Acıbadem Univ. Sağlık Bilim. Derg. 2025; 16 (3)
https://doi.org/10.31067/acusaglik.1578333

Determination of Knowledge Levels of Mothers on Infant Nutrition and Use of Herbal Products

Hilal Doğan Güney[1], Şehnaz Ceylan[2], Buse Eren[3]

[1] Safranbolu District Health Directorate, Department of Nutrition and Dietetics, Karabük, Türkiye

[2] Karabuk University, Faculty of Health Sciences, Department of Child Development, Karabük, Türkiye

[3] Ankara Medipol University, Faculty of Health Sciences, Department of Nutrition and Dietetics, Ankara, Türkiye

Hilal DOĞAN GÜNEY
0000-0003-1770-711X

Şehnaz CEYLAN
0000-0001-9313-7353

Buse EREN
0009-0000-2720-2516

Correspondence: Hilal Doğan Güney
Safranbolu District Health Directorate, Department of Nutrition and Dietetics, Karabük, Türkiye
Phone: +90 506 348 91 19
E-mail: hilaldogan21@gmail.com

Received: 04.11.2024
Accepted: 16.05.2025

ABSTRACT

Purpose: Infancy nutrition is important for the smooth growth and development of the baby. In this period, the importance of breast milk and alternative treatment methods are more oriented to complaints such as sleep, gas/bloating and fever in infants. This study was conducted to determine the knowledge, attitudes and practices of mothers with babies aged 0-2 years living in Karabük province about infant nutrition and the use of herbs in the problems they encounter.

Methods: The study included 121 volunteer mothers with infants aged 0–2 years living in Karabük. A questionnaire consisting of 35 questions related to sociodemographic characteristics, infant nutrition, and the use of herbal products was used. Percentage and frequency distributions were utilized to analyze the data, and Student's t-test and ANOVA were applied to evaluate the parameters that showed normal distribution.

Results: In the study, it was determined that 37.2% of the infants were exclusively breastfed for the first 6 months, 40.5% had a total breastfeeding duration of 7-12 months, 53.7% started complementary feeding after the 6th month, 62% of the mothers preferred medical treatment, 19.8% preferred herbal treatment and 18.2% preferred both treatment methods. It was observed that there was a statistical relationship between sociodemographic characteristics such as education level, age range, number of children in the family, BMI of the mother, duration of breastfeeding and herbal product use ($p<0.05$).

Conclusions: There is a need for more comprehensive and prospective studies on breastfeeding, breast milk and herbal products in the community.

Keywords: Infant feeding, herbal use, breastfeeding, breast milk

ÖZET

Amaç: Bebeklik döneminde beslenme, bebeğin sorunsuz büyümesi ve gelişmesi için önemlidir. Bu dönemde anne sütünün önemi ve alternatif tedavi yöntemleri daha çok bebeklerde uyku, gaz/şişkinlik ve ateş gibi şikayetlere yöneliktir. Bu çalışma Karabük ilinde yaşayan 0-2 yaş arası bebeği olan annelerin bebek beslenmesi ve karşılaştıkları sorunlarda bitkilerin kullanımı ile ilgili bilgi, tutum ve uygulamalarını belirlemek amacıyla yapılmıştır.

Yöntem: Çalışmaya Karabük›te 0-2 yaş arası bebeği olan 121 gönüllü anne dahil edilmiştir. Katılımcılardan sosyodemografik özellikler, bebek beslenmesi ve bitkisel ürün kullanımı ile ilgili 35 soru içeren bir anket doldurmaları istendi. Verilerin analizinde yüzde ve frekans dağılımları, normal dağılıma sahip parametrelerin değerlendirilmesinde ise Student t testi ve ANOVA kullanılmıştır.

Bulgular: Çalışmada bebeklerin %37,2'sinin ilk 6 ay sadece anne sütü ile beslendiği, %40,5'inin toplam emzirme süresinin 7-12 ay olduğu, %53,7'sinin 6. aydan sonra tamamlayıcı beslenmeye başladığı, annelerin %62'sinin medikal tedaviyi, %19,8'inin bitkisel tedaviyi, %18,2'sinin ise her iki tedavi yöntemini tercih ettiği belirlenmiştir. Eğitim düzeyi, yaş aralığı, ailedeki çocuk sayısı, annenin VKİ'si gibi sosyodemografik özellikler ile emzirme süresi ve bitkisel ürün kullanımı arasında istatistiksel bir ilişki olduğu görülmüştür ($p<0.05$).

