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ORIGINAL

Attitudes and practice of Turkish mothers with babies between 0-24 months regarding infant nutrition: the Iowa Infant Feeding Attitude Scale

Atitudes e aplicações de mães turcas sobre a nutrição do bebê entre 0-24 meses: Iowa Nutrição do Bebê Atitude

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ABSTRACT

Objective

This study aims to evaluate the behaviors and attitudes of mothers with 0-24-month-old babies towards infant feeding, depending on their sociodemographic characteristics.

Methods

This is a cross-sectional study, which was carried out with 300 mothers. Demographic characteristics of the mothers, breastfeeding and complementary feeding practices, and the Iowa Infant Feeding Attitude Scale were collected. As for the statistical evaluation, Statistical Package for the Social Sciences version 22 statistical package program was used. For the statistical analysis; percentages, mean values, Independent T-Test, One-Way ANOVA, Chi-Square test, and multinomial regression models analysis were used.

Results

79.7% of the mothers gave human milk to their infants as the first food after delivery, 36.9% gave only human milk for the first 6 months, 52.0% started complementary feeding at 4-6 months. Of the mothers with a mean The

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Iowa Infant Feeding Attitude Scale score of 64.38±8.43, 54.0% were positive towards breastfeeding. A significant relationship was found between education and income levels and Iowa Infant Feeding Attitude Scale scores level of the mothers, respectively (χ^2=10.001, χ^2=10.421, p<0.05). The mothers with a postgraduate degree as educational status (AOR=1.27, 95%CI:1.06-1.53) and mothers who had more income than expenditures (AOR=1.19, 95%CI:1.03-1.63) were associated with a higher positive towards of breastfeeding.

Conclusion

Although most of the mothers say that they have a positive attitude towards breastfeeding, the rate of those who only breastfeed for the first 6 months is low. As the education and income level of mothers increase, their positive attitude towards breastfeeding increases. Mothers should be informed to initiate and maintain successful breastfeeding.

Keywords: Breastfeeding. Complementary feeding. Human milk. Infant.

RESUMO

Objetivo

Este estudo tem como objetivo avaliar os comportamentos e atitudes de mães com bebês de 0 a 24 meses em relação à alimentação infantil, em função de suas características sociodemográficas.

Métodos

Este estudo é um estudo transversal, realizado com 300 mães. Foram coletadas características demográficas das mães, práticas de amamentação e alimentação complementar e a Iowa Infant Feeding Attitude Scale. Quanto à avaliação estatística, foi utilizado o programa de pacote estatístico Statistical Package for the Social Sciences versão 22. Para a análise estatística; percentagens, valores médios, Teste T independente, Anova de uma via, teste do qui-quadrado e análise de modelos de regressão multinominal.

Resultados

79,7% das mães deram leite materno como primeiro alimento após o parto, 36,9% deram apenas leite materno durante os primeiros 6 meses, 52,0% iniciaram a alimentação complementar aos 4-6 meses. Das mães com escore médio Iowa Infant Feeding Attitude Scale de 64,38±8,43, 54,0% eram positivas para amamentação. Encontrou-se relação significativa entre os níveis de escolaridade e renda e o nível dos Iowa Infant Feeding Attitude Scale escores das mães, respectivamente (χ^2=10,001, χ^2=10,421, p<0,05). Mães com pós-graduação (AOR=1,27, IC 95%: 1,06-1,53) e mães que tinham mais renda do que despesas (AOR=1,19, IC 95%: 1,03 -1,63) foram associadas a maior positividade para amamentação.

Conclusão

Embora a maioria das mães diga que têm uma atitude positiva em relação à amamentação, a taxa das que amamentam apenas nos primeiros 6 meses é baixa. À medida que aumenta a escolaridade e o nível de renda das mães, sua atitude positiva em relação à amamentação aumenta. As mães devem ser informadas para iniciar e manter a amamentação com sucesso.

