ORIGINAL ARTICLE

https://doi.org/10.1590/1806-9282.20230217

The effect of postnatal breastfeeding education given to women on breastfeeding self-efficacy and breastfeeding success

Nur Bahar Kuru Aktürk[1], Merve Kolcu[2]*

SUMMARY

OBJECTIVE: This study was conducted to determine the effect of postnatal breastfeeding education given to women who had normal vaginal and cesarean delivery on breastfeeding self-efficacy and breastfeeding success.

METHODS: This is a pretest-posttest randomized controlled quasi-experimental study. This study included 76 women (38 intervention group and 38 control group) who gave birth in a women's and children's diseases training and research hospital.ClinicalTrials.gov Identifier: NCT 05666817. The data were collected by means of the introductory information form, breastfeeding knowledge level diagnosis form, LATCH scale, and postnatal self-efficacy scale. In the evaluation of the data, independent group t-tests and dependent group t-tests were used.

RESULTS: Research findings indicate that the women's breastfeeding knowledge level, LATCH scale, and postnatal breastfeeding self-efficacy scale scores were statistically higher than the control group in the post-test ($p<0.05$).

CONCLUSION: It was found by the researchers that postnatal breastfeeding education is effective in increasing the level of breastfeeding knowledge, breastfeeding success, and breastfeeding self-efficacy.

KEYWORDS: Breastfeeding. Education. Self efficacy. Women.

INTRODUCTION

The World Health Organization (WHO) recommends that babies be exclusively breastfed for the first six months and breastfed until at least two years of age[1]. In the report prepared within the scope of the WHO and UNICEF Global Breastfeeding Collective, the breastfeeding rates of 194 countries were evaluated; only 44% of babies were exclusively breastfed in the first 6 months, 68% of babies were breastfed until the age of 1 year, and 44% of babies were breastfed until the age of two. It is planned by WHO and UNICEF that the rate of exclusive breastfeeding throughout the world will be above 70% by 2030[2].

Breastfeeding self-efficacy shows the mother's belief that she can breastfeed her child, the effort she can put in, her thoughts on breastfeeding, the mother's belief in herself, and her perceived ability[3]. The concerns of mothers about whether they can breastfeed effectively, whether their milk is sufficient, and how they feel about breastfeeding may affect breastfeeding self-efficacy. In the studies carried out, it has been found that breastfeeding education given to women face-to-face, beginning during pregnancy and continuing after childbirth, increases the perception of breastfeeding self-efficacy[4-6].

Breastfeeding success is an interactive process that allows mother and child to mutually meet each other's needs[7]. In addition to the physical well-being of the mother, it is very important for her to be psychologically ready to breastfeed and to start breastfeeding early after childbirth in order to ensure breastfeeding success[8].

According to the WHO's data, it has been reported that mothers who received breastfeeding education started breastfeeding earlier in the postpartum period, breastfed their babies for a longer period of time, and had higher breastfeeding success than mothers who did not receive education[2]. In the literature, there are studies that have reached positive results on breastfeeding self-efficacy and breastfeeding success by providing breastfeeding education to mothers in the prenatal and postpartum period[9-11]. Although mothers receive prenatal breastfeeding education about potential problems in breastfeeding and the initiation and continuation of breastfeeding, they also need breastfeeding education in the postpartum period because they encounter these problems after giving birth.

Therefore, this study was conducted to determine the effect of postnatal breastfeeding education given to women who had

[1]Istanbul Arel University, Faculty of Health Sciences, Department of Nursing – Istanbul, Turkey.
[2]University of Health Sciences, Hamidiye Faculty of Nursing, Department of Public Health Nursing – Istanbul, Turkey.
*Corresponding author: merve.kolcu@sbu.edu.tr

Conflicts of interest: the authors declare there is no conflicts of interest. Funding: none.
Received on May 25, 2023. Accepted on May 27, 2023.
This article was presented in 2023 as a Master's Thesis in the Department of Public Health Nursing at the Health Sciences University-Turkey Health Sciences Institute

normal vaginal and cesarean delivery on breastfeeding self-efficacy and breastfeeding success. The research hypotheses are:

H1a: The breastfeeding success of women in the intervention group is higher than that of the control group.

