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Complementary and alternative methods of increasing breast milk of mothers of children aged 0-24 months

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ABSTRACT

Introduction and aim. Some applications are made to increase the breast milk. This study has been conducted to determine the complementary and alternative methods to increase the breast milk of mothers with a child in the age of 0 to 24 months.

Material and methods. This study was conducted using the cross-sectional study design. The questionnaire included mothers' socio-demographic characteristics, obstetric histories, breastfeeding, and practices to increase breast milk.

Results. The mean age of the mothers was 29.75 ± 5.97 years. 23.4% of the mothers stated that they did not continue breastfeeding; the mean duration of breastfeeding was 9.24 ± 4.88 months. Mothers expressed to increase milk intake water/liquid food to increase (84.2%), frequently breastfed babies (43.3%), boiling greens to drink (34.6%), spiritual practices (12.8%). Mothers stated that the special drinks used to increase their milk were fennel (56.2%), instant milk enhancer (22.9%), and sage (8.9%). Mothers emphasized that the amount of water (85.1%) and sugar levels (50.0%) they consumed the most increased breast milk.

Conclusion. It was determined that children could not have enough breast milk until the age of two; the mean duration of breastfeeding was low. Mothers believe that their breast milk is not enough for their children, so they apply milk-increasing practices.

Keywords. galactogogues, lactation, mothers

Introduction

Breast milk is essential for laying the foundation of a healthy life, particularly when given exclusively during the first six months after birth and with supplementary food after that during the first two years.¹ Breast milk has been the most natural and healthiest resource of baby feeding since the beginning of time. Unfortunately, like all-natural life-supporting resources, breast milk is also wasted due to wrong information, attitude, and behaviors. The benefit of breast milk is affected by the duration of use and exclusive use. Stimuli or experienced trauma when life is the most critical or sensitive with

regards to nutritional programming affect the rest of life in the long term.²⁻⁵

The 2015 report of the Centers for Disease Control and Prevention (CDC) reveals that 83.2% of babies start to get breastfeeding while 24.9% of them are exclusively breastfed during the first six months, and 17.2% of them are fed with formula in the first two days of their life.⁶ In Turkey, 98% of the babies are breastfed for "a while," and 42% of them are fed with food other than breast milk. The median time for exclusive breastfeeding is 1.8 months; supplementary foods are started for babies in the early period.⁷ These results indicate that babies are

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Received: 20.12.2021 / Revised: 2.02.2022 / Accepted: 6.02.2022 / Published: 30.06.2022

*The study has been accepted as the 2nd International 7th National Pediatric Nursing Congress 2019-Turkey oral presentation

Top FU, Çam HH. *Complementary and alternative methods of increasing breast milk of mothers of children aged 0-24 months.* Eur J Clin Exp Med. 2022;20(2):151–158. doi: 10.15584/ejcem.2022.2.3.



not at the desired level to create and maintain healthy nutrition.

Mothers' feeding methods are determined by various socio-economic, cultural, and personal factors. There are various factors with negative effects on the start of breastfeeding in the postnatal period and on the continuation of healthy nutrition period, including baby-related factors (crying, colic pain, breast refusal, etc.) and mother related factors (age, education, employment, attitude against breastfeeding, anxiety, breast problems, considering that milk is insufficient, traditional practice, etc.).^{8,9} Providing plenty of breast milk and latching the baby on the breast during the first postnatal days are critical tasks. The reasons for cessation of breast milk in an early period include the concern of mothers that breast milk is not sufficient for the baby. Getting colostrum away from the breast through effective breastfeeding after birth and exclusive breastfeeding from the first day on may provide the production of breast milk to meet the baby's needs.^{5,10-12} Although every mother's breast milk production at levels sufficient for her baby, researches shows that mothers believe that their milk is not sufficient and resort to complementary and alternative methods (CAM) to increase their milk.¹³ The uses of complementary and alternative methods, including herbal medicines, are increasing dramatically in the general population worldwide.¹⁴ Studies highlight that alternative methods considered galactagogues, including herbs, herbal teas/medicines, special food, massage, music, acupuncture, and heat, are popular among breastfeeding women despite the lack of data on their efficacy and safety.^{8,15,16} Mothers are asked to carry out various practices to increase breast milk, and it is attempted to continue the nutrition of babies with supplementary food since birth. In this process, mothers' milk is reduced, babies cannot feed with breast milk, and both mothers and babies face various health problems.^{17,18}

