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The factors affecting the duration of breastfeeding: A cross-sectional study from Kayseri, Turkey

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Summary

Aim: In this study, we aimed to evaluate breastfeeding durations of the mothers and the major factors affecting duration of breastfeeding.

Material and Method: This cross-sectional study was performed in Kayseri between 2009 and 2010. A total of 2855 mothers were included in the study. Univariate and multiple binary logistic regression (backward) analysis were used for establishing the variables affecting the duration of breastfeeding.

Results: 74.9% of the mothers stated that they exclusively breastfed their babies for 6 months. Variables that were thought to affect breastfeeding for a period of more than 6 months such as gestational age, parity, mother's age, mother's educational level were all found to be statistically significant by univariate logistic regression analysis. In the multivariate logistic analysis, the rate of breastfeeding after 6 months increased by 1.021 fold for every one year increase in the mother's age and 1.267 fold for every one week increase in the gestational age. Those with an educational status of primary school and below had a 1.558-times-higher tendency to breastfeeding compared to those with an educational level of secondary school and above and those with an educational level of secondary school had a 1.475-times-higher tendency to breastfeeding compared to those with an educational level of graduate school and above. Babies whose mothers were house-wives were breastfed longer than 6 months with a higher rate compared to babies whose mothers were working and boys were breastfed longer than 6 months with a higher rate compared to girls.

Conclusions: In order to increase the rates of breastfeeding, pregnancies at a young age should be prevented, term labors should be encouraged, encouraging applications for breastfeeding should be developed for working mothers and educational support should be given to enable mothers to take care of all of their babies without discrimination. *(Turk Arch Ped 2012; 47: 101-5)*

Key words: Breast milk, breastfeeding duration, child

Introduction

Breastfeeding is the ideal nutrition type which is appropriate for growth and development of infants and which is superior to all other nutritions types. Breastfeeding is recommended by The World Health Organization (WHO) for each newborn up to 6 months of age. In addition, "Innocenti decleration" emphasizes that the time of breastfeeding should be 2 years and even longer (1).

Children who are breastfed sufficiently, who receive only breastmilk in the first 6 months of life and whose breastfeeding period is long are caught by infections and cancers with a lower rate in the childhood and metabolic diseases including obesity and diabetes are observed with a lower rate in these individuals in the adolescense and adultery (2-4).

In the whole world, the rate of nutrition with only breastmilk and continuing breastfeeding is lower than expected (5). The World Health Organizaton and The United Nations Children's Fund (UNICEF) reported the rate of feeding only with breastmilk to be 39% (6).

In our country, the habit of starting breastfeeding is generally widespread, but discontinuation of breastfeeding at

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an early period because of factors including late first breastfeeding, delivery by cesarean section, high income and socioeconomic level and use of feeding bottle is an important problem (7-10).

In this study, it was aimed to determine the breastfeeding durations of the mothers in Kayseri and the factors affecting these durations.

Material and Method

This study is cross-sectional and its data were obtained from the "Anthropometry of Turkish Children aged 0-6 years" (ATCA-06) study which was performed between September 2009 and May 2010. Kayseri in which the study was conducted is among the first 5 provinces in terms of its industry and economy and is a large province with a population of approximately 1 200 000. 80% of the population of the province reside in the provincial center. The largest two districts (Melikgazi and Kocasinan) where the study was conducted are central districts located within the borders of Metropolitan Municipality showing both urban and rural life characteristics. Because of these features the samples which were thought to reflect the general of Kayseri were taken from 21 Family Health Centers located in these 2 districts. Multi-step sampling methods were used. The 2 central districts selected were stratified according to the general population and infant population. Each Family Health Center (FHC) was considered as a cluster with its region and 21 Family Health Center regions were decided to be included in the study (11 from Melikgazi and 10 from Kocasinan) with simple random sampling. For selecting samples a prestudy was performed before starting data collection in these FHC regions which were included into sampling. For each district proportioning to the general population was done and the population to be selected was determined based on districts seperately. Afterwards, two people (an authorized person and an officer who has worked in that institution for the longest time) from four different institutions which gave mukhtar, health, education and security service were asked to describe the region. In terms of education level, socioeconomic level and living conditions a scoring was requested I being the worst and V being the best. The mean values of these scores were calculated considering the records of the Health Directorate (pregnant women, birth, infant counts, gender and age group distributions, etc.). Each variable was weighted ve samples sufficient to reflect the population within its own variable were determined. 3000 infants and children aged between 6 and 59 months from 21 Family Health Center regions which were selected in this way with calculations were invited to the FHCs with their families by written invitations and information forms by appointment. Preterm infants and small for gestational age infants, multiple pregnancies, infants with known chronic and severe disease and nutritional deficiency were not included in the study. The ones who did not present, tough they were invited, the mothers who did not accepted to participate in the study and the ones for whom sufficient information related to the questions in the queationnaire could not be obtained because a person other than the mother brought the infant were excluded from the study. The study was completed with 2855 mothers (the rate of access 95,1). The questions related to sociodemographic properties and history of breastfeeding developed by the reseachers in the light of the literature were completed utilizing the reports of the mothers and medical sources.

