ANKARA MEDICAL JOURNAL

Research Article

Ankara Med J, 2023;(1):105-119 // 10.5505/amj.2023.30906

THE EFFECT OF POSTNATAL EDUCATION ON BREASTFEEDING SELF-EFFICACY AND PREDICTORS OF NEWBORN WEIGHT CHANGES IN THE FIRST 10 DAYS: A PROSPECTIVE STUDY

Tuğba Güler Sönmez[1], Ebru Uğraş Tiryaki[2], Nilgün Altuntaş[3]

[1]Republic of Turkey Minister of Health, General Directorate of Public Health, Ankara
[2]Serafettin Sabuncuoğlu Family Healthcare Center, Ankara
[3]Yildirim Beyazit University, Department of Pediatrics, Division of Neonatology, Ankara

Correspondence:
Tuğba Güler Sönmez (e-mail: gulertugba@hotmail.com)

Submitted: 12.11.2022 // Accepted: 22.03.2023

Ankara Yıldırım Beyazıt University Faculty of Medicine
Department of Family Medicine

Abstract

Objectives: To investigate the role of postnatal verbal and visual education in improving breastfeeding self-efficacy (BSE) and factors effective in weight gain or loss in the first ten days.

Materials and Methods: Conducted between March-June 2020, this prospective study included a total of 145 healthy women with third-trimester pregnancies who received postpartum breastfeeding education (verbal and visual). Prenatal (pre-training) and postnatal (post-training) BSE Scale-Short Form (BSES-SF) scores, birth weights, The Edinburgh Postnatal Depression Scale and LATCH scale scores at the 10th day after birth, 10th-day newborn weight and differences in birth weight were recorded. Grouping was done according to whether or not the newborn reached birth weight at day 10 (decreased weight: DW group, same or increased weight: SIW group).

Results: Mean maternal age was similar in the DW (30.61 ± 4.72) and the SIW groups (30.47 ± 4.88). Median BSES-SF scores after training were significantly higher than before training ($p<0.001$). Multiple logistic regression analysis revealed that regular follow-up during pregnancy ($p=0.014$) and high LATCH score ($p<0.001$) were independently associated with being in the SIW group on the 10th day, whereas additional formula feeding ($p=0.006$) and high EPDS score ($p=0.004$) were independently associated being in the DW group.

Conclusion: BSE can be improved by using postnatal verbal and supervised video breastfeeding training. LATCH and EPDS scores can be used to easily identify mothers at high risk for postpartum breastfeeding problems and depression.

Keywords: Postnatal education, breastfeeding self-efficacy, infant weight change, Edinburgh Postnatal Depression Scale, LATCH scale.

Introduction

Breastfeeding supports neurological, psychomotor, social, intellectual and immunological development, reduces the incidence of neonatal complications, child mortality and morbidity, and the risk of developing many chronic diseases in later stages of life and also provides many maternal benefits.[1-3] Therefore, promoting breastfeeding and its duration and quality should be one of the most basic objectives of the relevant healthcare providers.

Various social, physical, biological and psychological factors affect breastfeeding initiation and maintenance.[3,4] Breastfeeding self-efficacy (BSE) is an important psychological factor with a strong predictive effect in this regard.[4] It reflects the mother's self-confidence about breastfeeding.[2,5] Low BSE is associated with initiating and/or continuing breastfeeding.[1,5,6] However, BSE can be improved with antenatal and postnatal interventions.[4,6,7] Two systematic reviews showed the most effective intervention is face-to-face and supervised visual breastfeeding training (BFT).[2,4]

Newborn weight gain (WG) in the first ten days is a critical factor that is closely monitored in routine follow-ups, and it is well-established that breastfeeding contributes to healthy WG. LATCH score is a breastfeeding assessment tool that has been used to assess breastfeeding practices.[8] Studies have explored various factors that are associated with WG, including LATCH score, postpartum maternal depression (PMD), duration of exclusive breastfeeding, formula versus breastfeeding, and prematurity.[8-10] Weight loss (WL) or insufficient WG in the first weeks adversely affects neurologic and cognitive development, which may also be associated with early termination of breastfeeding.[11] Thus, it is of particular importance to identify factors associated with WG and to include these in the assessment of newborn development, thereby enabling better management. However, most studies in the literature have specifically assessed a few of these possible factors and/or have evaluated weight changes in later periods.[8-10]

In this study, with the intention of contributing to breastfeeding rates in our hospital, our country and worldwide, we aimed to investigate the role of postnatal face-to-face verbal and visual education in improving BSE and to investigate whether other factors were also effective in WG or WL in the first 10 days.