Health services to individuals and families to provide and maintain breastfeeding are essential to lay the foundations of healthy nutrition. Knowledge of beliefs and practices to increase breast milk will determine the priorities, particularly in this period.¹⁹ The complementary and alternative methods applied to increase breast milk should be selected, and then their adequacy and efficacy should be investigated by evidence-based studies.^{18,20} Ineffective, insufficient, harmful, or unnecessary practices that are believed to increase breast milk should be avoided.

Aim

This study has been conducted in order to determine the complementary and alternative methods that are believed to increase breast milk of mothers with a child in the age of 0 to 24 months.

Material and methods

Study design and participants

The present hospital-based cross-sectional study was conducted in pediatric wards of a tertiary care teaching institution from March 15, to June 15, 2019 in Turkey. The sample size was computed using the following formula: $[n=z^2pq/d^2]$. (n =sample size, $z=(1-\alpha)$, is the z -score corresponding to a 95% confidence interval and was computed as 1.96, $p=0.50$, $q=(1-p)=0.50$, d =desired margin of error or 0.05.) The estimated sample size was 384. However, to cover for possible dropouts due to missing information on crucial questions, a total of 436 participants were recruited for the study. Purposive sampling method was used in the study. The sample group consists of the mothers with a child in the age of 0 to 24 months in the institution where the study was conducted and 436 mothers were included in the study during the data collection dates (a period of 3 months). The study was conducted with the mothers with a child in the age of 0 to 24 months since the importance of breast milk for the first two years in baby nutrition is emphasized.

Data collection tools

In this study, a questionnaire form prepared in line with the literature was used as a data collection tool. Data collection tool consists of 47 questions including socio-demographic qualities of mothers (13 questions), obstetric histories (9 question), breastfeeding conditions (15 questions) and practices of mothers to increase breast milk (10 questions).^{1,4,8,13,16} The researcher obtained the consent of mothers to collect data and their convenient times were determined. Data was collected by the researcher through face-to-face interview method within 30 to 40 minutes in average in an appropriate meeting room.

Ethics approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was approved by the Ethics Committee of University of Giresun (Date: 19.12.2018/No: 08-16).

Statistical analysis

Statistical analyses were performed using the statistical software package SPSS version 20 for Windows (IBM, New York, USA). Means, standard deviations, percentages, and frequencies were used for descriptive analysis.

Results

The average age of mothers in the study was 29.75 ± 5.97 years (18-45 years), and more than half of them (58.9%) are in the group of 30 years and younger. More than half

Table 1. Knowledge, attitudes and practices of mothers on breastfeeding (n=436)

