

Breastfeeding status and complementary feeding preferences of mothers in children aged 12–36 months: Data from a tertiary university hospital

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ABSTRACT

Objective: The aim of this study was to question the practices of mothers on breastfeeding and complementary feeding (CF) in infancy and early childhood in a baby-friendly university hospital and investigate child- and family-related factors on child nutrition practices.

Material and Methods: Mothers of 12–36-months-old babies who applied to Sivas Cumhuriyet University Hospital Pediatric Clinic for any reason and had no disease that prevented breastfeeding were included in the study. Sociodemographic characteristics, birth information of the baby, breastfeeding status, and CF practices were questioned to the participants.

Results: A total of 245 mothers who had children between 12 and 36 months participated in the study. The mean age of the mothers was 30.5 ± 5.3 years; 54.3% of them were housewives. Of the total mothers, 100 were currently actively breastfeeding, and 145 mothers (59.2%) had stopped breastfeeding. Overall, 98% of all participants had breastfed for some time. The rate of breastfeeding in the first hour after birth was 53.1%. The rate of exclusive breastfeeding (EB) in the first 6 months was 32.2%. There was no statistically significant relationship between maternal age, birth week of the baby, gender, delivery type, maternal age, maternal education level, maternal employment status, mother's smoking status, and EB in the first 6 months. The mean duration of breastfeeding in mothers who stopped breastfeeding ($n=145$) was 13.67 ± 8.73 months. The median time to start CF was 6 months. The first complementary foods given to the children were 37.1% yogurt, 19.6% vegetable puree, 13.5% fruit, and 13.1% vegetable soup. Early initiation of CF decreased as maternal age increased and education level decreased ($p<0.05$). Smoking mothers started CF earlier.

Conclusion: Although breastfeeding is common in Turkey, EB is not at the desired level. For healthy child development, parents must be educated about breast milk, breastfeeding, when to start CF, and about food ingredients. In this regard, health professionals and social media have important duties as they are the sources of information to families.

Keywords: Breast milk, breastfeeding, complementary food, infant, mothers.

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INTRODUCTION

Breast milk is the most miraculous food because of its macronutrients, micronutrients, immunological, and bioactive substances. Therefore, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) recommend starting breastfeeding within the first hour after birth, exclusive breastfeeding (EB) for the first 6 months of life, starting complementary feeding (CF) with nutritionally sufficient and safe foods at 6 months of age, and continuing breastfeeding up to 2 years of age or beyond for the healthy growth and development of infants.^[1]

Breastfeeding reduces the incidence of many diseases, especially respiratory tract infections, otitis media, necrotizing enterocolitis, gastrointestinal tract infections, and sudden infant death syndrome, and increases neuromotor development. Behavioral problems, allergic diseases, obesity, metabolic syndrome, diabetes, malignancy, autoimmune diseases, and alcohol addiction are less common in breastfed infants. In addition, breastfeeding strengthens the bond between mother and baby. Breast milk is economical, always available, fresh, and free from microorganism contamination.^[2,3] However, studies have shown that breastfeeding rates and durations are below the desired level. Breastfeeding initiation rates vary between 57% and 91% in different countries; however, EB rates decrease to 25%–46% in the fourth month.^[4,5] According to the 2018 Turkey Demographic and Health Surveys (TDHS) report, breastfeeding is common in Turkey: 97.8% of all children have been breastfed for some time, and the median breastfeeding duration is 16.7 months. However, the rates of EB in the first 6 months are low (40.7%).^[6] In Turkey, it is observed that infants are introduced to CF in the early stages, and the rate of EB in the first 6 months is low. Studies have reported that the lower rate of EB is associated with various socioeconomic, demographic, cultural, obstetric, and pediatric factors, which differ from society to society.^[4,7,8] The starting time of CF and food preferences are also affected by similar factors.^[9]

This study aimed to question the practices of the families on breastfeeding, CF in infancy and early childhood in a baby-friendly university hospital and investigate child- and family-related factors that may have an impact on child nutrition practices.

MATERIAL AND METHODS

In this cross-sectional and descriptive study, mothers of 12–36-months-old babies who applied to Sivas Cumhuriyet University Hospital Pediatric Clinic for any reason were included. Sociodemographic characteristics of the parents (parental age, education level, occupation, family type, monthly income, and number of children), birth information of the baby (birth week, birth weight, history of staying in neonatal intensive care unit [NICU], and jaundice), and breastfeeding status are studied. Questionnaire created by the researcher (consisting of 40 questions) was filled through the face-to-face interview method by asking information about the breastfeeding process (e.g., time of starting breastfeeding, reasons for starting breastfeeding late, and duration of breastfeeding), when CF was started and the quality of the foods given, and whether the mother received any