Materials and Methods

Study design

This prospective observational study was conducted at a neonatology clinic during the period from March 2020 to June 2020 after taking written informed consent from all included participants. Ethical approval for this study was provided by the Research Ethics Committee of Yıldırım Beyazıt University.

Study population

A total of 145 healthy women in the third trimester of pregnancy, all of whom attended pregnancy follow-up and were scheduled for delivery at the Obstetrics and Gynecology Department of our hospital, were included in the study, given that they volunteered to participate. Since the reproductive period is considered to be between the ages of 18 and 45, women under the age of 18 and over the age of 45 were not included in our study. The exclusion criteria were as follows: Being <18 or >45 years old, having major obstetrical or medical pregnancy complications, having mental retardation or any psychiatric illness, being scheduled for or undergoing non-full-term births (gestational age <37 or ≥42 weeks) due to various reasons, delivery with abnormal birth weight (<2500 gr or >4000 gr), giving birth to a newborn with complications and/or congenital abnormality (determined by medical and clinical examinations), complicated delivery process, and lack of information regarding relevant data or in case of discrepancy.[12,13] Since each pregnancy was considered as a separate period, previous pregnancy status was not considered as an exclusion criterion.

Study procedure and data collection instruments

The study procedure consisted of 3 phases. In the first phase, related to the prenatal period, women were asked to fill out a personal information form including demographic data, socioeconomic and educational status, previous pregnancy and birth information and data about the current pregnancy. Also, all women completed the BSE Scale-Short Form (BSES-SF) at any time within the last trimester. In the second phase, conducted after delivery and before discharge, birth information and newborn weight were recorded, and the women were given BFT by nurses who are trained and certified by the ministry of health verbally and additionally by having them watch a training video about breastfeeding prepared in line with the World Health Organization (WHO) recommendation. Under the responsibility of obstetricians and obstetricians who have completed the birth preparation certificate program organized by the ministry, opened within the body of public hospitals providing pregnant school, gynecology and obstetrics services, universities and private hospitals, and in the presence of a responsible midwife, prenatal, birth preparation, delivery and delivery to the pregnant/pregnant candidate/relatives These are the units that provide training and consultancy services for the post-secondary period.[14] Then, they were asked to fill out the BSES-SF again. The discharge was scheduled as follows: if there was no contraindication, those with normal vaginal delivery were discharged 24 hours after delivery, and those with cesarean section delivery were discharged 48 hours after delivery. As a rule of thumb, newborns usually lose 10.00% of their birth weight in the first week after birth and are expected to reach their birth weight by

10 to 14 days after birth under normal conditions.[15] At the third phase (i.e., on the 10th-day follow-up after birth), the newborn weight was measured, and the feeding features data were recorded. The mothers were asked to complete the LATCH Breastfeeding Diagnostic Tool and The Edinburgh Postnatal Depression Scale (EPDS).

The mothers were divided into two groups, "the decreased weight (DW)" group and "the same or increased weight (SIW)" group, as a result of the comparison of their weight measured on the 10th day and their birth weight. Healthy babies were called for control on the 10th day by the hospital for routine control.

The Breastfeeding Self-Efficacy Scale-Short Form

The BSES-SF is a reliable measure to assess BSE. The scale is a self-reported tool and consists of 14 items, each of which grades the mother's self-confidence level on a subject from 1 to 5. The lowest score of 14 indicates that the mother is not at all confident about breastfeeding, while the highest score of 70 indicates that she is perfectly confident about breastfeeding.[5]

The Edinburgh Postnatal Depression Scale

The EPDS, a self-reported depression scale, is used for identifying postpartum maternal depression (PMD). The Edinburgh Postnatal Depression Scale was first developed (1987) by Scottish health centers in Edinburgh and Livingston, and it is still up to date. It consists of 10 questions, and each scored between 0-3. Higher scores represent an increased risk of PMD. In this study, we used the cut-off value of ≥13 as the value that corresponds to a high risk for major postpartum depression.[16,17]

LATCH Breastfeeding Diagnostic Tool

It was developed by Jensen and Wallace (1994), and it is still up to date. The LATCH is a charting system developed to gather information about individual breastfeeding sessions, in which five criteria are evaluated (L: Latch on breast, A: Audible swallowing, T: Type of nipple, C: Comfort breast/nipple, H: Hold/help). Each criterion is scored as 0, 1, or 2 points. Zero points indicate the worst quality of breastfeeding, and 10 points the best.[18]

Outcomes

The primary aim of the study was to investigate the effect of postnatal breastfeeding education on BSE. The secondary aim was to investigate the most powerful predictors of weight change in the first 10-day period.