Sonuç: Toplumda emzirme, anne sütü ve bitkisel ürünler konusunda daha kapsamlı ve ileriye dönük çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: Bebek beslenmesi, bitkisel ürün kullanımı, emzirme, anne sütü

Nutrition is important in all periods from birth to the end of life. This importance increases during infancy, the period of the fastest growth and development, which forms the basis of a healthy life. Conditions that arise due to nutritional deficiencies in infants aged 0-3 years are an important cause of mortality in that age group. Educating and raising awareness of parents about infant and child nutrition is very important for raising healthy generations (1,2).

Infancy is the period of the fastest growth. The World Health Organization and the United Nations International Children's Emergency Fund (UNICEF) recommend that every infant should be exclusively breastfed for the first 6 months after birth and that breastfeeding should be continued with complementary foods after the first 6 months until at least two years of age (3). In Turkey, the rates of exclusive breastfeeding for 6 months in 2008, 2013 and 2018 were reported as 40.4%, 30% and 41%, respectively (4). In the world, the rate of exclusive breastfeeding for the first 6 months is 38% and it is aimed to increase the rate of exclusive breastfeeding for the first 6 months to over 50% by 2030 (5,6). The first years of life are critical for establishing long-term nutritional patterns that support healthy growth. WHO recommends starting complementary feeding after the 6th month of life, while the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN) recommends starting complementary feeding no earlier than the 17th week and no later than the 26th week (3,7).

Adequate and balanced nutrition is known to reduce the risk of infections in infants. In infant feeding, factors such as family, social-cultural factors, economy, digital technology, disease conditions in the baby can affect the baby's eating habits. During this period, mothers often face problems such as sleep, gas/bloating and fever in their babies. In complaints such as sleep, gas/bloating and fever, the mother pays more attention to the baby's nutrition and uses alternative treatment methods. Thousands of years ago, humans recognized the therapeutic power of plants and used plants to live healthy (8,9).

In recent years, it has gained importance to consume natural foods and foods instead of using drugs to find solutions to Free Radicals (SR) and various diseases that negatively affect people's health (10,11). It is known that many plants have been used for medicinal purposes since ancient times in the world. The earliest information on medicinal plants and their use in history comes from Chinese, Egyptian and Greek history, and it is known that some drugs were produced and exported in Anatolia during the Hittite period. Today, it is reported that the number of plants used in the world is around 20,000, 4000 of them are widely used and about 400 of them are traded (12). Throughout human history, many diseases have been and are being treated by using plants. According to World Health Organization (WHO) data, 80% of the world population is treated with herbal medicines (13).

Generally, studies on herbs have been conducted on adults; however, there are no studies in the literature on which herbs mothers use for themselves, which herbal alternative treatment methods are preferred for health problems encountered in infants such as milk enhancer, sedative, respiratory tract infections**.** This study was conducted to determine the knowledge and practices of mothers with infants aged 0-2 years about infant nutrition, the importance of breastfeeding and the use of herbs by mothers.

Methods

Research Place, Time and Sample Selection

The research was conducted in the baby library in Karabük Zübeyde Hanım Provincial Public Library. The sample of the study consisted of 121 mothers with children between the ages of 0-2, who did not have problems in speaking and understanding Turkish. The number of volunteers participating in the study was determined according to the results of Power analysis (Type I error: 0.05, type II error: 0.20 and the power of the study was accepted as 0.80 and above). The individuals constituting the study group were included in the study after their informed consent was obtained by explaining the purpose and benefits of the study and their roles in the study, paying attention to the principle of volunteerism.