Palavras-chave: *Amamentação. Alimentação complementar. Leite humano. Lactente.*

INTRODUCTION

Exclusive breastfeeding is the most suitable source of nutrition for the growth and development of an infant for the first six months of life [1]. Human milk is an ideal and unique diet for the infant. It is always clean, at a suitable temperature, high in protein quality, protective against diseases, and inexpensive. It is stated that the lives of one million infants can be saved each year only by promoting breastfeeding in developing countries [2].

Mothers' knowledge and attitudes towards breastfeeding is an important factor affecting the infant feeding method and the duration of breastfeeding [3]. The World Health Organization (WHO) emphasizes the importance of exclusive breastfeeding for the first 6 months of life starting from delivery and continuing breastfeeding up to 2 years of age [4].

Although the benefits of breastfeeding have been proven, various factors can affect the duration and continuity of breastfeeding. Information is the key to successful breastfeeding, and the mother's age, education level, residence (urban/rural), sociodemographic and cultural characteristics, income level, and the attitude of the mother and spouse are the factors affecting breastfeeding [1,2]. During the first few days of a mother's hospital stay, breastfeeding knowledge, attitudes, and practices of healthcare professionals are also among the factors that significantly affect future breastfeeding success [5].

Negative breastfeeding attitudes of mothers are emphasized to increase the rate of starting formula or early complementary feeding [3]. In Turkey, since 1991, the "Breast Milk Promotion and Baby-Friendly Hospitals Programme" has been initiated by the Ministry of Health in order to encourage breastfeeding and to make breastfeeding a successful and established practice [6]. Although breastfeeding is a common practice in Turkey, the habit of exclusive breastfeeding is not at the desired level. Early introduction of infant formula or other liquids is common, and bottle-feeding is a comparatively popular feeding practice [3]. According to Turkey Demographic and Health Survey (TDHS) data in 2018, only 41% of babies younger than 6 months were breastfed [6]. Breastfeeding is stated to protect infants against lower respiratory infections, diarrhea, acute otitis media, atopic dermatitis, and childhood obesity and contribute to their cognitive development compared to formula feeding [6].

The Iowa Infant Feeding Attitude Scale (IIFAS) was developed to assess maternal attitude toward infant feeding which is indicated as a predictor for feeding method choice and, among breastfeeding women, the duration of breastfeeding [7]. The IIFAS measures attitudes, self-efficacy, and/or satisfaction regarding breastfeeding practices [8]. IIFAS is a valid and reliable method developed for maternal attitudes and behaviors towards infant feeding [9,10]. Cultural differences change mothers' attitudes and behaviors. Many countries have adapted the scale to their own country [9]. In this study, it was aimed to evaluate the behaviors and attitudes of mothers with 0-24-month-old babies towards infant feeding, depending on their sociodemographic characteristics.

METHODS

This is a cross-sectional study. The research was approved by the Erzincan Binali Yıldırım University Human Research Ethics Committee (dated 27/02/2020, decision number 02-07) and each individual who volunteered to participate in the study signed informed consent before the study.

The population of the study consisted of mothers with infants aged 0-24 months registered to three family health centers with the highest patient density affiliated to the city center of Erzincan, Turkey.

The population of the study consists of 640 mothers who have babies aged 0-24 months from families of three family health centers, which are heterogeneous socio-demographic characteristics and have a high population density in Erzincan city center. The number of mothers to be included in the sample was determined using the sample selection formula when the number of members in the population is known [11].

$$n = \frac{Nt^2pq}{d^2(N-1)+t^2pq}$$

Note: N: Population size; n: Sample size; p: Population proportion; q: 1-p (Population proportion of misses or failures); t: The theoretical value found from the t table at a certain degree of freedom and detected error level (t=1.96); d: Precision (d=0.05).

According to this formula, the number of mothers to be included in the sampling was calculated as 240, but the study was completed with a total of 300 mothers considering that there would be data loss during the study. Mothers with babies aged 0-24 months, over 18 years of age, had no communication or mental problems, without any health problems preventing breastfeeding, and agreed to participate in the study will be included in the study. Mothers were chosen using a convenience sample.

