 in the control group. The sample size for the study comprised 320 (intervention group:160, control group:160) mothers and infants according to the assumption that there would be losses. However, some of the mothers (n=12) wished to leave before the study was completed, offering no reason for this and four mothers could not be reached for post-test one month following the training (see; Figure 1). Finally, the study was carried out with 304

infants' mothers (intervention group=152, control group=152) (see; Figure 1). The inclusion criteria of the study population encompassed mothers who consented to participating in the study and who were breastfeeding and mothers with no diagnosis of

psychiatric or psychological disease, infants who borned at term with a birth weight between 2,5 to 4 kg, and being 0-6 week-old. The 304 mothers forming the sample were randomly divided into intervention and control groups.

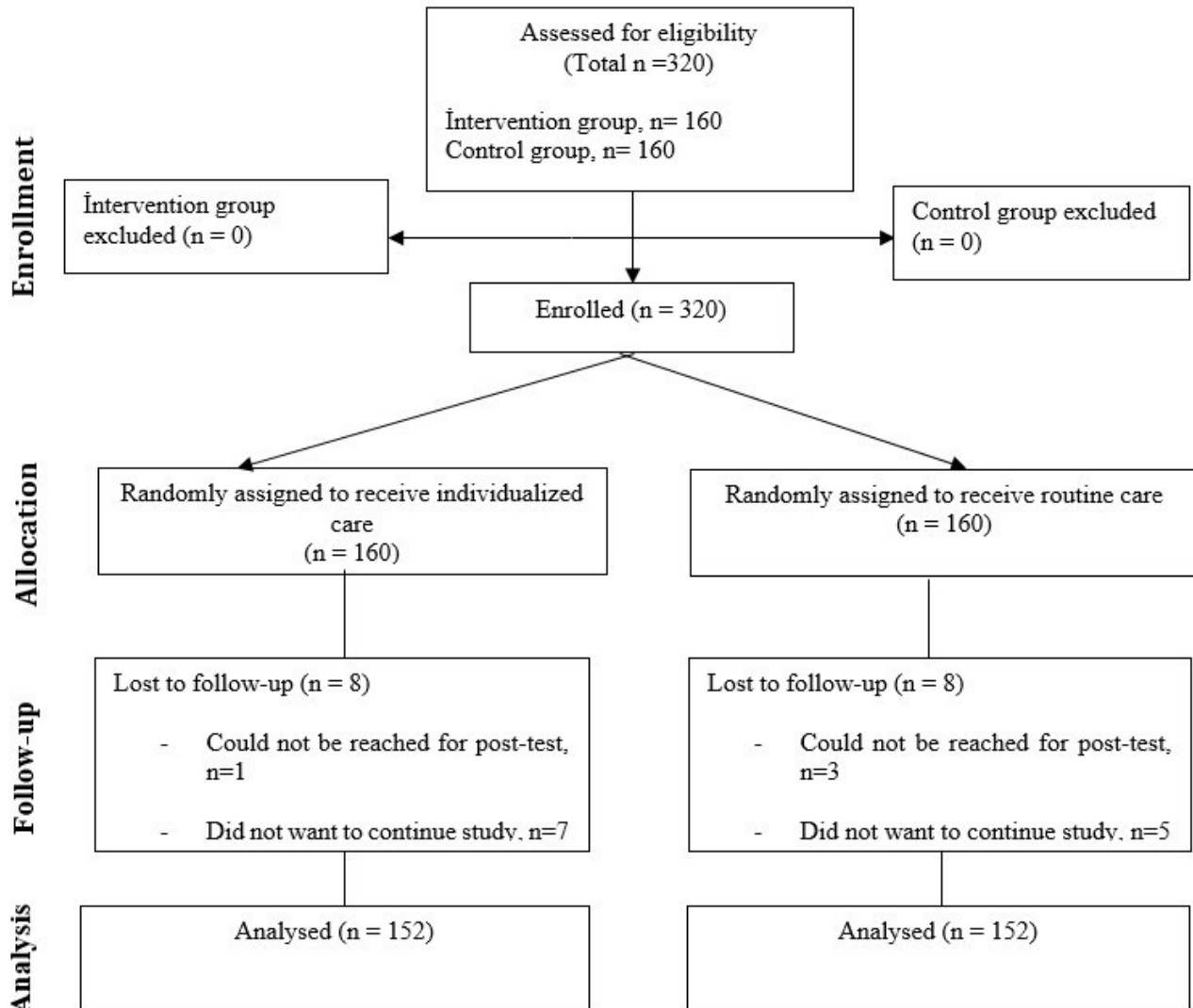


Figure 1. Follow diagram of study

**Randomization**

The number of 0-6 week-old infants was identified for randomization in FHC. Random numbers were generated on the Excel program to determine the intervention and control groups and to achieve randomization. Each infant's mother was given a number. The numbers created were written on paper and placed in envelopes so that mothers could not see them. Mothers who volunteered to participate in the study were asked to choose an envelope. According to the number in the envelope, the mother's study group was determined.