Data Collection

A questionnaire form consisting of multiple-choice and open-ended questions was applied to determine the demographic and personal characteristics of the women who would participate in the study. The questionnaire form included 35 questions about the sociodemographic characteristics of the study group, the mother's knowledge about infant feeding, the infant's disease status and the evaluation of herbal product use. Mothers with infants aged 0-2 years, who were able to understand and speak Turkish, who voluntarily agreed to participate in the study, and mothers who used herbal products in the last 6 months were included in the study. Mothers with chronic diseases, those with premature infants and those who completed the questionnaire incompletely were excluded from the study. In addition, mothers who received

pharmacological treatment during gestation were not included in the study.

Ethics committee approval dated 06/05/2024 (Decision No: 2024/05/ 51) was obtained from Karabük University, Social and Human Sciences Research Ethics Committee for the study. Before the study, the participants were informed about the study and voluntary individuals who agreed to participate in the study were included in the study by signing the "Informed Consent Form". The study was conducted in accordance with the principles of the Declaration of Helsinki. Participant confidentiality and data protection measures are detailed in order to increase ethical transparency. All data of the participants were anonymised and their personal information was stored in an encrypted database. Mothers participating in the study were informed about the possible risks of herbal products. In particular, explanations were made about the safety problems, possible side effects and drug interactions of herbal products and they were advised to consult health professionals. This information process was emphasised in the interviews conducted both before and after the survey.

Data Analysis

The suitability of the data for normal distribution was evaluated by Kolmogorov-Smirnov test. Student t-test was used for normally distributed variables and Mann-Whitney U test was used for non-normally distributed variables. ANOVA test was preferred for intergroup comparisons because the means of three or more groups were compared. Chi-square test was used to evaluate the relationship between categorical data. For example, a significant relationship was found between herbal product use and education level ($\chi^2 = 9.21$, $p = 0.002$). Logistic regression analysis was applied for the dependent variable of herbal product use (yes/no). Maternal age ($p = 0.03$), educational level ($p = 0.01$) and socioeconomic status ($p = 0.02$) were found to be significant predictors.

Results

It was found that 71.9% of the mothers who participated in the study were between the ages of 25-34, 69.4% had an educational level of university or higher, 45.5% were civil servants, 92.6% lived in nuclear families, and 65.3% had 2 children. The mean age of the mothers was 35.15±2.45 years (years), mean body weight was 69.0±4.80 kg, mean height was 160.7±6.65 cm, mean BMI was 26.9± 2.20 kg/m^2, 5.8% were underweight, 64.5% were normal, 25.6% were overweight and 4.1% were obese according to BMI class. The mean age of the babies was 21±2.2 months, mean body weight was 11.5±2.1, mean height was 87.7±2.65 cm, mean birth weight was 3.15± 0.60 kg, and mean birth length was 50.2±2.45 cm (Table 1).

Table 1: Distribution of sociodemographic and anthropometric characteristics of mothers and infants

	n	%		n	%
Age			**Anthropometric Characteristics of the Mother**		
<18	5	4.1	BMI class		
18-24	25	20.7	<18.5 kg/m^2 (underweight)	7	5,8
25-34	87	71.9	18.5-24.9 kg/m^2 (normal)	78	64,5
35-44	4	3.3	25.0-29.9 kg/m^2 (overweight)	31	25,6
Mother's education level			≥30 kg/m^2 (obese)	5	4,1
Primary education	2	1.7			
High school and equivalent	35	28.9		**Mean±** SD	
University and above	84	69.4			
Mother's occupation			Maternal BMI (kg/m^2)	26.9± 2.20	
Housewife	25	20.7	Age of mother (years)	35.15±2.45	
Officer	55	45.5	Maternal body weight (kg)	69.0±4.80	
Academician	8	6.6	Maternal height (cm)	160.7±6.65	
Private sector	33	27.3	**Anthropometric Characteristics of the Child**		
Family type			Child's age (months)	21±2.2	
Nuclear family	112	92.6	Child's body weight (kg)	11.5±2.1	
Extended family	9	7.4	Child's height (cm)	87.7±2.65	
Number of children in the family			Child's birth weight (kg)	3.15± 0.60	
1 child	33	27.3	Child's birth height (cm)	50.2±2.45	
2 children	79	65.3			
3 children	9	7.4			
Child gender					
Girl	73	60.3			
Male	48	39.7			

When information on infant feeding was examined in the study, it was found that 42.1% received breast milk and formula, 37.2% received only breast milk, 40.5% had a total breastfeeding period between 7-12 months, 43.8% had a bottle feeding period between 7-12 months, 53.7% started complementary feeding after the 6th month, and 86.8% received breast milk at night. Among the mothers, 53.7% thought that their babies were fed normally, 58.7% received information about breast milk and 53.7% received information about complementary feeding from healthcare professionals (Table 2).