The research was conducted between March 2020 and May 2020. Data collection tools were applied by the researcher to the mothers who brought their babies for health check-ups or vaccination to the centers actively serving in Erzincan city center by face-to-face interview technique.

A questionnaire form was used as a data collection tool in the study. The questionnaire form consisted of three parts. The first part consisted of demographic characteristics (age, educational status, employment status, income level (income<expenditure, income=expenditure, income>expenditure), the number of children, and family type); the second part consisted of questions about mothers' behaviors towards infant feeding (duration of breastfeeding, frequency of breastfeeding, when breastfeeding started, starting month of complementary feeding, continuity of human milk with complementary food). The questionnaire was formulated from literature reviewed on breastfeeding and used indicators purposed by World Health Organization [6,12-14]. The third part consisted of the 17-item Iowa Infant Feeding Attitude Scale.

The IIFAS, developed by De La Mora and Russell [15], whose Turkish validity and reliability study was carried out by Eksioglu *et al.* [3] was designed to evaluate maternal attitudes towards breastfeeding and to predict the duration of breastfeeding as well as the choice of infant feeding method.

This 17-item scale is a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). On the scale, 9 items are favorable towards breastfeeding, while 8 items are favorable towards formula feeding. The items favoring formula feeding are reverse-scored (1=5, 2=4, 3=3, 4=2, and 5=1). The total attitude scores range from 17 (indicating positive bottle-feeding attitudes) to 85 points (reflecting positive breastfeeding attitudes). The total scores are evaluated according to the following three categories: (1) positive towards breastfeeding (70-85), (2) neutral (49-69), and (3) positive towards formula feeding (17-48) [3,15].

Statistical Package for the Social Sciences (SPSS) version 22 statistical package program was used for statistical evaluation of the data. *p*-values of <0.05 were considered statistically significant. The normality of the distribution of numeric variables was evaluated using the "Kolmogorov-Smirnov test". In the analysis of the study data on the socio-demographic characteristics and breastfeeding attitudes of the mothers, percentages and mean values were used. The comparison of the Iowa Infant Feeding Attitude Scale in terms of the participants' socio-demographic characteristics was performed with the Independent T-Test and One-Way ANOVA. The relationship between variables was assessed by the Chi-square test. Multinomial regression models were performed to explore potential influence factors (age, education, employment, income level, the number of children, family type) for IIFAS scores level. Adjusted Odds Ratio (AOR) and 95% confidence interval (95% CI) were obtained from logistic regression models.

RESULTS

Demographic characteristics of the mothers participating in the study and mean IIFAS scores according to sociodemographic characteristics of mothers are shown in Table 1. 44.3% of the mothers were between the ages of 25-34 years, and the mean age was 28.78±6.65 years. It was determined that 52.4% of the mothers were high school-secondary school graduates, 78.0% were not employed, 71.0% had equal income and expense, 38.7% had two children and 74.3% had a nuclear family structure. 53.0% of the infants were boys, and 56.0% were between 0-6 months. There was a significant difference between

Table 1 – Mean Iowa Infant Feeding Attitude Scale scores according to sociodemographic characteristics of mothers (N=300).

Variables	n	%	IIFAS Score X	*SD*	*p*
Age[b]					
19-24	93	31.0	65.24	13.85	0.802
25-34	133	44.3	63.80	17.15	
≥35	74	24.7	64.38	16.04	
Educational Status[b]					
Primary school	69	23.0	62.34	14.92	0.037*
High/Secondary school	167	52.4	62.45	19.40	
Faculty	44	14.6	64.87	15.01	
Postgraduate	30	10.0	67.87	13.02	
Employment Status[a]					
Employment	66	22.0	65.78	14.33	0.434
Not employment	234	78.0	63.81	16.43	
Income level[b]					
Less income than expenditures	57	19.0	64.61	16.72	0.023*
Equal income and expenditure	213	71.0	64.21	14.82	
More Income than Expenditures	30	10.0	69.16	16.71	
The number of children[b]					
1	114	38.0	64.50	14.18	0.056
2	116	38.7	65.42	17.07	
≥3	70	23.3	67.23	13.58	
Family type[a]					
Nuclear Family	223	74.3	64.61	17.63	0.672
Extended Family	77	25.7	63.71	17.00	

Note: *$p<0.05$. [a]Independent T-Test; [b]One-Way ANOVA. IIFAS: Iowa Infant Feeding Attitude Scale.

the IIFAS scores and education and income levels of the mothers ($p<0.05$), while no significant difference was observed between the IIFAS scores and age groups, employment status, number of children, and family structure of the mothers ($p>0.05$).

