0-6 AYLIK BEBEĞİ OLAN ANNELERİN ANNE SÜTÜNÜ ARTIRMAYA YÖNELİK GELENEKSEL UYGULAMALARI

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ÖZET

AMAÇ: Araştırma 0-6 aylık bebeği olan annelerin emzirme durumlarını, anne sütünü artırmaya yönelik geleneksel uygulamalarını ve etkileyen faktörleri belirlemek amacıyla yapılmıştır.

GEREÇ ve YÖNTEM: Araştırma, tanımlayıcı özelliktedir. Örneklemi, Kütahya ili belediye sınırları içindeki Merkez Sağlık Ocakları'na kayıtlı, 0-6 aylık bebeği olan 216 anne oluşturmuştur. Veriler, araştırmacılar tarafından hazırlanan soru formu ile 01.07.2008-20.07.2008 tarihleri arasında toplanmıştır. Soru formu, annelerin evlerinde ziyaret edilmesi ve soru-cevap yöntemi ile doldurulmuştur. Veriler tanımlayıcı istatistikler, Ki-kare, Fisher Kesin Ki-kare ve ANOVA ile değerlendirilmiştir.

BULGULAR: Örneklemin yaş ortalaması 26.85±4.87 olup, %53.2'si ilkokul mezunu, %89.4'ü ev hanımı ve %45.8'i düşük gelirlidir. Annelerin %77.8'i emzirme ve anne sütünü artırıcı uygulamalar/önlemler konusunda herhangi bir eğitim almamıştır. Annelerin %72.7'si sütlerinin yeterli olduğunu düşünmektedir ve %65'i bebeklerini ilk altı ay sadece anne sütüyle beslemişlerdir. Annelerin %19.9'u sütlerini artırmak için hiçbir uygulama yapmazken, %80.1'i sütlerinin yetersiz olduğu düşüncesiyle anne sütünü artırmaya çalışmışlardır. Bu amaçla modern (%9.2), geleneksel (%47.9) veya geleneksel+modern (%42.7) uygulamaları yapmışlardır. Büyük bir bölümü beslenmesine önem vermiştir. Anneler en çok su (%62), süt (%24.1), tatlı (%20.8), incir (%18.1), soğan (%17.6), meyve-meyve suyu (%16.2), rezene çayı (%14.8) ve sebze-yeşilliğin (%13.9) sütlerini arttırdığına inanmaktadırlar. Annelerin yaşı, çalışma ve gelir durumu, yaşayan çocuk sayısı, bebeklerini besleme şekli, sütlerinin yeterliliğine ilişkin düşünceleri ile emzirme ve anne sütünü artırıcı uygulamalar/önlemler konusunda eğitim alma durumu anne sütünü artırmaya yönelik uygulamalarında etkili bulunmuştur ($p<0.05$).

SONUÇ: Bulgular, annelerin anne sütünü artırmak için bazıları kendilerine ve bebeklerine zarar verebilecek özellikte olan değişik yöntemleri uyguladıklarını, daha çok geleneksel uygulamaları yaptıklarını ve modern uygulamalar konusunda eğitime gereksinimleri olduğunu göstermektedir.

Anahtar sözcükler: Doğum sonrası dönem, emzirme, anne sütü, geleneksel uygulamalar

Traditional Practices of Mothers to Improve Breast Milk Production During Postpartum 6 Months

SUMMARY

OBJECTIVE: This study aimed to determine breastfeeding statues and practices of mothers to improve breast milk production and affecting factors.

MATERIALS and METHODS: Sample of this descriptive study included 216 mothers in Kütahya , having 0-6 month(s) old infants and breastfed at least for a while. Data were collected via a questionnaire prepared by researchers including 51 questions about mothers' socio-demographic characteristics, obstetric history, nursing situations and traditional practices used to improve breast milk/breastfeeding between 07.01.2008-072.20.2008 by the face-to-face interviews at their homes. Descriptive statistics, chi-square, Fisher exact chi-square and ANOVA were used for data analysis.

RESULTS: The age of mothers were in mean 26.85±4.87, 53.2% were completed primary school, 89.4% were housewife and 45.8% had low income. 65.0% of mothers exclusively breastfed their babies for the first six months. 72.7% of mothers thought there milk were enough and 77.8% were not informed about breastfeeding issues. While 19.9% of mothers did nothing to increase their breast milk supply, over 80% of mothers tried to increase their breast milk production while they perceived their milk as inadequate. For this reason they used modern (9.2%), traditional (47.9%) or both modern and traditional practices (42.7%). A great part emphasized nutritional applications. They believed mostly that water (62.0%), milk (24.1%), sweets (20.8%), fig (18.1%), onion (17.6%), fruits-fruit juices (16.2%), fennel tea (14.8%) and vegetables (13.9%) increased their breast milk supply. Milk-enhancing practices of mothers were affected by mothers' perceptions of milk-(in) sufficiency, age, working statue, incomes, numbers of living children, pre-planned times for exclusively breastfeeding, infants' age and information given about breastfeeding issues ($p<0.05$).