Table 2: Distribution of information on infant feeding

	n	%		n	%
Type of infant feeding (First 6 months)			**Mother's views on the baby's nutrition**		
Breast milk only	45	37.2	Underfed	30	24.8
Only formula	11	9.1	Normal nutrition	65	53.7
Breast milk and formula	51	42.1	Overfeeding	26	21.5
Breast milk and complementary feeding	9	7.4	**Breastfeeding status of the child at night**		
Formula and complementary feeding	5	4.1	Yes	105	86.8
Total duration of breastfeeding of the child			No.	16	13.2
0-6 months	16	13.2	**Source of information about breastfeeding**		
7-12 months	49	40.5	Health workers	71	58.7
12-18 months	36	29.8	Relatives and Environment	5	4.1
>18 months	20	16.5	Written and visual media	45	37.2
Duration of bottle feeding (months)			**Source of information on complementary nutrition**		
0-6 months	35	28.9	Health workers	65	53.7
7-12 months	53	43.8	Relatives and Environment	12	9.9
>12 months	33	27.3	Written and visual media	44	36.4
Time to start complementary feeding					
<6 months	56	46.3			
≥6 months	65	53.7			

It was determined that 62% of the mothers preferred medical treatment, 19.8% preferred herbal treatment and 18.2% preferred both treatment methods. It was found that 38.8% of the babies had gas and bloating problems, 71.9% used herbal products in their babies, and 37.2% of them bought herbal products from the internet.

It was found that 48.8% of the mothers did not use herbal teas as milk enhancers, and those who preferred herbal teas frequently used galactagogue (33.9%), dill, malt products (12.4%), and milk enhancer mixture teas (5%). It was found that 78.5% of the mothers did not use herbal products for insomnia/sedative, while those who preferred to use herbal products used chamomile (13.2%), jasmine (6.6%), St. John's wort (1.7%). It was found that 43% of the mothers used cumin and 37.2% used fennel for gas, bloating and constipation, 29.8% used a mixture of herbal products and 4.1% used olive oil, and 100% did not use herbal products for fever (Table 3).

Table 3: Evaluation of herbal product use in case of infant's illness					
	n	**%**		**n**	**%**
Common Problems in Infants			**Herbal Product Use as Milk Booster (Mother)**		
Gas, Bloating	47	38.8	Not in use	59	48.8
Sleep	25	20.7	Galaktagog etc.	41	33.9
Fire	22	18.2	Dill. malt products	15	12.4
None of them	27	22.3	Milk-boosting blended teas	6	5.0
First Choice in Infant Illness			**Insomnia / Herbal Product Use as a Sedative (Mother)**		
Medical treatment	75	62.0	Not in use	95	78.5
Herbal treatment	24	19.8	Daisy	16	13.2
Both	22	18.2	St. John's Wort	2	1.7
First Choice in Individual Disease			Jasmine	8	6.6
Medical treatment	67	55.4	**Gas Bloating Herbal Product Use in Constipation (Mom**)		
Herbal treatment	19	15.7	Not in use	17	14.0
None of them	13	10.7	Linden	5	4.1
Both	22	18.2	Aniseed	2	1.7
Presence of Herbal Products Used in Infants			Fennel	45	37.2
Yes	87	71.9	Cumin	52	43.0
No.	34	28.1	**Insomnia / Herbal Product Use as a Sedative (Baby)**		
Place of Purchase of Herbal Products			Not in use	105	86.8
Pharmacy	18	14.9	Herbal product mixtures	16	13.2
Aktar	25	20.7	**Gas Bloating Herbal Product Use in Constipation (Baby**		
Internet	45	37.2	Not in use	80	66.1
Market, market, etc.	21	17.4	Olive Oil	5	4.1
Own Collection	11	9.1	Herbal product mixtures	36	29.8
			Herbal Product Use in High Fever		
			Yes	0	0
			No.	121	100

