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Investigation of the factors affecting mother's exclusive breastfeeding for six months

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Abstract

Aim: The aim of this study is to investigate the socio-demographic characteristics and psychopathologic features of mothers living in Cukurova, Adana and to investigate the effect of these characteristics on exclusive breastfeeding status for the first six months.

Material and Methods: This is a cross sectional study. 284 randomly selected women were reached in the study, between November 2015-February 2016. A questionnaire consisting of 27 questions which determine sociodemographic characteristics and brief symptom inventory were applied. As for the statistical evaluation, SPSS 19 Package Software for Windows was used. For the statistical analysis; frequency tables, average scores from the brief symptom inventory, chi square test, Mann-Whitney U and Multiple logistic regression analysis were used.

Results: 37.0% of the mothers gave exclusive breastfeeding for first six months. Those who graduated from high school and upper school, those who were educated in breastfeeding, those who breastfed for the half hour after birth, and those who did not work had a significantly higher rate of giving only breast milk for the six months. However, the rate of breastfeeding in first six months was significantly lower for women those who lived together with their elders and smokers. The mean scores from brief symptom inventory were significantly higher in mothers who did not give breast milk only during first six months.

Conclusion: Exclusive breastfeeding rate was 37% in the first six months of our study. The postpartum period is a period in which the risk of psychiatric discomfort increases and the mother should be supported.

Keywords: Breastfeeding, brief symptom inventory, psychopathology

Introduction

Breastfeeding (BF) is the first condition for healthy nutrition. Nursing is the healthiest way for breastmilk, which has been considered an unmatched nutrient in child nutrition in almost all ages and cultures, to reach babies (1). Breastmilk supports emotional and cognitive development of babies, protects them from contagious and chronic diseases, and strengthens their immune systems. Studies have shown that babies who are breastfed are protected against diseases including respiratory tract infections, atopic skin diseases, pneumonia, and diarrhea, and have faster recovery processes (2-4).

Each baby and child has the right to adequate nutrition under the convention on the rights of the children. It is thought that undernutrition leads to 3.1 million child deaths per year and 45% of all child deaths. The World Health Organization (WHO) and the United Nations Children's Fund recommend that breastfeeding should be started within a few hours of delivery, exclusive breastfeeding should be exercised in the first six months of life, and thereafter adequate and safe complementary foods (solids) should be given with continued breastfeeding up to the age of two years (5).

Purely and simply, "exclusive breastfeeding" (EB) means that a child receives breastmilk alone. "Only breastmilk and water" encompasses babies who are exclusively breastfed and given only water in addition to breastmilk. Global statistics show that the rate of exclusive breastfeeding in the first six months of life in develop-

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ing countries was 36% between the years of 2007 and 2014 (5). Although breastfeeding is common in Turkey, exclusive breastfeeding in children has reduced to 30% from 42% in Turkey according to the Demographic and Health Survey (TDHS)-2013 in TDHS-2008; thus, exclusive breastfeeding cannot be exercised as commonly as recommended (6).

Mothers need knowledge and support to initiate and successfully continue breastfeeding (7). Support provided by professionals trained in the area of breastfeeding increases the period of "exclusive breastfeeding" (8, 9).

Currently, another issue that is as important as breastmilk and breastfeeding is the psychological health of mothers. Mothers should primarily have good physical and mental health to adequately take care of their babies and breastfeed them for long-term. Postpartum depression is an important health problem that affects a significant portion of women. Approximately 13% of women fall into depression in the first 12 weeks after delivery (10). This rate may be as high as 19.2% in the first year after the first delivery (11). Pregnancy and lactation periods during which hormonal fluctuations are observed are risky periods for women with mood disorders (12).

It has been emphasized that women with depression during the postpartum period are less successful in terms of continuing breastfeeding and have higher rates of weaning (13). In one study, it was reported that women discontinued nursing at the beginning of postpartum depression (14).

The aim of this study was to investigate sociodemographic and psychopathologic properties affecting exclusive breastfeeding in the first six months in mothers living in the district of Çukurova in Adana.