CONCLUSION: The findings suggest that mothers use various methods to enhance their breast milk supply some of them may harm both mothers self and their infants, they mostly practice traditional methods and need education about modern practices.

Key words: Postpartum period, breastfeeding, breast milk, traditional practices

Mother's milk is extremely important for starting and structuring a healthy life. During the infancy period characterized by rapid growth and development, adequate and balanced nutrition is best provided with only breast milk. World Health Organization (WHO), United Nations Children's Fund (UNICEF) and Ministry of Health suggested that babies should be exclusively breastfed, i.e. receive

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only breast milk on-demand day and night, for the first six months of live to achieve optimal growth, development and health; water and additional foods should be started first when they are six months old, and breastfeeding should be continued along with additional foods until a baby two years old [1-5]. Today, however, the rate of exclusively breastfeeding is still well below than 80%, the envisaged rate for the 21st century health targets [6]. Globally, the rate of exclusively breastfed infants within first six months varies only between 34.8% and 38.0% [7-8]. Most babies take additional solid and liquid foods, even from the first month up. Forecastably, in near future 1.4 million children under the age of five will die and 10% will be ill due especially to not being exclusively breastfed within first six months of their lives[8].

Despite intensive efforts, the rate of exclusive breastfeeding in first six months increased from 33% to 37% in developing countries in years 1996-2006 [7-8]. A 19% increase was also noticed in our country during last five years (21% in 2003 *vs* 40% in 2008) [9-10]. The rate of exclusive breastfeeding is approximately 69.0% in the first month, and fall rapidly to 42% in 2-3 months [10]. Consequently, mothers start supplemental foods in addition to breast milk and breastfeeding is ceasing early. Several studies suggest that the rate of starting supplemental feeding varies between 40 to 93% [10-18].

There are various factors affecting negatively both mothers' initiation the breastfeeding after delivery and exclusively breastfeeding thereafter [19-25]. However, one of the most important reasons of starting supplemental feeding is mothers' thoughts that there milk is not enough for their infants [13,26-31]. Consequently, mothers who want to continue breastfeeding do practice various methods to increase their breast milk production. The rate of mothers trying different methods to increase their milk supply may be as high as 90% [32]. An important part of applications includes traditional practices [26-30,31,33-34], which show distinct cultural differences[33].

The superstitions and traditional practices relating to mother and child care during postpartum period are also very common in Anatolian culture [13,32-36]. There are certain studies about infant care during postpartum period [8,13,37,38]. However, despite remarkable cultural differences in mothers' practices, few studies are available about their practices to improve the breast milk and influencing factors. Knowing mothers' problems with breastfeeding and their beliefs and practices to improve breast milk supply would lead organizations to take necessary precautions to provide long-term effective feeding of infants with only breast milk. This study was carried out to determine traditional practices of mothers to enhance their breast milk in a city of Aegean region.

MATERIALS and METHODS

Study Design

The universe and the sample

The study was approved by the Institutional Ethics Committee [B.30.2.ADÜ.0.20.05.00/010-021], and permission was taken from the Provincial Health Directorate in Kütahya [B.10.4.ISM.4.43.00.09.622.02-090/3193]. The universe of the study included 1180 mothers who were registered in the primary health care centers #1 to #14 located within the municipality borderlines of Kütahya in July 2008 and had 0-6 month(s) old infants. Because there was no adequate information about the traditional practices to improve breast milk supply, sample size was calculated by using the rate of mothers who had 0-6 month(s) old infants and exclusively breastfeed their babies according to the TDHS 2008 (20.8%). With 95% confidence intervals and 5% fallibility it was calculated as 208. With inclusion of 30% more mothers the relevant sample size was 270. Because 20 women were not available and 34 women refused to attend at the study, the sample composed of 216 mothers (18.33%) that had 0-6 month(s) old infants, breastfed their babies for a while and accepted to participate at the study. In each primary health care center region 23% of mothers were determined from registry cards *via* systematical sampling technique.