Table 1: Sociodemographic characteristics of the participants (n=245)

	n	%	Mean±SD
Maternal age	245	100	30.55±5.3 years
≤20 years	6	2.4	
21–35 years old	199	81.2	
>35 years	40	16.3	
Mother's working status			
Housewife	133	54.3	
Employed	112	45.7	
Maternal education			
Below high school	85	34.7	
High school and above	160	65.3	
Paternal age	245	100	34.18±5.57 years
21–35 years old	142	58	
>35 years	103	42	
Paternal education			
Below high school	57	23.3	
High school and above	188	76.7	
Father's profession			
Public employee	134	54.7	
Freelancer	73	29.8	
Others	38	15.5	
Number of living children			
One child	102	41.6	
Two children	82	33.5	
Three children	39	15.9	
Four children and above	22	9	
Economic status			
Low income	93	38	
Middle income	78	31.8	
High income	74	30.2	
Family type			
Nuclear family	226	92.2	
Extended family	19	7.8	
Place of residence			
Province	159	64.9	
Town	71	29	
Village	15	6.1	
Baby's age (months)	245	100	21.57±7.60 months
12–24 months	171	69.8	
25–36 months	74	30.2	
Gender of baby			
Girl	115	46.9	
Boy	130	53.1	
Gestational age	245	100	Median 39 weeks
<37 weeks	53	21.6	(min–max, 32–42)
≥37 weeks	192	78.4	
Mode of delivery			
VD	104	42.4	
C/S	141	57.6	
Birth weight	245	100	3190±663 g
≥2500 g	210	85.7	
<2500 g	35	14.3	
Total	245	100	

SD: Standard deviation; VG: Vaginal delivery; C/S: Caesarean section.

Table 2: Characteristics of mothers during breastfeeding

	n	%
Time to start breastfeeding after birth (n=245)		
Never breastfed	5	2
First 1 h	130	53.1
1–2 h	47	19.2
2–24 h	29	11.8
After the first day	34	13.9
The reason for late starting breastfeeding (n=64)		
Not enough milk	6	9.4
Baby's illness	36	56.3
Mother's illness	19	29.7
Other	3	4.7
Breastfeeding status (n=245)		
Still breastfeeding	100	40.8
Stopped breastfeeding	145	59.2
Formula use (n=245)		
Never used	114	46.5
Used	131	53.5
Exclusive breastfeeding in the first 6 months (n=245)		
Yes	79	32.2
No	166	67.8
Reason for stopping breastfeeding (n=145)		
Not enough milk	26	17.9
The baby did not want to suckle	29	20
Illness of the baby/mother	26	17.9
Beginning to complementary foods	11	7.6
Pregnancy	7	4.8
Starting work	11	6.9
Considering the age to stop	25	17.2
Other	10	7.6
Maternal cigarette smoking (n=245)		
Never smoked	196	80
Already smoking	13	5.3
Not smoked at pregnancy but now smoking	34	13.9
Smoked only in pregnancy	2	0.8
Status of receiving breastfeeding counseling (n=245)		
Received	163	66.5
Not received	82	33.5
Benefited from breastfeeding counseling (n=163)		
Yes	149	91.4
No	14	8.6
Duration of breastfeeding in those who stopped breastfeeding (n=145)	Median 15 months (min–max, 0–30 months) 13.67±8.73 months ^a	

a: Mean±standard deviation.

counseling about breastfeeding. The mother or baby who had a health problem or chronic disease that prevented breastfeeding (e.g., malignancy, cholestasis, neuromuscular disease, metabolic disease, malabsorption, and long-term hospitalization) were ex-

Table 3: Average duration of breastfeeding and related factors

	Mean duration of breastfeeding±SD (months)	p
Mode of delivery		0.176
VD	14.79±8.38	
C/S	12.80±8.95	
Gender of baby		0.182
Girl	12.71±8.92	
Boy	14.66±9.5	
Maternal education		0.187
Below high school	14.83±8.39	
High school and above	12.87±8.92	
Mother's working status		0.9
Housewife	13.63±8.9	
Employed	13.46±8.5	
Economic status		0.089
Low income	13±8.96	
Middle income	12.58±9.34	
High income	16.5±6.74	
Maternal cigarette smoking		0.049
Never smoked	14.18±8.43	
Smoked/smoking	10.6±9.11	
Formula use		<0.01
No	19.5±5.76	
Yes	9.5±8.1	
CF before 6 months		0.016
Yes	10.7±8.01	
No	14.7±8.77	
Total (n=145)	13.67±8.73	

SD: Standard deviation; VG: Vaginal delivery; C/S: Caesarean section; CF: Complementary feeding.

cluded from the study. If the monthly income was at or below the minimum wage, the economic status was considered low income. The economic statuses were considered medium and high income if the wages were 2–3 times and more than three times, respectively. The study was approved by Sivas Cumhuriyet University Non-interventional Clinical Research Ethics Committee (Decision No: 2018-05/15).