Statistical evaluation

Frequency values, percent values, median, the least, the highest, mean and standard deviation values were given as descriptive statistics. The normal distribution of the data were analysed by Shapiro-Wilk test. Comparisons with breastmilk were done using "independent samples t test" for numeric variables showing normal distribution and using Mann-Whitney u test for numeric variables which did not show normal distribution. Comparisons between categorical variables were done using chi-square test. "Univariate ve multiple binary logistic regression (backward wald)" analysis was used to determine the variables which affected the duration of breastfeeding. The data were assessed using SPSS 15,0 (Chicago, IL, USA) statistical package program. A p value of <0,05 was considered statistically significant.

Results

1413 (49.5%) of 2855 infants and children were male and 1442 (50.2%) were female. The mean weight of birth was 3303.11±548.37 g. The mean gestational age was 39.61±0.87 weeks. 57.5% of the mothers were primary school graduates and 93.4% were housewifes. 58.7% of the participants had a moderate socioeconomic level. The rate of breastfeeding longer than 6 months was 60%. The frequency of having diabetes during pregnancy was found to be 2.4% and the frequency of having high blood pressure during pregnancy was found to be 8.2%. Some information related to the mothers and the distribution according to sociodemographic variables are shown in Table 1.

Variables which were thought to affect breastfeeding for a period of longer than 6 months including birth weight of the baby, number of pregnancies and deliveries of the mother, paternal age, gender of the baby, maternal occupation, socioeconomic level, smoking status at home, presence of diabetes during the pregnancy and bathing of the baby were not found to be significant with single logistic regression analysis. The variables including gestational age, gravida, maternal age and maternal education level were found to be significant (Table 2).

Variables which were found to be significant were included in multiple logistic regression sample. According to multiple logistic regression sample, variables including gestational age, number of pregnancies, maternal age and

Table 1. Distribution of sociodemographic variables according to the status of breastfeeding

Variables	Breastfeeding status		
	<6 months n=1142	≥6 months n=1713	p
Birth weight (g)	3297.82±520.40 (1500-6400)	3306.70±566.66 (1500-7000)	0.672
Gestational age (weeks)	39.49±0.95 (36-42)	39.69±0.82 (34-42)	<0.001
Gender of the baby			
Male	540 (47.3)	873 (51.0)	0.056
Female	602 (52.7)	840 (49.0)	
Pregnancy	2.22±1.33 (1-13)	2.24±1.33 (1-11)	0.704
Delivery	2 (0-15) 2.52±1.46	2 (0-12) 2.65±1.41	0.002
Maternal age (years)	28.60±5.48 (18-48)	29.24±5.48 (14-50)	0.002
Paternal age (years)	32.61±6.13 (19-60)	33.05±6.13 (18-64)	0.059
Maternal education			
Primary school or lower	627 (54.9)	1016 (59.3)	
Secondary school and high school	411 (36.0)	590 (34.4)	0.006
University	104 (9.1)	107 (6.2)	
Maternal occupation			
Housewife	1063 (93.1)	1603 (93.6)	0.645
Working outside home	79 (6.9)	110 (6.4)	
Socioeconomic level			
Poor	154 (13.5)	285 (16.6)	
Moderate	687 (60.2)	986 (57.6)	0.071
Good	301 (26.4)	442 (25.8)	
Smoking at home			
Positive	494 (43.3)	698 (40.7)	0.188
Negative	48 (56.7)	1015 (59.3)	
History of high blood pressure during pregnancy			
No	1050 (91.9)	1558 (91.0)	0.377
Yes	92 (8.1)	155 (9.0)	
Presence of diabetes during pregnancy			
No	1111 (97.3)	1675(97.8)	0.456
Yes	31 (2.7)	38 (2.2)	
Frequency of bathing the baby			
Every 2 days	473 (41.4)	649 (37.9)	0.061
>2 days	669 (58.6)	1064 (62.1)	

