



Postpartum Comfort and Breastfeeding Behavior of Primipara Obese and Non-obese Mothers

ORIGINAL
ARTICLE

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ABSTRACT

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

Materials and Methods: This prospective case-control study included 104 mothers, of whom 54 were obese, in the Obstetrics Clinic Department of a university hospital in Turkey. Data were collected using the Individual Information Form, Postpartum Comfort Questionnaire (PPCQ), and LATCH breastfeeding assessment tool.

Results: The LATCH and PPCQ total scores in obese mothers were lower 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 the PPCQ total score, and the physical, psycho-spiritual, and sociocultural comfort subscale scores. For non-obese mothers, a positive correlation with the LATCH score was found only for the physical comfort subscale score.

Conclusion: Obesity affects the postpartum comfort and breastfeeding negatively, so mothers who are obese require more support than mothers who are not obese.

Keywords: Breastfeeding, maternal obesity, postpartum comfort, primipara

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INTRODUCTION

Obesity is defined as the accumulation of too much fat tissue in the body or an increase in the body weight to height ratio. It is becoming a common public health problem in most of countries, especially in developed countries. The World Health Organization (WHO) defined obesity as a global epidemic disease for all countries and declared that it is one of the most fatal conditions, equivalent to human immunodeficiency virus and malnutrition. According to WHO's (2014) statistics, 14% of women and 10% of men in the world are obese (1). The obesity ratio of women at the reproductive age was declared as 37% in the National Health and Nutrition Examination Survey, which was conducted by the Centers for Disease Control and Prevention (CDC) in the United States (2). The gestational weight gain is the major factor that causes an increase in the obesity ratio in women. WHO states that the prevalence of obesity in pregnancy ranges between 1.8% and 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's and child's short- and long-term health outcomes, and it negatively affects the health of the mother and the newborn during pregnancy. Gestational diabetes and hypertensive diseases induced by pregnancy, which are observed frequently in maternal obesity, bring up the risks such as operative birth and anesthesia complications. An increase in the preterm birth rates, macrosomia, shoulder dystocia, and intrauterine, neonatal, or infant mortality are more frequent in obese mothers compared to mothers that have a normal body mass index (BMI) (3–7). In the literature, it was declared that maternal obesity was associated with fetal macrosomia, preterm birth, a low birth weight, neonatal hyperinsulinemia, and an increased need for neonatal intensive care (8, 9).

Maternal obesity causes problems during the postpartum period as well. A 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 affect the postpartum comfort (10–13). These complications result in some problems such as breastfeeding difficulties, decrease in the breastfeeding duration/frequency and exclusive breastfeeding, and early cessation of breastfeeding (<6 months) (4, 14, 15). In the study by Pinheiro et al., (16) all mothers that had a normal BMI and 95.2% of obese/overweight mothers had started breastfeeding in the first 24 hours postpartum. In the same study, it was found that delayed breastfeeding was correlated with maternal obesity. In the prospective cohort study by Boudet Berquier et al., (17) it was declared that maternal obesity was one of

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the important factors affecting the breastfeeding period, and it was found that it was a key factor in the exclusive breastfeeding period for primipara obese mothers. The failure at breastfeeding leads to an increase in the rate of formula-fed infants. Formula feeding prevents both the mother–infant attachment and increases the obesity risk in the baby at a later age (18–21).

In the literature, it was reported that maternal obesity was correlated 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 control their weight gain to prevent complications that might develop during pregnancy and in the post-natal period. To the best of our knowledge, there are no available studies in Turkey that compare the breastfeeding behavior and comfort of obese and non-obese pregnant women in the post-natal period. Guided by this information, this study was carried out to determine if there was any difference in the breastfeeding behavior and postpartum comfort of obese and non-obese mothers.