Statistical Analysis

The data obtained from the study were evaluated with the SPSS 23.0 program. The normality of the data was checked with the Kolmogorov–Smirnov test. If the data met the parametric conditions, an independent sample t-test was used for two independent groups. If any or all of the assumptions were not met, the Mann–Whitney U test was used for two independent groups, Pearson's correlation coefficient was used to determine the relationship, and the Chi-squared test was used to evaluate the data obtained by counting. The level of significance was set at $p<0.05$.

RESULTS

A sum of 245 mothers who had children between 12 and 36 months participated in the study. Of these, 115 (46.9%) of the children were girls. The mean age of the children was 21.57 ± 7.60 months, mean birth weight was 3190 ± 663 g, and median gestational week was 39 weeks (min–max, 32–42 weeks). The mean age of the mothers was 30.5 ± 5.3 years. Of these mothers, 54.3% of them were housewives. Among the parents, 65.3% of the mothers and 76.7% of the fathers had high school or higher education. The sociodemographic characteristics of the participants are given in Table 1.

Fifty-three (21.6%) of the babies were premature. Of 245 babies, 104 (42.4%) were born with vaginal delivery. There were 171 children (69.8%) aged between 12 and 24 months and 74 children (30.2%) aged 25–36 months. Sixty-one of these babies (24.9%) were admitted to NICU for any reason after delivery. The most common causes were respiratory distress (29.5%) and prematurity (18%).

One hundred participants were currently actively breastfeeding, 145 mothers (59.2%) had stopped breastfeeding. The most common reason for stopping breastfeeding was the baby's unwillingness to breastfeed any longer (20%). Of all participants, 98% had breastfed for some time. The rate of breastfeeding in the first hour after birth was 53.1% ($n=130$). The most common reasons for starting breastfeeding late were the infant's disease (56.3%) and the mother's disease (29.7%). Of the mothers, 53.5% used formula at least once. The rate of EB in the first 6 months was 32.2%. Breastfeeding counseling was received by 66.5% of the mothers, and 91.4% of them stated that they benefited from this. The characteristics of the mothers during the breastfeeding process are given in Table 2.

The mean duration of breastfeeding in mothers who stopped breastfeeding ($n=145$) was 13.67 ± 8.73 months. In mothers who gave a formula to their babies at least once, who started CF earlier than 6 months, and who smoked, the mean duration of breastfeeding was statistically significantly lower ($p<0.05$). There was no statistically significant difference between the mean duration of breastfeeding and delivery type, gender, maternal employment status, and maternal education level ($p>0.05$). Average breastfeeding durations are given in Table 3.

The rate of EB for the first 6 months was 32.2%. There was no statistically significant relationship between maternal age, birth week of the baby, gender, delivery type, maternal age, maternal education level, maternal employment status, mother's smoking status, and EB in the first 6 months ($p>0.05$). However, the rate of EB in the first 6 months was higher in those who did not receive breastfeeding and nutrition counseling and who were in the middle-income level. The difference was statistically significant ($p=0.01$). The factors associated with EB in the first 6 months are presented in Table 4.

The median time to start CF was 6 months (min–max, 2–12 months). The person who decided to start CF was the mother in about half of the participants (50.2%). The first complementary foods given to the children were 37.1% yogurt, 19.6% vegetable puree, 13.5% fruit, and 13.1% vegetable soup. While 41.2% of the mothers introduced the egg yolk at the 6th month, 4% waited after 1 year. On the other hand, 26.1% of the mothers introduced egg white between 6 and 9 months and 68.2% between 10 and 12 months. In addition, 32.2% of the mothers stated that they used a blender while preparing their child's meals. CF practices of mothers are given in Table 5.

Fifty-eight mothers (23.7%) started CF earlier than 6 months. There was no significant relationship between the delivery type, gender, birth week of the baby, and early initiation of CF. It was observed that early initiation of CF decreased as maternal age increased and education level decreased. The difference was statistically significant ($p=0.03$ and $p=0.01$). While the rate of starting CF earlier was 38.3% in smoking mothers, this rate was 19.9% in non-smoking mothers, and the difference was statistically significant ($p=0.038$). Thus, it was observed that smoking mothers started CF earlier. The factors associated with the initiation of CF by mothers before 6 months are given in Table 4.

DISCUSSION

The main findings of this study were low EB rates in the first 6 months, early initiation of complementary foods, and mistakes in food preferences.