Subject selection criteria

•The mothers were chosen by the following criteria:

- Being registered at the central primary health care centers #1-to-#14 in Kütahya.
- Having 0-6 month(s) old infants.
- Self-acceptance to attend at the study.
- Having breastfed their babies at least for a time period.

Exclusion criteria

Mothers, whose babies died after births were excluded.

Data collection tool

Data were collected *via* a questionnaire prepared by researchers. The questionnaire composed of 51 questions including mothers' socio-demographic characteristics (12 questions), obstetric history (8 questions), nursing situations (19 questions) and traditional practices to improve breast milk/breastfeeding (12 questions). To prepare the questionnaire, one midwife at each related primary health center (#1-#14) in Kütahya was consulted and their subject-oriented comments and observations were considered. The questionnaire, developed in accordance to these consultations and preliminary literature, was evaluated in terms of its validity and intelligibility by 14 academicians (three physicians in

public health area, three faculty staff nurses in the field public health nursing, five nursing staff in the field gynecology and obstetrics nursing, and three staff in the field biostatistics). The questionnaire was reorganized according to the experts' advises. Prior to the study this form was applied to ten relevant mothers registered at the #3 primary health care center and necessary corrections were made.

Data collection

A researcher collected data *via* visiting mothers at their homes and using face to face interviews after the written confirmation of the mothers' informed consents. Questionnaires were filled out within 15-20 minutes. Data were collected between 01st and 20th July 2008.

Analyses of the data

Percentages, arithmetic means and standard deviations were calculated as descriptive statistics, and chi-square, Fisher exact chi-square and one-way analysis of variance (ANOVA) were used for group comparisons.

Limitations of the study

One of the limitations of this study was that the sample included mothers having babies of 0 to 6 months, so that not all babies had been completed a suggested exclusive breastfeeding period for 6 months. Further, although traditionally some herbs, remedies or nutrients in form of foods, deserts and/or fluids including herbal teas were used to increase the breast milk supply by women who has given birth, there is no scientific evidence about their effectiveness. So, frequent breastfeeding is only accepted modern method to increase breast milk production and supply of mothers. Another important limitation is that the study has been carried out in Kütahya city center. Thus, the data gathered may primarily represent the related population, and cannot be generalized. And, the reliability of the data is limited to the information given by the women.

RESULTS

Characteristics of mothers and infants

The mean age of mothers was 26.85±4.87, 53.2% was primary school graduates, %70.4 had nuclear family and 81.5% spent the longest life-time in the city. 89.4% of respondents did not work, %94.9 had social security, and 45.8% declared their incomes as inadequate. 47.2% of mothers had two living children (Table 1). With one exception, all births took place in hospitals and 58.3% were normal spontaneous vaginal births. Most babies (89.4%) had normal birth weights, were mature (93.1%), and 51.4% were girls (Table 1). 36 infants (16.7%) had health problems after birth.

Feeding characteristics

Of mothers 90.3% started breastfeeding within 30 minutes after birth; however, a half of infants was given first zemzem water. 56 mothers (25.9%) gave additional foods to their babies within 3 days postpartum, where 53 (94.6%) used infant formulas. The most important reason of giving supplemental foods was thoughts that the babies had not got enough milk (69.6%).

Seventy five percent of mothers thought to exclusively breastfed their babies for first 6 months. However, 88.2% of mothers implemented it, and this rate began to decrease from 2nd month (70.6%) up to 65% in the 6th month. Concomitantly, the rate of supplemental feeding increased twofold in the 2nd month and reached to the 35% at the 6th month postpartum (X^2=5.284, p>0.05, Table 2). Three mothers ceased breastfeeding in 3rd month. Mothers breastfed their babies in mean 6.57±1.78 times the day and 3.36±1.50 times by night within last 24 hours. During this period 72.7% gave their babies only breast milk, and 27.3% has given supplemental foods, mostly infant formulas (77%).

Thoughts of mothers and affecting factors related to the milk adequacy

Among mothers 72.7% have thought that their milk was enough. Mothers expressed that they could understand the inadequacy of their milk by babies being restless (74.6%) and impairments of their growth (23.7%). The reluctance of babies against breastfeeding (45.8%), being under extreme stress (20.3%) and nutritional insufficiencies (16.9%) were expressed as effective factors on milk insufficiency. 93.6% of mothers perceiving their milk as sufficient exclusively breastfed their babies, while 54.2% of mothers who thought their milk was insufficient gave supplemental foods in addition to the breast milk (X^2=62,733, p=0.000). The perceptions of mothers related to (in)sufficiency of their milk had no effect on infants' weight gains (X^2=1.718, p>0.05). 70% of exclusively breastfed babies and 57.6% of babies who have given additionally supplemental foods showed normal weight gains (X^2=4.452, p=0.075).