The distribution of the answers of the Iowa Infant Feeding Attitude Scale and mean IIFAS score are shown in Table 2. The IIFAS mean score was calculated to be 64.38±8.43. Moreover, 230 (76.6%) participants strongly agreed that "Breastfeeding increases mother-infant bonding", 183 (61.0%) with "Breast milk is the ideal food for babies", 176 (58.6%) with "Breast milk is more easily digested than formula" and 187 (62.3%) with "Breast milk is less expensive than formula". In contrast, 167 (55.5%) mothers strongly disagreed with the statement that "Babies fed breast milk are healthier than babies who are fed formula" and 220 (73.3%) with "Breastfeeding is more convenient than formula feeding".

Human milk, breastfeeding, and complementary feeding practices of the mothers are shown in Table 3. It was found that 79.7% of the mothers gave human milk to their infants as the first food after delivery, 44.0% breastfed their infants within the first hour, 65.0% breastfed their infants every 1-2 hours, 35.1% breastfed their infants for 6-10 minutes and 38.0% breastfed their infants for more than 15 minutes each time. Thirty-six point nine percent of the mothers exclusively breastfed their infants for the first 6 months. Thirty-five point nine percent of the mothers stated that they breastfed their infants for up to 12 months, 69.3% stated that they started complementary feeding, 52.0% stated that they started complementary feeding at 4-6 months, and 34.6% stated that they gave yogurt as the first complementary food.

The relationship between the mother's age, educational status, employment status, income level, the number of children, family type, and IIFAS scores level is shown in Table 4. Of the mothers with a mean IIFAS score of 64.38±8.43, 54.0% were positive towards breastfeeding, 31.3% were neutral, and 14.7% were positive towards formula feeding. A significant relationship was found between education and income

Table 2 – Distribution of the answers of the Iowa Infant Feeding Attitude Scale and mean scores (N=300).

Variables	Strong Disagreement		Disagreement		Neutral		Agreement		Strong Agreement	
	n	%	n	%	n	%	n	%	n	%
1. The nutritional benefits of breast milk last only until the baby is weaned from breast milk.	65	21.6	34	11.3	56	18.6	87	29.0	58	19.5
2. Formula-feeding is more convenient than breast-feeding.	102	34.0	86	28.6	32	10.6	45	15.0	35	11.8
3. Breastfeeding increases mother-infant bonding.	7	2.3	6	2.0	12	4.0	45	15.0	230	76.6
4. Breast milk is lacking in iron.	108	36.0	45	15.0	80	26.6	24	8.0	43	14.4
5. Formula-fed babies are more likely to be overfed than are breastfed babies.	28	9.3	56	18.6	67	22.3	104	34.8	45	15.0
6. Formula-feeding is the better choice if a mother plans to work outside the home.	110	36.6	85	28.3	70	23.3	25	8.3	10	3.5
7. Mothers who formula-feed miss one of the great joys of motherhood.	42	14.0	68	22.6	37	12.3	55	18.3	98	18.8
8. Women should not breastfeed in public places such as restaurants.	108	36.0	72	24.0	65	21.6	35	11.4	20	7.0
9. Babies fed breast milk are healthier than babies who are fed formula.	167	55.5	56	18.6	29	9.6	28	9.3	20	7.0
10. Breastfed babies are more likely to be overfed than formula-fed babies.	32	10.7	43	14.3	60	20.0	123	41.0	42	14.0
11. Fathers feel left out if a mother breastfeeds.	112	37.2	106	35.3	48	16.0	24	8.0	10	3.5
12. Breast milk is the ideal food for babies.	12	4.1	13	4.3	16	5.3	76	25.3	183	61.0
13. Breast milk is more easily digested than formula.	5	1.8	15	5.0	16	5.3	88	29.3	176	58.6
14. Formula is as healthy for an infant as breast milk.	145	48.3	103	34.3	38	12.6	4	1.9	10	3.5
15. Breastfeeding is more convenient than formula feeding.	220	73.3	38	12.6	12	4.0	16	5.3	14	4.8
16. Breast milk is less expensive than formula.	8	2.8	12	4.0	17	5.6	76	25.3	187	62.3
17. A mother who occasionally drinks alcohol should not breastfeed her baby.	90	30.0	87	29.0	75	25.0	28	9.3	20	6.7
Mean IIFAS scores X±SD: 64.38±16.04										

