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A REVIEW OF TRADITIONAL KNOWLEDGE ON FOODS AND PLANTS SUPPOSED TO INCREASE LACTATION IN PREGNANT WOMEN: A DESCRIPTIVE STUDY

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Abstract

Background: While both the proportion of infants exclusively fed breast milk and the duration of suckling increased worldwide and in Turkey, the addition of another product to breast milk in the first six months of the infant's life is still widespread.
Materials and Methods: This study was conducted as a descriptive, cross-sectional study to identify the traditional methods intending to increase breast milk in pregnancy. The sample group consisted of 100 pregnant women in their last trimester who visited the obstetrical outpatient clinics of a State Hospital of Zonguldak. Data were collected on a data collection form during a face to face interview.
Results: The methods for increasing lactation in pregnant women that the subjects had heard about consisted of the ingestion of abundant water and fluid food (94.0%), green leafy vegetables (such as lettuce) (38%), sweet foods (26%) and milk or other dairy items (19%). Of the pregnant women questioned, 19.0% declared that they would not do anything in particular to increase their milk, 33% that they would drink more fluids, 14% that they would ingest apricot compost and 12% herbal teas. No significant differences among groups were detected between age, educational status, family type, parity and live children number on one side and the subjects' planning to use special foods or fluids ($p>0.05$).
Conclusion: The subjects believed that in addition to an abundant consumption of water and fluid foods, seen as essential, eating green leafy vegetables, chiefly lettuce, and a particular type of sesame halva would increase lactation.

Key words: Breast feeding, galactagogues, traditional methods, traditional knowledge.

Introduction

Breast feeding is one of the most effective methods in maintaining infant health and survival. According to the World Health Organization (WHO), if every child were breastfed within the hour following birth, had only breast milk for the first six months and continued with breast feeding until reaching the age of two, approximately 80,000 more children may survive each year. Breast milk is the most ideal food for the newborn and infants. It safely provides all the food elements needed for a healthy growth; the antibodies carried by it contribute to the prevention from widespread diseases of infancy, the chief two of which are diarrhea and pneumonia. Maternal milk, which helps feed infants satisfactorily, is easy to obtain and cheap (WHO, 2014b). WHO recommends using breast milk as the sole food during the first six months of life. Solid foods such as fruit or vegetable mush have to be added at six months as a complement for infants who continue suckling to the end of their two years or longer. In reality, fewer than 40% of infants younger than six months are breastfed worldwide (WHO, 2014a). While infants in Turkey are breastfed for a relatively long time, supplements are administered starting very early. The median breastfeeding duration of infants who are fed breast milk only is two months or shorter (Turkey Demographic and Health Survey 2008, 2009) The first reason indicated by mothers for not breastfeeding their offspring was indicated as the belief their milk was insufficient. The sensation of inadequacy and the ensuing anxiety are also known to negatively affect milk production (Akyuz, Kaya et al., 2007; Marasco, 2008; Nice, 2011) Mothers placed in such a situation feel the need to find methods to increase their milk production.

Historical evidence shows that the cultures of nations and tribes have developed traditions based on plants and other foods with the intent of increasing and maintaining the production of breast milk. Also, mothers who are worried about inadequate milk production tend to consume plants and others foods believed to be galactagogues (Nice, 2011). The plants and foods used as galactagogues are numerous and varied. Widely known among them are the almond, anise, asparagus, borage, cumin, chaste berry or monk's pepper, chicken soup, coriander, coconut, dandelion, dill, fennel, fenugreek, garlic, ginger, hops, lettuce, marshmallow root, millet, mushrooms, poison ivy, oat straw, papaya, squash, red clover, red raspberry, rice, sage, seaweed soup, sesame seeds, sunflower seeds, thistle and verbena (Marasco, 2008; Nice, 2011; Zapantis, et al., 2012) The lowest estimate of the proportion of breastfeeding women who try to use galactagogue is 15%. Women may choose to use a vegetable galactagogues preventively, or because of a perception of low milk production, based on knowledge received from internet sources, support networks and health care professionals (Zapantis et al., 2012).