Information about breastfeeding

Only 48 mothers (22.2%) have got information about breastfeeding and breast milk improving practices, while the remaining 77.8% were not given any information about these issues. Information was given primarily by midwives (77.1%), while only 20.8% have got it from physicians and 2.1% from nurses. 72.0% of not-informed mothers preferred to fed their babies with only breast milk, while 60.4% of informed mothers exclusively breastfed their babies (X^2=2370, p>0.05).

Table 1. Sociodemografic characteristics of mothers (N=216)

Sociodemografic characteristics	n	%
Age		
15-19	9	4.5
20-24	70	32.6
25-29	77	35.8
30-34	40	18.6
35 and over	20	8.8
Educational status		
Literate	4	1.9
Illiterate	5	2.3
Primary school graduate	115	53.2
Secondary school graduate	24	11.1
High-school graduate	52	24.1
University graduate	16	7.4
Working status		
Working	23	10.6
Non-working	193	89.4
Social security		
Have	205	94.9
Do not have	11	5.1
Income status		
Adequate	39	18.1
Partially adequate	78	36.1
Inadaquate	99	45.8
The longest habitation		
Village	18	8.3
Town	22	10.2
City	176	81.5
Family type		
Immediate family	152	70.4
Extended family	64	29.6
Living children		
1	86	39.8
2	102	47.2
? 3	28	13.0
Gender of the baby		
Female	111	51.4
Male	105	48.6
Birth weight of the baby		
< 2500 gr	13	6.0
2500–3999gr	193	89.4
? 4000gr	10	4.6

Table 2. Feding styles of babies according to their ages (N=216)

	Feding style**					
	Only breast milk		Breast milk+add. Gıda			
Age of baby	n	%	n	%	X^2	p*
1	15	88.2	2	11.8	5.284	0.362
2	24	70.6	10	29.4		
3	33	73.3	12	26.7		
4	30	69.8	13	30.2		
5	22	59.5	15	40.5		
6	26	65.0	14	35.0		

***** Pearson chi-square value.
****** Line percentage has been taken.

Food and liquids preferably consumed

Certain nutrients were preferably consumed by 73.1% of mothers during breastfeeding period. With 87.3% of mothers the vegetables and fruits were consumed at most, which was followed by desserts/sweets (63.3%), and milk and milk products 60.8%. The average amount of fluid intake during breastfeeding period was over 3000 ml in general; 14.8% of mothers consumed $\leq$ 2 liters, 54.6% 2-3 liters, and 30.6% more than 3 liters fluids per day.

Breast milk production-improving practices

It was seen that mothers used mostly traditional practices to increase their breast milk supply (47.9%). The rate of mothers using traditional+modern practices was also high (42.7%). In contrast, modern applications were practiced only by 9.2% (Table 3). All mothers who declared practicing modern methods to increase their breast milk told that they breastfed their babies frequently. 75.9% of mothers using traditional practices consumed more water and liquid foods, and 62.7% emphasized the nutrition (Table 4), while all mothers using both traditional and modern methods breastfed their babies frequently, and additionally 97.3% consumed more water and liquid foods, and 73.0% emphasized the nutrition (Table 5). Mothers generally drunk water (71.1%) and milk (41.0%), and consumed deserts/sweets (28.9%) to enhance their breast milk (Table 6).

Mothers have got the advices about traditional practices primarily from their mothers (30.6%) and mothers-in-law (14.5%). Only a small group of mothers have got information from midwives. 21.9% of mothers who have got advice from health staff, 26.5% of mothers who have got advice from their relatives and almost all mothers who did not get any information, but practiced breast milk-enhancing applications according to their self-knowledge exclusively breastfed their babies for the first six months (X^2=6.912, p=0.032).

Table 3. Applications to increase breast milk of mothers (N=173)*

Applications	n	%
Traditional applications	83	47.9
Traditional and modern applications	74	42.7
Modern applications	16	9.2

***** 43 mothers who do not make any application were not assesed.

Table 4. Traditonal applications to increase breast milk of mothers (N=83)

Traditonal applications	n*	%
Water and liquid food	63	75.9
Balanced nutrition	52	62.7
Consuming honey and spice	1	1.2
Consuming barley	1	1.2
Pouring lead	1	1.2

***** Because of more than one answer "n" has refolded.

Table 5. Traditonal and modern applications to increase breast milk of mothers (N=74)

Traditonal and modern applications	n*	%
Breastfeeding often	74	100
Taking water and liquid food	72	97.3
Balanced nutriton	54	73.0
Breastfeeding long time	3	4.1
Consuming sanicle	1	1.4
Consuming honey and spice	1	1.4
Pouring lead	1	1.4

***** Because of more than one answer "n" has refolded.

Table 6. Mostly done three applications to increase breast milk of mothers (N=173)*

Mostly done three applications	n**	%
Water	123	71.1
Milk	71	41.0
Sweet	50	28.9

* 43 mothers who do not make any application were not assesed.
** Because of more than one answer "n" has refolded.