Breastfeeding is a traditional event in Turkey, and most mothers breastfeed their babies. However, erroneous practices such as starting late to breastfeed may prevent adequate and quality breastfeeding. Although society is more conscious about the importance of breastfeeding and the number of baby-friendly hospitals is increasing, EB rates are not at the desired level worldwide. It is thought that starting breastfeeding in the first hours after delivery and skin-to-skin contact in the early period positively affect mothers' attitudes toward breastfeeding due to their contribution to the bonding between the mother and the baby.^[10] In our study, the rate of starting breastfeeding in the first hour was 53.1% of all children. In different studies conducted in Turkey, this rate varies between 71.8% and 80.5%.^[11–13] While the rate of breastfeeding in the first hour was 49.9% in the TDHS 2013 report,^[14] this rate increased to 71.3% in the TDHS 2018 report.^[6] Unfortunately, our rate of starting breastfeeding in the first hour is below the Turkey average. In our study, the causes of late initiation of breastfeeding were baby's illness (56.3%) and mother's illness (29.7%). In different studies, the baby's unwillingness to breastfeed, not having breast milk, and the baby's illness were determined as the most common reasons for not being able to breastfeed in the first hour after birth.^[11] The WHO stated that 3 out of 5 children could not get breast milk in the first hour.^[15,16] In our study, the fact that 21.6% of the babies were premature and 57.6% were born by C/S was thought to be responsible for starting breastfeeding late.

In this study, 98% of all infants were breastfed for some time. This rate is 96.4% in the TDHS 2013 report and 97.8% in the TDHS 2018 report.^[6,14] Our data were similar to the data of Turkey in general. The high breastfeeding rate may be related to the fact that we conducted the study in a center that has been named a "baby-friendly hospital" since 2005. In our study, 40.8% of the mothers were still breastfeeding, whereas 59.2% stopped breastfeeding. The median duration of breastfeeding in those who stopped breastfeeding was 15 months (min–max, 0–30 months). The median duration of breastfeeding in TDHS 2013 and TDHS 2018 was 16.7 months.^[6,14] Thus, our study data are slightly behind the national average of Turkey.

In Turkey, most babies start to breastfeed after birth, but the rate of feeding with only breast milk gradually decreases within months.^[17] The low EB rates in the first 6 months continue to be an essential problem in many parts of the world, as in Turkey. UNICEF and WHO

Table 4: Factors associated with exclusive breastfeeding in the first 6 months and mothers' initiation of CF before 6 months

	Exclusive breastfeeding in the first 6 months		p	Complementary feeding before 6 months		p
	Yes, n (%)	No, n (%)		Yes, n (%)	No, n (%)	
Mode of delivery						
VD	29 (27.9)	74 (72.1)	0.22	21 (20.1)	83 (78.9)	0.289
C/S	50 (35.4)	91 (64.6)		37 (26.2)	104 (73.8)	
Gender of child						
Girl	41 (35.7)	74 (64.3)	0.28	30 (26)	85 (74)	0.40
Boy	38 (29.2)	92 (70.8)		28 (21.5)	102 (78.5)	
Gestational age						
<37 weeks	15 (28.3)	38 (71.7)	0.48	14 (26.4)	39 (73.6)	0.59
≥37 weeks	64 (33.3)	128 (66.7)		44 (22.9)	148 (77.1)	
Maternal age						
≤20 years	2 (33.3)	4 (66.7)	0.185	4 (66.6)	2 (33.3)	0.030
21–35 years old	63 (31.7)	136 (68.3)		47 (23.6)	152 (76.4)	
>35 years	12 (30)	28 (70)		7 (17.5)	33 (82.5)	
Maternal education						
Below high school	23 (27)	62 (73)	0.20	12 (14.1)	73 (85.9)	0.01
High school and above	56 (35)	104 (65)		46 (28.8)	114 (71.2)	
Mother's working status						
Housewife	42 (31.6)	91 (68.4)	0.73	24 (18)	109 (82)	0.021
Employed	36 (32.1)	76 (67.9)		34 (31.5)	74 (68.5)	
Maternal cigarette smoking						
Never smoked	55 (28)	141 (72)	0.56	39 (19.9)	157 (80.1)	0.038
Smoked/smoking	24 (48.9)	25 (51.1)		19 (38.8)	30 (61.2)	
Formula use						
Yes	58 (44.3)	73 (55.7)	<0.01	38 (29)	93 (71)	0.035
No	93 (81.6)	21 (18.4)		20 (17.5)	94 (82.5)	
Economic status						
Low income	28 (30.1)		<0.01	19 (20.4)	74 (79.6)	0.033
Middle income	35 (44.9)			24 (30.7)	54 (69.3)	
High income	16 (21.6)			15 (20.2)	59 (79.8)	
Status of receiving breastfeeding/nutrition counseling						
Received	47 (28.8)		0.01	34 (20.9)	129 (79.1)	0.144
Not received	32 (39)			24 (29.2)	58 (70.8)	