There is no protocol in our country for health care professionals to follow for recommending plants or foods to pregnant women with the intent to increase their milk production. Some health care professionals recommend abundant fluid intake. There are only a limited number of studies identifying foods with lactation-increasing properties and widely used in our country. These studies showed that mothers believe that fluids (such as water, salt water, compote, stewed fruit, milk, yogurt drink, soup), herbal teas (fennel, linden, light black tea, galactagogue plant mixtures), vegetables, fruit, leafy vegetables, sweets (such as milk-based sweets and sesame halva), cracked wheat pilaf, cow peas, onions and potatoes increase maternal milk (Demirtas et al., 2012; Egri, 2006; Erkaya, 2012; Gokduman, 2009; Sivri, 2012; Ural, 2011). What people eat and how, their cooking, sleep habits, feeding during

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pregnancy, clothing, techniques to be used for delivery. Infant-care, suckling, and even their perception of health and disease are tied to their culture and vary with it. Different attitudes towards breastfeeding, within and among societies, are based on cultural rather than individual differences. Different attitudes to breastfeeding may be observed in different areas within the same society (Bolsoy and Sevil, 2006; Mojab and Oregon, 2000). No study has been performed to date in the area examined here on the plants and foods believed by the women to increase maternal milk production.

It was determined that pregnant women decide to breastfeed their offspring in the course of the antenatal counseling provided by physicians or midwives (Sheehan et al., 2003). In order to provide health services at the desired level, obtain the acceptance by the population of the offered services, ensure popular participation in the rendering of such services and educate the population on particular topics, the health care personnel must necessarily have a thorough knowledge of the cultural particularities of that society (Bolsoy and Sevil, 2006). Knowing the plants and foods believed by the mothers to increase milk production will be in assuring the cultural adequacy of the health care services offered to them. Underlining the positive health effects of traditional methods will help make use of such properties; and finally, the knowledge of any adverse effects, if present, will help appropriate interventions. This study aimed to identify plants and other foods traditionally believed to increase milk production by women who consulted the Pregnancy Outpatient Clinics of the Zonguldak Gynecology, Obstetrics and Pediatrics Hospital in their last trimester of pregnancy. Answers to the following questions were elicited in this connection:

- Which plants and other foods are known by women in the last trimester of pregnancy as increasing milk production?
- Do the socio-demographic characteristics (age, educational status, family type, parity) of women in the last trimester of pregnancy affect their decision to use plants and other foods known to increase milk production?
- Where and from whom did these women in the last trimester of pregnancy obtain information regarding plants and other foods increasing milk production?

This report consists of four parts. The first part presents published literature on breastfeeding, the importance of successful breastfeeding, plants and foods that increase milk production and the importance of identifying them. Methods, data analysis techniques and results are then given. Finally, conclusions from the study and proposals for further study are presented.

Materials and Methods

This descriptive, cross-sectional study was conducted in the Zonguldak Gynecology, Obstetrics and Pediatrics Hospital. The study universe consisted of women who consulted the Pregnancy Outpatient Clinics between November 1, 2010, and February 28, 2011 while in the last trimester of pregnancy, the period when thoughts about breastfeeding start to intensify (Sheehan et al., 2003). Of these women, 35 who did not accept to participate in the study were excluded; a total of 100 women, representing 74.1% of the study universe, were left to complete the study. Written permission to conduct the study was obtained from the facility; the subjects provided oral consent. Data were collected from each subject in 20 minutes on the average, in one-on-one interviews. A data collection form developed by the investigators on the basis of the studied reports (Akyuz et al., 2007; Demirtas et al., 2012; Egri, 2006; Gokduman, 2009; Gokduman and Balkaya, 2010; Nice, 2011; Srithi et al., 2012; Zapantis et al., 2012) was used for the interviews. The data collection form contained 18 questions, of which eight were to determine the subjects' sociodemographic characteristics and ten on the plants and foods believed to increase milk production and their application. Statistical treatment of the data consisted in descriptive evaluation and chi-squared tests.