Table 3 – Human milk, breastfeeding, and complementary feeding practices of the mothers (N=300).

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Practices	n	%
The first food is given to the infant after birth		
Human milk	239	79.7
Formula	61	20.3
Infant's first breastfeeding		
First 1 Hour	132	44.0
Between 1-6 hours	115	38.3
Between 7-24 hours	44	14.7
Not remembered	9	3.0
Frequency of breastfeeding		
Between 1-2 hours	195	65.0

Table 3 – Human milk, breastfeeding, and complementary feeding practices of the mothers (N=300).

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Practices	n	%
Between 3-4 hours	74	24.7
≥5 hours	4	1.3
Every time the infant wants	27	9.0
Duration of breastfeeding		
<5 minutes	4	1.3
5 minutes	8	2.6
Between 6-10 minutes	105	35.1
Between 11-15 minutes	69	23.0
>15 minutes	114	38.0
Duration of exclusive breastfeeding		
Between 0-1 month	59	19.7
Between 2-3 months	47	15.7
Between 4-5 months	83	27.7
≥6 months	111	36.9
The total duration of breastfeeding		
<1 months	12	4.0
Between 1-3 months	85	28.3
Between 4-6 months	46	15.3
Between 6-12 months	106	35.3
Between 12-18 months	30	10.0
Between 18-24 months	21	7.1
Timely introduction of complementary feeding (months)		
Between 0-3 months	128	42.7
Between 4-6 months	156	52.0
≥7 months	16	5.3
Fist complementary food* (n=208)		
Vegetables	12	5.8
Yogurt	72	34.6
Fruits	35	16.8
Soup	23	11.1
Custard	5	2.4
Cow milk	10	4.8
Formula	49	24.5

Note: *Complementary food starter.

Table 4 – The relationship between mother's age, educational status, employment status, income level, the number of children, family type, and Iowa Infant Feeding Attitude Scale scores level (N=300).

1 of 2

Variables	IIFAS scores level								χ^2	*p*
	Positive towards breastfeeding		Neutral		Positive towards formula feeding		Total			
	n	%	n	%	n	%	n	%		
General distribution	162	54.0	94	31.3	44	14.7	300	100		
Age (year)										
19-24	47	29.0	36	38.3	10	22.7	93	31.0	6.951	0.138
25-34	77	47.5	32	34.0	24	54.6	133	44.3		
≥35	38	23.5	26	27.7	10	22.7	74	24.7		

Table 4 – The relationship between mother's age, educational status, employment status, income level, the number of children, family type, and Iowa Infant Feeding Attitude Scale scores level (N=300).