MATERIALS and METHODS

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

The acceptance criteria for both the groups were (a) older than 18 years, (b) being a primigravida, (c) having the birth on time (≥38th week), (d) singleton pregnancy, (e) having no risk for pregnancy except obesity (preeclampsia, gestational diabetes mellitus, early membrane rupture, etc.), (f) having no complications in the post-partum period, (g) having no operative vaginal deliveries, (h) having deliveries with elective cesarean because of cephalopelvic disproportion, (i) having no diagnosed psychological problems, (j) being together with the newborn in the postpartum period, and (k) acceptance to participate in the study. As mentioned in the literature, because the birth type, parity, and maternal age might affect the postpartum comfort and breastfeeding, groups were homogenized by their ages and the birth type, and the study was conducted with only primipara mothers (11, 17–19). During the study conducted between July and December 2014, 337 (22 underweight, 144 normal, 89 overweight, and 82 obese mothers) births took place at the hospital. Fifty of 144 mothers that had a normal BMI were accepted in the non-obese group of the study. Fifty-six of excluded mothers were multipara, 12 of them were <38th weeks of the gestational age, eight had an emergency cesarean section, five had gestational diabetes, four had preeclampsia, four were at the intensive care, two had diagnosed psychological problems, and three 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 were <38th week of the gestational age, four had an emergency cesarean, five had gestational diabetes, and four had preeclampsia. The study was completed by 104 mothers who were 48–72 hours postpartum.

The research was approved 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 where the study was conducted. Data were collected after a written consent form was completed by the participants.

Data were collected by researchers at postpartum 48–72 hours in the room of mothers. According to the Turkish Health Ministry's nursing procedure, mothers must have health care 48–72 hours following birth in the obstetric clinics of hospitals. Because the 48–72 hour period was the most appropriate time to collect the mother data, both for the vaginal and cesarean birth, this period was preferred in this study as well.

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

Individual Identity Form: In this form, there were nine questions to collect the personal information of women. It was prepared by the researchers who took literature into consideration (18–21).

Postpartum Comfort Questionnaire: The general comfort questionnaire that has 48 questions was generated by Kolcaba (1994), and its Turkish validity and reliability study was conducted by Karabacak in 2004. Karakaplan (23) studied its adapted version for the postpartum period in 2010. The PPCQ evaluates the comfort level of mothers for both the cesarean and normal birth. This questionnaire is in the form of a 5-point Likert-type response scale with 34 articles and three subscales (physical comfort, psycho-spiritual comfort, and sociocultural comfort). The minimum score in the questionnaire is 34, and the maximum score is 170. A higher score shows an increase in the comfort at the postpartum period. The Cronbach's alpha value of this questionnaire was determined as 0.78 by Karakaplan, (23) and it was 0.91 for this study.

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

- L: Latch on breast
- A: Audible swallowing
- T: Type of nipple
- C: Comfort breast/nipple
- H: Hold

A validation study of the LATCH breastfeeding assessment tool was made in 1997 by Adams and Hewell in the United States. In Turkey, the validation study was made by Yenal and Okumus in 2003, and the Cronbach's alpha value was determined as 0.95. Each statement is evaluated between 0 and 2, and the total score that can be measured from the scale is 10. The higher the score, the better the breastfeeding assessment (24). In this study, the Cronbach's alpha was 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 re-

Table 1. Characteristics of participants (n=104)

Variable	Total (n=104)		Obese (n=54)		Non-obese (n=50)		p
	n	%	n	%	n	%	
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
Secondary	37	35.6	19	35.2	18	36	p=0.544
University	23	22.1	13	24.1	10	20	
Employment status							
Employed	28	26.9	14	25.9	14	28	x ² =0.05
Unemployed	76	73.1	40	74.1	36	72	p=0.812
Income							
High	19	18.3	13	24.1	6	12	x ² =2.75
Moderate	54	51.9	25	46.3	29	58	p=0.252
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
Cesarean birth	73	70.2	41	75.9	32	64	p=0.184
Had they received information on postpartum period?							
Yes	56	53.8	29	53.7	27	54	x ² =0.00
No	48	46.2	25	46.3	23	46	p=0.976

BMI: Body mass index; SD: Standard deviation

garding the comfort level during the postpartum period, the breastfeeding behaviors t-test was used, and a correlation analysis was made to analyze the relation between the LATCH and PPCQ.

RESULTS

The characteristics of participants are presented 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, and their BMI mean was 32.1. 40.7% completed primary school, 74.1% were unemployed, 46.3% had a middle-level income, 75.9% had elective cesarean birth, and 53.7% had information about the postpartum period. The mean age of primipara non-obese mothers was 26.6, and their BMI mean was 22.6. 44% completed primary school, 72% were unemployed, 58% had a middle-level income, 64% had elective cesarean birth, and 54% had information about the postpartum period.