**Data collection tools**

The data were collected using the "Personal Information Form" and "Breastfeeding Behaviors and Traditional Practices Assessment Form".

The researchers created the Personal Information Form in line with the literature, designing it with eight questions that pertained to demographic data such as the mother's age, her status of education and employment, the mother's age at marriage, the type of family, income status, the place of residence and the baby's age.

The Breastfeeding Behaviors and Traditional Practices Assessment Form; By using the breastfeeding guidelines by the researchers, questions were prepared in accordance with the content of the breastfeeding training provided.<sup>15-19</sup> In order to evaluate the appropriateness of the questions, the opinions of 10 experts in the fields of pediatric nursing and midwifery were obtained. This form was containing 10 open ended questions to evaluate the mother's breastfeeding behaviors and use of traditional practices that related to factors such as the duration of breastfeeding, number of breastfeedings, position, problems, traditional practices used in breastfeeding and increasing breast milk.

### Data collection procedure

The researchers filled the Personal Information Form with the technique of face-to-face interview with the mothers before the planned individual breastfeeding training. Each mother included in the study was taken to the lactation room in the FHC and they were observed to breastfeeding patterns their babies. The mothers' breastfeeding behaviors were observed. They administered the pretest and filled out the personal information form prior to the planned individual education. The mothers in the control group left the room after filling the this form. After the breastfeeding, each mother was provided an average 30-minute session of individual education. The content of the training program has been created using national<sup>15</sup> and international<sup>16-19</sup> guidelines. The same researcher applied the training program to all mothers in the intervention group. Auditory and visual materials were used during the training program applied to the mothers. The researcher trained the mothers on breastfeeding practices in an effort to support them to improve the ability of rightly using the positions taught and then the mothers were asked to apply what they had learned. The researcher took care to be positive and support whenever the mother attempted the right move in breastfeeding while also providing encouraging feedback when something went wrong. Topics covered in the training program: Breast-milk composition and benefits of breastfeeding,

breastfeeding sessions, breast milk supply, factors that reduced and increased breast milk supply, factors that reduced and increased breast milk supply, breast care before, breastfeeding positions and tips for mother and infant, the steps for breastfeeding, burp a baby, expressing and storing breastmilk, and the other breastfeeding problems. One month following the training, mothers' breastfeeding behaviors and traditional practices were re-evaluated.

### Data analysis

Statistical analyses were performed with the IBM SPSS (Statistical Package for Social Sciences) Statistics 22 software. Descriptive statistics (frequency and percentage values) were used to assess the results. Whether the data was normally distributed was confirmed with Kolmogorov-Smirnov test. The Chi-squared test was used to compare the characteristics (women's education level, employment status, income level, family type, location of residence, age, age at marriage) in the intervention and control groups. Because data on maternal age, age at marriage, infant age and infant weight were not normally distributed, we used the Mann-Whitney U Test. Chi-square, Mann-Whitney U and Kruskal-Wallis Tests were used to compare infant weight, traditional practices and breastfeeding behavior in the intervention and control groups. Multinomial Logistic Regression Test was used to evaluate the relationship between breastfeeding training and traditional practices, breastfeeding behaviors. The  $p < 0.05$  value was considered significant in statistical tests.

### Ethical Statement

Permission for the study was obtained from the institution and the Karatay University Faculty of Medicine, Pharmaceuticals and Non-Medical Devices Research Ethics Committee (Decision No 2018-001). The principles of the Declaration of Helsinki were complied with while conducting the study. The purpose of the study was explained to the mothers included in the study and their voluntary consent was obtained. Informed consent form were signed the participants.