SD: Standard deviation; VG: Vaginal delivery; C/S: Caesarean section; CF: Complementary feeding.

emphasize EB for the first 6 months.^[3] The rate of EB in the first 6 months was 30.1% in 2013 TDHS and 40.7% in 2018 TDHS.^[6,14] In our study, it was found to be lower than the country average (32.2%). In a study, Kök et al.^[18] found that the rate of EB in the first 6 months was 28.2% in 2013 and increased to 46% in 2017. In addition, the EB rate in the first 6 months of university graduate mothers was higher

than other mothers. In another study, the number of children, delivery type, health status of the baby at birth, and time of first breastfeeding were independent factors affecting EB in the first 6 months.^[11] In a study conducted in Turkey, it was shown that getting high scores on the obsessive–compulsive disorder and depression scales applied to the mother, smoking, and working mothers had lower EB rates in

Table 5: Complementary feeding practices of mothers

	n	%
Complementary feeding starting time		
<3 months	4	1.6
3–4 months	21	8.6
4–6 months	33	13.5
After 6 months	187	76.3
The decision to start complementary feeding belongs to		
Mother	123	50.2
Doctor–nurse–health professionals	105	42.9
Family elder	17	6.9
First complementary food		
Yogurt	91	37.1
Vegetable puree	48	19.6
Vegetable soup	32	13.1
Fruit	33	13.5
Egg	12	4.9
Custard-grain instant food	6	2.4
Cooking water	6	2.4
Cheese	5	2
Other	12	5
Second complementary food		
Yogurt	67	27.3
Vegetable puree	72	29.4
Vegetable soup	40	16.3
Fruit	41	16.7
Egg	5	2.1
Custard-grain instant food	3	1.2
Cooking water	5	2.1
Other	12	4.9
Egg yolk starting time		
Before 6 months	10	4
6 months	101	41.2
7 months	57	23.3
8 th month	22	9
9–12 months	45	18.5
After 1 year	10	4
Egg white starting time		
Before 6 months	1	0.4
6–9 months	64	26.1
10–12 months	167	68.2
After 1 year	13	5.3
Using blender while preparing meals		
Yes	79	32.2
No	166	67.8
Knowing forbidden foods under 1 year old		
Honey	175	71.4
Salt–sugar	79	32.2
Cow milk	121	49.4
Canned food	100	40.8
Other	48	19.6
Total	245	100

the first 6 months. In addition, the rate of EB in the first 6 months was high with high school or higher education mothers.^[19] Our study observed that the rate of EB in the first 6 months was low in premature babies, working mothers, and below the high school level maternal education. It was thought that the early return of mothers to work was related to the fact that they had to give their baby different foods other than breast milk. Increasing the education level of mothers as in every field will also contribute to an increase in the rate of EB.

The reasons why mothers stop breastfeeding or start CF earlier is usually the lack of breast milk, less or insufficient secretion, or their concern that breast milk will not meet the nutritional needs of a normal baby.^[9] In our study, the most common reasons for discontinuing breastfeeding were the baby's unwillingness to breastfeed (20%), insufficient milk (17.9%), the infant–mother's disease (17.9%), and the thought that the age to stop had come (17.2%). Çakmak et al.^[20] found that 14.9% of the mothers had insufficient milk, and 42.8% were worried about their baby's growth retardation, 13.9% baby did not suckle, 4% had health problems, and 2% was due to other reasons, mothers had stopped breastfeeding. In the literature, low maternal education level, early return to business life, late starting of breastfeeding after birth, early start of CF, lack of education about breastfeeding, insufficient support by health professionals, and lack of family support are shown as the reasons for the low rates of breastfeeding.^[21] In their study, Yalçın et al.^[22] evaluated the determinants of continuing breastfeeding for more than 12 months in Turkey and found that high rates of long-term breastfeeding were in high birth rate, long birth interval, presence of religious marriage, use of traditional birth control methods, long-term breastfeeding rates in mothers aged 30–34 years, and overweight mothers. Rates were lower in the presence of smoking exposure and bottle feeding. In our study, the mean duration of breastfeeding was lower in mothers who smoke, use formula, and start CF before 6 months. There was no statistically significant difference between the mean breastfeeding durations according to the gender of the baby, delivery type, the working, and educational statuses of the mother.