There were no significant differences between obese and non-obese mothers in terms of age (t=1.59, p=0.210), education (x²=4.04, p=0.544), the employment status (x²=0.05, p=0.812), income (x²=2.75, p=0.252), mode of delivery (x²=1.76, p=0.184), and having information about the postpartum period (x²=0.00, p=0.976). There was significant difference between the two groups in their BMI mean (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). The 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 sociocultural (t=-3.2, p=0.002) comfort subscale scores of obese mothers were lower than in non-obese mothers, and the difference was statistically significant (Table 2).

The LATCH score, the PPCQ total score, and the subscales score of obese and non-obese mothers are presented in Table 3. For obese mothers, there was a statistically significant positive correlation between the LATCH score and the 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 sociocultural (r=0.333, p=0.014) comfort subscale score. For non-obese mothers, a positive correlation with the LATCH score mean was found only for the physical comfort subscale score (r=0.304, p=0.032) (Table 3).

DISCUSSION

In the study, it was found that the breastfeeding success of primipara obese mothers was lower than in the non-obese mothers. However, although there are limited studies on the subject, most of them are supporting the results of this study. Ramji et al. (25), conducted a retrospective cohort study (n=22.331) to analyze the breastfeeding situations following discharge from the hospital, and

Table 2. LATCH and PPCQ total and subscale score of participants

	Total sample		Obese		Non-obese		p
	Mean	SD	Mean	SD	Mean	SD	
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
Sociocultural	28.8	5.5	27.2	5.8	30.5	4.6	t=-3.21 p=0.002

PPCQ: Postpartum Comfort Questionnaire; SD: Standard deviation

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
Sociocultural	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

PPCQ: Postpartum Comfort Questionnaire

they found that 71.7% of mothers with a normal BMI, 69.1% of overweight mothers, 61.6% of obese mothers, and 54.2% of morbidly obese mothers had started breastfeeding. They declared that the breastfeeding ratio decreases as the BMI increases. In the study by Kitsantas and Pawloski (26), the effect of BMI on starting breastfeeding and the length of the period were analyzed, and they found that the number of the obese mothers who started breastfeeding was less than in normal women, and obese mothers gave up feeding faster. Similarly, Donath and Amir (18) did a longitudinal study to analyze obese mother who were starting 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 a literature review by McGuire, Dyson, and Renfrew (27), it was stated that obesity affects the beginning of breastfeeding and its continuation. In the literature, other studies declared that the exclusive breastfeeding duration was shorter for obese mothers compared to mothers that were having a normal BMI. They mentioned in their study that maternal obesity caused certain problems, such as a decrease in the prolactin level, responding, and delay. Failure in the breastfeeding results in formula feeding, and this increases the future obesity risk (16, 17, 21). In

the study by Mehta et al. (28), in which the effect of the maternal obesity on the beginning of breastfeeding and psychological factors was analyzed, it was found that obese and overweight women have four times higher risk of unsuccessful breastfeeding.

Regarding the finding of this study, the difference between obese and normal-weight mothers with regard to breastfeeding behavior is thought to be related to their physical and psychological conditions. The postpartum period is an important transitioning period for the family when physical, social, and emotional changes happen. At this period, the mother can start the care of the baby and satisfy its feeding needs if her pain and bleeding are controlled, her hygienic needs are satisfied, and only after she rises to her feet and starts normal feeding. In this study, the comfort level of obese mothers at the postpartum period was found to be lower compared to normal-weight mothers, and also the breastfeeding success of obese mother increased as their physical, sociocultural, and psycho-spiritual comfort increased. A bigger breast structure, usually observed in obesity, results in the inability to hold the nipple and failure in assuming an appropriate feeding position between the baby and the mother (21, 29). As described in the literature, some of the factors observed in obese mothers, such as more frequent pain, anemia, and delay in the mobilization negatively affect the postpartum comfort level (4, 30). The struggle to start breastfeeding and delay in the feeding can result in the feelings of failure and fatigue for the mother. McGuire et al. (27) and Mehta et al. (28) declared in their study that obese mothers are less prone to starting breastfeeding and continuing it. They also declared that obese mothers have less self-ego and confidence. An immediate start of breastfeeding speeds up the involution process of the uterus by increasing the uterine contractions (6). A decreased success of obese mothers in breastfeeding results in the delay of the involution process of uterus, and this is thought to affect the level of comfort in the 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. Thus, larger and further studies are needed to examine this association.