Foods and drinks thought of increasing breast milk

Mothers believed that breast milk was improved at most by such foods like deserts/sweets (20.8%), figs (18.1%), onions (17.6%), fruits (17.6%) and vegetables and greens (13.9%). Among fluids water was told by the majority of mothers (62%), and this was followed by milk (24.1%), fruit juices (16.2%), and fennel tea (14.8%) (Table 7).

Table 7. Food and drinks that thought to increase breast milk (N=216)

Food	n*	%
Sweet	45	20.8
Fig	39	18.1
Onion	38	17.6
Fruit	35	16.2
Vegetables	30	13.9
Soup	11	5.1
Date	9	4.2
Cracked wheat pilaf	8	3.7
Dry Pulses	4	1.9
Curry foods	3	1.4
Drinks		
Water	134	62.0
Milk	52	24.1
Fruit juice	35	16.2
Fennel	32	14.8
Lime tea	8	3.7
Stewed fruits	7	3.2
Humana stil tea	4	1.9

* Because of more than one answer "n" has refolded.

Mothers' characteristics and breast milk-enhancing practices

The usages of traditional breast milk-enhancing practices were increased with increasing age of mothers (<25 years: 30.4% ***vs*** $\geq$ 25 years: 43.1%) (X^2=9402, p=.024). Frequent breastfeeding was used by only 8.3% of housewives, while none of working mothers used it; instead they preferred traditional+modern practices (56.5%) (X^2=9088, p=0.028). Interestingly, none of high-income mothers tried to improve their breast milk. Only 2.6% of middle-income mothers practiced a modern technique, while 14.1% of low-income mothers did it (X^2=17,578, p=0.007). The numbers of living children influenced mothers' applications (X^2=11,420, p=0.010). To increase the breast milk, 8.6% of mothers with 1-2 living children used modern techniques, 35.8% used traditional+modern techniques, and 34.2% used traditional practices, while 21.4% used no application. None of 29 mothers with $\geq$ 3 living children used modern practices, but 65.5% of them used traditional practices, 24.1% used traditional+modern practices and 10.3% used no technique (Table 8).

It was determined that mothers who wanted to exclusively breastfed their babies for the first six months used modern practices, while mothers who aimed exclusively breastfeeding for shorter time used either traditional+modern or traditional practices (F=4.815, p=0.03). Mothers' preferences of practices changed as infants grown. Mothers having one month old infants used modern practices, those having two months old infants did not use any practice, while mothers having three months old infants used either traditional or traditional+modern practices (F=2.798, p =0.04). Although the rates for both groups are small, exclusively breastfeeding mothers used modern practices more than those who had given their babies additionally supplemental foods (9.3% *vs* %3.0). While traditional and traditional+modern practices were used by 54.5% and 25.8% of mothers who had given their babies breast milk and supplemental foods in the first six months, 38.0% and 31.3% of exclusively breastfed mothers used these practices, respectively (X^2=11.391 p=0.01) (Table 8).

Solely 10.2% of mothers perceiving their breast milk as sufficient used only modern practices, but none of those perceiving their milk production as insufficient used modern ways. The rate of mothers not-requiring any application was also low among those who thought that their milk supply was sufficient than others (22.5%-13.6%). Most of the mothers perceiving their milk as sufficient used both modern and traditional practices to increase their breast milk (38.9%), while 28.7% used only traditional methods. In contrast, 64.4% and 22.0% of mothers perceiving their breast milk as insufficient preferred traditional and traditional+modern practices, respectively. The perceptions of mothers related to their milk supply-sufficiency affected their breast milk-enhancing practices (X^2=25.456, p=0.000) (Table 8).

Similar rates of mothers who have or not have got information about breastfeeding and improvement of breast milk supply breastfed their babies frequently (8.3%-7.1%). 52.1% of informed mothers used traditional practices and 37.5% used traditional+modern practices. However, not-informed mothers tend to practice traditional and

traditional+modern applications equally (%34.5-%33.3). While 25.0% of not-informed mothers did not use any practice to improve their breast milk, this rate was only 2.1% among informed mothers (X^2=13,105, p=0.004) (Table 8).