	Mean ± standard deviation	n	%
Initiation of breastfeeding			
< 30 minute		299	68.6
30-60 minute		115	26.4
> 60 minute		22	5
Duration of feeding only breast milk			
	6.60±2.84 months (1-24 months)		
≤ 4 months		9	2.1
5 months		13	3
6 months		370	84.9
≥ 7 months		44	10.1
Food given first after birth			
Breast milk		398	91.3
Zamzam water		15	3.4
Water		10	2.3
Infant formula		9	2.1
Sugar water		4	0.9
Time they plan to breastfeed with complementary feeding			
	20.76±6.10 months (6-36 months)		
12 months and under		115	26.4
13-18 months		20	4.6
19-24 months		287	65.8
25 months and over		14	3.2
How many hours do they breastfeed their baby?			
Whenever it cried		224	51.4
Every 2-3 hours		210	48.2
When it comes to my mind		2	0.5
What the previous children fed in the first 6 months?			
Breast milk only		156	53.2
Breast milk and complementary feeding		84	28.7
Breast milk and water		33	11.3
Breast milk and infant formula		19	6.5
Infant formula		1	0.3
Are you still breastfeeding your baby?			
Yes		334	76.6
No		102	23.4
If no, how many months did you breastfeed?			
	9.24±4.88 months (2-24 months)		
Reason for ending breastfeeding			
My milk is not enough/enough		69	15.8
Baby did not take the breast		29	6.7
I am separated from my baby		27	6.2
I did not want to breastfeed		20	4.6
It was the appropriate time to finish		10	2.3
My breasts were not suitable		9	2.1
I got pregnant		4	0.9
I was taking medication		2	0.5
Time to start complementary feeding			
	5.56±1.00 months (3-12 months)		
4 months and less		41	13.3
5 months		80	26.0
6 months		168	54.5
7 months and over		19	6.2
The reason for starting complementary feeding			
Additional food time has come		144	46.8
The baby was not getting enough		100	32.5
My milk didn't come		18	5.8
Midwife/nurse suggested		17	5.5
Doctor suggested		13	4.2
My baby couldn't suck		9	2.9
I was sick, I was taking medication		5	1.6
My milk didn't work		2	0.6
Do you think your milk is enough for your baby?			
Yes		174	39.9
No		262	60.1
How do you know your milk is not enough?			
Restless and not sleeping after sucking and changing diaper		169	38.8
By month low weight		62	14.2
It sleeps constantly, is inactive and cries very quietly		31	7.1
Why do you think your milk is not enough?			
I'm under extreme stress		100	38.2
I'm not fed well enough		82	31.3
I started to work		42	16
I drink little water		15	5.7
I've had breast problems		13	5
I have mental problems		4	1.5
Other		6	2.3

Table 2. Complementary and alternative methods of increasing breast milk supply for lactating mothers (n=436)

	n	%
Is there anything you do specifically to increase your milk?		
Yes	411	94.3
No	25	5.7
Which of the following did you do to increase your milk?		
I get plenty of water and juicy food	367	84.2
I breastfeed my baby often (8-10 times a day, every 2-3 hours)	189	43.3
I drink water by boiling greens	151	34.6
I wore the amulet	56	12.8
I breastfeed my baby for at least 4-5 minutes in a breast	51	11.7
Mixing spices with honey and eating on an empty stomach in the morning	36	8.3
I boil the barley and drink its water	29	6.7
Other	3	0.7
Who/who recommended practices to increase breast milk?		
Midwife/Nurse	253	58
Family member	180	41.3
Social media	125	28.7
Physician	70	16.1
Neighbors	46	10.6
Have you received training on breastfeeding and breast-enhancing measures / practices?		
Yes	314	72
No	122	28
Who did you get the training from?		
Midwife/Nurse	288	91.7
Physician	26	8.3
Are there particular foods you eat because you are breastfeeding?		
Milk and milk products	233	53.4
Milky desserts	120	27.5
Dumpling desserts	25	5.7
Juicy soups	250	57.3
Meat and meat products	59	13.5
Molasses/honey/jam/tahini	146	33.5
Lohusa sherbet	212	48.6
Rice pilaf/Bulgur pilaf	132	30.3
Herb teas	194	44.5
Dried legumes	68	15.6
Fruit	121	27.8
Vegetables, greens (parsley, dill)	229	52.5
Nuts, peanuts, walnuts	84	19.3
Onion, garlic	49	11.2
Raisins/figs	91	20.9
What are the special drinks you consume to increase your milk?		
Fennel	145	56.2
Milk enhancer teas/drinks	59	22.9
Sage	23	8.9
Nettle	21	8.1
Anise	7	2.7
Rosehip	3	1.2
What is your most used practice to increase your milk?		
Increasing water intake	371	85.1
Increasing green vegetable consumption	146	33.5
Increasing tea consumption	92	21.1
Increasing the frequency of breastfeeding	63	14.4
What foods and applications increased your milk the most?		
Sugary foods	218	50
Soup	206	47.2
Fruit	62	14.2
Milk	47	10.8
What drinks increased your milk the most?		
Liquid foods	224	54.4
Sugary drinks	97	23.5
Teas/Milk enhancer tea	91	22.1