Material and Methods

The sample of this cross-sectional study was composed of women who lived in the district of Çukurova in Adana who had babies aged between 6 and 12 months. According to the 2015 January-June records of Çukurova Community Healthcare Center, the number of births in the district during this six-month period was 2364. The sample size was calculated as 284 individuals over 2364 individuals considering 30% frequency, 95% confidence interval and 5% margin of error using statcalc program. A total of 284 individuals could be reached. Six family health centers were selected among 19 family health centers (FHC) in the district using a random number table. A list of women who had babies aged between 6 and 12 months was compiled for each FHC selected. Subsequently, the required number of mothers was selected using the random sampling method. Each woman chosen for the sample was informed about the study and made to read the consent form and written approvals were obtained. The days when the mothers visited FHCs (vaccination and follow-up visit days of the babies) were determined and the questionnaires were completed on those days.

The independent variables of the study included maternal age, maternal education status, maternal smoking status, presence of training related with breastfeeding, maternal employment status, sex of the baby, if the pregnancy was intended, family structure, and maternal psychopathologic state. The dependent variable was the state of exclusive breastfeeding for the first six months.

Approval for the study was obtained from the Turkish Republic Çukurova University Faculty of Medicine Non-invasive Clinical Researches Ethics Committee (Decision number 46; 10.02.2015). In addition, the required approvals were obtained from Adana Public Health Department. The data of the study were actively collected in the area between November 2015 and February 2016.

A questionnaire containing 27 questions related with sociodemographic properties, knowledge of breastmilk and breastfeeding, prenatal and postnatal states, personal history, and babies' nutrition, and a brief symptom inventory composed of 53 questions, were applied to the women by the investigator through face-to-face interviews.

The brief symptom inventory is a scale composed of 53 items selected from the Symptom Check List (SCL-90-R), which is a 90-item scale prepared with the objective of determining psychiatric problems in various medical conditions. The Turkish adaptation of this scale was performed by Şahin HN et al. (15). Internal validity: The Cronbach Alpha internal validity coefficients obtained from the total score of the scale in three separate studies were found as 0.96 and 0.95 and the coefficients obtained for the subscales ranged between 0.55 and 0.86 (15).

Nine subscales of the scale included somatization (S), obsessive compulsive disorder (OCD), interpersonal sensitiveness (IS), depression (D), anxiety disorder (AD),

hostility (H), phobic anxiety (FA), paranoid ideation (PI) and psychoticism. The additional items (AI) included eating and drinking disorder, sleep disorder, death and death ideation, and feelings of guilt. The three global indexes included global severity index, positive symptom total, and positive symptom distress index (15).

The brief symptom inventory is a Likert-type scale. Each item is answered as 'not at all / a little bit / moderate / quite a bit / extremely' and scored as 0, 1, 2, 3, and 4, respectively. An increased score indicates that the individual's psychological symptoms have increased (15).

Statistical Analysis

The study data were evaluated using the Statistical Package for the Social Sciences (SPSS) ver. 19 for Windows package program. Frequency tables, the mean scores obtained from the brief symptom inventory, Chi-square test, Mann-Whitney U test, which is a non-parametric test (because the data did not comply with the normal distribution) instead of Student's t test, and multiple logistic regression analysis were used for statistical analysis. A p value of <0.05 was considered statistically significant.

Results

Of the women included in the study, 6.3% were aged 40 years and above and the median age was 31.00 (SD: 5.26, minimum 19, maximum 45) years. Education status was as follows: 0.4% were illiterate, 0.4% were literate but did not attend school, 11.3% were primary school graduates, 27.8% were secondary school graduates, and 60.2% were high school and university graduates. Sixty-three percent of the participants were employed before delivery, 18.3% were currently employed, and 19% were living together with one of the senior members of their family. One-quarter (25.7%) of the mothers were smokers (Table 1).

All of the women who participated in the study presented for regular follow-up visits during pregnancy (at least four times). However, 66.5% received training related with breastmilk and breastfeeding. The distribution of delivery type was as follows: 40.8% occurred by normal vaginal delivery and 9.5% were premature deliveries. Sixty-four point one percent of the mothers breastfed their babies within half an hour of birth, 95.8% gave colostrum to their babies. In our study, the rate of exclusive breastfeeding in the first six months was found as 37.0% (Table 2).