Table 2. Variables affecting breastfeeding for a period of longer than 6 months (Single analysis)

	Single analysis		
Variables	Relative risk	CI (%95)	p
Birth weight (grams)	1.000	0.998-1.002	0.677
Gestational age (weeks)	1.286	1.181-1.400	<0.001
Gender of the baby			
Male	1		
Female	1.159	0.997-1.346	0.054
Pregnancy	1.008	0.953-1.066	0.775
Delivery	1.066	1.010-1.124	0.020
Maternal age (years)	1.022	1.008-1.036	0.002
Paternal age (years)	1.012	0.999-1.024	0.059
Maternal education			
Primary school or lower	1		
Secondary school and high school	1.395	1.036-1.879	0.028
University	1.575	1.181-2.100	0.002
Maternal occupation			
Housewife	1		
Working outside home	0.923	0.685-1.245	<0.001
Socioeconomic level			
Poor	1		
Moderate	0.977	0.820-1.165	0.799
Good	1.260	0.987-1.610	0.064
Smoking at home			
Positive	1		
Negative	1.109	0.953-1.290	0.183
History of high blood pressure during pregnancy			
No	1		
Yes	1.135	0.867-1.487	0.356
Presence of diabetes during pregnancy			
No	1		
Yes	0.813	0.503-1.314	0.398
Frequency of bathing the baby			
Every 2 days	1		
>2 days	1.159	0.995-1.351	0.058

Table 3. Variables affecting breastfeeding for a period of longer than 6 months (Multiple analysis)

	Multiple analysis		
Variables	**Relative risk**	**CI (% 95)**	**p**
Gestational age (weeks)	1.267	1.164-1.381	<0.001
Maternal age (years)	1.021	1.007-1.036	0.004
Maternal education			
Primary school or lower	1		
Secondary school and high school	1.558	1.164-2.084	0.003
University	1.475	1.088-2.000	0.012

maternal education level were found to be the most efficient variables on breastfeeding. As the maternal age increased one year older, the rate of breastfeeding for a period of longer than 6 months increased 1.021 fold. As the gestational age increased one week, the same rate increased 1.267 fold. Mothers with an education level of primary school tended to breastfeed for a period of longer than 6 months 1.558 fold more compared to mothers with an education level of university and mothers with an educational level of secondary school and high school tended to breastfeed for a period of longer than 6 months 1.475 fold more compared to mothers with an education level of university (Table 2).

Discussion

According to the results of this study, the rate of infants who were breastfed for a period of shorter than 6 months after birth was 40%. This rate for the whole of Turkey according to the Turkish Population and Health Research (TPHR) 2008 Report is 41.6% similar to our province (7). Genç et al.(11) reported the rate of feeding infants only with breastmilk for the first 6 months to be 3.2% in the study they performed in 1998 in Malatya. Şanlıer et al. (12) reported the rate of feeding infants only with breastmilk for the first 3 months to be 24.4% in the study they performed in 2004 in Ankara. The World Health Organization reported feeding only with breastmilk to be 35% for infants between 0 and 6 months and 39% for infants below the age of four months (6,13). It can be thought that this higher rate compared to other provinces is due to several factors including only breastfeeding was evaluated in these provinces, mixed feeding was not included and Baby-friendly hospital educations and application practices conducted intensively for the last 5 years in Kayseri which was entitled “Baby-friendly province”.

In this study, the rate of breastfeeding for a period of longer than 6 months increased as the maternal age increased one year. Pregnancies at an early age have negative effects on the health of both the baby and the mother. Insufficient development of mammary ducti and insufficiency of amount and quality of milk will affect the period of breastfeeding. In addition, considering education level and awareness related to breastfeeding increase with advanced age, it can be thought that advanced age will affect breastfeeding and the period of breastfeeding positively in terms of education. Again in this study, the increase in maternal age might have been effective in lengthening the breastfeeding period.