Results

The average age (±1 standard deviation) of the participating subjects was 27±5.4. The women had finished elementary school in 42% of cases; 63% lived in nuclear families and 44% were experiencing their first pregnancy (Table 1).

Table 1: Demographic characteristics of the subjects

	X±SD	Min.	Max.
Age	27.0±5.4	17.0	40.0
Educational Status	**N**	**%**	
Elementary school	42.0	42.0	
Secondary school	25.0	25.0	
High school	22.0	22.0	
University	11.0	11.0	
Family Type			
Nuclear family	63.0	63.0	
Extended family	37.0	37.0	
Number of Pregnancy			
1	44.0	44.0	
2	42.0	42.0	
≥ 3	14.0	14.0	
Number of a live Children			
None	53.0	53.0	
1	28.0	28.0	
2	15.0	15.0	
≥ 3	4.0	4.0	
Total	100.0	100.0	

Women in the study expressed that plenty of water and liquid food (94.0%), green leafy vegetables (especially lettuce) (38.0%) and halvah's (26.0%), milk and dairy products (19.0%) increase milk production (Table 2).

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Table 2: Foods known by the women to increase milk production

Foods known by the women	n*	%
Plenty of water and liquid food	94.0	94.0
Green leafy vegetables (lettuce, green onion, parsley)	38.0	38.0
Halvah	26.0	26.0
Milk and dairy products	19.0	19.0
Other (quince, kale, dry mulberry-figs, onion, green lentils)	5.0	5.0

**More than one answer to this question is given. Percentages are taken out of n.*

No use of special foods to encourage milk production was planned by 19% of the subjects, As for those who planned to use such substances, the majority contemplated ingesting water in abundance (33%), followed by apricot compote (14%) and herbal tea (containing fenugreek, fennel, goat's rue, verbena, hibiscus, rooibos, raspberry, vitamin C, sucrose and maltodextrin; 12%) (Table 3)

Table 3: Special foods planned to be used by the subjects to increase milk production

Special foods planned to be used by the subjects to increase milk production	n*	%
I will do anything	19.0	19.0
Drink plenty of water	33.0	33.0
Drink apricot compote	14.0	14.0
Drink herbal tea	12.0	12.0
Eat sweet foods	10.0	10.0
Eat plenty of fruit and vegetables	6.0	6.0
Drink yogurt and buttermilk	5.0	5.0
Other (quince, kale, dry mulberry-figs, onion, green lentils)	5.0	5.0

**More than one answer to this question is given. Percentages are taken out of n.*

No significant differences among groups were detected according to age, educational status, family type, parity and live children number on one side and the subjects' intention to use special foods or fluids (p>0.05) (Table 4).

Table 4: Distribution of demographic characteristics according to the subjects' plans to use plants and foods to increase milk production

Demographic Characteristics	Plans to use plants and foods to increase milk production						Statistics
	Yes			No			
	N	X±SD		n	X±SD		t=-1.243
Age	55	26.40±5.36		45	27.76±5.50		p=0.217
	Yes		No		Total		
Educational Status	N	%	n	%	n	%	
Elementary school	24	57.1	18	42.9	42	100	X^2=1.141
Secondary school	15	60.0	10	40.0	25	100	SD=3
High school	10	45.5	12	54.5	22	100	p=0.767
University	6	54.5	5	45.5	11	100	
Total	55	55.0	45	45.0	100	100	
Family Type							
Nuclear	36	57.1	27	42.9	63	100	X^2=0.316
Extended	19	51.4	18	48.6	37	100	SD=1
Total	55	55.0	45	45.0	100	100	p=0.574
Number of Pregnancy							
1	24	54.5	20	45.5	44	100	X^2=0.223
2	24	57.1	18	42.9	42	100	SD=2
≥ 3	7	50.0	7	50.0	14	100	p=0.894
Total	55	55.0	45	45.0	100	100	
Alive Children							
Yes	29	54.7	24	45.3	53	100	X^2=0.004
No	26	55.3	21	44.7	47	100	SD=1
Total	55	55.0	45	45.0	100	100	p=0.952

While 76% of the pregnant subjects indicated that they had obtained their galactagogue knowledge from their family, including relatives who had already given birth, 18% had this knowledge from a nurse (Table 5).