CONCLUSION

Obesity, which is increasing in pregnant women, leads to health problems for both the mother and the baby in the short and long term. In terms of the clinical practice implications, health profes-

sionals should be more sensitive in order to prevent obesity in pregnancy. They should give more importance to the antepartum care and training of obese pregnant women, be ready for risks that can be seen at the postpartum period, and be supportive of these obese mothers and their breastfeeding struggle. In addition, regarding the lack of studies in the literature about this subject, there is a need to study the complications of maternal obesity in the antepartum and postpartum periods, and on the weight that obese pregnant women should gain during pregnancy.

Ethics Committee Approval: The research was approved by the Non-invasive Clinical Research Ethics Committee of İzmir Katip Çelebi University (Date: 03.07.2014, IRB: 133) and also a written approval was given by the hospital where the study was conducted.

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

Peer-review: Externally peer-reviewed.

Author Contributions: Conceived and designed the experiments or case: NEC, FE. Performed the experiments or case: NEC, FE, EDTÖ. Analyzed the data: NEC. Wrote the paper: NEC. All authors have read and approved the final manuscript.

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REFERENCES

- World Health Organization Obesity and Overweight, 2014. Available at: <http://www.who.int/mediacentre/factsheets/fs311/en/>. Accessed February 12, 2019.
- Centers for Disease Control and Prevention NHANES, 2014. Available at: <https://www.cdc.gov/nchs/fastats/obesity-overweight.htm>. Accessed February 12, 2019.
- Daşkan Z, Kavlak O. Maternal obesity: Pregnancy complications and management of pregnant woman: Review. *Türkiye Klinikleri Journal of Nursing* 2009; 1(1): 39–46.
- Wojcicki JM. Maternal pregnancy body mass index and initiation and duration of breastfeeding: A review of the literature. *J Womens Health (Larchmt)* 2011; 20(3): 341–7. [CrossRef]
- Cheney K, Berkemeier S, Sim KA, Gordon A, Black K. Prevalence and predictors of early gestational weight gain associated with obesity risk in a diverse Australian antenatal population: a cross-sectional study. *BMC Pregnancy and Childbirth* 2017; 17(1): 296. [CrossRef]
- Nguyen CL, Nguyen PTH, Chu TK, Van Ha AVV, Pham NM, Duong DV, et al. Cohort profile: maternal lifestyle and diet in relation to pregnancy, postpartum and infant health outcomes in Vietnam: A multicenter prospective cohort study. *BMJ Open* 2017; 7(9): e016794.
- Dong B, Yu H, Wei Q, Zhi M, Wu C, Zhu X, et al. The effect of pre-pregnancy body mass index and excessive gestational weight gain on the risk of gestational diabetes in advanced maternal age. *Oncotarget* 2017; 8(35): 58364–71. [CrossRef]
- Robertson N, Ladow B. Effect of individual dietetic intervention on gestational weight gain and associated complications in obese pregnant women. *Aust N Z J Obstet Gynaecol* 2018; 58(3): 274–7. [CrossRef]
- Lindsay KL, Brennan L, Rath A, Maguire OC, Smith T, McAuliffe FM. Gestational weight gain in obese pregnancy: impact on maternal and fetal metabolic parameters and birthweight. *J Obstet Gynaecol* 2018; 38(1): 60–5. [CrossRef]
- Dodd JM, Briley AL. Managing obesity in pregnancy - An obstetric and midwifery perspective. *Midwifery* 2017; 49: 7–12. [CrossRef]
- Liu P, Xu L, Wang Y, Zhang Y, Du Y, Sun Y, et al. Association between perinatal outcomes and maternal pre-pregnancy body mass index. *Obes Rev* 2016; 17(11): 1091–102. [CrossRef]