2 of 2

Variables	IIFAS scores level								χ^2	*p*
	Positive towards breastfeeding		Neutral		Positive towards formula feeding		Total			
	n	%	n	%	n	%	n	%		
Educational Status										
Primary school	30	18.5	29	30.8	10	22.7	69	23.0	10.001	0.016*
High/Secondary school	100	61.7	44	46.8	23	52.3	167	52.4		
Faculty	23	14.1	13	13.8	8	18.2	44	14.6		
Postgraduate	19	5.7	8	8.6	3	6.8	30	10.0		
Employment Status										
Employment	38	23.4	22	23.9	6	13.6	66	22.0	2.425	0.658
Not employment	124	76.6	72	76.1	38	86.4	234	78.0		
Income level										
Less ıncome than expenditures	18	11.1	7	7.4	5	11.4	30	19.0	10.421	0.041*
Equal ıncome and expenditure	114	70.4	67	71.3	32	72.7	213	71.0		
More ıncome than expenditures	30	18.5	20	21.3	7	15.9	57	10.0		
The number of children										
1	53	32.7	37	39.3	24	54.6	114	38.0		
2	71	43.8	35	37.2	10	22.7	116	38.7	11.756	0.302
≥3	38	23.5	22	23.5	10	22.7	70	23.3		
Family type										
Nuclear Family	121	74.7	72	76.1	30	68.2	223	74.3	1.136	0.567
Extended Family	41	25.3	22	23.9	14	31.8	77	25.7		

Note: *Pearson Chi-square test (p<0.05). IIFAS: Iowa Infant Feeding Attitude Scale.

levels and IIFAS scores level of the mothers, respectively (χ^2=10.001, χ^2=10.421, p<0.05). Mothers with higher education and income levels have higher IIFAS score levels.

According to the results of the multinomial regression analysis, the mothers with a postgraduate degree as educational status (AOR=1.27, 95% CI:1.06-1.53) and mothers who had more income than expenditures (AOR=1.19, 95% CI:1.03-1.63) were associated with a higher positive towards of breastfeeding (Table 5).

Table 5 – Multinomial regression analysis results (N=300).

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Variables	IIFAS scores level	
	AOR	95% CI
Age (year)		
19-24	1.00	
25-34	0.85	0.63-1.80
≥ 35	0.93	0.61-1.98
Educational Status		
Primary school	1.00	
High/Secondary school	1.18	1.11-1.59
Faculty	1.13	1.07-1.54
Postgraduate	1.27	1.06-1.53*

Table 5 – Multinomial regression analysis results (N=300).

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Variables	IIFAS scores level	
	AOR	95% CI
Employment Status		
Employment	1.00	
Not employment	0.98	0.69-1.48
Income level		
Less ıncome than expenditures	1.00	
Equal ıncome and expenditure	1.04	0.89-1.38
More ıncome than expenditures	1.19	1.03-1.63*
The number of children		
1	1.00	
2	1.09	0.87-1.36
≥3	1.08	0.86-1.35
Family type		
Nuclear Family	1.00	
Extended Family	0.65	0.39-1.28

Note: *p<0.05. AOR: Adjusted *Odds Ratio*.

DISCUSSION

Breast milk meets the needs of the baby in the first six months after birth. The importance of breast milk is known all over the World [16]. In our country, it has been reported that almost every infant is breastfed for the first months after delivery, the rate of breastfeeding gradually decreases as the months progress, and therefore complementary foods are introduced early [17]. As a result of the study we conducted with 300 mothers with babies between 0-24 months; it was determined that the rates of breastfeeding alone in the first 6 months were low (36.9%), and mothers started complementary foods in the early period (52.0%), these results support the current information in our country. Most mothers (54.0%) have a positive attitude towards breastfeeding.

Due to the contribution of breastfeeding in the first hours of the postpartum and thus skin-to-skin contact in the early period, mothers and baby attachment is thought to have a positive effect on their attitudes towards breastfeeding. According to the 2013 Turkey Demographic and Health Survey (TDHS-2013) results, while the rate of breastfeeding within the first hour after delivery was 50.0% in the 2013 data, it was 71.0% in the 2018 Turkey Demographic and Health Survey (TDHS-2018) data (TDHS-2013, TDHS-2018). 45.6% of the mothers were found to start breastfeeding their infants within the first hour after delivery in a study of 401 mothers in our country [6]. Gümüstakım *et al*. [12] reported that 84.3% of the infants received human milk within the first hour. 71.1% of the mothers were found to breastfeed their infants within the first hour after delivery in a study of 355 mothers with infants aged 0-24 months in Africa [13]. The rate of breastfeeding within the first hour varies between 60% and 80% in developed countries, while it is 39% in developing countries. This rate decreases to 31% in Central Asia and North Africa and 27% in South Asia [18]. In this study, 44.0% of the mothers stated that they started breastfeeding within the first hour. Our results being much lower than the average of Turkey may be due to regional differences, unbalanced distribution between education levels, high cesarean delivery rates, and thus prolonged postpartum care of the mothers.