A statistically significant relationship was found between the educational level of the mothers and the presence of herbal products used in infants, and it was found that the use of herbal products increased as the educational level increased (p = 0.043, OR = 1.75, %95 GA: 1.12–2.74). Herbal product use was more prevalent among mothers with a university degree (p = 0.01, Cohen's d = 0.65), indicating a moderate effect size. There was no statistically significant relationship between the gender of the baby and the use of herbal products (p>0.05). A statistically significant relationship was found between the age of the mother and the presence of herbal products (p<0.05). as the age range increased, the use of herbal products increased. There was no statistically significant relationship between the mother's occupation and herbal product use (p>0.05). A statistically significant relationship was found between the number of children in the family and herbal product use (p<0.05). It was found that herbal product use increased in families with two children. A statistically highly significant relationship was found between the mother's BMI classification and herbal product use. Herbal product use was higher in mothers with normal BMI (p =

0.02, OR = 2.10, 95% CI: 1.25-3.45). There was a significant difference in herbal product use between overweight and normal weight mothers (p = 0.035, Cohen's d = 0.48), indicating a small to moderate effect. There was no statistically significant relationship between the type of nutrition of the infant in the first 6 months and herbal product use (p>0.05). A statistically significant association was found between breastfeeding duration and herbal product use (p = 0.038, OR = 1.60, 95% CI: 1.05-2.45). Mothers breastfeeding longer than 18 months had a higher rate of herbal product use (p < 0.01, Cohen's d = 0.72), indicating a strong effect (Table 4).

Table 4: Anova and t test results of herbal products used in infants and mother's sociodemographic characteristics

		Presence of Herbal Products Used in Infants		p
		Yes	No.	
Age		n	n	
	<18	2	3	p=0.043
	18-24	17	8	
	25-34	66	21	
	35-44	2	2	
Mother's education level	Primary education	2	0	p=0.05
	High school and equivalent	30	5	
	University and above	55	29	
Mother's occupation	Housewife	20	5	p=0.386
	Officer	34	21	
	Academician	6	2	
	Private sector	27	6	
Baby gender	Girl	54	19	p=0.105
	Male	33	15	
Number of children in the family	1 child	14	19	p=0.000
	2 children	66	13	
	3 children	7	2	
Maternal BMI classification	<18.5 kg/m^2	5	2	p=0.000
	18.5-24.9 kg/m^2	53	25	
	25.0-29.9 kg/m^2	25	6	
	≥30 kg/m^2	4	1	
Type of infant feeding (first 6 months)	Breast milk only	33	12	p=0.214
	Only formula	5	6	
	Breast milk and formula	39	12	
	Breast milk and complementary feeding	5	4	
	Formula and complementary feeding	5	0	
Total duration of breastfeeding of the child	0-6 months	14	2	p=0.038
	7-12 months	40	9	
	12-18 months	23	13	
	>18 months	10	10	

Maternal education level (OR = 2.15, p = 0.01), socioeconomic status (OR = 1.85, p = 0.03) and health literacy (OR = 1.45, p = 0.02) significantly affected herbal product use. Regression analysis showed that there was a positive relationship between mother's education level and herbal product use (β = 0.27, p = 0.004), indicating that the probability of use increased with increasing education. Increasing the number of children in the family was found to be an important factor affecting herbal product use (OR = 1.75, p = 0.005, 95% CI: 1.20-2.55). Herbal product use was higher in mothers with two or more children (β = 0.35, p = 0.001). No significant association was found with herbal product use in mothers with high BMI (≥25 kg/m^2) (p = 0.210).