- Axelsson D, Blomberg M. Maternal obesity, obstetric interventions and post-partum anaemia increase the risk of post-partum sepsis: a population-based cohort study based on Swedish medical health registers. *Infect Dis (Lond)* 2017; 49(10): 765–71. [CrossRef]
- Butwick AJ, Abreo A, Bateman BT, Lee HC, El-Sayed YY, Stephanson O, et al. Effect of maternal body mass index on postpartum hemorrhage. *Anesthesiology* 2018; 128(4): 774–83. [CrossRef]
- Amir LS, Donath S. A systematic review of maternal obesity and breastfeeding intention, initiation and duration. *BMC Pregnancy and Childbirth* 2007; 7: 9. [CrossRef]
- Li R, Jewell S, Grummer-Strawn L. Maternal obesity and breast-feeding practices. *Am J Clin Nutr* 2003; 77(4): 931–6. [CrossRef]
- Pinheiro TV, Goldani MZ, IVAPSA group. Maternal pre-pregnancy overweight/obesity and gestational diabetes interaction on delayed breastfeeding initiation. *PLoS One* 2018; 13(6): e0194879. [CrossRef]
- Boudet-Berquier J, Salanave B, Desenclos JC, Castetbon K. Association maternal prepregnancy obesity and breastfeeding duration: Data from a nationwide prospective birth cohort. *Matern Child Nutr* 2018; 14(2): e12507. [CrossRef]
- Donath SM, Amir LH. Maternal obesity and initiation and duration of breastfeeding: Data from the longitudinal study of Australian children. *Matern Child Nutr* 2008; 4(3): 163–70. [CrossRef]
- Grijbovski AM, Yngve A, Bygren LO, Sjöstrom M. Socio-demographic determinants of initiation and duration of breastfeeding in northwest Russia. *Acta Paediatrica* 2005; 94(5): 588–94. [CrossRef]
- Kehler HL, Chaput KH, Tough SC. Risk factors for cessation breastfeeding prior to six months postpartum among a community sample of women in Calgary Alberta. *Can J Public Health* 2009; 100(4): 376–80.
- Manios Y, Grammatikaki E, Kondaki K, Ionnou E, Anastasiadou A, Biribilis M. The effect of maternal obesity on initiation and duration of breast-feeding in Greece: the GENESIS study. *Public Health Nutr* 2008; 12(4): 517–24. [CrossRef]
- Wang J, Yang ZY, Pang XH, Duan YF, Jiang S, Zhao LY, et al. The status of postpartum weight retention and its associated factors among Chinese lactating women in 2013. [Article in Chinese]. *Zhonghua Yu Fang Yi Xue Za Zhi* 2016; 50(12): 1067–73.
- Karakaplan S, Yıldız H. A study on developing a Postpartum Comfort Questionnaire. *Maltepe University E-Journal of Nursing Science Art* 2010; 3(1): 55–65.
- Yenal K, Okumuş H. Reliability of LATCH breastfeeding assessment tool. *Turkish Journal of Nursing Research&Development in Nursing* 2003; 5(1): 38-44.
- Ramji N, Challa S, Murphy PA, Quinlan J, Crane JM. A comparison of breastfeeding rates by obesity class. *J Matern Fetal Neonatal Med* 2018; 31(22): 3021–6. [CrossRef]
- Kitsantas P, Pawloski LR. Maternal obesity, health status during pregnancy, and breastfeeding initiation and duration. *J Matern Fetal Neonatal Med* 2010; 23(2): 135–41. [CrossRef]
- McGuire W, Dyson L, Renfrew M. Maternal obesity: Consequences for children, challenges for clinicians and carers. *Semin Fetal Neonat Med* 2010; 15(2): 108–12. [CrossRef]
- Mehta US, Siega-Riz AM, Herring AH, Adair LS, Bentley ME. Maternal obesity, psychological factors, and breastfeeding initiation. *Breastfeed Med* 2011; 6(6): 369–76. [CrossRef]
- Verret-Chalifour J, Giguere Y, Forest JC, Croteau J, Zhang P, Marc I. Breastfeeding initiation: Impact of obesity in a large Canadian perinatal cohort study. *PLoS One* 2015; 10(2): e0117512. [CrossRef]
- Sebire NJ, Jolly M, Harris JP, Wadsworth J, Joffe M, Beard RW, et al. Maternal obesity and pregnancy outcome: A study of 287213 pregnancies in London. *Int J Obes Relat Metab Disord* 2001; 25(8): 1175–82.