Formula was given to babies in the first six months by 48.9% of the women who participated in the study. The rate of giving breastmilk and water in the first six months was 2.5%; 11.6% of the mothers started giving solid food including yoghurt, soup, and fruit in the first six months. The reasons why the mothers did not exclusively breastfed their babies were given as follows: the mothers thought that her breastmilk was insufficient (45.8%), insufficient increase in the baby's weight (23.9%), mother's returning to work (18.3%), feeding of the baby by the grandmother, and other causes (8.5%).

Exclusive breastfeeding in the first six months was statistically significantly increased by the mother's education level of high school and above, having received training related with breastmilk and breastfeeding, and having initiated breastfeeding within half an hour of birth (p<0.05). However, statistical analyses showed that influence of the elders of the family on the mothers in the issue of nutrition, being a smoker mother, living in the same house together with senior members of the family, increased gravidity, and being a working mother significantly decreased exclusive breastfeeding in the first six months (p<0.05) (Table 3).

Table 1. Sociodemographic characteristics of the women

Characteristics		Number	%
Age groups (years)	≤19	3	1.1
	20-24	33	11.6
	25-29	68	23.9
	30-34	115	40.5
	35-39	47	16.5
	≥40	18	6.3
Education status	Illiterate	1	0.4
	Literate	1	0.4
	Primary school graduate	32	11.3
	Secondary school graduate	79	27.8
	High school graduate	79	27.8
	University-College graduate	92	32.4
Senior member of the family living in the same house	Yes	54	19.0
	No	230	81.0
Employment status before delivery	Employed	179	63.0
	Unemployed	105	37.0
Current employment status	Employed	52	18.3
	Unemployed	193	68.0
	Employed but off-duty	39	13.7
Smoking	Yes	73	25.7
	No	211	74.3
Total	284	284	

When the mean scores obtained by the mothers from the brief symptom inventory were evaluated, it was found that the mothers who did not exclusively breastfed their babies in the first six months had significantly higher mean scores in all subscales and indexes except for additional items ($p<0.05$) (Table 4).

In multiple logistic regression analysis, the effects of the following factors on the state of exclusive breastfeeding were evaluated: maternal education status (below high school/high school and above), if the pregnancy was planned, if the mother received nursing training in any healthcare institution, current maternal working status (employed/unemployed or off-duty), maternal status of smoking, living together with senior members of the family, influence of the elders of the family on the mothers in the issue of nutrition, and the scores obtained from the brief symptom inventory (somatization, obsessive compulsive disorder, interpersonal sensitiveness, depression, anxiety disorder, hostility, phobic anxiety, paranoid ideation, psychoticism and additional items). An increase of one unit in the score of obsessive compulsive disorder increased the risk of lack of exclusive breastfeeding in the first six months by 2.56-fold (OR=2.56, 95% CI: [122-5.37]) and an increase of one unit in the score of depression increased this risk by 8.20-fold (OR=8.20, 95% CI: [3.80-17.69]). In addition, smoking increased this risk by 19.09-fold (OR=19.09, 95% CI: [4.81-75.68]) and being a working mother increased this risk by 12.39-fold (OR=12.39, 95% CI: [5.15-29.84]) (Table 5).

Table 2. Distribution of the characteristics belonging to pregnancies, deliveries, and babies of the women

Characteristics		Number	%
Planned pregnancy	Yes	234	82.4
	No	50	17.6
State of receiving breastfeeding training in healthcare institution	Yes	189	66.5
	No	95	33.5
Gravidity	1st	102	35.9
	2nd	93	32.7
	3rd	57	20.1
	4th	20	7.0
	5th and abovea	12	4.3
Mode of delivery	Cesarean section	168	59.2
	Normal Vaginal delivery	116	40.8
Time of delivery	Premature delivery	27	9.5
	Term delivery	252	88.7
	Postmature delivery	5	1.8
Number of babies at birth	Single baby	278	97.9
	Twins	6	2.1
Exclusive breastfeeding for the first six months	Yes	105	37.0
	No	179	63.0
Status of giving colostrum to the baby	Yes	272	95.8
	No	12	4.2
Breastfeeding within a half-hour of birth	Yes	182	64.1
	No	102	35.9
Nipple cracks, bleeding	Yes	151	53.2
	No	133	46.8
State of being affected by senior members of the family	Yes	156	54.9
	No	128	45.1
Sex of the baby	Male	142	50.0
	Female	142	50.0
Total	284	100.0	