Complementary feeding refers to the continuation of breastfeeding after the sixth month, as well as the introduction of other nutrients. To protect and maintain the health of the young child during this period, complementary foods should be of appropriate quality, nutritious, clean, safe, and in sufficient quantity according to the baby's needs. In studies conducted in Turkey, mothers generally started to CF between the fourth and sixth months,^[23,24] and abroad it was similar.^[25] Çalik et al.^[15] found that CF was generally started between 4 and 6 months (52.6%), and the first food was water and formula. In different studies conducted in Turkey, it was observed that the initiation of CF mainly was under 6 months.^[26,27]

When the characteristics of mothers who started CF early were examined, a relationship was found between mother's age, education level, race, income level, number of births and employment status, postpartum spouse and family support, smoking habit, and postpartum depressive mood, and early transition to CF. Baby gender, birth weight, bottle, or pacifier use were also associated with early initiation of CF.^[28] Ünal et al.^[27] found that premature born, C/S delivery, giving formula in the early period, and the use of pacifier and bottle as risk factors for early transition to CF. In another study involving families of 923 infants, the factors affecting the early transition to CF were examined and showed that starting CF before 3 months was

associated with being a boy and using a bottle. Şatır et al.^[23] found that 76.2% of working women started CF in the first 4–6 months, while 46.8% of housewife mothers started CF early. In our study, similar to the literature, there was an early transition to CF in mothers who smoke, work, have a higher education level, have a premature baby, and are younger. The rate of early transition to CF in working mothers was more elevated than in housewife mothers. This may be related to the short postpartum leave and the early return to work of the mother. Providing a suitable environment for working mothers in the workplace where they can breastfeed their babies or express and store their milk. If necessary, governments legal regulations on this issue will increase the rates of breastfeeding.^[29] Having a premature baby is a risk factor for the short duration of EB and the early transition to CF. It may be beneficial to deal more closely with mothers who have premature babies and provide more detailed information.

The timing of starting CF is important. Initiation of early CF causes an increase in diarrhea and food allergies due to the immaturity of the digestive system. Late initiation of CF will result in insufficient breast milk, growth retardation, and malnutrition. Improper food selection will result in protein–energy malnutrition and trace element deficiencies.^[30] The food choices are affected by many different characteristics such as culture, geographical conditions, socioeconomic–cultural status of the family, and habits.^[31] In our study, the first complementary foods that mothers started were yogurt (37.1%), vegetable puree (19.6%), fruit (13.5%), and vegetable soup (13.1%). It was remarkable that cooking water and cheese were among the first complementary foods to be started. In addition, when starting CF, a single food group (yogurt, fruit juices) is used first, and then multiple mixtures (vegetable soup and stuffed zucchini) are used.^[30] It was considered a wrong practice for mothers to start CF with soup, which is a mixture. Starting from the sixth month of life, egg yolk can be started with a small amount, and the amount is increased to reach the full egg yolk in 8–10 days. From the seventh to the ninth month, whole eggs can be given two or three times a week.^[32] In our study, 41.2% of the mothers introduced the egg yolk at the 6th month, 4% waited after 1 year. On the other hand, 26.1% of the mothers introduced egg white between 6 and 9 months and 68.2% between 10 and 12 months. In a similar publication from Australia, yogurt, potatoes, bananas, and other vegetables were reported as the most commonly given complementary foods between 6 and 8 months. It was emphasized that as the children grew up, they were introduced to ready-made packaged foods, especially biscuits.^[25] In a study conducted in Turkey, examining the transition to CF, the most common complementary foods given to 4–24-months-old children in the study group were yogurt (85.6%), fruit juice (78.4%), vegetable soup (68.9%), and pudding (67.1%). When complementary foods were examined according to the normal delivery time, it was found that fruit, puree, and vegetable soup were given too early; in contrast, meat and chickpeas were given late.^[33] In another study conducted in Turkey, which included the mothers of 1486 children aged 12–23 months and included three regions where the children were classified as low, moderate, and good according to their nutritional status, yogurt, bread, pasta, fruit, and vegetables were the foods introduced to the majority of children. A fraction of 46.9% of the mothers started CF earlier than 6 months, and the use of biscuits before 6 months in the low nutritional status region was remarkable compared to other regions.^[34] In our study, mothers were

also unconscious about the foods they should not give their children under 1 year. Our study and similar studies reveal that mistakes are made in the CF process, inappropriate foods are chosen, and erroneous practices are done. Providing detailed information to mothers before starting the CF process will help to create healthy generations.