of the mothers (52.5%) lives in urban areas, almost half of them (48.9%) are high school graduates, the majority of them (71.3%) are housewives or unemployed, majority of them (83.9) has a medium level of perceived socio-economic status and the majority of them (78%)

have a nuclear family structure. In the study, it was determined that 17.4% of the mothers had an unintended pregnancy. One-fourth of mothers (75.7%) gave birth at state hospitals, and the birth ratio with cesarean section was 57.1%. The total average number of pregnancies is

2.14±1.1 (1-8), while the number of surviving babies is 1.87±0.85 (1-6). More than half of the babies were girls, 38.8% are between 0 to 6 months, 35.8% were between 7 to 12 months, and 25.5% were between 13 to 24 months.

In the study, most participants (68.6%) stated that they breastfed their babies in the first 30 minutes after giving birth, 26.4% in the first 30 to 60 minutes, 5.0% 1 hour later after giving birth. The majority of the mothers (91.3%) stated that they breastfed first as the first nutrition of the baby, 3.4% gave Zamzam water, 2.3% gave water, 2.1% showed a formula, and 0.9% gave sugared water (Table 1).

One-fourth of mothers (23.4%) said they were not currently breastfeeding, while the average breastfeeding duration was 9.24±4.88 months (2 to 24 months). The participants stated that the reason for ending breastfeeding was ab lactation and insufficient breast milk (15.8%), breast refusal (6.7%), separation from baby (6.2%), unwillingness to breastfeed (4.6%) and other reasons. The time to start supplementary food is 5.56±1 months on average (3 months to 12 months). More than half of the participants (60.1%) stated that their milk was not sufficient due to factors including extreme stress (38.2%), insufficient nutrition (31.3%) and, resuming work (16%) (Table 1).

The participants stated that they mostly had plenty of water and liquid food (84.2%), frequently breastfed their babies (8 to 10 times a day, every 2 to 3 hours) (43.3%), drank boiled green juice (34.6%), and wore an amulet (12.8%). Almost three-fourths of the participants (72%) received breastfeeding and galactagogues measures/practices training. The majority of this training (91.7%) was carried out by midwives/nurses. The special drinks to increase breast milk included fennel (56.2%), instant galactagogues teas/drinks (22.9%), sage tea (8.9%), nettle (8.1%), aniseed (2.7%), and rosehip (1.2%). They stated that the most frequent methods to increase breast milk included the increase of water intake (85.1%), more consumption of green vegetables (33.5%), increased consumption of tea (21.1%), and increased frequency of breastfeeding (14.4%). They stated that their breast milk was increased most with foods such as sugary food (50%), soup (47.2%), fruit (14.2%), and milk (10.8%) (Table 2).

Discussion

Nutrition with breastfeeding is the first and the most step of healthy food. Breastfeeding is widespread and traditional in Turkey. However, exclusive breastfeeding for the first six months and breastfeeding is problematic. Breastfeeding mothers often believe that their milk is sufficient.²¹ Breastfeeding babies frequently and through correct techniques, emptying the breasts, adequate sleep, and resting, and increasing mothers' self-confidence is reported to be effective practices in increasing

breast milk. However, there are various cultural applications in practice.²²⁻²⁴ This study helps determine complementary and alternative galactagogue methods.