DISCUSSION

The practices of mothers to increase breast milk supply have been given in preliminary literature in details, but no information about the factors affecting their choices could be found. Thus, their comparisons could not be done herein.

Feeding characteristics

The findings revealed that a great part of mothers (75%) planned feeding their infants with only breast milk, but 65% could realize it and 35% have given supplemental foods in addition to the breast milk. Only three mothers have ceased breastfeeding within the first three months. The aimed exclusive breastfeeding period affected the type of feeding infants in postpartum six months (X^2=117.526, p=0.000). According to The Turkey Demographic and Health Survey (TDHS) Report 2008 the rate of exclusive breastfeeding is 68.9% in the first month, then this rate decrease to 42%, 21.9% and 1.6% in 2-3rd, 4-5th and 6-8th months, respectively [10]. Several other studies showed also that approximately 60% of mothers start to give additional foods earlier, and they usually give formulas and other liquid foods [13,28,36,30,37,39-43]. Sibeko et al. [30] reported that none of South African lactating women in their study sample exclusively breastfed their infants, and they valued traditional herbal preparations (muthi) with 56% of the infants having received their first dose of muthi before 1 month of age. The rate of mothers who thought exclusively breastfeeding their babies and concordantly had given only breast milk in postpartum six months is higher and that of those given additional

Table 8. According to some characteristics making status of mothers applications to increase breast milk (N=216)

Introductory Characteristics	Applications to increas breast milk***									
	Non-maiking		Traditional		Modern		Traditonal +modern			
	n	%	n	%	n	%	n	%	X^2	p
Age										
< 25 years old	17	21.5	24	30.4	11	13.9	27	34.2	9.402	0.024*
≥25 years old	26	19.8	59	43.1	5	3.6	47	34.3		
Working status										
Working	6	26.1	4	17.4	0	0.0	13	56.5		
Non-working	37	19.2	79	40.9	16	8.3	61	31.6	9.888	0.028**
Income status										
Low	23	23.2	33	33.3	14	14.1	29	29.3		
Fair	14	17.9	36	46.2	2	2.6	26	33.3	17.578	0.007*
Fine	6	15.4	14	35.9	0	0.0	19	48.5		
Living children										
≤ 2	40	21.4	64	34.2	16	8.6	67	35.8		
≥ 3	3	10.3	19	65.5	0	0.0	7	24.1	11.420	0.019*
Feding style										
Breast milk	32	21.3	47	31.3	14	9.3	57	38.0		
Breast milk+add.food	11	16.7	36	54.5	2	3.0	17	25.8	11.391	0.01*
Thought about the adaquency of breat milk										
Adequate	35	22.5	45	28.7	16	10.2	61	38.9		
Inadaquate	8	13.6	38	64.4	0	0.0	13	22.0	25.456	0.000*
Training										
Yes	1	2.1	25	52.1	4	8.3	18	37.5		
No	42	25.0	58	34.5	12	7.1	56	33.3	13.105	0.004*

* Pearson chi-square value.
** Exact chi-square value.
*** Line percentage has been taken.

foods is lower than given in preliminary literatures. These are important findings showing positive attitudes of mothers to breastfeeding, in general. However, they also reveal that mothers should be supported on breastfeeding issues since the rate of those giving additional foods increase with time gradually (Table 2), and exclusively breastfeeding rate is still far below of 2015 targets.

Neither the perceived amount of breast milk nor the feeding type influenced the weight gains of babies (X^2=1.718, p>0.05 and X^2=4.452, p=0.075, respectively). Expectedly, 56 mothers (25.9%) started supplemental foods because they thought that their babies were not satiated due to the insufficiency of their breast milk. Taveras et al. [27] found that women ceased breastfeeding in the first week mostly because they though their milk was not adequate and their babies were hungry. Marques et al. [44] determined the babies being hungry as the main reason. *Ad modum* Kahriman [13] and Sibeko et al. [30] 40.6% and 90% of mothers cease exclusive breastfeeding because they thought their milk was insufficient, respectively. Demirtaş [28] told insufficiency of breast milk, babies' not-sucking, suggestions of physicians, perceptions of babies' weights as being insufficient and wanting that babies gain weight were main factors for early starting of supplemental feeding, while Danowski and Garguila [45] find it as infants' sleep pattern changes and perceived hunger from infants. Our findings support the preliminary literature so far that mothers' perceptions of breast milk supply is an important aspect for continuity of exclusively breastfeeding.