## Results

The mean age of the mothers in the study was 26.83±4.19 years in the intervention group and 27.07±5.06 years in the control group. The mean age of the infants was 2.87±1.74 months in the intervention group, 2.88±1.60 months in the control group. More than half of the mothers in the intervention (61.2%, n=93) and control (63.8%, n=97) groups were graduates of high school or higher institutions. Furthermore, it was found that the intervention

(62.5%, n=95) and control (69.1%, n=105) group mothers were for the most part unemployed. In both groups, close to all of the mothers were living in a nuclear family (Intervention: 90.1%; Control: 88.2%). Most of the mothers in both the intervention (84.2%, n=128) and control (83.6%, n=127) groups lived in the city centre. No significant differences were found between the intervention and control groups in the study in terms of the mothers' and infants' descriptive characteristics ( $p>0.05$ ), (Table 1).

**Table 1.** Comparison of descriptive characteristics.

Characteristics	Intervention n=152		Control n=152		Test*	
	n	%	n	%		
<b>Level of Education</b>						
Elementary School	38	25.0	33	21.4	$\chi^2=4.011$ df=3 $p=0.260$	
Middle School	21	13.8	22	14.5		
High School	54	35.5	69	45.4		
University and above	39	25.7	28	18.4		
<b>Employment Status</b>						
Employed	57	37.5	47	30.9	$\chi^2=1.462$ df=1 $p=0.227$	
Unemployed	95	62.5	105	69.1		
<b>Family Type</b>						
Nuclear	137	90.1	134	88.2	$\chi^2=0.306$ df=1 $p=0.580$	
Extended	15	9.9	18	11.8		
<b>Income Status</b>						
Income Less than Expenditure	17	11.2	21	13.8	$\chi^2=0.728$ df=2 $p=0.695$	
Income Equal to Expenditure	91	59.9	92	60.5		
Income Greater than Expenditure	44	28.9	39	25.7		
<b>Location of Residence</b>						
Village	9	5.9	6	3.9	$\chi^2=1.075$ df=2 $p=0.584$	
Town	15	9.9	19	12.5		
City	128	84.2	127	83.6		
<b>Infant's Age/month</b>						
	Mean±SD		Mean±SD		Z	p
	2.87±1.74		2.88±1.60		-0.263	0.792
<b>Infant's weight/gr (Pre-training)</b>						
	3174.41±405.15		3194.61±386.60		-0.571	0.568
<b>Mother's Age</b>						
	26.83±4.19		27.07±5.06		-0.310	0.756
<b>Mother's Age at Marriage</b>						
	21.97±2.87		22.58±3.17		-1.392	0.164

$\chi^2$ =Chi-squared Test, Z= Mann-Whitney U Test

\* None of the table cells in the analysis had an expected count below five. Fisher's Exact Test was not used.

No statistically significant difference was found between the intervention and control groups in terms of the traditional practices employed in breastfeeding prior to the breastfeeding training ( $p=0.340$ ). On the other hand, after the training, it was seen that the difference between the groups was statistically significant ( $p=0.001$ ). The rate of those who did not use traditional breastfeeding practices

in the pre-training intervention group was 19.7%. The rate of those who did not consider using traditional breastfeeding practices after the training (78.3%) increased significantly. No statistically significant difference was found between the intervention and control groups in terms of the nourishment provided to increase breast milk before ( $p=0.740$ ) and after ( $p=0.055$ ) the training (Table 2).

**Table 2.** Comparison of traditional practices.

Characteristics	Pre-training		Post-training	
	Intervention n (%)	Control n (%)	Intervention n (%)	Control n (%)
<b>Traditional practices in breastfeeding</b>				
Not letting the infant have colostrum	20 (13.2)	21 (13.8)	0 (0.0)	18 (11.8)
Giving sugar water	46 (30.3)	59 (38.8)	23 (15.1)	68 (44.7)
Waiting for 3 calls to prayer	56 (36.8)	43 (28.3)	10 (6.6)	34 (22.4)
Not using traditional practices	30 (19.7)	29 (19.1)	119 (78.3)	32 (21.1)
<b>Test*</b>	$\chi^2=3.358$ df=3, $p=0.340$		$\chi^2=103.469$ df=3, $p=0.001$	
<b>Traditional food consumed to increase breast milk</b>				
Molasses	30 (19.7)	24 (15.8)	43 (28.3)	30 (19.7)
Hapisa	39 (25.7)	36 (23.6)	20 (13.2)	34 (22.4)
Syrup	41 (27.0)	46 (30.3)	32 (21.1)	40 (26.3)
Herbal teas	42 (27.6)	46 (30.3)	57 (37.5)	48 (31.6)
<b>Test*</b>	$\chi^2=1.256$ df=3, $p=0.740$		$\chi^2=7.605$ df=3, $p=0.055$	

 $\chi^2$ =Chi-squared Test

Post-training results show that mothers decided not to use traditional practices.