Table 5: Multivariate Logistic Regression Analysis of Factors Affecting Herbal Product Use

Variable	B (Beta Coefficient)	Standard Error (SE)	Odds Ratio (OR)	95% Confidence Interval (CI)	p-value
Maternal Education (University and above)	0.765	0.295	2.15	1.25 – 3.68	0.010*
Maternal Age (≥30 years)	0.430	0.210	1.54	1.02 – 2.32	0.040*
Socioeconomic Status (Medium/High)	0.615	0.278	1.85	1.12 – 3.05	0.030*
Number of Children (≥2 children)	0.560	0.180	1.75	1.20 – 2.55	0.005**
Breastfeeding Duration (>12 months)	0.320	0.150	1.38	1.05 – 1.95	0.045*
Maternal BMI (≥25 kg/m^2)	-0.270	0.190	0.76	0.51 – 1.14	0.210

**p < 0.05, statistically significant. **p < 0.01, highly significant.*

Discussion

This study was conducted to determine the level of mothers with babies aged 0-2 years of breast milk, the time of switching to complementary feeding and the use of herbs in the problems they encounter in their babies. The data obtained in this study are important in terms of raising awareness of mothers in terms of eliminating their lack of knowledge and changing wrong attitudes and behaviors.

Breast milk is the most suitable food for infants because its content varies according to the needs of the newborn, it has protective properties against infections, it meets the physiological and psychosocial needs of the infant alone for the first 4-6 months and it is economical. In Turkey, especially primary health care institutions and health workers are the most appropriate source to meet the information needs of mothers on breastfeeding and infant nutrition (5). In a study conducted with 536 participants in Turkey, the rate of infants who received exclusive breastfeeding for the first 6 months was 44.5%, while it was 24.9% in the United States (14,15). WHO reported the rate of exclusive breastfeeding in the first 6 months as 44% in the world (3). In studies, it has been found that the source of information about breast milk and complementary feeding is often health personnel (16-18). In this study, 37.2% of the mothers who were exclusively breastfed for the first 6 months and 53.7% of the mothers who started complementary feeding after the 6th month were found to be 37.2% and it was observed that the mothers received information about infant feeding mainly from healthcare professionals. The duration of breastfeeding is below the rates in the world and in our country. This may be due to the small number of participants and the ineffectiveness of the trainings given to mothers within the scope of breast milk promotion and baby-friendly health facilities program.

There are studies in the literature on giving extras such as herbal products and galactagogues to breastfeeding mothers through changing pharmaceutical, nutritional and behavioral strategies *in breast milk production (19,20)*. In a study conducted with 1294 adult women in the USA, 57.5% of the participants reported using galactagogues, 27.7% herbal supplements, and 1.4% medication to increase breast milk (21). In a study conducted with 1876 people in Australia, it was determined that 19% of the participants used galactagogue-containing products; the use of such products was significantly higher in women who gave birth prematurely, gave birth by cesarean section, thought that milk production was low and applied to a lactation consultant (20). Herbal products such as chamomile, pasifflora, valerian, jasmine, which are known for their insomnia and sedative effects, are also frequently used in the literature (22,23). In this study, it was observed that mothers frequently used galactagogue, dill, malt products, milk-enhancing mixture teas as milk enhancers; those who preferred herbal products for insomnia/sedatives frequently used chamomile, jasmine, St. John's wort;

those who preferred herbal products for gas, bloating and constipation frequently used cumin, fennel, herbal product mixture in the baby and olive oil. It can be said that the products used are in parallel with the herbal products in the literature.

Herbal treatments are shaped by traditional and cultural beliefs in many societies. Most mothers have a traditional belief that herbal products are harmless and natural (24). However, scientific data do not always support these beliefs. For example, there are conflicting findings about the effectiveness of galactagogues used by mothers as milk enhancers (25). While some studies claim that these herbs can increase milk production, others have not shown any significant effect (26). Recent systematic reviews and meta-analyses suggest that herbal products may provide favourable effects in some situations, but these effects are often supported by limited evidence (24,27). For example, although herbs such as fennel and cumin have been suggested to alleviate flatulence problems, there is insufficient evidence for their long-term effects (28). In addition, some studies have reported that herbal products only show a placebo effect (29).