H1b: The breastfeeding self-efficacy of women in the intervention group is higher than that of the control group.

METHODS

This study was carried out based on a pretest-posttest randomized controlled quasi-experimental design in a women's and children's diseases training and research hospital in Istanbul between October 2021 and January 2022. The study was conducted with the ethics committee's approval (Date: 05.08.2021; Decision No. E.143) and in line with the principles of the Declaration of Helsinki.

For the sample size, a power analysis was performed by considering the monthly number of normal vaginal and cesarean deliveries in the postpartum care unit. In the pretest-posttest quasi-experimental research conducted by Özgüneş in the related literature, the effect size was calculated as 0.86[12]. In order to exceed the 95% value in calculating the power of the study, it was found that 76 women, including 38 interventions and 38 controls, should be reached in the study at a 5% significance level and a 0.86 effect size. In accordance with these criteria, the women participating in the study were randomly determined in such a way that the odd numbers formed the control group and the even numbers formed the intervention group, respectively. The mothers who volunteered to participate in the study were between the ages of 18 and 40, were literate, could read and understand Turkish, had no hearing, speech, or vision impairment, had a normal or cesarean delivery, and had healthy babies. Recommendations from the CONSORT group (Consolidated Standards of Reporting Trials) were followed in this study. This study is registered in The ClinicalTrials.gov Protocol Registration and Results System (PRS) ID: NCT 05666817.

As data collection tools, introductory information form, breastfeeding knowledge level diagnosis form, LATCH scale, and postnatal self-efficacy scale were used. Introductory information form developed by researchers in line with their knowledge of the literature consists of 12 questions in total. Breastfeeding knowledge level diagnosis form: In order to measure the effectiveness of breastfeeding, an expert opinion was obtained before the application for this form was prepared by the researchers in line with the literature, and after the preliminary application, it was rearranged and the final version was created[12]. This form consists of 15 questions about the breastfeeding initiation time, breast milk storage conditions, breastfeeding positions, duration and frequency of breastfeeding, and general information about breastfeeding and breast milk. Each question has three options: yes, no, and I don't know. 1 point is given for each correct answer, and 0 points are given for the incorrect or I don't know answer. The highest total score that can be obtained from the form is 15. Breastfeeding Assessment Tool (LATCH): The scale consists of five criteria. Each of the criteria is evaluated as "0, 1, 2" points. The maximum score that can be obtained is 10, and a high score on the assessment scale indicates that breastfeeding success is high. The Cronbach's alpha reliability coefficient of the original scale was calculated as 0.93. However, in this study, the Cronbach's alpha reliability coefficient of the scale was calculated as 0.74. Postnatal Self-Efficacy Scale: The scale assesses how competent mothers feel about breastfeeding. The 14-item scale includes a 5-point Likert-type scale consisting of "I'm not sure at all: 1, I'm not very sure: 2, Sometimes I'm sure: 3, I'm sure: 4, I'm very sure: 5." The minimum score that can be attained on the scale is 14, and the maximum score is 70. In this study, the postnatal form was applied. The reliability coefficient of the scale was calculated as 0.80 in this study.

Intervention

Data were collected from the mothers participating in the study through face-to-face interviews twice, as a pre-test and a post-test. In the pre-test, the introductory information form, breastfeeding knowledge level diagnosis form, LATCH scale, and postnatal self-efficacy scale were used. In the post-test, the breastfeeding knowledge level diagnosis form, LATCH scale, and postnatal self-efficacy scale were applied.