Despite the importance of breastfeeding and breastfeeding counseling within the scope of baby-friendly hospital studies in Turkey, it is seen that the rate of receiving counseling is not at the desired level. Yüzügüllü et al.^[19] found that the rate of those who received counseling on breastfeeding in the prenatal health institution was 66.5%. The rate of EB in the first 6 months of mothers who received this counseling was found to be significantly higher. In our study, 66.5% of the mothers received counseling about breastfeeding and nutrition. Interestingly, the rate of EB in the first 6 months was lower in mothers who received counseling from health professionals, and the rate of starting CF earlier was higher than in mothers who did not receive counseling. This situation was related to the fact that the counseling provided might not adequately meet the needs of the mothers or insufficient information about CF may have been given. It will be beneficial to increase the knowledge level of health professionals about CF, and this counseling should be given to families in healthy child follow-ups. It should be explained to all mothers in the first 6 months that breast milk is sufficient for the baby's needs. The contents, benefits, and appropriate time to start CF should be specified in the breastfeeding counseling. It is important to know the variables that cause an early transition to CF and support mothers in this direction. In addition, carrying out the counseling together with written materials and providing mothers with a handbook that they can constantly refer to in this process will increase the efficiency of this education. Mothers can be supported with intermittent home visits and phone calls. More comprehensive studies are needed in this direction.

One of the strengths of our study is that both the breastfeeding status and the transition period to CF were questioned in detail. New data have been contributed to the literature. One of the limitations of our study is that pacifiers and bottle use were not questioned. It may also be responsible for the early termination of breastfeeding. Another limitation is that the nutritional status of the participants was not specified. Therefore, the effect of breastfeeding and CF preferences on the child's nutritional status could not be determined. More comprehensive studies with more participants will guide the processes of breastfeeding and transition to CF in Turkey.

CONCLUSION

Although breastfeeding is common in Turkey, EB is not at the desired level. Especially in the first 6 months of child health follow-ups, mothers of babies with normal development should be informed that breast milk is sufficient for the baby's development, and mothers should be supported in feeding their babies only with breast milk. For healthy child development, it is important that parents need to be educated about when to start CF and about food ingredients. In the transition to CF after 6 months, adequate and correct information to mothers will reduce inappropriate foods and help create healthy-fed generations. In this regard, health professionals and social media, which are the sources from which families receive the most information, have important duties.

Statement

Ethics Committee Approval: Sivas Cumhuriyet University Non-Interventional Clinical Research Ethics Committee granted approval for this study (date: 28.05.2018, number: 2018-05/15).

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – AKT; Design – AKT; Supervision – AKT, HT; Resource – AKT; Materials – AKT, HT; Data Collection and/or Processing – AKT; Analysis and/or Interpretation – AKT, HT; Literature Search – AKT; Writing – AKT; Critical Reviews – AKT, HT.