The practices of mothers to increase breast milk

Most mothers aimed to give their babies only breast milk, but some of them could it not in reality mostly due to the perceived milk inadequacy. 80.1% of mothers tried practices to increase their breast milk, but modern practices were used only by 9.2%; instead traditional (47.9%) and traditional+modern (%42.7) practices were preferred generally (Table 3). 74.4% of mothers who did nothing to increase their breast milk supply exclusively breastfed their babies. Özsoy and Katabi [33] found that 21.3% of mothers in Turkey and 52% in Iran used modern practices like nursing frequently and drinking fluids. About 12% of mothers did nothing to increase their breast milk[29,32]. The rate of mothers not using any practice found in this study is higher than those in preliminary literature [29,32,33,46]. Otherwise, the findings support preliminary literature in terms of widespread practices of traditional methods.

In this study, 73.1% of mothers cared of food consumption especially because they nursed their infants. Mothers emphasized consumptions of vegetables and fruits (87.3%), desserts (63.3%), and milk and milk products (%60.8) in general, while only 21.5% consumed meat, chicken, fish, egg and dry legumes. Özsoy and Katabi [33] told that onion, sweet black eyed peas, potato, tarhana soup, linden tea and an ornament called milk-beads which look like beads of milk are mostly consumed for increasing breast milk in Turkey. Eğri [32] has stated that 89% of mothers make special applications to increase their breast milk and they especially emphasize applications related to nutrition and fluids intakes (71.3%), and consume mostly liquid foods (71.3%), light tea (63.7%) and desserts (62.4%). Demirtaş [28] found that mothers particularly consume scallions, onions, compotes, soups, halva, green vegetables, sweets/desserts, and rice of wheat grains to increase their milk. And, Dinç [29] told that they consume rice of wheat grains (%17) and lots of fluids (%27.4). Mothers consume traditionally desserts in postpartum period (63.3%) although it is not necessary to cover daily energy requirements [46]. Mothers' water and liquid foods consumption and their care for diet support the findings of Eğri [32]. Their emphasis to consume vegetables and fruits is a favorable finding. Nevertheless, the lesser consumption of protein-containing foods indicates that they cannot sense the balanced diet correctly. The limited protein intake may be related to either mother's low income statues or actually used traditional practices.

While all women who used both traditional and modern applications nursed frequently, almost all of them emphasized also the consumption of water and liquid foods (97.3%) and about 2/3 paid attention to their diets (Table 5). Most commonly used nutrition-related practices were the consumptions of water (71.1%), milk (41.0%) and desserts/sweets (28.9%) (Table 6). Generally, 14.8% of mothers consumed ≤ 2 liters liquid in a day, 54.6% consumed 2-3 liters and 30.6% consumed $\geq$ 3 liters, and they drink water, compotes or fruit juices generally. With 62.0% of mothers drinking water was the most rated nutrient women believed that it increased their breast milk supply. This was followed by the consumption of milk (24.1%), desserts (20.8%), fig (18.1%), onion (17.6%), fruits/fruit juices (16.2%) and green vegetables (13.9%) (Table 7). Demirhan [26] has reported that 23% of mothers consumed foods like desserts, compotes, milk, buttermilk and green vegetables and they expressed that all of these practices increased their breast milk supply. More water than necessary could decrease the milk production by suppressing prolactin production [47]. Thus, mothers should consume about 3000 ml liquid in a day to slake their thirst [46]. The findings reveal that an important part of mothers give special care to nutritional applications and liquid consumptions during lactation period, and they believe in that these common traditional applications improve their breast milk. Because mothers indicated under nutrition as the reason for having inadequate breast milk supply, their interests in nutritional changes and traditional nutrition applications are

prospective findings. Although there is no evidence-based finding related to the effects of nutrition and liquid intakes on breast milk supply, it was emphasized that these applications are important in terms of mothers' feeling herself comfortable[24].

Characteristics of mothers

The findings of this study revealed that certain characteristics of mothers may be effective on their practices to increase breast milk supply. These include mothers' age, working conditions, their incomes, numbers of living children, their thoughts about milk adequacy, aimed duration for feeding with only breast milk, nursing and the situation of being informed about precautions for increasing breast milk supply, feeding types of infants and baby's age ($p<0.05$, Table 8).