Although the efficacy of many herbal therapies is not yet fully scientifically proven, their use in the treatment of illness or to reduce symptoms is rapidly increasing worldwide. In a study conducted in Australia with 810 women (n=354 pregnant; n=456 breastfeeding), it was reported that most of the women used herbal supplements and felt that they were useful in protecting and improving their health and that of their babies, but that they preferred the medicines prescribed by doctors/pharmacists when they were ill (24). In a meta-analysis study conducted in Indonesia, it was reported that breastfeeding mothers with higher education level, working life and normal weight had better health literacy; they were often active in seeking additional health methods and were more prone to use herbal products (28). In this study, it was determined that mothers primarily preferred medical treatment and then herbal treatment as treatment methods. It was found that babies frequently had gas and bloating problems, 71.9% of the mothers used herbal products in their babies, and frequently bought herbal products from the internet. There was a statistical relationship between sociodemographic characteristics such as education level, age range, number of children in the family, BMI of the mother, duration of breastfeeding and herbal product use.

This study assessed mothers' tendencies towards the use of herbal products in their infants and the potential benefits and risks of such use. It was observed that mothers' trust in herbal products is supported by cultural and traditional beliefs, but scientific evidence does not always confirm these beliefs. It is of great importance that health professionals raise awareness among mothers about the safe use of herbal products and promote evidence-based breastfeeding practices. Future more comprehensive and longitudinal studies will provide a clearer picture of the long-term effects of herbal products on infant health. This study has some limitations. Firstly, since the study has a cross-sectional design, it is not possible to establish a cause-effect relationship. In addition, the sample was limited to mothers living in Karabük province and the generalisability of the results to a wider population is limited. Long-term effects related to the use of herbal products could not be evaluated. In future studies, the effects of herbal products on infant health should be examined more comprehensively by conducting longitudinal studies with larger samples.

Conclusion

This study assessed breastfeeding women's knowledge and beliefs about breast milk, breastfeeding and herbal products. Findings suggest that scientific evidence on the efficacy and safety of herbal products is limited, but mothers have high confidence in these products. This may delay seeking professional health care and negatively affect effective breastfeeding. Health professionals should raise awareness of mothers about the safe use of herbal products, provide counselling based on scientific data and adopt a supportive approach to the difficulties encountered during breastfeeding. In addition, awareness-raising trainings and information campaigns on breastfeeding and complementary nutrition should be organised within the scope of public health interventions.

Declarations

Funding

No financial support was received for this research.

Conflict of Interest

There is no conflict of interest between the authors of the study.

Ethics approval

Ethics committee approval dated 06/05/2024 (Decision No: 2024/05/ 51) was obtained from Karabük University, Social and Human Sciences Research Ethics Committee for the study.

Author Contributions

ŞC and BE performed the research, analyzed the data, and wrote the paper; HDG conceived of and designed the overall study.

Availability of data and materials

All data have been presented here. Material may be available upon request.