Statistical Analysis

All analyses were performed on IBM SPSS Statistics for Windows, Version 25.0 (IBM Corp., Armonk, NY, USA), and significance was set at $p < 0.05$. The normality of distribution for continuous data was determined with the Shapiro-Wilk test. According to the results, mean ± standard deviation (normal distribution) or median and first quartile – third quartile values (non-normal distribution) were used to summarize data. Frequency (percentage) was used for categorical variables. Repeated measurements were analyzed with the paired samples t-test (normal distribution), or the Wilcoxon signed ranks test (non-normal distribution). Between groups, analysis of continuous variables was performed with the independent samples t-test (normal distribution) or the Mann-Whitney U test (non-normal distribution). Between groups, analysis of categorical variables was performed with chi-square tests or Fisher's exact test. Multiple logistic regression analysis (forward conditional) was performed to determine factors independently associated with the weight change on the 10th day.

Results

The mean age of the mothers was 30.51 ± 4.82 years. The mean weights of newborns at day 10 were significantly higher than the mean birth weights ($p<0.001$). The BSES-SF score of 141 (97.24%) women increased, 3 (2.06%) remained the same, and 1 (0.69%) decreased following training. Median post-training BSES-SF scores were significantly higher than pre-training scores ($p<0.001$) (Table 1, Table 2).

Table 1. Descriptive Data

Age (mean±SD)	30.51 ± 4.82
Education status [**n** (%)]	
Primary school	19 (13.10%)
Secondary school	36 (24.83%)
High school	58 (40.00%)
University	32 (22.07%)
Occupation [**n** (%)]	
Public service (government employee)	21 (14.48%)
Worker (labor)	10 (6.90%)
Housewife	114 (78.62%)
Economic status [**n** (%)]	
Poor	3 (2.07%)
Moderate	101 (69.66%)
Good	41 (28.28%)
Health insurance	145 (100.00%)
Adult (other than husband) living at home	11 (7.59%)

(Data are given as mean ± standard deviation and as frequency (percentage) for categorical variables.)

Table 2. Obstetric History Data

Number of children	
1	20 (13.79%)
2	95 (65.52%)
3	23 (15.86%)
4	7 (4.83%)
Abortion/Curettage	48 (33.10%)
Exclusive breastfeeding for six months [1]	84 (67.20%)
Duration of breastfeeding, months [1,2]	14 (9 - 20)
Regular follow-up during pregnancy	138 (95.17%)
Attending a "pregnancy school"	24 (16.55%)
Type of birth	
Vaginal	60 (41.38%)
Cesarean section	85 (58.62%)
Planned pregnancy	108 (74.48%)
Gestational week at birth	39 (38 - 40)
Stay in the neonatal intensive care unit	22 (15.17%)
Whom do you ask for advice in the presence of breastfeeding problems? [3]	
Family/Friends	42 (28.97%)
Family health center nurse	75 (51.72%)
Family physician	11 (7.59%)
Obstetrician and gynecologist	4 (2.76%)
Pediatrician	23 (15.86%)
Breastfeeding polyclinic	50 (34.48%)
Paid breastfeeding consultant	0 (0.00%)
Who do you apply to for nipple problems? [3]	
Family/Friends	48 (33.10%)
Family health center nurse	18 (12.41%)
Family physician	57 (39.31%)
Obstetrician and gynecologist	22 (15.17%)
Pediatrician	18 (12.41%)
Breastfeeding polyclinic	7 (4.83%)
Paid breastfeeding consultant	0 (0.00%)
Weight, g	
At birth	3347.54 ± 390.67
10th day	3460.14 ± 412.54
Change in weight	
Decreased	41 (28.28%)
Same	2 (1.38%)
Increased	102 (70.34%)
Feeding other than breast milk	
Water	0 (0.00%)
Formula	36 (24.83%)
Other	0 (0.00%)
Who advised other feedings? [4]	
Family	7 (19.44%)
Friend	1 (2.78%)
Physician	28 (77.78%)
The Breastfeeding Self-Efficacy Scale score	
Before training	56 (49 - 60)
After training	62 (58 - 65)
The Edinburgh Postnatal Depression Scale score	2 (0 - 7)
Postpartum depression (≥13 points)	12 (8.28%)
LATCH score	10 (9 - 10)

(Data are given as mean ± standard deviation or median (1st quartile - 3rd quartile) for continuous variables according to normality of distribution and as frequency (percentage) for categorical variables.)