\* None of the table cells in the analysis had an expected count below five. Fisher's Exact Test was not used

When the mothers breastfeeding behavior was examined, it was seen that there was no significant difference between the groups before the training ( $p>0.05$ ). There was no difference in infant weight gain between the two groups after the training, the result was close to significance ( $p=0.067$ ). The rate of the mothers in the intervention group who breastfed their babies 5-6 hours a day before the training (46.1%) increased significantly after the training (56.6%) and the rate of the mothers in the intervention group who breastfed their babies 11-15 times a day before the training (54.6%) increased significantly after the training (57.9%). The rate of women in the intervention group having problems in breastfeeding before the training was 71.7%. However, this rate decreased to 46.8% after the training. The most common breastfeeding problem was insufficient secretion of milk. The number of this problem in the intervention group before the training (n=31) decreased significantly after the training (n=21). In the training group, the rates of the mothers who breastfed their babies in the correct position (60.5%), and whose babies latched onto the breast correctly (53.3%) increased significantly after the training (71.7% and 77.0% respectively). In an examination of the breastfeeding duration ( $p=0.002$ ), number of breastfeeding ( $p=0.006$ ), problems with breastfeeding ( $p=0.002$ ), breastfeeding issues

( $p=0.007$ ), breastfeeding positions ( $p=0.030$ ) and babies' latching onto the breast ( $p=0.001$ ), statistically significant difference was found between the intervention and control groups (Table 3).

In the multinomial logistic regression analysis, in the mothers who received breastfeeding training, the rate of the mothers not having a breastfeeding problem increased 2.974 times (1.557-5.682 CI,  $p=0.01$ ), that of the mothers breastfeeding their babies in the correct position increased 2.285 times (1.192-4.379 CI,  $p=0.013$ ), that of the mothers breastfeeding their babies 8-10 times a day increased 4.349 times (1.467-12.892 CI,  $p=0.008$ ), that of the mothers breastfeeding their babies 11-15 times a day increased 6.515 times (2.317-18.317 CI,  $p=0.000$ ). On the other hand, the rate of the mothers who breastfed their babies 1-2 hours a day decreased 0.305 times (0.115-0.809 CI,  $p=0.017$ ), that of the mothers who breastfeed their babies for 3-4 hours a day decreased 0.381 times (0.191-0.761 CI,  $p=0.006$ ), that of the mothers who waited for 3 calls to prayer to initiate breastfeeding decreased 0.053 times (0.021-0.134 CI,  $p=0.000$ ), and that of the mothers who considered giving sugary water to their baby decreased 0.063 times (0.031-0.130 CI,  $p=0.000$ ), (Table 4).