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Table 5: Distribution of the sources of knowledge regarding foods to increase milk production

Sources of knowledge	n*	%
Family and relatives	76	76.0
Nurse	18	18.0
Women's who had already given birth	15	15.0
Doctor	4	4.0
Television	7	7.0
Book	6	6.0

Discussion

The development of mammary gland tissue in pregnancy usually starts in the 16th to 22nd weeks. Starting on the fifth day following delivery, a woman may produce approximately 500-750 mL of milk daily. Alongside physiologic elements, the mothers' psychological and social factors do play a role in her milk production. The depression of milk production due to a feeling of inadequacy and the resulting anxiety has been documented. Drugs, foods and plant-based supplements used to start, maintain or increase maternal milk production are called galactagogues (Zapantis et al., 2012). A large number of plants and other foods are used across the world to increase milk production in breastfeeding women; these are generally variable from one culture to the other. The use of anise, asparagus, almonds, apricots, alfalfa, borage, barley, brown rice, beans, black seed, blessed thistle, caraway, chaste tree fruit, chicken soup, cilantro, coconut, coriander, cumin, cooked green papaya, caraway, dark green leafy vegetables, dandelion, dill, dates, fennel, fenugreek, figs, garlic, ginger, goat's rue, hops, lettuce, marshmallow root, millet, mushrooms, milk thistle, nettle, oats, papaya, pumpkin, red clover, red raspberry, sage, seaweed soup, sesame seeds, sunflower seeds, shatavari, thistles, vervain are widespread (Marasco, 2008; Nice, 2011; Zapantis et al., 2012). The women participating in our study indicated that plenty of water and fluid nourishment were the most frequently used (94%). Following in order of frequency, we find green leafy vegetables, more particularly lettuce (38%), then tahini (ground sesame seeds), and sesame halva which also contains sugar (26%). These frequently mentioned foods are similar to those used worldwide. The effects of these foods, widely believed to increase maternal milk, should be documented scientifically.

Various culturally conditioned interventions are conducted among lactating women in our country, as in the whole world, to increase maternal milk production (Demirtas et al., 2012; Gokduman, 2009; Golbasi and Koc, 2008; Mojab and Oregon, 2000; Srithi et al., 2012). Regulating food plays an important role among such interventions. According to a study performed in the province of Ankara, women believe that onions, tea, compote, soups, tahini halva, foods containing cracked wheat, green leafy vegetables, rice and sweets increase milk production (Demirtas et al., 2012).

Among the measures taken by the mothers to increase their milk production, increasing water and fluid food intake is the most frequent (Egri, 2006; Erkaya, 2012; Gokduman, 2009; Sacco et al., 2006). In the study reported by Gokduman (2009), approximately one-fifth of the mothers did not do anything to increase their milk production; in addition to water intake, the others believed that milk, sweets, figs, onions, fruit and fruit juices, fennel tea and green leafy vegetables increase milk production (Gokduman, 2009). Erkaya (2012) indicated that the women studied believed that fennel tea, a commercial galactagogue mixed herb tea, milk-containing sweets and cracked wheat increase milk production. Mexican mothers were found to increase milk and starchy food consumption, in addition to increasing their fluid intake (Sacco et al., 2006). In this study, similarly to others, 19% of the subjects indicated that they would not use any particular measures to increase milk production. The pregnant women who planned to use special foods were thinking mainly of plenty of water (33%), apricot compote (14%), herbal tea (a particular commercial galactagogue consisting of a mixture; 12%) and sweets (10%). The findings of this study are consistent with the published literature. The reflection of a commercial galactagogue product among the results of the studies performed in our country in recent years seems to indicate that mass communication media may have a major influence on the mothers, who may have a tendency to prefer ready-to-use products presented as increasing milk production.