[1] Data are collected for children from earlier pregnancies. 20 mothers who had first child are not included into the assessment.

[2] Median values are used for multiple children.

[3] Participants are allowed to choose multiple options.

[4] Only 36 mothers who gave formula to their child included into the assessment.

ANKARA MEDICAL JOURNAL

Table 3. Summary of variables and analysis results with regard to weight gain categories on the 10th day

	Change in weight		
	Decreased (n=41)	Same & Increased (n=104)	p
Age	30.61 ± 4.72	30.47 ± 4.88	0.877
Education status			
Primary school	4 (9.76%)	15 (14.42%)	**0.028**
Secondary school	16 (39.02%)	20 (19.23%)	
High school	17 (41.46%)	41 (39.42%)	
University	4 (9.76%)	28 (26.92%)	
Occupation			
Public service (government employee)	6 (14.63%)	15 (14.42%)	0.280
Worker (labor)	5 (12.20%)	5 (4.81%)	
Housewife	30 (73.17%)	84 (80.77%)	
Number of children			
1	10 (24.39%)	10 (9.62%)	**0.040**
2	20 (48.78%)	75 (72.12%)	
3	8 (19.51%)	15 (14.42%)	
4	3 (7.32%)	4 (3.85%)	
Abortion/Curettage	15 (36.59%)	33 (31.73%)	0.716
Economic status			
Poor	1 (2.44%)	2 (1.92%)	**0.026**
Moderate	35 (85.37%)	66 (63.46%)	
Good	5 (12.20%)	36 (34.62%)	
Adult (other than husband) living at home	6 (14.63%)	5 (4.81%)	0.075
Regular follow-up during pregnancy	36 (87.80%)	102 (98.08%)	**0.020**
Attending a "pregnancy school"	2 (4.88%)	22 (21.15%)	**0.033**
Type of birth			
Vaginal	12 (29.27%)	48 (46.15%)	0.095
Cesarean	29 (70.73%)	56 (53.85%)	
Planned pregnancy	29 (70.73%)	79 (75.96%)	0.661
Gestational week at birth	39 (38 - 39)	39 (38 - 40)	0.633
Stay in the neonatal intensive care unit	11 (26.83%)	11 (10.58%)	**0.028**
Addition of formula feeding	22 (53.66%)	14 (13.46%)	**<0.001**
The Breastfeeding Self-Efficacy Scale score			
Before training	53 (48 - 58)	57 (51 - 60)	**0.013**
After training	58 (54 - 62)	63 (60 - 65)	**<0.001**
The Edinburgh Postnatal Depression Scale score	8 (2 - 12)	0.5 (0 - 4.5)	**<0.001**
Postpartum depression (≥13)	7 (17.07%)	5 (4.81%)	**0.038**
LATCH score	9 (7 - 10)	10 (10 - 10)	**<0.001**

(Data are given as mean ± standard deviation or median (1st quartile - 3rd quartile) for continuous variables according to the normality of distribution and as frequency (percentage) for categorical variables)

There was no significant difference between the mean age of the DW group (30.61 ± 4.72) and the SIW group (30.47 ± 4.88) (p = 0.877). The percentage of women with university degrees (p = 0.028), who had two children (p = 0.040), had a good economic status (p = 0.026), attended regular obstetric follow-up (p = 0.020), and attended a "pregnancy school" (p = 0.033) was significantly higher in the SIW group. A pregnancy school is a place planned by the Ministry of Health and organized by provincial health directorates, where pregnant women are informed collectively and as standard by certified nurses/doctors. The percentage of women with

secondary school degrees (p = 0.028), whose babies were admitted to the neonatal intensive care unit (NICU) (p = 0.028) and who fed formula (in addition to breastfeeding) (p < 0.001) were higher significantly in the DW group. Both pre-training (p = 0.013) and post-training (p < 0.001) BSES-SF scores and LATCH scores (p < 0.001) of the SIW group were significantly higher than the DW group. Both the median EPDS score (p < 0.001) and the percentage of women who were diagnosed with PMD (p = 0.038) were significantly higher in the DW group (Table 3).