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REFERENCES

- WHO. (2009). Infant and young child feeding: Model chapter for textbooks for medical students and allied health professionals. Available at: URL: <https://apps.who.int/iris/handle/10665/44117>. Accessed Oct 1, 2021.
- Anatolitou F. Human milk benefits and breastfeeding. *J Pediatr Neonatal Individ Med* 2012;1:11–8.
- Section on Breastfeeding. Breastfeeding and the use of human milk. *Pediatrics* 2012;129:e827–41.
- Lande B, Andersen LF, Baerug A, Trygg KU, Lund-Larsen K, Veierød MB, et al. Infant feeding practices and associated factors in the first six months of life: The Norwegian infant nutrition survey. *Acta Paediatr* 2003;92:152–61.
- Li R, Darling N, Maurice E, Barker L, Grummer-Strawn LM. Breastfeeding rates in the United States by characteristics of the child, mother, or family: The 2002 National immunization survey. *Pediatrics* 2005;115:e31–7.
- Hacettepe University Institute of Population Studies. Turkey Demographic and Health Surveys; 2018. Ankara, Turkey: Available at: http://www.hips.hacettepe.edu.tr/tnsa2018/rapor/2018_TNSA_Ozet_Rapor.pdf. Accessed Oct 2, 2021.
- Santo LC, de Oliveira LD, Giugliani ER. Factors associated with low incidence of exclusive breastfeeding for the first 6 months. *Birth* 2007;34:212–9.
- Kondolot M, Yalçın SS, Yurdakök K. The factors that affect exclusive breastfeeding status. *J Child Health Dis* 2009;52:122–7.
- Schiess S, Grote V, Scaglioni S, Luque V, Martin F, Stolarczyk A, et al. Introduction of complementary feeding in 5 European countries. *J Pediatr Gastroenterol Nutr* 2010;50:92–8.
- Rollins NC, Bhandari N, Hajeebhoy N, Horton S, Lutter CK, Martines JC, et al. Why invest, and what it will take to improve breastfeeding practices? *Lancet* 2016;387:491–504.
- Ünsal H, Atlıhan F, Özkan H, Targan Ş, Hassoy H. The tendency to breast-feed in a certain population and influential factors. *J Child Health Dis* 2005;48:226–33.
- Yiğitbaş Ç, Kahrıman İ, Çalık KY, Bulut HK. About the breast-feeding attitudes and behaviour of the mothers that gave birth in hospital in Trabzon. *Gümüşhane Univ J Health Sci* 2012;1:49–59.
- Gün İ, Yılmaz M, Şahin H, İnanç N, Aykut M, Günay O, et al. The breastfeeding status of 0-36 month old children in Kayseri, Melikgazi education and research area. *J Child Health Dis* 2009;52: 176–82.
- Hacettepe University Institute of Population Studies. Turkey Demographic and Health Surveys; 2013. Ankara, Turkey. Available at: http://www.hips.hacettepe.edu.tr/tnsa2013/rapor/TNSA_2013_ana_rapor.pdf. Accessed Oct 2, 2021.
- Çalık KY, Çetin FC, Erkaya R. Breastfeeding practices of mothers and influencing practices. *Gümüşhane Univ J Health Sci* 2017;6:80–91.
- WHO. Breastfeeding. Available at: https://www.who.int/healthtopics/breast-feeding#tab=tab_1. Accessed Oct 2, 2021.
- İnce T, Kondolot M, Yalçın SS, Yurdakök K. Breastfeeding consultation status of mothers. *J Child Health Dis* 2010;53:189–97.
- Kök H, Şenol E, Keskindemirci G, Selver MB, Gökçay EG. Breastfeeding rates among 4 and 6 month-old children and maternal education levels in a well child clinic- Preliminary result. *J Child* 2020;20:43–7.
- Yüzügülü DA, Aytaç N, Akbaba M. Investigation of the factors affecting mother's exclusive breastfeeding for six months. *Turk Pediatr Ars* 2018;53:96–104.
- Çakmak S, Dengi ASD. Postpartum evaluation of the mothers' knowledge about breastfeeding and the importance of breast milk. *Turk J Family Practice* 2019;23:9–19.
- Toriyama ÁTM, Fujimori E, Palombo CNT, Duarte LS, Borges ALV, Chofakian CBDN. Breastfeeding: What changed after a decade? 1. *Rev Lat Am Enfermagem* 2017;25:e2941.
- Yalçın SS, Yalçın S, Kurtuluş-Yiğit E. Determinants of continued breastfeeding beyond 12 months in Turkey: Secondary data analysis of the Demographic and Health Survey. *Turk J Pediatr* 2014;56:581–91.
- Şatır G, Çelik M, Kemhacıoğlu M. Infant feeding practices of breast-feeding mothers and affecting factors. *Med J SDU* 2017;24:60–6.
- Beşbenli K, Avgen B, İncioğlu A, Çetinkaya F. The knowledge and practices of mothers from three different socioeconomic groups living in İstanbul on breastfeeding and supplementary foods. *J Child Health Dis* 2013;56:76–81.
- Amezdroz E, Carpenter L, O'Callaghan E, Johnson S, Waters E. Transition from milks to the introduction of solid foods across the first 2 years of life: Findings from an Australian birth cohort study. *J Hum Nutr Diet* 2015;28:375–83.
- Tunçel EK, Dündar C, Canbaz S, Pekşen Y. Searching breastfed status of children of 0-24 month applied to a university hospital. *J Cumhuriyet Univ School Nurs* 2006;10:1–6.
- Ünal PC, Akgün T, Çiftçili S, Boler İ, Akman M. Why do mothers attending a baby-friendly mother and child health care unit start early solid food to their babies? *Turk Arch Ped* 2008;43:59–64.
- Marques NM, Lira PI, Lima MC, da Silva NL, Filho MB, Huttly SR, et al. Breastfeeding and early weaning practices in northeast Brazil: A longitudinal study. *Pediatrics* 2001;108:E66.
- Gatrell CJ. Secrets and lies: Breastfeeding and professional paid work. *Soc Sci Med* 2007;65:393–404.
- Yalçın SS. Ek besinlere geçiş dönemi "Weaning". Available at: http://www.thb.hacettepe.edu.tr/arsiv/1999/sayi_2/baslik3.pdf. Accessed Oct 2, 2021.
- Arikpo D, Edet ES, Chibuzor MT, Odey F, Caldwell DM. Educational interventions for improving primary caregiver complementary feeding practices for children aged 24 months and under. *Cochrane Database Syst Rev* 2018;5:CD011768.
- Özmert E, Yurdakök K. Çocuk, erişkin sağlığında önemli bir dönem: ek besinlere geçiş (weaning). *J Continuing Med Edu* 1995;4:384–8.
- Öztürk M, Öktem F. The evaluation of the weaning period of 4-24 months aged children in İsparta Yedışehir health center region. *Med J SDU* 2000;7:53–8.
- Köksal E, Yalçın SS, Pekcan G, Özbaş S, Tezel B, Köse MR. Complementary feeding practices of children aged 12-23 months in Turkey. *Cent Eur J Public Health* 2015;23:149–54.