Within the scope of the research, breastfeeding education was given to mothers in the intervention group in the room where they stayed in the form of a straight narration supported by a puppet and amigurumi breast. The question-and-answer method was used after education. In addition, in order to evaluate whether the mother understood the breastfeeding education after its completion, the mother demonstrated the practices (the way of holding the child, grasping the breast, positioning the child appropriately, and the process of milking and storing breast milk) described by the researcher.

Statistical analysis

The data obtained in the study were analyzed using the SPSS 25.0 (Statistical Package for Social Science) program. Number, percentage, mean, and standard deviation were used as descriptive statistical methods in the evaluation of the data. The differences between sociodemographic and descriptive variables in independent groups were analyzed with chi-square and Fisher's

exact tests. In the examination of the differentiation of the scale scores according to the groups, the independent groups t-test was used, and in the examination of the variation between the pre-test and post-test measurements of the scales within the groups, the dependent groups t-test analyses were used.

RESULTS

The average age of the women participating in the study was 30.82±4.95 years. The intervention and control groups were found to be similar in terms of their descriptive characteristics (Table 1) ($p>0.05$).

In the post-test, the total breastfeeding knowledge level diagnosis form, LATCH scale, and postnatal breastfeeding self-efficacy scale total scores of women in the intervention group were found to be significantly higher than the control group (t^b=-12.310, $p<0.001$; t^b=-7.255, $p<0.001$; t^b=-10.170, $p<0.001$, respectively) (Table 2).

In Table 3, the relationship between the breastfeeding knowledge level diagnosis form, LATCH scale scores, and postnatal breastfeeding self-efficacy scales is given. There is a moderate positive correlation between the LATCH scale pre-test score and LATCH scale post-test score ($r=0.685$, $p<0.001$); a weak positive correlation between the breastfeeding knowledge level diagnosis form pre-test score and postnatal breastfeeding self-efficacy scale post-test score ($r=0.252$, $p<0.05$); a strong positive correlation between the postnatal breastfeeding self-efficacy scale pre-test score and postnatal breastfeeding self-efficacy scale post-test score ($r=0.705$, $p<0.001$); and a weak positive correlation between the postnatal breastfeeding self-efficacy scale post-test score and breastfeeding knowledge level diagnosis form post-test score ($r=0.427$, $p<0.001$) (Table 3).

DISCUSSION

The results of the study revealed that postnatal breastfeeding education given by nurses to women who had normal vaginal and cesarean delivery can increase breastfeeding knowledge level, breastfeeding success, and breastfeeding self-efficacy.

The average age of the women was 30.82±4.95 years in this study. Wang et al. found the average age of women to be 31.3±4.9 years, Gao et al. 31.26±4.22 years, and Magnazi et al. 32.55±4.2 years in their studies. The reason for this difference is thought to be due to the low rate of primiparous women participating in our study[13-15].

In this study, we concluded that 60.5% of the women in the intervention group and 55.3% of the women in the control group had a cesarean delivery. Minharro et al. determined that 52.6% of women and Ergezen et al. determined that 68.6% of women gave birth by cesarean section[10,16]. The research findings show similarities with our research. It is believed that the high rate of cesarean delivery in this study is due to the fact that the study was conducted in a training and research hospital where risky pregnancies were referred. The fact that the rate of cesarean section is above the 10–15% target determined by WHO is considered a sign that prenatal information and efforts to encourage normal birth should be increased[1].

In the study, it was determined that 18.4% of the women in the intervention group received prenatal breastfeeding education, and all of those who received breastfeeding education received it from a nurse. Muda et al. found in their study that 26.3% of women received breastfeeding education, and in the study of Minharro et al. to determine the perception of breastfeeding self-efficacy, 64.3% of women received breastfeeding education during pregnancy[10,17]. The information from the literature shows that women who receive breastfeeding education are able to breastfeed their babies for a longer period of time[17,18]. It is thought that the low rate of prenatal breastfeeding education findings in our study was due to the fact that the mothers participating in the study experienced their pregnancy during the pandemic period, and therefore, this situation also affected their participation in breastfeeding education.