Multiple logistic regression analysis revealed that regular follow-up during pregnancy (p = 0.014) and high LATCH score (p < 0.001) were independently associated with being in the SIW group, while additional formula feeding (p = 0.006) and high EPDS score (p = 0.004) were independently associated with being in the DW group (Table 4). Other variables included in the analysis, such as education (p = 0.144), number of children (p=0.665), economic status (p = 0.109), attending pregnancy school (p = 0.134), stay in NICU (p = 0.685), BSES-SF scores before training (p = 0.691) and after training (p = 0.252) and PMD (p = 0.135), which were found to be non-significant.

Table 4. Significant factors independently associated with the weight gain category on the 10th day, multiple logistic regression

	β coefficient	Standard error	p	OR	95% CI for OR	
Regular follow-up during pregnancy	2.687	1.091	**0.014**	14.694	1.732	124.679
Addition of formula feeding	-1.519	0.555	**0.006**	0.219	0.074	0.649
Edinburgh Postnatal Depression Scale score	-0.159	0.055	**0.004**	0.853	0.766	0.950
LATCH score	1.188	0.282	**<0.001**	3.281	1.889	5.698

(CI: Confidence Interval, OR: Odds Ratio, Dependent variable: Same & Increased weight on 10th day, Nagelkerke R^2=0.558)

Discussion

Breastfeeding success and WG in the first weeks of life are two factors having a reciprocal relationship, and abnormalities in these may have negative effects during infancy and later life.[1,2,11] Therefore, we aimed to show the effect of breastfeeding education on BSE and the most important factors associated with newborn weight changes in the first ten days. As a result, postpartum BFT significantly improved BSES-SF scores. Regular follow-up during pregnancy and high LATCH score were the most important predictors of WG (or weight stability); whereas formula feeding and high EPDS score were the most important predictors of WL in the first ten days.

Knowledge, self-efficacy and intention on breastfeeding, maternal age, occupation and parity have been identified as factors significantly related to breastfeeding duration and exclusivity.[3] The theory of BSE hypothesizes that BSE findings are associated with the mother's thoughts about breastfeeding and her effort to breastfeed and that these effects influence the initiation and maintenance of breastfeeding.[19] This theory has been supported by various studies.[7,20] In the literature, viewing images portraying breastfeeding, receiving professional help, the mother's age and occupation, social support, skin-to-skin contact with the baby and previous breastfeeding experience have been presented as factors affecting BSE.[3,21] In this study, we showed postpartum verbal breastfeeding education and supervised visual video training caused significant positive changes in BSES-SF scores. Although many studies have shown that BFT improves BSE, two reviews showed that face-to-face training was more effective in improving BSES scores than other types of interventions.[2,4,6,7,20] Our results support these reviews' results. Implementation of antenatal and/or postnatal face-to-face and/or video-assisted BFT to improve BSE may increase breastfeeding prevalence and duration.

Improving BSE may increase breastfeeding success. In this study, we did not conduct research on breastfeeding outcomes; therefore, we could not demonstrate the effect of improvement in the BSES-SF score on breastfeeding outcomes. However, pre- and post-training BSES-SF scores were not identified as predictors of weight status. In a review aiming to reveal the theoretical link between BSE and breastfeeding rates, it was concluded that BSE-improving interventions, especially those focused on education, increase breastfeeding rates at 1 and 2 months postpartum.[2] Pregnant women with low confidence in their ability to breastfeed are more likely to stop breastfeeding before two weeks postpartum, and women with high BSE are more successful at initiating and maintaining breastfeeding.[22] However, the relationship between the BSES score and weight changes in the early stages of life is unclear. Clarifying the relationship between BSE and weight changes may contribute to the creation of new systems demonstrating the relationship between BSE, breastfeeding success and weight changes in the first weeks of life more successfully.

