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Title: Postpartum Comfort and Breastfeeding Behavior of Primipara Obese and Non-Obese Mothers

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POSTPARTUM COMFORT AND BREASTFEEDING BEHAVIOR OF PRIMIPARA OBESE and NON-OBESE MOTHERS

ABSTRACT

Objective: Maternal obesity negatively affects the health of mother and the newborn through pregnancy and postpartum period. This study was carried out to determine if there is any difference on breastfeeding behavior and postpartum comfort of obese and non-obese mothers.

Materials and Methods: This prospective case-control study was conducted with 104 mothers, where 54 of them were obese in the obstetrics clinic department of a university hospital in Turkey. The data was collected by using an Individual Information Form, Postpartum Comfort Questionnaire (PPCQ) and LATCH breastfeeding assessment scale.

Results: The LATCH and PPCQ total score of obese mothers was measured less compared to non-obese mothers and the difference was statistically significant. For obese women, there was a statistically significant positive correlation between the LATCH score and PPCQ total score, physical, psycho-spiritual and socio-cultural comfort subscale score. For non-obese mothers positive correlation with LATCH score was found only for physical comfort subscale score.

Conclusion: Obesity affects postpartum comfort and breastfeeding negatively, so obese mothers should be supported more than the non-obese mothers.

Keywords: breastfeeding, maternal obesity, postpartum comfort, primipara.

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INTRODUCTION

Obesity is defined as aggregation of too much fat on the body or increase in the ratio of body weight to height. It's becoming a common public health problem in most of countries, especially in developed countries. World Health Organization (WHO) defined obesity as 'Global Epidemic Disease' for all countries and declared that it's one of the most fatal disease equivalents to Human Immunodeficiency Virus (HIV) and malnutrition. Regarding to WHO's (2014) statistics 14% of women and 10% of men in the world are obese.¹ The obesity ratio of women at reproductive ages was declared as 37% in the National Health and Nutrition Examination Survey, which was conducted by Centers for Disease Control and Prevention (CDC) in USA.² The gestational weight gain is the major affecting factor that causes increase of obesity ratio in women. WHO declares that the prevalence of obesity in pregnancy is between 1.8%-25.3% and maternal obesity is a major risk factor for maternal and prenatal mortality.¹ Maternal obesity is important in terms of pregnancy, childbirth, mother and child's short and long term health outcomes and negatively affects the health of mother and newborn through the pregnancy. Gestational diabetes and hypertensive diseases induced by pregnancy, which are observed frequently in maternal obesity, bring up the risks such as operative birth, anesthesia complications. Increase in preterm birth, macrosomia, shoulder dystocia, intrauterine, neonatal or infant mortality is more frequent in obese mothers compared to mothers that have normal BMI.³⁻⁷ In the literature, it was declared that maternal obesity was relational with fetal macrosomia, preterm birth, low birth weight, neonatal hyperinsulinemia and increase on need of neonatal intensive care unit.^{8,9} Maternal obesity causes problems at postpartum period as well. More frequent occurrence of factors such as anemia, pain, wound infection, genital tract infection, late mobilization, deep venous thrombosis, postpartum hemorrhage and sepsis risk negatively affects the postpartum comfort.¹⁰⁻¹³ These complications results in some problems such as breastfeeding difficulties, decrease in the breastfeeding duration/frequency and exclusive breastfeeding, early cessation of breastfeeding (<6 months).^{4,14,15} In study of Pinheiro et al.¹⁶, all of mothers that had normal BMI and %95.2 of obese/overweight mothers had started breastfeeding in the first 24 hours of postpartum. It was found in that study that delayed breastfeeding was relational with maternal obesity. In the prospective cohort study of Boudet Berquier et al.¹⁷, it was declared that

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maternal obesity was one of the important factors affecting the breastfeeding period and it was found that it was a key factor in exclusive breastfeeding period for primipara obese mothers. The failure at breastfeeding leads to an increase in the rate of infant with formula feeding. Formula feeding prevents both maternal-infant attachment and increases the obesity risk of the baby in later times.¹⁸⁻²¹

In the literature, it was reported that maternal obesity was relational with pre-pregnancy BMI and gestational weight gain.^{5,11,22} Because of this, it is important to determine and follow up obese women when they decide in pregnancy and controlling their weight gain to prevent complications that might develop in the pregnancy and in post-natal period. There is not any study in Turkey that compare breastfeeding behavior and comfort of obese and non-obese pregnant women in their post-natal period. In direction of this information, this study was carried out to determine if there was any difference on breastfeeding behavior and postpartum comfort of obese and non-obese mothers.