[a]There was one person with gravidity 7

Discussion

The decision of a mother to feed her baby with breastmilk is affected by sociodemographic characteristics and various factors related with the baby (16). In addition, mothers' views and knowledge can be easily altered with training programs and the support of their social environment. Mothers' knowledge about breastfeeding plays an important role in the conscious feeding of babies (17).

In our study, no statistically significant correlation was found between maternal age and the status of exclusive breastfeeding in the first six months. Although the percentage of exclusive breastfeeding decreased as maternal age increased, it was not statistically significant. In the study conducted by Şahin (18) in which knowledge, application, and behavior related with nursing were evaluated in mothers in Istanbul, no statistically significant correlation was found between maternal age and the time of exclusive breastfeeding.

Most of the women (60.2%) who participated in our study were at least high school graduates. According to the TDHS-2013 report, 35.3% of the women who lived in cities were at least high school graduates and this percentage was 13.1% among women who lived in rural areas (6). In our study, the percentage of women who were at least high school graduates was found to be higher. Education levels might have been found higher because our study was conducted in a district that could

Tablo 3. Distribution of the states of exclusive breastfeeding for the first six months by the characteristics of the mother and baby

	Exclusive breastfeeding for the first six months						
	Mothers who exclusively breastfed their babies		Mothers who did not exclusively breastfed their babies		Total		
	Number	%[a]	Number	%[a]	Number	%[b]	p
Age groups (years)							
19-29	43	41.3	61	58.7	104	36.6	
30-39	56	34.6	106	65.4	162	57.0	
40-49	6	33.3	12	66.7	18	6.3	0.272
Education groups							
Below high school	21	18.6	92	81.4	113	39.8	
High school and above	84	49.1	87	50.9	171	60.2	<0.001
Sex of the baby							
Male	56	39.4	86	60.6	142	50.0	
Female	49	34.5	93	65.5	142	50.0	0.390
Planned pregnancy							
Yes	92	39.3	142	60.7	234	82.4	
No	13	26.0	37	74.0	50	17.6	0.077
Nursing training							
Yes	86	45.5	103	54.5	189	66.5	
No	19	20.0	76	80.0	95	33.5	<0.001
Mode of delivery	42	36.2	74	63.8	116	40.8	
Normal Vaginal delivery Cesarean section	63	37.5	105	62.5	168	59.2	0.824
Breastfeeding within a half-hour of birth							
Yes	102	56.0	80	44.0	182	64.1	
No	3	2.9	99	97.1	102	35.9	<0.001
Being affected by senior members of the family							
Yes	42	26.9	114	73.1	156	54.9	
No	63	49.2	65	50.8	128	45.1	<0.001
State of living together with senior members of the family							
Yes	8	14.8	46	85.2	54	19.0	
No	97	42.2	133	57.8	230	81.0	<0.001
Current employment status							
Yes	11	21.2	41	78.8	52	18.3	
No	94	40.5	138	59.5	232	81.7	0.009
Smoking							
Yes	3	4.1	70	95.9	73	25.7	
No	102	48.3	109	51.7	211	74.3	<0.001
Gravidity							
First pregnancy	45	44.1	57	55.9	102	35.9	
Second pregnancy	36	38.7	57	61.3	93	32.7	
Two pregnancies or more	24	27.0	65	73.0	89	31.3	0.015

[a]Line percentage
[b]Column percentage

Table 4. Distribution of mean psychological symptom scores by the state of exclusive breastfeeding for the first six months