The breastfeeding knowledge level diagnosis form post-test scores of the women in the intervention group were found to be statistically and significantly higher than those of the control group in this study. This significant increase indicates that the breastfeeding education provided is effective in increasing the level of breastfeeding knowledge. In addition, it is believed that the application of the demonstration technique using puppets and amigurumi breasts in the breastfeeding education within the scope of the research contributed to the increase in the post-test scores of the women in the intervention group. The information from the literature also indicates that supporting breastfeeding education with supplementary materials benefits the effectiveness and sustainability of education, and studies in the literature support our findings[13].

In this study, the LATCH scale post-test mean score of the intervention group was found to be significantly higher than the control group. In the study conducted by Gao et al., breastfeeding education was given to women from the 32nd week of pregnancy, and it was seen that the postpartum intervention group underwent the breastfeeding process more successfully than the control group. In the study of Liu et al., primiparous women were given breastfeeding education during pregnancy and after childbirth, and it was stated that the breastfeeding success of women who received education was higher than that of the control group[13,18]. The literature shows that breastfeeding

Table 1. Distribution of introductory characteristics of women with normal vaginal and cesarean delivery (n=76).

Variables	Experimental (n=38)		Control (n=38)		Statistics	
	n	%	n	%	χ^2	p-value
Age (years)						
18–25	5	13.2	5	13.2	2.410	0.492
26–30	10	26.3	16	42.1		
31–35	15	39.5	12	31.6		
≥35	8	21.1	5	13.2		
Educational status						
Primary school graduate	8	21.1	5	13.2	2.065	0.559
Secondary school graduate	10	26.3	10	26.3		
High school graduate	8	21.1	13	34.2		
University graduate/Postgraduate	12	31.6	10	26.3		
Economic status						
High	5	13.2	2	5.3	2.286	0.319
Middle	30	78.9	30	78.9		
Low	3	7.9	6	15.8		
Number of pregnancies						
1	6	15.8	7	18.4	0.869	0.833
2	11	28.9	14	36.8		
3	12	31.6	10	26.3		
≥4	9	23.7	7	18.4		
Mode of delivery						
Vaginal	15	39.5	17	44.7	0.216	0.408
Caesarean section	23	60.5	21	55.3		
Sex of the child						
Girl	20	52.6	16	42.1	0.844	0.245
Boy	18	47.4	22	57.9		
State of wanting pregnancy						
Yes	21	55.3	25	65.8	0.881	0.241
No	17	44.7	13	34.2		
Number of applications to health institution during pregnancy						
0–2	1	2.6	0	0	2.061	0.357
3–5	3	7.9	6	15.8		
≥6	34	89.5	32	84.2		
Breastfeeding education status						
Yes	7	18.4	4	10.5	0.957	0.258
No	31	81.6	34	89.5		
From whom did she/he receive breastfeeding education?*						
Nurse	7	100	4	100		
Desire to receive postpartum breastfeeding education						
Yes	36	94.7	35	92.1	0.214	0.500
No	2	5.3	3	7.9		

χ^2: Chi-square test. *This question was answered by mothers who received breastfeeding education.

Table 2. The differentiation status of breastfeeding knowledge level diagnostic form, LATCH scale, and postnatal breastfeeding self-efficacy scale scores according to groups (n=76).

Breastfeeding knowledge level diagnosis form	Experimental (n=38)	Control (n=38)	Statistics	
	x̄±SS	x̄±SS	t[a]	p-value
Pre-test	10.18±1.59	10.29±1.62	-0.285	0.776
Post-test	13.68±1.14	10.63±1.92	8.414	**0.000**
t[b]	-12.310	-1.04		
p-value	**0.000**	0.303		
LATCH scale				
Pre-test	7.07±1.56	7.07±1.26	0.000	1.000
Post-test	8.31±1.31	7.60±1.28	2.380	**0.020**
t[b]	-7.255	-3.141		
p-value	**0.000**	**0.003**		
Postnatal breastfeeding self-efficacy scale				
Pre-test	54.76±5.26	55.42±6.80	-0.471	0.639
Post-test	60.50±3.90	54.92±6.19	4.694	**0.000**
t[b]	-10.170	0.952		
p-value	**0.000**	0.347		

[a]Independent groups t-test; [b]Dependent groups t-test. Bold values indicate statistical significance at p<0.05 level.