METHODS

This prospective case-control study was conducted in maternity clinic of a university hospital through July-December 2014 in Turkey. Study was conducted in two groups: obese (BMI>30 kg/m²) mothers and non-obese (BMI=18.5-24.9 kg/m²) mothers. WHO and National Institutes of Health's definitions had referenced in definition of obese and non-obese women classification. WHO and National Institutes of Health define underweight with a body mass index (BMI, weight/(height)²)<18.5, normal weight with a BMI of 18.5-24.9, overweight with a BMI of 25-29.9, and obesity with a BMI of 30 or greater.¹

Acceptance criteria for both groups were; (a) elder than 18 years old, (b) being a primigravida, (c) having the birth on time (\geq 38th week), (d) singleton pregnancy, (e) having no risk for pregnancy except obesity (preeclampsia, gestational diabetes mellitus, early membrane rupture etc.) (f) having no complication in the post-partum period (g) having no operative vaginal deliveries (h) having deliveries with elective cesarean because of indication cephalopelvic disproportion, (i) having no diagnosed psychological problems, (j) being together with the newborn in the postpartum period and (k) accept to participate in the study. As mentioned in the literature, because birth type, parity and maternal age might affect postpartum comfort and

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breastfeeding, groups were homogenized by their ages and birth type and study was conducted with only primipara mothers.^{11,17-19} Through the study conducted in July-December 2014, 337 (22 underweight mothers, 144 normal BMI, 89 overweight mothers and 82 obese mothers) birth was done at the hospital. Fifty of 144 mothers that had normal BMI were accepted in non-obese group of the study. Fifty six of excluded mothers were multipara, 12 of them were <38th gestational age, eight of them were emergency caesarean, five of them were gestational diabetics, four of them were preeclampsia, four of them were at intensive care and two of them had diagnosed psychological problems and three of them were not accepted to participate in the study. Fifty four of 82 obese mothers met the sampling criteria where eight of them were multipara, six of them were <38th gestational age, four of them were emergency caesarean, five of them were gestational diabetics, four of them were preeclampsia. Study was completed by 104 mothers that were in 48-72 hours of postpartum.

The research approval was given by the Non-invasive Clinical Research Ethics Committee of Izmir Katip Celebi University (Date: 03.07.2014, IRB: 133) and also a written approval was given by the hospital that the study was conducted. The data were collected after a written consent form given by the participants.

Data were collected by researchers at postpartum 48-72nd hours in the room of mothers. Regarding to Turkish Health Ministry's nursing procedure, mothers must have health care through the 48-72 hours after the birth in obstetric clinics of hospitals. Because 48-72nd hours are the most appropriate time to collect the data for mothers that had the birth type of both the vaginal and caesarean, this period preferred in this study as well.

In the study Individual Identity Form, Postpartum Comfort Questionnaire and LATCH breastfeeding assessment score tools were used to collect the data.

Individual Identity Form: In this form there were nine questions to collect the personal information of women. It was prepared by the researchers regarding the literature.¹⁸⁻²¹

Postpartum Comfort Questionnaire (PPCQ): The general comfort questionnaire that has 48 questions was generated by Kolcaba (1994) and its Turkish validity and reliability study was made by Karabacak in 2004. Karakaplan²³ studied its adapted version for the postpartum period in 2010. PPCQ evaluates comfort level of mothers for both caesarean and normal birth. This questionnaire five-point likert-type response scale with 34 articles and three sub-scales

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(physical comfort, psycho-spiritual comfort and social-cultural comfort). The minimum score in the questionnaire is 34, where the maximum score is 170 and higher score shows the increase of the comfort at the postpartum period. The Cronbach alpha value of this questionnaire was determined as 0.78 by Karakaplan²³ and 0.91 for this study.

LATCH Breastfeeding Assessment Score Tool: It's one of the measuring tools to evaluate the breastfeeding. It was generated in 1986 by simulating to APGAR score system regarding the scoring method. This measurement tool has five evaluation criteria as below;

L: Latch on breast

A: Audible swallowing

T: Type of nipple

C: Comfort breast/nipple

H: Hold

The validation study of LATCH breastfeeding assessment score tool was made in 1997 by Adams and Hewell in USA. In Turkey, the validation study was made by Yenil and Okumus in 2003 and the Cronbach's alpha value was determined as 0.95. Each statement evaluated between 0-2 and the total score that can be measured from the scale is 10. Higher score shows that the breastfeeding assessment is better.²⁴ In this study the Cronbach alpha value is 0.92.

All data from the questionnaires were entered into a statistical software database (SPSS Windows Version 21.0). Data were manually checked and corrected for any entry errors. Descriptive statistics and frequency distributions for all major outcome variables were computed to determine the difference between the two groups regarding the comfort level at postpartum period and breastfeeding behaviors t test was used and correlation analysis was made to analyze the relation between LATCH and PPCQ.