The early start of breastfeeding is helpful for both mother and baby. Skipping this early postnatal period of the first half an hour harms the success and duration of breastfeeding.^{25,26} The study revealed that mothers didn't breastfeed their babies in the first half an hour. Senarath et al. found that only 46.1% of mothers started breastfeeding in the first one hour.²⁷ Bergamaschi et al. reported that the breastfeeding ratio of mothers in the first one hour was 50% and that 61% of babies were not exclusively breastfed in the first three days.²⁶ Turkey Demographic and Health Survey (TDHS) 2018 data indicated that 71% of babies were breastfed in 1 hour.⁷ In the present study, 53.2% of mothers stated that they exclusively breastfed their older child for the first six months. Exclusive breastfeeding for the first six months was reported in similar studies to be 30.7% by Senarath et al., 37.3% by Ukegbu et al., 10% by Mateus Solarte and Cabrera Arana and, 28.5% by Osibogun et al.²⁷⁻³⁰ The ratio of exclusively breastfed babies in the first six months in Turkey is 40.7%.⁷ UNICEF emphasizes that early breastfeeding of babies after birth is helpful for mothers and babies and that babies need to be breastfed in the first 30 minutes after birth.¹ Pieces of training should continue on the necessity of early start of mother-baby contact, breastfeeding babies in the first half an hour, and having breast milk as babies' first food.

World Health Organization (WHO) recommends that babies continue to be breastfed until two years of age.¹ The present study found the average breastfeeding duration of babies to be low (9.24±4.88). Similarly, there are increases in the ratio of starting breastfeeding in several countries; however, data show that few women continue breastfeeding for the recommended duration, especially in developed countries.³¹ In the present study, the reasons to end breastfeeding included primarily ab lactation/insufficient breast milk followed by breast-related problems. The studies in this field indicate that most mothers believe that their milk is inadequate for their babies. Hence, they start supplementary food early (before six months) and primarily use formula and other liquid food as supplemental food.^{5,10,21,32} While more than 50% of breastfeeding mothers perceive that their milk is insufficient, only five percent of them have physiological milk deficiency. The reason for mothers' perception of insufficient milk is their misinterpretation of infant behavior and their lack of confidence in their ability to breastfeed.³³ Mothers stated that they understood that their milk was not enough because 74.6% of their babies were restless, 23.7% of their babies did not gain enough weight and 1.7% of them were not active. Reliable signs of insufficient breast milk are insufficient weight gain and insufficient urination.^{19,27}

The most critical problem at this stage is that mothers start different searches just on the assumption that their breast milk is insufficient without really finding out that their breast milk is inadequate. The study revealed that mothers intended to breastfeed their babies for the first six months exclusively; however, they started supplementary food early. This indicates that mothers have a positive attitude, but they fail in practice. Therefore, this demonstrates the need to support mothers concerning breastfeeding, breast milk, and its sufficiency.

Several studies reported that mothers applied traditional galactogogues methods rather than modern ones and that those methods need evidence.^{13,24,34} The present study revealed that almost all mothers used complementary and alternative approaches to increase their milk. Sibeko et al. found that mothers used herbal tea by 56%, commercial galactogogues product by 13%, and ginger/beer by 3% to increase their milk.³² In a qualitative study by Sim et al. with breastfeeding women on the use of herbal galactogogues, it was found that all women used fenugreek, three of them used a mixture of fenugreek and blessed thistle, and seven of them used “lactation tincture” including herbal components in their breastfeeding period.²⁰ Mothers stated that they were not against the idea of using herbal items and found them to be safer than chemicals and pharmacologic medicines.³⁴ In another study, it was reported that 69% of the lactation counselors heard about galactogogues herbal drugs, that 65% of the recommended one or more of these methods despite the lack of evidence on the methods and that they recommended most commonly fenugreek and blessed thistle as a galactogogues product.⁴ Various herbs and foods are known to be used as galactogogue, including almond, aniseed, asparagus, cumin, chicken soup, coriander, coconut, dandelion, dill, fennel, fenugreek, garlic, hop, lettuce, radix althaea, millet, mushroom, stinging nettle, oat straw, daisy, rice, sage, sunflower seed, and thistle.³⁵⁻³⁷ The studies conducted in Turkey revealed that the galactogogues practices are standard, including water and liquid foods, milk, and dairy products, herbs (fennel tea, stinging nettle, parsley, dill, onion, bulgur, cowpea, etc.), sugary foods (lohusha sherbet, tahini halva, milk puddings, boiled grape juice).^{38,39} In the study by Dinc et al. determined the traditional galactogogues practices to be frequent breastfeeding by 29.7%, wearing blue bead and saying a prayer over it by 23.1%, consuming a lot of water by 23.1%, breastfeeding for a long time by 7.5%, having a rest by 7.1%, rubbing the breast by 6.6% and pouring lead by 2.8%.³⁹ It is noticed that the galactogogues practices are traditional rather than scientific. Therefore, it is evident that mothers need education and support for breastfeeding and lactation. Evidence-based studies should also be conducted for the effectiveness of the CAM used to increase milk.