Breastfeeding is the first and most important step in healthy nutrition. In this study, 79.7% of the mothers gave human milk to their infants as the first food, and this rate was reported as 75% in the USA

[19]. According to the TDHS-2013, only 74% of the infants were reported to receive human milk as the first food in Turkey [20]. Our results are higher than the average of Turkey; Calik *et al*. [6] reported this rate as 76.3%. The reason why one-fourth of the first foods are those other than human milk although the policies regarding human milk are implemented and almost all deliveries are performed in hospitals may be the high cesarean delivery rates and therefore the delay of the first breastfeeding time as a result of prolonged postpartum care of the mothers [6]. Health personnel has a great role to play in the continuation and support of breastfeeding for women. Mothers who apply to health institutions should be asked about the nutritional status of the baby and breastfeeding counseling should be given. In addition, training should be given on pumping, storing, and preserving milk [16].

According to the Turkey Demographic and Health Survey (TDHS) results, the rate of exclusive breastfeeding for the first six months was 30.1% in the 2013 data, it was 41% in the 2018 data [20,21]. The WHO has set a global nutrition target that at least 50% of infants should be exclusively breastfed up to six months in 2025 [22,23]. The rates of exclusive breastfeeding for the first six months are 9.0% [6], 16.5% [12] and 26.5% [24] in our country; and 66.0% in West Africa [13], 16% in Afghanistan, 51% in China, 32% in East Asia, 30% in South Africa, 10.1% in Sweden, 13.6% in Austria, 13.6% in America, 14.4% in Canada, 42.3% in Italy and 56% in Iran [19]. In our study, this rate was found as 36.9%. The WHO and United Nations Children's Fund (UNICEF) reported the rate of exclusive breastfeeding for the first six months as 38% around the World [19]. As in our country, the rates of exclusive breastfeeding for the first six months are quite low in many regions of the world compared to the WHO's recommendations, and these low rates remain a major problem. These results show that while the rates of exclusive breastfeeding are high at the time of delivery, these percentages decrease gradually in months due to the introduction of complementary foods in our country. The fact that mothers are not successful in maintaining breastfeeding while they are quite enthusiastic about initiating breastfeeding demonstrates that different strategies and policies are needed as well as support practices.

Regarding complementary food introduction, the rate of introduction of solid, semi-solid, or soft foods to infants aged 6-8 months is 85.0% according to the TDHS-2018. The most common foods given to breastfed or non-breastfed infants aged 6-23 months were reported as cheese, yogurt, and other dairy products (74% and 73%, respectively) and other vegetables and fruits (74% and 77%, respectively) [21]. Calik *et al.* [6] reported that 52.6% of the mothers started complementary feeding at 4-5 months, and 58.1% of them gave water and infant formula as complementary food. Gümüstakim *et al*. [12] found that 16.5% of the infants were weaned from human milk before 6 months of age, 25.6% were introduced to complementary feeding before 6 months of age, and 51.2% were introduced after 6 months of age. It was reported in a study that 36.3% of the mothers started complementary feeding before six months of age, and they started most commonly with yogurt (48.6%), fruit puree (17.8%), and soup (17.0%) [25]. In a study conducted in Brazil, it was determined that 53.8% of the mothers started complementary feeding before six months of age, 28.8% gave homemade food (vegetables, legumes, cereals, and meat), 22.1% gave fruit, and 20.1% gave natural fruit or vegetable juice [26]. Complementary foods should be gradually added to the diets of infants from the sixth month of life, in the form of meats, fats, and eggs, as well as potatoes, vegetables, fruits, and cereals [27]. In this study, 52.0% of the mothers stated that they started complementary feeding at 4-6 months; 34.6% stated that they gave yogurt, 24.5% stated that they gave infant formula and 16.8% stated that they gave infant formula as the first complementary food.