RESULTS

The characteristics of participants were as given in Table 1. In the study there were 104 mothers and 54 of them were obese. The mean age of primipara obese mothers was 25.6, their BMI mean was 32.1 and 40.7% of them were graduated from the primary school, 74.1% of them were not working, 46.3% of them had a middle level income, 75.9% of them had elective caesarean birth, 53.7% of them had information for the postpartum period. The mean age of

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primipara non-obese mothers was 26.6, their BMI mean was 22.6, 44% of them were graduated from the primary school, 72% of them were not working, 58% of them had an income at middle level, 64% of them had elective caesarean birth and 54% of them had an information for the postpartum period.

There were no significant differences between mothers obese and non-obese in terms of age ($t=1.59$, $p=0.210$), education ($\chi^2=4.04$, $p=0.544$), employment status ($\chi^2=0.05$, $p=0.812$), income ($\chi^2=2.75$, $p=0.252$), mode of delivery ($\chi^2=1.76$, $p=0.184$) and having information for the postpartum period ($\chi^2=0.00$, $p=0.976$). There was a significant difference between the two groups at their BMI average ($t=41.81$, $p<0.001$) (Table 1).

In this study, the LATCH score of obese mothers was measured as 7.01 ± 2.00 where the score mean of non-obese mothers was 8.42 ± 1.51 and the difference between them was statistically significant ($t=-3.99$, $p<0.001$). PPCQ total score ($t=-8.8$, $p<0.001$), physical ($t=-10.6$, $p<0.001$), psycho-spiritual ($t=-4.8$, $p<0.001$) and socio-cultural ($t=-3.2$, $p=0.002$) comfort subscale score of obese mothers was less than the non-obese mothers and it was determined that the difference was statistically significant (Table 2).

Regarding the LATCH score, the PPCQ total score and sub-scales score of obese and non-obese mothers were given in the Table 3. For obese mothers, there was a statistically significant positive correlation between the LATCH score and PPCQ total score ($r=0.53$, $p<0.001$), physical ($r=0.486$, $p<0.001$), psycho-spiritual ($r=0.381$, $p=0.004$) and socio-cultural ($r=0.333$, $p=0.014$) comfort subscale score. For non-obese mothers positive correlation with LATCH score average was found only for physical comfort subscale score ($r=0.304$, $p=0.032$) (Table 3).

DISCUSSION

In the study, it was found that breastfeeding success of primipara obese mothers was less than the non-obese mothers. However there are limited studies on the subject, most of them are supporting the results of this study. Ramji et al²⁵ conducted a retrospective cohort study ($n=22331$) to analyze their breastfeeding situations in discharge from the hospital and they found that 71.7% of mothers that were having normal BMI, 69.1% of mothers that were having overweight, 61.6% of obese mothers and 54.2% of morbid obese women had started

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breastfeeding. They declared that breastfeeding ratio decreases as the BMI increases. In the study of Kitsantas and Pawloski²⁶, the effect of BMI on starting the breastfeeding and the length of the period were analyzed, it was found in this study that number of the obese mothers that started the breastfeeding was less than the normal women and obese mothers gave up feeding in shorter time. Similarly Donath and Amir¹⁸ did a longitudinal study to analyze obese mother starting the breastfeeding and their feeding period. They found that 95.1% of normal weight women, 92.8% of overweight women and 87.1% of obese mothers started breastfeeding and the difference between them was found to be statistically significant. In the literature review of McGuire, Dyson & Renfrew²⁷, it was declared that obesity affect starting to the breastfeeding and continuing. In the literature another studies declared exclusive breastfeeding duration was shorter for obese mothers compared to mothers that were having normal BMI. They mentioned in their study that maternal obesity caused some problems such as decrease in prolactin level, responding and delay. Failure in the breastfeeding result in formula feeding and this increase the obesity risk in future.^{16,17,21} In the study of Mehta et al.²⁸, in which the effect of the maternal obesity on starting to breastfeeding and psychological factors was analyzed, it was found that obese and overweight women has four times higher risk of unsuccessful breastfeeding.