Psychological symptoms	The state of exclusive breastfeeding for the first six months	Mean	SD	Minimum-maximum	Median	p
Somatization	Yes	0.19	0.41	0.00-2.57	0.00	
	No	0.77	0.67	0.00-2.86	0.71	<0.001
Obsessive compulsive disorder	Yes	0.43	0.49	0.00-3.00	0.33	
	No	1.21	0.64	0.00-2.83	1.33	<0.001
Inter-personal sensitiveness	Yes	0.20	0.46	0.00-3.00	0.00	
	No	0.90	0.91	0.00-4.00	1.00	<0.001
Depression	Yes	0.27	0.42	0.00-3.67	0.16	
	No	1.49	0.94	0.00-4.00	1.66	<0.001
Anxiety disorder	Yes	0.22	0.41	0.00-2.83	0.16	
	No	0.89	0.66	0.00-3.00	0.83	<0.001
Hostility	Yes	0.10	0.33	0.00-2.00	0.00	
	No	0.40	0.68	0.00-3.00	0.00	<0.001
Phobic anxiety	Yes	0.03	0.19	0.00-1.00	0.00	
	No	0.20	0.49	0.00-2.00	0.00	<0.001
Paranoid ideation	Yes	0.09	0.29	0.00-1.00	0.00	
	No	0.64	0.76	0.00-4.00	0.00	<0.001
Psychoticism	Yes	0.01	0.13	0.00-1.00	0.00	
	No	0.20	0.56	0.00-4.00	0.00	<0.001
Additional items	Yes	0.15	0.31	0.00-1.75	0.00	
	No	0.24	0.50	0.00-3.50	0.00	0.152
Global severity index	Yes	0.03	0.04	0.00-0.30	0.01	
	No	0.13	0.08	0.00-0.51	0.13	<0.001
Total of symptoms	Yes	8.54	6.6	0.00-37.00	6.00	
	No	21.41	9.4	0.00-47.00	24.00	<0.001
Symptom distress index	Yes	0.16	0.08	0.00-0.53	0.14	
	No	0.28	0.11	0.00-0.57	0.30	<0.001

SD: standard deviation

be considered to be socioeconomically developed in one of the larger cities of Turkey, and the women who participated in the study were not old aged.

Exclusive breastfeeding rates of the mothers who had a high school diploma and above were found to be significantly higher compared with the other mothers. In a study conducted by Betrini et al. (8), it was interpreted that high maternal education level was correlated with having a lower number of children, higher income per child in the family, longer time spared by the mother for feeding, and longer nursing. In a study conducted in India with 384 mothers, it was observed that increased maternal education level affected the time of breastfeeding positively (19). In the United States of America, a total of 3515 mothers who breastfed their babies for 4-6 months were followed up between 2000 and 2004, and it was shown that breastfeeding rates increased as education levels increased (20).

Multiple logistic regression analysis showed that maternal employment increased the risk of lack of exclusive breastfeeding in the first six months by 12.39-fold. Ünsal et al. (7) found no effect of employment status on exclusive breastfeeding for the first six months, whereas the total nursing period was found to be significantly shorter in working mothers compared with non-working mothers. Worldwide, the frequency of nursing is lower in working mothers compared with non-working mothers, as observed in our country (21). The community, and especially employers (for working mothers), should be educated in this area. In addition, mothers and nursing mothers should be supported. Provision of adequate environments for working mothers to nurse

Table 5. Factors that affect exclusive breastfeeding for the first six months: multiple logistic regression analysis

Variables	p	OR	95% CI
Obsessive compulsive disorder	0.012	2.56	1.22-5.37
Depression	<0.001	8.20	3.80-17.69
Smoking			
Smokers-Ref.	<0.001	19.09	4.81-75.68
Non-smokers			
Employment status	<0.001	12.39	5.15-29.84
Employed-Ref.			
Unemployed			

CI: confidence interval; OR: estimated relative risk (Odds ratio)

their babies or to pump their breastmilk and keep it appropriately, and legal regulations made by governments in this area, when necessary, will increase rates of breastfeeding (22, 23).