**Table 3.** Comparison of breastfeeding behavior.

Characteristics (n=304)	Pre-training		Post-training	
	Intervention Mean±SD	Control Mean±SD	Intervention Mean±SD	Control Mean±SD
<b>Infant's weight/gr</b>	3174.41 ± 405.15	3194.61 ± 386.60	5386.18 ± 938.58	5155.92 ± 950.04
<b>Test</b>	Z=-0.571, p=0.568		Z=-1.823, p=0.067	
Characteristics (n=304)	n (%)	n (%)	n (%)	n (%)
<b>Breastfeeding duration (in a day)</b>				
1-2 hours	27 (17.8)	36 (23.7)	18 (11.8)	30 (19.7)
3-4 hours	55 (36.2)	57 (37.5)	48 (31.6)	67 (44.1)
5-6 hours	70 (46.1)	59 (38.8)	86 (56.6)	55 (36.2)
<b>Test**</b>	$\chi^2=2.259$ , df=2, p=0.323		$\chi^2=12.955$ , df=2, p=0.002	
<b>Number of breastfeeding (in a day)</b>				
8-10	41 (27.0)	53 (34.9)	49 (32.2)	64 (42.1)
11-15	83 (54.6)	78 (51.3)	88 (57.9)	61 (40.1)
16 and over	78 (18.4)	21 (13.8)	15 (9.9)	27 (17.8)
<b>Test**</b>	$\chi^2=2.687$ , df=2, p=0.261		$\chi^2=10.312$ , df=2, p=0.006	
<b>Problems with breastfeeding</b>				
Yes	109 (71.7)	108 (71.1)	71 (46.7)	98 (64.5)
No	43 (28.3)	44 (28.9)	81 (53.3)	54 (35.5)
<b>Test**</b>	$\chi^2=0.016$ , df=1, p=0.899		$\chi^2=9.714$ , df=1, p=0.002	
	Fisher kesin test p=1.000		Fisher kesin test p=0.003	
<b>Breastfeeding issues*</b>				
Insufficient milk	31 (20.4)	42 (36.5)	21 (13.8)	42 (31.5)
Breast pain	16 (10.5)	16 (10.5)	10 (6.6)	12 (7.9)
Fullness in the breast	20 (13.2)	19 (19.5)	13 (8.6)	17 (11.2)
Inverted nipple	17 (11.2)	8 (12.5)	12 (7.9)	6 (3.9)
Cracked nipples and Breast infection	25 (16.4)	23 (15.1)	15 (9.9)	21 (13.8)
No breastfeeding problems	43 (28.3)	44 (28.9)	81 (53.3)	54 (35.5)
<b>Test**</b>	$\chi^2=5.018$ , df=5, p=0.414		$\chi^2=16.115$ , df=5, p=0.007	
<b>Breastfeeding position</b>				
Right	92 (60.5)	83 (54.6)	109 (71.7)	91 (59.9)
Wrong	60 (39.5)	69 (45.4)	43 (28.3)	61 (40.1)
<b>Test**</b>	$\chi^2=1.091$ , df=1, p=0.296		$\chi^2=4.735$ , df=1, p=0.030	
	Fisher kesin test p=0.353		Fisher kesin test p=0.040	
<b>Baby's latching onto breast</b>				
Right way	81 (53.3)	65 (42.8)	117 (77.0)	82 (53.9)
Wrong way	71 (46.7)	87 (57.2)	35 (23.0)	70 (46.1)
<b>Test**</b>	$\chi^2=3.374$ , df=1, p=0.066		$\chi^2=17.822$ , df=1, p=0.001	
	Fisher kesin test p=0.085		Fisher kesin test p=0.001	

$\chi^2$ =Chi-squared Test

Z=Mann-Whitney U Test

\* The analysis techniques were applied to those who were experiencing breastfeeding issues

\*\* None of the table cells in the analysis had an expected count below five. Fisher's Exact Test was not used.

The Mann-Whitney U and Chi-squared Tests given in the horizontal line indicate the pre- and post-training comparisons of the training group and the control group.

## Discussion

Breastfeeding is the customary way of nourishing infants in all traditional societies.<sup>20</sup> According to Stuart-Macadam & Dettwyler, breastfeeding is not only a biological process in human beings but also a behavior that is dictated by cultural norms.<sup>21</sup> It was observed in our study that prior to the training, the mothers in both the intervention and control groups practiced the traditional customs of refraining

from giving the infant colostrum, feeding the baby sugar-water, and waiting for three prayer times before the first breastfeeding. After the training, however, it was found that most of the mothers in the intervention group (78.3%) decided not to engage in these traditional practices. Moreover, all of the mothers in the intervention group said that they would give the baby colostrum if they ever had another one. In addition, in the mothers who received



breastfeeding training, the number of not having breastfeeding problems, breastfeeding in the right position, and the duration and frequency of breastfeeding increased. However, in the same mothers, the number of those who thought about waiting for three azans to initiate breastfeeding and those who thought of giving sugary water to their babies decreased. In a study reported that mothers more than 25% either did not give their infants colostrum or disposed of it entirely.<sup>22</sup> The other study conducted in Delhi, researchers reported that most mothers threw away the

colostrum and kept away from the infant to breastfeed for a few days. Furthermore, most of the mothers waited for religious rituals to end before they started to breastfeed their infants and breastfeeding was delayed.<sup>20</sup> It was reported in another study that in Australia, breastfeeding was regarded as a shameful act according to cultural beliefs. It was stressed that this perception made it difficult for mothers to decide on breastfeeding.<sup>23</sup> Studies have indicated that social and cultural beliefs have an influence on breastfeeding behaviors.

**Table 4.** Multinomial regression analysis of the views of the mothers receiving breastfeeding training on the use of traditional practices in breastfeeding and their breastfeeding behaviors (n=304).