Some studies have suggested that certain demographic characteristics influence the action of lactating women to increase their milk production. The mothers' age, occupation, income, number of alive children, number of people living in the same household, planned pregnancy or not, and place of residence influence the measures adopted to increase milk production (Erkaya, 2012; Gokduman, 2009; Ural, 2011). These studies, however, were all conducted in women who had already given birth and were currently breastfeeding. Differently than other studies, this study asked women in the last trimester of pregnancy if they intended to use a particular food to increase their milk production. No significant differences among groups were detected according to age, educational status, family type, parity and living children number on one side and the subjects' intention to use special foods on the other.

Being breastfed exclusively for the first six months of life and continuing to receive maternal milk along with supplements until the end of the second year provides innumerable advantages to an infant. The advantages of breastfeeding are not limited to the feeding period but extend to positive effects in more advanced age (Gur, 2007).

Breastfeeding is very widespread in Turkey and children are suckled for a considerable length of time. Supplements, however, are started very early on. Only 69% of infants are fed exclusively with maternal milk in their first month. The principal reason for the administration of supplements is the mothers' belief that milk is insufficient (Akyuz et al., 2007; Demirtas et al., 2012; Sacco et al., 2006; Turkey Demographic and Health Survey, 2008, 2009). Appropriate support by specialists may lead to positive developments in the start of breastfeeding, the feeding process and the breastfeeding experience (Spiby et al., 2009). The WHO and UNICEF (1989) have published a common report called "Protecting, Promoting and Supporting Breast-Feeding" aiming to create awareness of the important role of health care services in support of the promotion of breastfeeding. This report assigned to the health care personnel the duty of providing adequate knowledge and support to mothers; it proposed supporting the positive attitude to breast feeding in the society and protecting, when needed restoring the culture of breastfeeding. In addition to health care personnel, volunteers trained in breastfeeding counseling and similar support personnel are an important source of encouragement (Spiby et al., 2009).

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The reported studies indicate that a majority of mothers obtain information on breastfeeding and increasing milk production from their health care personnel (Erkaya, 2012; Gokduman, 2009; Ural, 2011). In our study, subjects indicated that they had received information on galactagogues mainly from their family (76%), including close relatives who had already experienced childbirth. The fact that most information was imparted by relatives is attributed to the fact that such knowledge is not included in the training of health care personnel in the absence of scientific evidence on galactagogues. Considering that the most widely known method was abundant consumption of water and fluids and the increased liquid metabolism of the lactating woman, inadequate training of the health care personnel must also be considered.

Conclusion

To conclude, the majority of women in our study had the knowledge that plenty of water and fluid foods have to be ingested to increase milk production. In decreasing order of frequency, this was followed by green leafy vegetables, especially lettuce, and sesame halva, known as galactagogues. The majority of women planned to increase water and fluid intake postpartum to increase milk production. Commercial galactagogues herbal teas were among the fluids indicated by the subjects as likely to be used. No visible effect of age, educational status, family type, parity and live children number on the subjects' intention to use special foods was seen. The majority of subjects had acquired their knowledge from family or friends who had already given birth. Following up on these results,

- the effects and side effects of foods such as green leafy vegetables and sesame halva on maternal milk production should be investigated
- Nurses and midwives should be aware of the known effects and possible side effects of herbal tea mixtures; they should provide evaluations and information to the women without ignoring individual and cultural particularities
- Health care worker should plan breastfeeding education within the framework of their prenatal services, considering individual and cultural particularities; breastfeeding counseling should be part of the training and continuous education of such health care workers.