The most basic goal of infant feeding is sufficient WG within the specified time periods. Adequate WG is directly related to the adequate amount of breast milk and delivery of this milk to the child.[23] The LATCH scale determines a breastfeeding quality score that is a combination of the child's and mother's abilities.[18] There is a significant relationship between average LATCH scores and the time of breastfeeding initiation.[23] We determined the 10th-day LATCH score as an independent factor for WG in the first ten days. Similar to this result, in a prospective study, a high LATCH score at discharge was significantly positively associated with both exclusive breastfeeding rate and WG velocity at six weeks of age, although our weight assessment was in a different period.[8] Moreover, the median LATCH score was 10 in the current study, which is higher than previously reported.[23] This may be a result of BFT, but further studies with control groups are needed to draw definitive conclusions. Breastfeeding discontinuation rates are highest in the first month after birth.[8] Thus, it is critical to identify breastfeeding problems and mothers who will need professional support in the early

postpartum period.[8] The literature shows that the LATCH scale, an easily applicable and reliable system, can help prevent early cessation of breastfeeding by detecting mothers having breastfeeding problems and also taking precautions for the risk of WL.[23]

In the present study, 8.28% of mothers were at high risk for major postpartum depression. Also, the EPDS score was an independent risk factor associated with lower WG in the first ten days of life. Wright et al. reported that the mothers of infants with slower WG and increased rates of weight faltering up to 4 months had higher EPDS scores.[9] In yet another study, the depressed mood of the mothers was found to be associated with reduced infant WG.[11] The negative effect of depression on infant WG has been explained by several pathophysiological mechanisms.[9,11,21] It is even possible that in this mechanism, depression is a result rather than a cause.[9,11] Moreover, PMD can reduce BSE.[21,24] We also want to emphasize that the rate of PMD in some other studies is higher than in the current study. There are several possible reasons for this.[9,24] The first may be that the EPDS in this study was applied at an earlier period. Secondly, the improvement in BSE provided by postnatal BFT and the highly likely positive effects of this improvement on breastfeeding may have positively affected EPDS scores. Finally, the variation in the frequency of PMD between countries and cultures may be another reason.[25] Due to these negative effects of PMD on breastfeeding success and WG, taking precautions for factors known to increase the risk of PMD and determining the risk of PMD and initiating the necessary treatments will be very beneficial for both the newborn and the mother.[24]

Many other factors also affect adequate milk intake and, so, adequate WG. Maternal socio-demographic features, time of breastfeeding initiation, baby's ability to suckle, breastfeeding technique and frequency, and breast and maternal-related factors are among these factors.[23,26] In this study, regular follow-up, LATCH score, formula use and EPDS score were the only factors independently associated with weight change. It would not be wrong to think that parents who have regular follow-ups are more conscious in terms of feeding and growth of their babies, and they could also be more likely to closely administer knowledge gained through training. Surprisingly, formula use was an independent predictor of reduced weight. It is expected that formula-fed infants gain more weight and be less likely to lose weight than solely breastfed infants.[10,27] However, an experimental study showed mothers feeding their babies only with breastmilk had higher postpartum BSES scores than those using formula. So, the indirect effects of formula over BSE may have adversely affected early WG. Also, the type of formula used and the amount of administration may be other factors to consider. Therefore, although our study shows that the addition of formula to breastfeeding is associated with being in the DW group, it is imperative that this result is interpreted with respect to the aforementioned factors that could influence the success of both formula feeding and breastfeeding, new and extensive studies are needed.

The possible limitations of the study were as follows. As a single-center study that included only healthy pregnant women and full-term and normal birth weight pregnancies, there is a considerable limitation

regarding the generalization of the results. Each pregnancy period of the individuals was evaluated separately, but the first pregnancy and subsequent pregnancies may differ in every aspect after the first pregnancy experience. The effect of postnatal education on only BSE was investigated. An untrained control group was not included. Of note, we also did not assess results with respect to absolute or relative WG but rather dichotomized patients as DW or SIW. Although this may be seen as a limitation, this dichotomization is based on well-established follow-up criteria for newborns. The effects of possible other factors on infant weight change were not investigated. Finally, the study presented results for only the first ten days of life, not longer-term results.[23,26,28-30]

In conclusion, significant improvement was observed in BSES-SF scores after training. Regular follow-up during pregnancy and high LATCH score were found to be independently associated with reaching sufficient WG, whereas high EPDS scores and formula use (in addition to breastfeeding) were found to be independently associated with insufficient WG during the examined period (birth to 10 days). BSE can be improved by using postnatal verbal and supervised video BFTs, thus contributing positively to breastfeeding outcomes. LATCH score and EPDS score can be used to easily identify mothers at high risk for postpartum breastfeeding problems and depression and can enable measures to prevent insufficient WG and other related risks. Further large-scale studies are needed for the classification of early WL, assessment of the effect of additional formula use, and utilization of regular follow-up during pregnancy.