	B	Wald	Exp (B)	95% Confidence Interval		p
				Lower	Upper	
<b>Breastfeeding Training</b>						
Those who did not receive the training*						
No breastfeeding problems	1.090	10.886	2.974	1.557	5.682	<b>0.001</b>
Breastfeeding in the right position	0.826	6.199	2.285	1.192	4.379	<b>0.013</b>
Breastfeeding number: 8-10 times a day	1.470	7.031	4.349	1.467	12.892	<b>0.008</b>
Breastfeeding number: 11-15 times a day	1.874	12.625	6.515	2.317	18.317	<b>0.000</b>
Those who received the training						
Those breastfeeding their babies 1-2 hours a day	-1.188	5.686	0.305	0.115	0.809	<b>0.017</b>
Those breastfeeding their babies 3-4 hours a day	-0.964	7.478	0.381	0.191	0.761	<b>0.006</b>
Traditional practices in breastfeeding–Waiting for 3 calls to prayer	-2.943	38.170	0.053	0.021	0.134	<b>0.000</b>
Traditional practices in breastfeeding- giving sugar water	-2.761	56.693	0.063	0.031	0.130	<b>0.000</b>

\* Reference category

We determined that in their efforts to increase their flow of milk, the mothers in both the intervention and control groups made use of molasses, hapisa, syrup and herbal teas. It was noticed however that following the training, the mothers in the intervention group increased their use of some of the products (molasses and some herbal teas) and decreased their intake of some of the traditional products (hapisa and syrup). The study was demonstrated that the most of mothers added ghee or jaggary (unrefined sugar from palm trees or sugarcane) to the milk they drank to facilitate the secretion of milk.<sup>20</sup> A study conducted in Turkey indicated that mothers drank syrup in order to increase their breast

milk.<sup>24</sup> Our findings in the period before the training were consistent with those in the literature. It was determined however that after the training, the mothers in the intervention group embraced healthy habits such as eating molasses and drinking fennel tea, and limited their use of harmful products such as hapisa and syrup.

There was no difference observed between the groups before the training in terms of their breastfeeding behavior. After the training, however, it was found that the duration of breastfeeding among the intervention group mothers was longer, the number of times they breastfed was greater, they experienced fewer



problems with breastfeeding, most of them used the correct breastfeeding position and placed the infant in the optimum manner. In a study pointed out that half of the participating mothers breastfed their babies every time the baby cried. The same study also reported that more than half of mothers breastfed their babies for only five minutes and close to half did not breastfeed at all during the night. Furthermore, more than half of the mothers refrained from breastfeeding because of experiencing breastfeeding issues such as nipple pain. This finding suggests that these mothers may not have been able to position the infant properly.<sup>20</sup> Another study conducted in the coastal district of Karnataka, India, it was indicated that the knowledge, attitudes and practices of mothers who had received prenatal care and training in breastfeeding techniques improved significantly.<sup>25</sup> In a study in Myanmar that reviewed the effects of a breastfeeding promotion program, it was observed that the rate of breastfeeding in the first 6 months was higher though not statistically significant in the regions included in the program compared to the areas that had not been included. The authors commented on this finding by recommending that programs of training emphasize the importance of keeping infants exclusively on breast milk in the first six months of life.<sup>26</sup> The results of our study suggest that breastfeeding training can remedy adverse outcomes and point to the importance of training in experiencing effective breastfeeding.

There was no difference between the two groups for the infant's weight after the training. The cohort study reported that breastfeeding was inversely associated with weight gain rate, BMI and overweight risk in the first year of life.<sup>27</sup> The results show that although all breastfeeding behaviors of the mothers developed positively one month after breastfeeding training, this period was not sufficient for the change in the infant's weight.

### Limitations

The study reached its goals. However, our study had several limitations. First, only one province was used in the study, and therefore the findings may not be representative of others in different geographical locations.

Secondly, because mothers were not called by appointment, more than one mother presented at the FHC at the same time, it took a long time to reach the target sample size.

### Conclusion

In this study, the effect of individual breastfeeding training on breastfeeding behaviors and traditional practices were determined. The individual breastfeeding training improved the breastfeeding behaviors and the use of harmful breastfeeding traditional practices decreased. In line with this, health professionals should be aware of harmful traditional practices prevalent in the community and should perform breastfeeding counseling and support for mothers during the breastfeeding period.