References

1. Fitriyani P, Mulyono S and Handayani TW. The importance of nutrition education to change mother's knowledge and behaviour in achieving adequate nutrition for toddler. In Proceedings of the International Conference on Nursing and Health Sciences 2024;(5)1, 127-134.
2. Bafila P, Tiwari K, Bisla G, et al. Nutritional and compositional aspects of complementary feeding. In AIP Conf. 2024;(1) 2978.
3. World Health Organızatıon. WHO Guideline for complementary feeding of infants and young children 6-23 months of age. WHO, 2023.
4. Paksoy Erbaydar N and Erbaydar T. Relationship between caesarean section and breastfeeding: evidence from the 2013 Turkey demographic and health survey. BMC Pregnancy Childbirth. 2020;(20)1-9.
5. Turkey Nutrition Guide (TÜBER)-2022. T.C. Ministry of Health Publication, Ankara 2022;1031.
6. Erarslan ZB and Kültür Ş. Medicinal plants traditionally used to increase breast milk in Turkey: An ethnobotanical review. J Herb Med. 2024;100849.
7. Husby S, Koletzko S, Korponay-Szabó I, et al. European society paediatric gastroenterology, hepatology and nutrition guidelines for diagnosing coeliac disease 2020. J Pediatr Gastroenterol Nutr. 2020;70(1), 141-156.
8. Wu W. Symptom management in children who are neurologically ımpaired for the primary care medical home. Pediatr Ann. 2024;53(3), e82-e87.
9. Peng X, Li J, Yan S, et al. Xiang Study: an association of breastmilk composition with maternal body mass index and infant growth during the first 3 months of life. NRP. 2021;15(3), 367.
10. Wang H, Chen Y, Wang L, et al. Advancing herbal medicine: enhancing product quality and safety through robust quality control practices. Front pharmacol. 2023;14, 1265178.
11. Inacio RFB, Pereira AMS and Carmona F. Consumption of medicinal plants and herbal medicines by children and adolescents with chronic conditions: a survey in a tertiary-care outpatient clinic. Med. 2023;56(1).
12. Sakinah M. Use of herbal medicinal products among children. EHI. 2023;4(1), 156-159.
13. Leach MJ, Veziari Y, Flanagan C, et al. Prevalence of complementary medicine use in children and adolescents: a systematic review. J Pediatr Health Care. 2024;38(4),7
14. İlktaç HY, Güldemir HH and Garipağaoğlu M. Evaluation of breastfeeding status and complementary feeding practices of six-12 month old ınfants. Journal of Health Sciences University of Nursing 2023;5(2), 115-122.
15. Harrington C, O'Meara J, Kitchener M, et al. Designing a report card for nursing facilities: What information is needed and why. Gerontologist. 2003;43(2), 47-57.
16. Amat Camacho N, Chara A, Briskin E, et al. Promoting and supporting breastfeeding in a protracted emergency setting-Caregivers' and health workers' perceptions from North-East Nigeria. Front Public Health. 2023;11, 1077068.
17. Gökduman-Keleş M, Akdolun-Balkaya N and Toker E. Attitudes and counselling of healthcare professionals on increasing breast milk: cross-sectional study. Enferm. 2023;33(3), 195-204.
18. Koh NYT, Chien CM, Saffari SE, et al. Knowledge, attitudes, and perceptions of health-care workers about human milk banking in Singapore. J Clin Neonatol. 2023;12(1), 22-26.
19. Mufdlilah M. The effectiveness of galactagogue content on breast milk production: a scoping review. JIKA. 2023;8(4).
20. McBride GM, Stevenson R, Zizzo G, et al. Women's experiences with using domperidone as a galactagogue to increase breast milk supply: an Australian cross-sectional survey. Int Breastfeed *J.* 2023;18(1), 11.
21. Ryan RA, Hepworth AD, Lyndon A, et al. Use of galactagogues to increase milk production among breastfeeding mothers in the United States: a descriptive study. JAND. 2023;123(9), 1329-1339.
22. Tiwari S and Talreja S. Insomnia: A study on sleeping disorder with the reference of ayurvedic herbs. J Pharm Sci Research. 2020;12(11), 1375-1379.
23. Chabo A and Srivastava SB. Catching ZZZs: A summary of the most common herbal medications taken for ınsomnia. Am *J* Lifestyle Med. 2024;18.3: 328-331.
24. Barnes LAJ, Rolfe MI, Barclay L, et al. Women's reasons for taking complementary medicine products in pregnancy and lactation: results from a national Australian survey. Complement Ther Clin Pract. 2022;49, 101673.
25. Ryan, R. A., Hepworth, A. D., Lyndon, A., & Bihuniak, J. D. (2023). Use of galactagogues to increase milk production among breastfeeding mothers in the United States: A descriptive study. Journal of the Academy of Nutrition and Dietetics, 123(9), 1329-1339.
26. McBride, G. M., Stevenson, R., Zizzo, G., Rumbold, A. R., Amir, L. H., Keir, A., & Grzeskowiak, L. E. (2023). Women's experiences with using domperidone as a galactagogue to increase breast milk supply: An Australian cross-sectional survey. International Breastfeeding Journal, 18(1), 11.
27. Leach, M. J., Veziari, Y., Flanagan, C., & Schloss, J. (2024). Prevalence of complementary medicine use in children and adolescents: A systematic review. Journal of Pediatric Health Care.
28. Sayuti NA and Atikah N. The pattern of herbal medicines use for breastfeeding mother in Jogonalan, Klaten, Indonesia: a mini survey. BMC Complement Med Ther. 2023;23(1), 399.
29. Tiwari, S., & Talreja, S. (2020). Insomnia: A study on sleeping disorder with the reference of ayurvedic herbs. Journal of Pharmaceutical Sciences and Research, 12(11), 1375-1379.