Adolescents and young mothers under 25 years old practiced modern applications to enhance their breast milk supply approximately four times higher than that of $\geq$25 year old mothers (13.9% *vs* 3.6%). Mothers used more traditional applications to increase the breast milk supply while they get older (43.1% *vs* 30.4%) (X^2=9.402 p=0.024) (Table 8). Likewise, remarkable is also the finding that with the increasing numbers of living children the usage of traditional applications increases (X^2=11.420, p=0.019). While 65.5% of mothers with $\geq$ 3 living infants used traditional applications, similar rates of mothers with $\leq$ 2 living infants used traditional and traditional+modern applications (%34.2 *vs* %35.8) (Table 8). The findings of the study do not support the positive association of breastfeeding duration with maternal age [48,50], and indicate that older women and women with more living children should especially be supported in terms of breast milk supply-improving practices.

Only a small part of housewives (%8.3) used frequent nursing technique, while none of working mothers used it. With 56.5%, working mothers used both traditional and modern applications at the highest rate (X^2=9.088, p=0.028, Table 8). Besides, the rate of mothers doing no application or using traditional applications decreased with increasing income (X^2=17.578, p=0.007, Table 8). Since the education level of working women with a high income level was higher in general, widespread traditional applications among these women were not expected. Their low rate in the sample and the possible work-related factors affecting the use of frequent nursing technique could inevitable be effective on this.

The findings of the study also revealed that practices to increase breast milk supply showed changes with time. Mothers with one-month old infants used modern practices, those with two-months old infants did nothing, while mothers with three-months old infants used both the traditional and traditional+modern practices (F=2.798, p=0.04).

In general, mothers who thought of exclusively breastfeeding their infants in postpartum six months used traditional or traditional+modern practices (F=4.815, p=0.03). However, mothers exclusively breastfed their infants in postpartum six months used modern applications three times more than those who has given additionally other foods (9.3% *vs* 3%) or did nothing (21.3% *vs* 6.7%). Mothers who has given supplemental foods in addition to the breast milk to their babies applied traditional (54.5%) and traditional+modern (25.8%) practices at a higher rate to increase their breast milk supply (X^2=11.391, p=0.01, Table 8).

The rate of mothers who started supplemental feeding early was remarkable higher among those who believed in having inadequate milk supply. Besides, 10% of mothers with thoughts of having sufficient milk supply used modern practices, but none of those with thoughts of having inadequate milk supply used these. The rate of mothers who did not use any application was higher among those who thought of having adequate milk supply than others (%22.5 *vs* %13.6). %38.9 of mothers thinking of having adequate milk tried to increase their milk supply by using both traditional+modern practices, while 28.7% used traditional practices. Nevertheless, 64.4% of mothers thinking of having inadequate milk tried to increase their breast milk supply by traditional practices (X^2=25.456, p=0.000, Table 8). This could under others be related to leakage of necessary information about modern applications. Preliminary studies had also underlined that mothers starting additional foods because they perceive their milk as insufficient for their babies[27,30].

It is known that mother's milk can be increased by effective nursing [5,37,50], and frequent nursing could be improved *via* education of mothers [8,36,38]. However, in this study the rates of frequently nursed mothers were similar among both groups whether they had or had not got information about the techniques to improve their breast milk supply (%8.3 *vs* %7.1). Of the informed mothers 52.1% used only traditional and 37.5% traditional+modern practices, while not-informed mothers used traditional and traditional+modern practices similarly (34.5% vs 33.3%) (X^2=13.105, p=0.00, Table 8).

Overall, it is well known that infant feeding behaviors could be changed by appropriate interventions [45], and perceived benefits of breastfeeding is negatively associated with initiation of formula supplementation and breastfeeding cessation. Women who reported problems with breast milk were 1.6 times as likely to begin using formula [43]. The findings of this study clearly demonstrated, that wanting to breastfed exclusively per see is generally enough to do it so in reality**.** For this reason, it is highly important for health personnel, especially midwives and nurses, to give consultancy service and training on breast milk-increasing practices to the mothers. And,

to be effective such a training should be started in early antenatal period, consider women's personal and cultural characteristics, and also include inevitable their relatives.

Conclusion

Because of recent studies suggest a strong relationship between early life experiences and their consequences in later life, exclusive breastfeeding for the first six months of life should be stressed by every health system. Many problems of childbearing women, including those relating to early cessation of exclusive breastfeeding, are related directly or indirectly with getting sufficient information from health stuff, and this seems still to be an important problem among this sample. So, they consult their older relatives or neighbors and practice what they advice. As a result, they use firstly prelacteal fluids like zemzem or sugared water, which in reality is a supplementation per see. While women worldwide try different practices to increase breast milk supply, controlled studies are inevitably necessary to gather evidence about these applications.

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