According to the TDHS results, the median duration of breastfeeding is 16.7 months for infants aged 0-35 months, while the median duration of exclusive breastfeeding was 1.8 months for the same age group [21]. Asere *et al*. [13] found that 33.7% of the mothers started complementary feeding after 6 months of age, and 77.3% of them breastfed their infants up to 1 year of age in their study. In this study, 35.9% of the

mothers breastfed their infants up to 12 months of age, and the median duration of breastfeeding was 7.3 months, while the median duration of exclusive breastfeeding was 4.1 months. For socio-economic reasons, women may have to return to work after giving birth. For this reason, a woman who has just gotten used to the breastfeeding period may have anxiety about returning to business life, and breastfeeding status may be affected by such factors. Some difficulties in the working environment of women can also negatively affect the breastfeeding process. Effective breastfeeding of working women can be achieved by arranging the laws and policies in the countries in favor of women, improving the conditions in the workplace, and organizing breastfeeding training programs correctly [16]. In addition, postpartum insomnia and fatigue also negatively affect breastfeeding. Supporting fathers, as well as mothers throughout the breastfeeding process, plays an important role in breastfeeding success [28].

It was found that the mean IIFAS score of the mothers was 56.55±4.77, and they were less likely to start breastfeeding within one hour after delivery in a study of 324 mothers in China [29]. The mean IIFAS score was found as 61.0±6.6 in a study of 220 mothers with a mean age of 29.5±0.5 in Iran [30]. Duran *et al.* [31] found the mean IIFAS score of the mothers as 61.0±6.6 and a significant difference between the IIFAS scores and age group, education, and income levels of the mothers ($p<0.05$) [31]. It was found that the mean IIFAS score of the mothers was 57.8±8.43, 11.4% were positive towards breastfeeding, 78.1% were neutral, and 10.5% were positive towards formula feeding in another study conducted in our country. Also, there was a significant correlation between the IIFAS scores and education level and employment status of the mothers ($p<0.05$), and a non-significant correlation between the IIFAS scores and number of children ($p>0.05$) [32]. In this study, the mean IIFAS score of the mothers was 64.38±8.43, 54.0% were positive towards breastfeeding, 31.3% were neutral, and 14.7% were positive towards formula feeding; and there was a significant difference between the IIFAS scores and education and income levels of the mothers ($p<0.05$), while no significant difference was observed between the IIFAS scores and age groups, employment status, number of children and family structure of the mothers ($p>0.05$). The results of this study are similar to Duran *et al.* [31] results in terms of being positive towards breastfeeding as the status of education and income level increases. High IIFAS scores of mothers indicate that they are positive towards breastfeeding, and their tendency to breastfeed their infants increases with increasing education and income levels. As the income and education level increase, mothers are thought to have more informed choices.

This study's results cannot be generalized to Turkey as they are based on the data obtained from three family health centers with the highest patient density affiliated to the city center of Erzincan. Similar studies on various populations in Turkey and other countries should be conducted. Large-scale studies in which both parents are included in the sample will be useful.

CONCLUSION

The majority of the mothers participating in the study were observed to breastfeed their infants; however, the sense of exclusive breastfeeding for the first six months has not reached the expected level. It was found that the rates of exclusive breastfeeding for the first six months were low, and the mothers started complementary feeding in the early period. The start of complementary nutrition occurs in 4-6 months at most; yogurt, formula, and fruits took the first three places among the foods given as supplementary food. The majority of mothers are positive towards breastfeeding. When the data obtained in this study are examined, it is obvious that mothers need to be informed about the content, importance, and adequacy of human milk, exclusive breastfeeding, maintaining breastfeeding, and optimal timing for the introduction of complementary foods. Mothers should be supported and informed effectively not only by their families and society but also by the healthcare system before, during, and after delivery to initiate and maintain successful breastfeeding.

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CONTRIBUTORS

All authors designed the study, collected and analyzed the data, prepared the manuscript, and approved the final version for submission.

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