Ethical Considerations: Ethical approval for this study was provided by the Research Ethics Committee of Yıldırım Beyazıt University (Date: 05/02/2020, approval No: 28).

Conflict of Interest: The authors declare no conflict of interest.

References

1. Abuidhail J, Mrayan L, Jaradat D. Evaluating effects of prenatal web-based breastfeeding education for pregnant mothers in their third trimester of pregnancy: Prospective randomized control trial. Midwifery 2019;69:143-9 (doi:10.1016/j.midw.2018.11.015).
2. Brockway M, Benzies K, Hayden KA. Interventions to Improve Breastfeeding Self-Efficacy and Resultant Breastfeeding Rates: A Systematic Review and Meta-Analysis. J Hum Lact 2017;33(3):486-99 (doi:10.1177/0890334417707957).
3. Joshi A, Amadi C, Meza J, Aguire T, Wilhelm S. Evaluation of a computer-based bilingual breastfeeding educational program on breastfeeding knowledge, self-efficacy and intent to breastfeed among rural Hispanic women. Int J Med Inform 2016;91:10-9 (doi:10.1016/j.ijmedinf.2016.04.001).
4. Ghasemi V, Simbar M, Banaei M, Saei Ghare Naz M, Jahani Z, Nazem H. The effect of interventions on breastfeeding self-efficacy by using Bandura's theory in Iranian mothers: A systematic review. Int J Pediatr 2019;7(8):9939-54 (doi:10.22038/ijp.2019.40842.3446).
5. Brandão S, Mendonça D, Dias CC, Pinto TM, Dennis CL, Figueiredo B. The breastfeeding self-efficacy scale-short form: Psychometric characteristics in Portuguese pregnant women. Midwifery 2018;66:49-55 (doi:10.1016/j.midw.2018.07.014).
6. Ansari S, Abedi P, Hasanpoor S, Bani S. The Effect of Interventional Program on Breastfeeding Self-Efficacy and Duration of Exclusive Breastfeeding in Pregnant Women in Ahvaz, Iran. Int Sch Res Notices 2014;2014:510793 (doi:10.1155/2014/510793).
7. Chan MY, Ip WY, Choi KC. The effect of a self-efficacy-based educational programme on maternal breast feeding self-efficacy, breast feeding duration and exclusive breast feeding rates: A longitudinal study. Midwifery 2016;36:92-8 (doi:10.1016/j.midw.2016.03.003).
8. Shah MH, Roshan R, Parikh T, Sathe S, Vaidya U, Pandit A. LATCH Score at Discharge: A Predictor of Weight Gain and Exclusive Breastfeeding at 6 Weeks in Term Healthy Babies. J Pediatr Gastroenterol Nutr 2021;72(2):e48-e52 (doi:10.1097/mpg.0000000000002927).
9. Wright CM, Parkinson KN, Drewett RF. The influence of maternal socioeconomic and emotional factors on infant weight gain and weight faltering (failure to thrive): data from a prospective birth cohort. Arch Dis Child 2006;91(4):312-7 (doi:10.1136/adc.2005.077750).
10. Hester SN, Hustead DS, Mackey AD, Singhal A, Marriage BJ. Is the macronutrient intake of formula-fed infants greater than breastfed infants in early infancy? J Nutr Metab 2012;2012:891201 (doi:10.1155/2012/891201).
11. Hart SL, Jackson SC, Boylan LM. Compromised weight gain, milk intake, and feeding behavior in breastfed newborns of depressive mothers. J Pediatr Psychol 2011;36(8):942-50 (doi:10.1093/jpepsy/jsr031).