Table 3. The relationship between breastfeeding knowledge diagnostic form, LATCH scale, and postnatal breastfeeding self-efficacy scale (n=76).

Variables	1	2	3	4	5	6
Breastfeeding knowledge level diagnosis form pre-test (1)	1.000					
LATCH scale pre-test (2)	-0.127	1.000				
Postnatal breastfeeding self-efficacy scale pre-test (3)	0.312**	-0.023	1.000			
Breastfeeding knowledge level diagnosis form post-test (4)	0.190	0.017	0.092	1.000		
LATCH scale post-test (5)	-0.213	0.685**	-0.110	0.124	1.000	
Postnatal breastfeeding self-efficacy scale post-test (6)	0.252*	-0.010	0.705**	0.427**	0.121	1.000

Pearson correlation analysis, *<0.05, **<0.001.

success is affected by many factors and that breastfeeding success increases as the mother's education level increases, while the lack of breastfeeding information, negative experiences in previous breastfeeding, and cesarean section as a delivery method reduce breastfeeding success[13,18]. In the study, the fact that there is a positive correlation between the LATCH scale pre-test score and the LATCH scale post-test score proves the effectiveness of the education. H1a hypothesis was accepted according to the study results.

The post-test postnatal breastfeeding self-efficacy scale scores of the intervention group were found to be significantly higher than those of the control group. It is believed that postnatal breastfeeding education given by a nurse, using the face-to-face interview method to women who have had vaginal delivery or cesarean delivery, contributes to an increase in the perception of breastfeeding self-efficacy. Araban et al. concluded in their study that breastfeeding education given to women during pregnancy is beneficial; Shafaei et al. concluded that breastfeeding counseling starts during pregnancy and continues up to 4 months after birth; and Pilus et al. concluded that face-to-face breastfeeding education increases the perception of breastfeeding self-efficacy[4-6]. H1b hypothesis was accepted according to the study results.

CONCLUSIONS

The results of this study suggest that breastfeeding education given by nurses can increase the level of breastfeeding knowledge, breastfeeding success, and breastfeeding self-efficacy. As a result of research findings, it is recommended that regular breastfeeding education be given by nurses in the early postpartum

period, to shape the education plan according to the mother's age, birth type, education level, and previous experience during education, to support education with visual materials such as puppets and amigurumi breasts, and to ensure the standardization of breastfeeding education by having all nurses working in postpartum services participate in breastfeeding counseling programs.

AUTHORS' CONTRIBUTIONS

NBKA: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Resources, Validation, Visualization, Writing – original draft, Writing – review & editing. **MK:** Conceptualization, Formal Analysis, Methodology, Project administration, Validation, Writing – original draft, Writing – review & editing.