In our study, 100% of the women regularly attended prenatal follow-up visits in a healthcare institution. We think that this finding is related with the fact that this study was conducted in a district with a high socioeconomic level where all hospitals were baby-friendly. However, the percentage of having received prenatal training related to nursing and breastmilk in a healthcare institution was only 66.5%. The percentage of exclusive breastfeeding in the first six months was significantly higher in the mothers who had received this training. Meyers et al. (24) reported that training related to nursing should begin from the first prenatal follow-up visit and continue throughout pregnancy. In a study conducted by Varol (25) in Istanbul, it was shown that the babies were exclusively breastfed for the first six months when mothers were given training related to nursing and breastmilk and supported continuously by way of home visits and phone interviews for six months. In a study conducted by Onbaşı et al. (26), it was concluded that the percentage and time period of exclusive breastfeeding for the first six months might increase if pregnant women were trained in breastfeeding.

The brief symptom inventory results showed that the scores of all subdimensions and indexes except for additional items were significantly higher in mothers who did not exclusively breasted their babies in the first six months compared with those who did. We performed multiple logistic regression analysis, which showed that an increase of one unit in the score of obsessive compulsive disorder increased the risk of lack of exclusive breastfeeding in the first six months by 2.56-fold (OR=2.56, 95% CI: [1.22-5.37]) and an increase of one unit in the score of depression increased this risk by 8.20-fold (OR=8.20, 95% CI: [3.80-17.69]). Based on these results, it can be interpreted that maternal psychological status is one of the factors that affects exclusive breastfeeding. In a study conducted in Brazil, it was found that the risk of early discontinuation of breastfeeding was higher in mothers who had symptoms of depression after delivery (27). In a study by Hurley et al. (28) in Nigeria, it was reported that the risk of earlier discontinuation of breastfeeding was higher in mothers who were depressed. Similarly, a study conducted in the United Arab Emirates found that mothers who bottle fed their babies at the 12th week after delivery had higher depression scores compared with mothers who breastfed their babies (29).

In our study, the percentage of exclusive breastfeeding for the first six months was 37%. Based on the definition of the WHO, the babies who received any food besides breastmilk including water were not included in the group of "exclusive breastfeeding for the first six months" (5). This percentage reduced from 42% in TDHS-2008 to 30% in TDHS-2013 (6). In a study conducted in Düzce in relation with breastfeeding, the percentage of exclusive breastfeeding in the first six months was 22.4% (30). In the study conducted by Uzunhan et al. (31) in Istanbul, the percentage of exclusive breastfeeding in the first six months in babies aged six months was 13% in 1998 and 41% in 2005. The percentage of exclusive breastfeeding in babies aged below six months was reported as 16% in Afghanistan, 51% in China, 31% in Eastern Asia, and 30% in Southern Africa (32).

Limitations of the study

The results might not have reflected all segments of society because our study was conducted in a socioeconomically developed district. In our study, the mothers' psychopathologies were evaluated. However, it was not known if these pathologies occurred before pregnancy, during pregnancy or after delivery. Further studies should be conducted to make this differentiation.

In conclusion, working mothers, mothers who smoke, mothers who live together with senior members of their family, mothers with a low education level, and mothers who experience psychological problems carry risk in terms of lack of exclusive breastfeeding in the first six months. The mothers in this group should be approached more carefully when giving training related to breastmilk and nursing.

It is very important for working mothers to nurse their babies for adequate periods, to give their babies qualified breastmilk, and to be supported by their families and the community. The necessary legal accommodations should also be provided, constituting rooms where breastmilk can be pumped and stored in workplaces, readjustment of breastfeeding permission, and maternity leave with pay should be at the top of the agenda.

The Ministry of Health should give education to physicians and allied health personnel in breastfeeding such that they show the necessary sensitivity to mothers. Family physicians in particular should advise mothers in terms of the importance of breastmilk. Health institutions should behave more sensitively in terms of giving education to mothers in baby feeding and breastmilk. The authorities should check if baby-friendly hospitals do their part.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of the Non-Interventional Clinical Researches of the Faculty of Medicine of Çukurova University (02.10.2015/46).

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

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