12. Crump C. Preterm birth and mortality in adulthood: A systematic review. J Perinatol 2020;40(6):833-43 (doi:10.1038/s41372-019-0563-y).
13. Knop MR, Geng TT, Gorny AW, Ding R, Li C, Ley SH, et al. Birth weight and risk of type 2 diabetes mellitus, cardiovascular disease, and hypertension in adults: a meta-analysis of 7 646 267 participants from 135 studies. Journal of the American Heart Association 2018;7(23):e008870 (doi:10.1038/s41372-019-0563-y).
14. WHO. Indicators for Assessing Infant and Young Child Feeding Practices-Part I –Definitions. Geneva: World Health Organization; 2008.
15. Ditomasso D, Cloud M. Systematic Review of Expected Weight Changes After Birth for Full-Term, Breastfed Newborns. J Obstet Gynecol Neonatal Nurs 2019;48(6):593-603 (doi:10.1016/j.jogn.2019.09.004).
16. Fellmeth G, Opondo C, Henderson J, Redshaw M, Mcneill J, Lynn F, et al. Identifying postnatal depression: Comparison of a self-reported depression item with Edinburgh Postnatal Depression Scale scores at three months postpartum. J Affect Disord 2019;251:8-14 (doi:10.1016/j.jad.2019.03.002).
17. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. Br J Psychiatry 1987;150:782-6 (doi:10.1192/bjp.150.6.782).
18. Jensen D, Wallace S, Kelsay P. LATCH: a breastfeeding charting system and documentation tool. J Obstet Gynecol Neonatal Nurs 1994;23(1):27-32 (doi:10.1111/j.1552-6909.1994.tb01847.x).
19. Dennis CL, Faux S. Development and psychometric testing of the Breastfeeding Self-Efficacy Scale. Res Nurs Health 1999;22(5):399-409 (doi:10.1002/(sici)1098-240x(199910)22:5<399::aid-nur6>3.0.co;2-4).
20. Awano M, Shimada K. Development and evaluation of a self care program on breastfeeding in Japan: A quasi-experimental study. Int Breastfeed J 2010;5:9 (doi:10.1186/1746-4358-5-9).
21. Ngo LTH, Chou HF, Gau ML, Liu CY. Breastfeeding self-efficacy and related factors in postpartum Vietnamese women. Midwifery 2019;70:84-91 (doi:10.1016/j.midw.2018.12.014).
22. Lessa A, Garcia AL, Emmett P, Crozier S, Robinson S, Godfrey KM, et al. Does early introduction of solid feeding lead to early cessation of breastfeeding? Matern Child Nutr 2020;16(4):e12944 (doi:10.1111/mcn.12944).
23. Gerçek E, Sarıkaya Karabudak S, Ardıç Çelik N, Saruhan A. The relationship between breastfeeding self-efficacy and LATCH scores and affecting factors. J Clin Nurs 2017;26(7-8):994-1004 (doi:10.1111/jocn.13423).
24. Sahin BM. The relationship between breastfeeding self-efficacy and depression in the early postpartum period in Turkey. Int J Caring Sci 2019;12(2):729-36.
25. Arifin SRM, Cheyne H, Maxwell M. Review of the prevalence of postnatal depression across cultures. AIMS Public Health 2018;5(3):260-95 (doi:10.3934/publichealth.2018.3.260).
26. Sparks PJ. Rural-urban differences in breastfeeding initiation in the United States. J Hum Lact 2010;26(2):118-29 (doi:10.1177/0890334409352854).

27. Miller JR, Flaherman VJ, Schaefer EW, Kuzniewicz MW, Li SX, Walsh EM, et al. Early weight loss nomograms for formula fed newborns. Hosp Pediatr 2015;5(5):263-8 (doi:10.1542/hpeds.2014-0143).
28. Gunnarsdottir I, Schack-Nielsen L, Michaelsen KF, Sørensen TI, Thorsdottir I. Infant weight gain, duration of exclusive breastfeeding and childhood BMI–two similar follow-up cohorts. Public Health Nutr 2010;13(2):201-7 (doi:10.1017/S1368980009005874).
29. Yeşilçiçek Çalık K, Ayar Kocatürk A, Gönenli S. Normal doğum yapan primipar annelerin erken doğum sonu dönemde emzirme başarısı ve etkileyen faktörler. Sürekli Tıp Eğitimi Dergisi 2019;3(28):191-200. (doi:10.17942/sted.448325).
30. Yenal K, Tokat M, Ozan Y, Çeçe Ö, Abalın F. Annelerin emzirme öz-yeterlilik algıları ile emzirme başarıları arasındaki ilişkinin incelenmesi. Hemşirelikte Eğitim ve Araştırma Dergisi 2013;10(2):14-9.