### Ethics Committee Approval

Permission for the study was obtained from the KTO Karatay University Ethics Committee (Decision No 2018-001). The principles of the Declaration of Helsinki were complied with while conducting the study.

### Informed Consent

The purpose of the study was explained to the mothers included in the study and their voluntary consent was obtained. Informed consent form were signed the participants.

### Author Contributions

Study design: AD, ES; Data collection: AD, ES; Data analysis: AD; Interpretation of the findings: AD, ES; Manuscript writing and revisions: AD, ES; All the authors read and approved the final draft.

### Acknowledgements

The authors thank the participants who agreed to participate in this study for their contribution.

### Conflict of interest

The authors have no conflicts of interest to declare.

### Financial Disclosure

There is no person/organization that financially supports this study.

## Representation

It has not been presented at any congress.

## Peer-review

Externally peer-reviewed.

## References

- World Health Organization. Infant and young child feeding. 2020. Available from: <http://www.who.int/mediacentre/factsheets/fs342/en/>. Accessed February 17, 2021.
- American Academy of Pediatric. Policies on breastfeeding. 2021. Available from: <https://services.aap.org/en/patient-care/breastfeeding/policies-on-breastfeeding/>. Accessed February 17, 2021.
- United Nations International Children's Fund [Internet]. Global Strategy: breastfeeding critical for child survival. 2004. Available from: [https://www.unicef.org/media/media\\_20045.html](https://www.unicef.org/media/media_20045.html) Accessed January 23, 2021.
- Salone LR, Vann Jr WF, Dee DL. Breastfeeding: an overview of oral and general health benefits. *JADA*. 2013;144(2):143-151. <https://doi.org/10.14219/jada.archive.2013.0093>
- United Nations International Children's Fund. Infant and young child feeding. 2018. Available from: <https://data.unicef.org/topic/nutrition/infant-and-young-child-feeding> Accessed February 11, 2021
- Yılmaz M, Aykut M. The effect of breastfeeding training on exclusive breastfeeding: a randomized controlled trial. *The Journal of Maternal-Fetal & Neonatal Medicine*. 2021;34(6):925-932. <https://doi.org/10.1080/14767058.2019.1622672>
- Turkey demographic and health survey. Turkey: Hacettepe University Institute of Population Studies. Ankara, Turkey: 2014. Available from: [http://www.hips.hacettepe.edu.tr/eng/TDHS\\_2013\\_main.report.pdf](http://www.hips.hacettepe.edu.tr/eng/TDHS_2013_main.report.pdf). Accessed October 5, 2017
- Turkey demographic and health survey. Turkey: Hacettepe University Institute of Population Studies. Ankara, Turkey: 2019. Available from: [http://www.hips.hacettepe.edu.tr/eng/tdhs2018/TDHS\\_2018\\_main\\_report.pdf](http://www.hips.hacettepe.edu.tr/eng/tdhs2018/TDHS_2018_main_report.pdf). Accessed January 9, 2020
- American Academy of Pediatrics. Policy statement breastfeeding and the use of human milk. *Pediatrics*. 2012;129(3):827-841. <https://doi.org/10.1542/peds.2004-2491>
- World Health Organization / UNICEF. Baby-Friendly Hospital Initiative: revised, updated, and expanded for integral care. Geneva, Switzerland: 2009. Available from: [https://apps.who.int/iris/bitstream/handle/10665/43593/9789241594967\\_eng.pdf?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/43593/9789241594967_eng.pdf?sequence=1). Accessed March 21, 2020
- Hannula L, Kaunonen M, Tarkka MT. A systematic review of professional support interventions for breastfeeding. *JCN*. 2008;17(9):1132-1143. <https://doi.org/10.1111/j.1365-2702.2007.02239.x>
- Tahir NM, Al-Sadat N. Does telephone lactation counselling improve breastfeeding practices?: a randomised controlled trial. *IJNS*. 2013;50(1):16-25. <https://doi.org/10.1016/j.ijnrstu.2012.09.006>
- Levesque A, Li HZ. The relationship between culture, health conceptions, and health practices: a qualitative-quantitative approach. *JCCP*. 2014;45(4):628-45. <https://doi.org/10.1177/0022022113519855>