Many mothers think that their breast milk is insufficient and employ various methods to increase breast milk within the traditional experience and beliefs. There is no standard information on the qualities of these methods, including use, frequency, dose, and composition.¹⁶ There is limited literature on the complementary galactogogues methods. The complementary galactogogues methods vary among societies.

Limitations of the study

There are some limitations to our study. First, the study's design was cross-sectional, and the data did not account for assumptions concerning causation. Because cross-sectional studies involve some methodological limitations and conclusions should only be extrapolated to populations with similar characteristics. In a larger sample, multicenter and multidisciplinary studies can be planned. Secondly, our data came from self-reports. This may not avoid the subjective bias caused by individual recall.

Conclusion

The study revealed that children did not get sufficient breast milk until two years of age, average breastfeeding duration is low, and mothers start supplementary food early. Mothers believe that their breast milk is not sufficient and employ galactogogues practices. Mothers concentrate on consuming exceptional food and drinks during the lactation period, including mainly fennel tea, instant galactogogues teas, sugary foods, and water intake. It will be helpful to study the evidence-based effectiveness of the complementary galactogogues methods.

Since traditional methods are more common than modern methods to increase breast milk, training should be organized with consideration to cultural factors concerning breastfeeding, exclusively breastfeeding, and increasing breast milk. Lactation counseling should be mainstreamed; problems and solutions for the nutrition of babies should be defined and implemented to realize the breastfeeding recommendations of the World Health Organization and UNICEF. It should be remembered that lactation counseling is the most effective method to increase breast milk, and lactation problems of mothers should be solved timely with the homecare practices in the postnatal period recommending the continuation of breast milk which is necessary for babies.

What is the current knowledge?

The most crucial reason breastfeeding cannot be continued is perception of insufficient breast milk. Foods and drinks that increase breast milk (galactogogue) are used from past to present. Many foods and herbs can be counted as galactogogues. Many mothers around the world use herbs and foods to increase their milk. Although the mechanism of action of medicinal herbs and

foods used to increase breast milk is unknown, it is supported by traditional experiences and beliefs that they are effective. Many of the mechanisms are unknown.

What is new here?

Mothers believe that their breast milk is not sufficient and employ galactogogues practices. Mothers concentrate on consuming exceptional food and/or drinks during the lactation period, including mainly fennel tea, instant galactogogues teas, sugary foods, and water intake. It will be helpful to study the evidence-based effectiveness of the complementary galactogogues methods. Ineffective, insufficient, harmful, or unnecessary practices that are believed to increase breast milk should be avoided.

Acknowledgements

The authors thank all parents who participate in this study.

Declarations

Funding

This research received no external funding.

Author contributions

Conceptualization, F.Ü.T. and H.H.Ç.; Methodology, F.Ü.T.; Software, F.Ü.T.; Validation, F.Ü.T., H.H.Ç.; Formal Analysis, F.Ü.T., H.H.Ç.; Investigation, F.Ü.T.; Resources, F.Ü.T.; Data Curation, F.Ü.T.; Writing – Original Draft Preparation, F.Ü.T.; Writing – Review & Editing, F.Ü.T. and H.H.Ç.; Visualization, F.Ü.T. and H.H.Ç.; Supervision, F.Ü.T.; Project Administration, F.Ü.T.; Funding Acquisition, F.Ü.T. and H.H.Ç.

Conflicts of interest

All authors declare that they have no conflicts of interest.

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethics approval

Ethical consent was obtained from Giresun University Ethics Committee for the study, dated 19/12/2018 and numbered 08/1.

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