Regarding the finding of this study, the difference of obese and normal weight mothers on breastfeeding behavior thought to be related with their physical and psychological conditions. The postpartum period is an important transition period for the family that physical, social and emotional changes happen. At this period mother can start the care of the baby and reply his/her feeding needs if you lessen her pains, taken into control her bleeding, satisfy her hygienic needs and only after she rise to her feeds and starts normal feeding. In this study, the comfort level of obese mothers at the postpartum period found to be lesser compared to normal weight mothers, and also the breastfeeding success of obese mother increased as their physical, socio-cultural and psycho-spiritual comforts increased. Bigger breast structure, usually observed in the obesity, result in unable to hold the nipple and failure in getting the appropriate feeding position between baby and mother.^{21,29} As given in the literature, some of the factors that observed in obese mothers such as more frequent pains, anemia and delay in the mobilization affects negatively the postpartum comfort level.^{4,30} Struggle on breastfeeding and delay in the feeding can be result in failure feeling and fatigue for the mother. McGuire et al.²⁷ and Mehta et al.²⁸

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declared in their study that obese mothers are less prone to start breastfeeding and continue to it. They also declared that obese mothers have less self-ego and confidence. Instant start of breastfeeding, speed up the involution process of uterus by increasing the contraction of uterine.⁶ The decrease in success of obese mothers in breastfeeding results in the delay of involution process of uterus and this thought to be affecting the level of comfort in postpartum period.

Limitations

Our study has some limitations. First, administration of mothers about breastfeeding was not standard. Second, this study had a relatively small sample size. So, larger and further studies are needed to examine this association.

CONCLUSION

Obesity that is increasing in pregnant women brings up health problems for the mother and the baby in the short and long term. In terms of implications for clinical practice, health professionals should be more sensitive to prevent obesity in pregnancy. They should give more importance on antepartum care and training of obese pregnant, they should be ready for risks that can be seen at the postpartum period and they should be supportive to these obese mothers on their breastfeeding struggle. In addition, regarding the lack of studies in the literature about this subject, there is a need to study on complication of maternal obesity in antepartum and postpartum period and on weights that obese pregnant should gain in the pregnancy. So there is a need to clinical prospective studies on this subject with more sample number.

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Table 1. Characteristics of participants (n=104)				
Variable	Total (n=104) n (%)	Obese (n=54) n(%)	Non Obese (n=50) n(%)	p value
Mean Age (SD)	26.1 (4.1)	25.6 (3.8)	26.6 (4.4)	t=1.59 p=0.210
BMI (SD)	27.5 (4.8)	32.1 (0.8)	22.6 (1.3)	t=41.81 p=0.000
Educational Status				
Primary	44 (42.3)	22 (40.7)	22 (44)	x ² =4.04 p=0.544
Secondary	37 (35.6)	19 (35.2)	18 (36)	
University	23 (22.1)	13 (24.1)	10 (20)	
Employment Status				
Employed	28 (26.9)	14 (25.9)	14(28)	x ² =0.05 p=0.812
Unemployed	76 (73.1)	40 (74.1)	36 (72)	
Income				
High	19 (18.3)	13 (24.1)	6 (12)	x ² =2.75 p=0.252
Moderate	54 (51.9)	25 (46.3)	29 (58)	
Low	31 (29.8)	16 (29.6)	15 (30)	
Birth Type				
Vaginal birth	31(29.8)	13 (24.1)	18 (36)	x ² =1.76 p=0.184
Cesarean birth	73 (70.2)	41 (75.9)	32 (64)	
Had they received information on postpartum period?				
Yes	56 (53.8)	29 (53.7)	27 (54)	x ² =0.00 p=0.976
No	48 (46.2)	25 (46.3)	23 (46)	

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	Total Sample Mean (SD)	Obese Mean (SD)	Non Obese Mean (SD)	p value
LATCH	7.69 (1.91)	7.01 (2.00)	8.42 (1.51)	t=-3.99 p=0.000
PPCQ Total	115.8 (17.4)	104.7 (14.8)	127.8 (11.1)	t=-8.89 p=0.000
Physical	43.2 (10.6)	35.7 (8.3)	51.2 (6.1)	t= -10.64 p=0.000
Psycho-spiritual	43.8 (4.9)	41.7 (4.8)	46.0 (4.0)	t= -4.81 p=0.000
Socio-cultural	28.8 (5.5)	27.2 (5.8)	30.5 (4.6)	t= -3.21 p=0.002

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Table 3. PPCQ score regarding mother's LATCH score		
PPCQ Total and subscales	Obese LATCH (7.01±2.00)	Non Obese LATCH (8.42±1.51)
Physical	35.7 (8.3)	51.2 (6.1)
r	r=0.486	r=0.304
p	p=0.000	p=0.032
Psycho-spiritual	41.7 (4.8)	46.0 (4.0)
r	r=0.381	r=0.163
p	p=0.004	p=0.259
Socio-cultural	27.2 (5.8)	30.5 (4.6)
r	r=0.333	r=-0.069
p	p=0.014	p=0.633
PPCQ total	104.7 (14.8)	127.8 (11.1)
r	r=0.530	r=0.199
p	p=0.000	p=0.166

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