As the gestational age increases one week, the rate of breastfeeding for a period of longer than 6 month increases. In the physiologic process, advanced gestational week and completion of the pregnancy period, becoming pregnant and giving birth with appropriate intervals are important in terms of maternal health and sufficient amount and quality of breastmilk (14). In addition, production and release of breastmilk is not increased sufficiently, since preterm babies have a low sucking ability and strength. These factors suggest early termination of pregnancies which have not completed its time will have negative effects on breastfeeding.

As maternal education increases, the rates of breastfeeding for a period of longer than 6 months decrease. The rate of breastfeeding for a period of longer than 6 months is higher in babies whose mothers are housewives compared to babies whose mothers work. Considering the association of these two findings the fact that mothers with high education level work outside home and return to work before 6 months after delivery may result in preterm stopping of breastfeeding because of decrease in the amount and numbers of breastfeeding. Concerns about being fired, economic problems and loss of status may also be involved in early returns to work (15). In other words, the fact that working mothers return to work at an early time without benefiting from the legal rights related to post-partum vacation and breastfeeding will disrupt the relation between the baby and the mother and breastmilk will decrease, since the mother can not nurse more frequently. Factors including formula and feedingbottle used during the times when the mother is at work and when breastfeeding is not possible may also cause decrease in breastmilk and discontinuation of breastfeeding. According to the Turkish Population and Health Research 2008 Report the breastfeeding period of the mothers with an education level of primary school is longer compared to the mothers with advanced education (7). This may be caused by many factors. While housewives can nurse their babies every time they cry, it is clear that working mothers do not have this opportunity. Thus, there will be no chance of increased breastmilk by nursing the baby every time he/she cries and lengthening breastfeeding duration for working mothers and their babies. The group with a low education level which is qualified as housewifes may breastfeed longer, since they have the chance of staying with their babies at home for a longer time.

In our study, male babies were breastfed for a period of longer than 6 months with a higher rate compared to female babies. Similarly, the rates of breastfeeding were higher in male babies compared to female babies in the study performed by Yalçın et al. (16). This may be evaluated as a reflection of increased interest and attention for male babies compared to female babies which is traditional in our community in

breastfeeding. In the Turkish Population and Health Research 2008 Report, the periods of breastfeeding in male babies were found to be 2 months longer compared to female babies (7).

Considering these results, in order to increase the rates of starting breastfeeding at the shortest time possible after delivery and to increase the rates of breastfeeding:

Pregnancies at an early age should be prevented, since as the maternal age gets one year older, the rate of breastfeeding for a period longer than 6 months increases. In this context, lenghtening the time of compulsory education and giving punishments and legal sanctions to parents of girls who are given in marriage at an early age may be beneficial.

Deliveries should be provided to occur at term, since the rate of breastfeeding for a period of longer than 6 months increases, as the gestational age increases. To accomplish this, pregnant women should be reviewed in terms of all risk factors leading to preterm delivery and these risk factors should be tried to be eliminated with the support of more comprehensive studies. Efforts to increase the education level of women generally and specifically the education level related to pregnancy and breastfeeding can be beneficial, since the rates of breastfeeding for a period of longer than 6 months decrease, as the level of maternal education increases. In addition, women should not be forced to choose between returning to work and breastfeeding for a sufficient period and with a sufficient amount because of concerns about economic cost and the rights to be lost due to delivery and nursing, while their education levels are increased and they are given the opportunity to proceed in their careers.

Considering the finding that male babies are breastfed for a period of longer than 6 months with a higher rate compared to female babies, it is clear that education which will provide the mothers to take care of male and female babies equally without discrimination abandoning the traditional behavior pattern which prioritizes male children should be provided. If education alone is insufficient to provide behavioral change in this context, awarding methods like giving mothers of female babies longer nursing vacations may be used.

Limitations of the study

This study was performed using a part of the data of "Anthropometry of Turkish Children Aged 0-6 years" (ATCA-06) study. Therefore, more detailed questioning about the subject was limited. The mothers may have given deficient information because of remembering factor for certain parts of the questions.

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Conflict of interest: None declared.

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