References

1. Akyuz, A., Kaya, T., & Senel, N. (2007). Determination of Breastfeeding Behaviors of Mothers and Influencing Factor. TAF Preventive Medicine Bulletin, **6**: 331-335.
2. Bolsoy, N., & Sevil, U. (2006). Interactıon of Health-Disease and Culture. Journal of Anatolia Nursing and Health Sciences, **9**: 78-87.
3. Demirtas, B., Ergocmen, B., & Taskin L. (2012). Breastfeeding experiences of Turkish women. Journal of Clinical Nursing, **21**:1109-1118.
4. Egri, G. (2006). Traditional post-partum child caring practices used by mothers who were married and belonged to 15-49 age group in a FHC in Tokat province. Unpublished Master Dissertation, Cumhuriyet University, Sivas, Turkey.
5. Erkaya, R. (2012). Foods eaten by mothers in order to enhance breast milk. Unpublished Master Dissertation, Cumhuriyet University, Sivas, Turkey.
6. Gokduman, M. (2009). Traditional practices used by mothers who had children aged 0-6 months ın order to ıncrease breast milk. Unpublished Master Dissertation. Adnan Menderes University, Aydın, Turkey.
7. Gokduman, M., & Balkaya, N. A. (2010). The use of herbal tea to ıncrease breast milk and ınfluencing factors. Dokuz Eylul University Faculty of Nursing Electronic Journal, **3**: 187-194.
8. Golbasi, Z., & Koc, G. (2008). Beastfeeding behaviour of women during postpartum first six months and effect of prenatal breastfeeding attitude on postpartum breastfeeding. Hacettepe University Faculty of Health Sciences Nursing Journal, **15**: 16-31.
9. Gur, E. (2007). Breastfeeding. Turk Ped. Arch., **42**: 11-15.
10. Marasco, L. (2008). ILCA's INSIDE TRACK A of the international lactation consultant association: Increasing your milk supply with galactogogues. Journal of Human Lactation, **24**: 455-456.
11. Mojab, C. G., & Oregon, H. (2000). The cultural art of breastfeeding. Leaven, **36**: 87-91.
12. Nice, F. J. (2011). Common herbs and foods used as galactogogues. ICAN: Infant, Child & Adolescent Nutrition, **3**: 129-132.
13. WHO, & UNICEF. (1989). Protecting, promoting and supporting breast-feeding :The special role of maternity services. Geneva, Switzerland.
14. Sacco, L. M., Caulfield, L. E., Gittelsohn, J., & Martinez, H. (2006). The conceptualization of perceived insufficient milk among Mexican mothers. J Hum Lact, **22**: 277-286.
15. Sheehan, A., Schmied, V., & Cooke, M. (2003). Australian women's stories of their baby-feeding decisions in pregnancy. Midwifery, **19**: 259-266.
16. Sivri, B. B. (2012). Traditional infant care practices of mothers with 6-12 month-old infants. Unpublished Master Dissertation. Erciyes University, Kayseri, Turkey.
17. Spiby, H., McCormick, F., Wallace, L., Renfrew, M. J., D'Souza, L., & Dyson, L. (2009). A systematic review of education and evidence-based practice interventions with health professionals and breast feeding counsellors on duration of breast feeding. Midwifery, **25**: 50-61.
18. Srithi, K., Trisonthi, C., Wangpakapattanawong, P., & Balslev, H. (2012). Medicinal plants used in Hmong women's healthcare in Northern Thailand. Journal of Ethnopharmacology, **139**: 119-135.
19. Hacettepe University Institute of Population Studies (2009). Turkey Demographic and Health Survey, 2008. Hacettepe University Institute of Population Studies, Ministry of Health General Directorate of Mother and Child Health and Family Planning, T.R. Prime Ministry Undersecretary of State Planning Organization and TUBITAK, Ankara, Turkey.

http://dx.doi.org/10.4314/ajtcam.v3i3.4
20. Ural, S. (2011). Traditional practice towards ıncreasing breastfeeding and breast milk of mothers of 0-24 months old babies, that have applied to Erciyes University Newborn and Social Pediatric Clinics. Unpublished Master Dissertation. Erciyes University, Kayseri, Turkey.
21. WHO. (2014a, February 2014). 10 facts on breastfeeding. Retrieved 1 July 2014, from http://www.who.int/features/factfiles/breastfeeding/en/
22. WHO. (2014b). Health benefits for infants. Retrieved 1 July 2014, from http://www.who.int/features/factfiles/breastfeeding/facts/en/index1.html
23. Zapantis, A., Steinberg, J. G., & Schilit, L. (2012). Use of herbals as galactagogues. Journal of Pharmacy Practise, **25**: 222-231.