REFERENCES

1. World Health Organization. Essential nutrition actions: mainstreaming nutrition through the life-course. 2019.
2. World Health Organization and United Nations Children's Fund. Global breastfeeding scorecar. Global Breastfeeding Scorecard, October, 2022;1-4.
3. Dennis CL. Theoretical underpinnings of breastfeeding confidence: a self-efficacy framework. J Hum Lact. 1999;15(3):195-201. https://doi.org/10.1177/089033449901500303
4. Araban M, Karimian Z, Karimian Kakolaki Z, McQueen KA, Dennis CL. Randomized controlled trial of a prenatal breastfeeding self-efficacy intervention in primiparous women in Iran. J Obstet Gynecol Neonatal Nurs. 2018;47(2):173-83. https://doi.org/10.1016/j.jogn.2018.01.005
5. Mohamad Pilus F, Ahmad N, Mohd Zulkefli NA, Mohd Shukri NH. Effect of face-to-face and WhatsApp communication of a theory-based health education intervention on breastfeeding self-efficacy (SeBF intervention): cluster randomized controlled field trial. JMIR Mhealth Uhealth. 2022;10(9):e31996. https://doi.org/10.2196/31996
6. Shafaei FS, Mirghafourvand M, Havizari S. The effect of prenatal counseling on breastfeeding self-efficacy and frequency of breastfeeding problems in mothers with previous unsuccessful breastfeeding: a randomized controlled clinical trial. BMC Womens Health. 2020;20(1):94. https://doi.org/10.1186/s12905-020-00947-1
7. Yenal K, Tokat Aluş M, Durgun Ozan Y, Çeçe Ö, Balıkan Abalın F. The relation between breastfeeding self-efficacy and breastfeeding success in mothers. J Educ Res Nurs. 2013;10(2):14-9. https://jer-nursing.org/jvi.aspx?pdir=jern&plng=eng&un=JERN-08208&look4=
8. Alioğulları A, Yılmaz Esencan T, Ünal A, Şimşek Ç. Evaluation of the effectiveness of the training given to mothers with a visual message brochure containing the benefits of breast milk and breastfeeding techniques. Anatol J Nurs Health Sci. 2016;19(4),:252-60. https://dergipark.org.tr/tr/download/article-file/275551
9. 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. https://doi.org/10.1016/j.midw.2016.03.003
10. Oliveira Minharro MC, Barros Leite Carvalhaes MA, Lima Parada CMG, Ferrari AP. Breastfeeding self-efficacy and its relationship with breasfeeding duration. Cogitare Enfermagem, 2019;24. https://doi.org/10.5380/ce.v24i0.57490
11. İnce T, Aktaş G, Aktepe N, Aydın A. Evaluation of mothers' breastfeeding self-efficacy and characteristics affecting breastfeeding success. Izmir Dr. J Behçet Uz Children's Hospital. 2017;7(3):183-90. https://jag.journalagent.com/behcetuz/pdfs/BUCHD_7_3_183_190.pdf
12. Özgüneş ZÖ. The effect of breastfeeding education given to mothers on successful breastfeeding. Unpublished Master Thesis, Halic University, Istanbul; 2019.
13. Gao H, Wang J, An J, Liu S, Li Y, Ding S, et al. Effects of prenatal professional breastfeeding education for the family. Sci Rep. 2022;12(1):5577. https://doi.org/10.1038/s41598-022-09586-y
14. Magnazi MB, Sartena G, Goldberg M, Zimmerman D, Ophir E, Baruch R, et al. Impact of the COVID-19 pandemic on breastfeeding in Israel: a cross- sectional, observational survey. Int Breastfeed J. 2022;17(1):61. https://doi.org/10.1186/s13006-022-00505-5
15. Wang Y, Briere CE, Xu W, Cong X. Factors affecting breastfeeding outcomes at six months in preterm infants. J Hum Lact. 2019;35(1):80-9. https://doi.org/10.1177/0890334418771307
16. Ergezen Y, Efe E, Çalışkan Özdil F, Dikmen Ş. The relationship between mothers' perception of breastfeeding self-efficacy and breastfeeding success in the postpartum period. Dokuz Eylul Univ Faculty Nurs Electronic J. 2021;14(3):217-23. https://doi.org/10.46483/deuhfed.675733
17. Muda CMC, Ismail TAT, Jalil RA, Hairon SM, Sulaiman Z, Johar N. Postnatal breastfeeding education at one week after childbirth: what are the effects?. Women Birth. 2019;32(2):e243-51. https://doi.org/10.1016/j.wombi.2018.07.008
18. Liu L, Zhu J, Yang J, Wu M, Ye B. The effect of a perinatal breastfeeding support program on breastfeeding outcomes in primiparous mothers. West J Nurs Res. 2017;39(7):906-23. https://doi.org/10.1177/0193945916670645