- Mbada CE, Olowookere AE, Faronbi JO, et al. Knowledge, attitude and techniques of breastfeeding among Nigerian mothers from a semi-urban community. *BMC Research Notes*. 2013;6(1):552. <https://doi.org/10.1186/1756-0500-6-552>
- Republic of Turkey Ministry of Health, General Directorate of Mother and Child Health and Family Planning. Successful Breastfeeding. Ankara. 2007; p. 1-17. Available from: <https://dosyasb.saglik.gov.tr/Eklenti/1437,basariliemzirmepdf.pdf?0> (Turkish). Accessed March 3, 2017
- World Health Organization. Guideline: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services. Geneva, Switzerland: 2017. Available from: <https://apps.who.int/iris/bitstream/handle/10665/259386/9789241550086-eng.pdf;jsessionid=524D34DF6CD663DF95A22E0D67EC96D6?sequence=1>. Accessed October 9, 2017
- Victoria CG, Bahl R, Barros AJ, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet*. 2016;387(10017):475-490. [https://doi.org/10.1016/S0140-6736\(15\)01024-7](https://doi.org/10.1016/S0140-6736(15)01024-7)
- Rollins NC, Bhandari N, Hajeebhoy N, et al. Why invest, and what it will take to improve breastfeeding practices?. *The Lancet*. 2016;387(10017):491-504. [https://doi.org/10.1016/S0140-6736\(15\)01044-2](https://doi.org/10.1016/S0140-6736(15)01044-2)
- Lee A, Davies P, Mackerra D, et al. Eat for health infant feeding guidelines: information for health workers. *Australia National Health and Medical Research Council*. 2012. [https://www.eatforhealth.gov.au/sites/default/files/content/The%20Guidelines/170131\\_n56\\_infant\\_feeding\\_guidelines\\_summary.pdf](https://www.eatforhealth.gov.au/sites/default/files/content/The%20Guidelines/170131_n56_infant_feeding_guidelines_summary.pdf)
- Subbiah N, Jeganathan A. Socio-cultural beliefs influencing breastfeeding practices among primi postnatal mothers residing in urban slum area of Delhi. *Health Popul Perspect Issues*. 2012;35:61-73. URL: <https://www.semanticscholar.org/paper/Socio-cultural-beliefs-influencing-breastfeeding-in-Subbiah-Jeganathan/90acc36f1753dbcf3ef656a195b329bd75e71be>
- Ibe SNO, Obasi O, Nwoke EA, et al. Cultural practices on infant feeding and nursing-mothers' adoption of exclusive breastfeeding practice in Imo State Nigeria. *MOJ Public Health*. 2017;5(5):155-161. <https://doi.org/10.15406/mojph.2017.05.00141>
- Picolo M, Rác S, Kavle J, et al. *Cultural Beliefs and Practices That Influence Infant and Young Child Feeding in Mozambique: Results of Trials of Improved Practices Assessment*. Washington, DC: Maternal and Child Survival Program; 2017. URL: <https://www.mcsprogram.org/wp-content/uploads/2017/10/MCSP-Mozambique-TIPs-Report-Exec-Summary.pdf>
- Gallegos D, Vicca N, Streiner S. Breastfeeding beliefs and practices of African women living in Brisbane and Perth, Australia. *Matern Child Nutr*. 2015;11(4):727-736. <https://doi.org/10.1111/mcn.12034>
- Karahan N, Aydın R, Güven DY, et al. Traditional health practices concerning pregnancy, birth, and the postpartum period of women giving birth in the hospital. *South. Clin. Ist. Euras*. 2017;28(3):190-198. URL: [https://jag.journalagent.com/scie/pdfs/SCIE-33042-RESEARCH\\_ARTICLE-KARAHAN.pdf](https://jag.journalagent.com/scie/pdfs/SCIE-33042-RESEARCH_ARTICLE-KARAHAN.pdf)
- Tella K, Guruvare S, Hebbar S, et al. Knowledge, attitude, and practice of techniques of breast-feeding among postnatal mothers in a coastal district of Karnataka. *Int J Med Sci Public Heal*. 2016;5(1):28-34. <https://doi.org/10.5455/ijmsph.2016.100620159>
- Thet MM, Aung T, Diamond-Smith N, et al. The influence of a community-level breast-feeding promotion intervention programme on breast-feeding practices in Myanmar. *Public Health Nutr*. 2018;21(16):3091-3100. <https://doi.org/10.1017/S1368980018001799>
- Azad MB, Vehling L, Chan D, et al. Infant feeding and weight gain: separating breast milk from breastfeeding and formula from food. *Pediatrics*. 2018;142(4):e20181092. <https://doi.org/10.1542/peds.2018-1092>