

Breastfeeding success in the first 6 months of online breastfeeding counseling after cesarean delivery and its effect on anthropometric measurements of the baby: a randomized controlled study

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SUMMARY

OBJECTIVE: The aim of this study was to determine the effect of online breastfeeding counseling after cesarean section on breastfeeding success and anthropometric measurements of the baby in the first 6 months.

METHODS: The study was conducted with single-blind randomized controlled experimental research design and performed with 151 primiparous women as intervention (n=76) and control (n=75) groups. The mothers were given training in the first 24 h postpartum by applying the "Data Collection Form," "Breastfeeding and Infant Follow-up Form," and "Breastfeeding Self-Efficacy Scale – Short Form," who followed up at the first and sixth months, and further again for 6 months.

RESULTS: Although there was no difference and homogeneity at the beginning of study among the participants in the intervention group compared with the control group, it was observed that the breastfeeding rates at the first and sixth months were higher and significant. When the anthropometric measurements of the participants in both the groups were compared, it was found that there was a significant difference between the measurements of height and weight at discharge, first, and sixth months. Breastfeeding self-efficacy scores in the intervention group were significantly higher at discharge, 4 weeks postpartum, and 6 months postpartum than those in the control group ($p<0.05$).

CONCLUSIONS: Breastfeeding training and online counseling given to mothers who give birth by cesarean section during the early postpartum period increased breastfeeding rates and self-sufficiency, and the anthropometric measurements of babies were found to be higher at healthy limits.

KEYWORDS: Breastfeeding. Self-sufficiency. Cesarean section. Counseling.

INTRODUCTION

Breast milk is the most important food source that protects the health of the children and helps them to survive^{1,2}. Given its short- and long-term benefits, it should be considered that breastfeeding is not only a feeding option but also a priority for public health^{3,4}. But mothers can face with premature cessation of breastfeeding for various reasons^{5,6}. In particular, the idea that milk is not enough itself, improper placement in the breast, and nipple problems are among the most important reasons that negatively affect breastfeeding success^{7,8}. Also, the pain experienced by women who delivered by cesarean section negatively affects their breastfeeding abilities and the adverse effects of breastfeeding in turn results in a failed perception of self-sufficiency related to breastfeeding⁹⁻¹¹. Breastfeeding is a behavior that needs knowledge, skills, support, and self-confidence of the mother. In a study, it was

reported that the presence of social support in breastfeeding mothers increased breastfeeding self-efficacy¹². Breastfeeding training and counseling provided by health professionals plays an important role in the effective initiation and maintenance of breastfeeding^{13,14}. Studies report that those who had breastfeeding training and counseling during the postpartum period have less breastfeeding difficulties and higher and longer breastfeeding rates^{11,13}.

In the consultation held by health professionals, it is important to observe and evaluate breastfeeding and to place the baby in the breast with the right technique. Furthermore, although breastfeeding self-sufficiency is lower in the studies of mothers who delivered by cesarean¹², there is limited research in the literature evaluating the effect of counseling on mothers delivered by cesarean section on breastfeeding success, self-sufficiency, and neonatal anthropometric outcomes. The aim of this study was to determine the effect of online breastfeeding counseling after

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cesarean section on breastfeeding success and anthropometric measurements of the baby in the first 6 months.

METHODS

This study is a single-blind randomized controlled trial conducted on mothers who delivered by cesarean section research design. Before starting data collection, necessary permissions were obtained from the Non-Interventional Clinical Research Ethics Committee (ethics number: 199).

Population

The sample size of this study was determined using the G*Power (version 3.1.7) program. Franco-Antonio et al.¹³ in a randomized controlled study that evaluated the effect of motivational intervention in the postpartum period on breastfeeding time and self-worth in the first 6 months, and examined a difference of 0.08% between the groups (80% strength and $\alpha=0.50\%$), found that a minimum of 79 mothers in each group should be included in sampling.

Inclusion criteria

1. The mother's cognitive level is sufficient to understand and answer the questions
2. 18–35 years old
3. Being primipar
4. Having a single pregnancy
5. Gestational age at birth between 37 and 42 weeks
6. Birth by cesarean section
7. Birth to a live newborn

Exclusion criteria

1. Mother pumping or having problems with the breast

Extraction criteria

1. Inaccessible in follow-ups

Randomization and blinding

During the study process, 467 mothers were interviewed and then 158 eligible and volunteered mothers who participated in the study were included in the randomization. The mothers included in the study were randomized into two groups (group A and group B) using the <https://randomizer.org/> site. As a result, the research was completed with a total of 151 mothers, including 76 in the intervention group and 75 in the control group. The registration, assignment, follow-up, and analysis steps of the study were shown using CONSORT 2018 (Figure 1).

In the study, mothers were blind to each other in terms of practice, and blind to the groups involved in the study in terms of statistical analysis and reporting. Training and consultancy intervention and follow-up were carried out by researchers (FSB) who could not be blind to applications. Randomization and data collection were carried out by another researcher (AYK). Data collection forms were applied face-to-face. To prevent bias, the researcher (FSB) did not participate in any steps of the pre-evaluation, final test, and statistical evaluation process.

Data collection tools

The data were obtained using “Data Collection Form,” “Breastfeeding and Infant Monitoring Form,” and “Breastfeeding Self-Proficiency Scale – Short Form.”

Data collection form

It was created by scanning literature of the researchers¹⁴⁻¹⁹. The design for the form consisted of 14 questions.

Breastfeeding and baby monitoring form

It was created by scanning literature of the researchers^{13,14,17}. The form consists of 11 questions, including for breastfeeding problems and for aiming the anthropometric measurements of the baby.

Breastfeeding self-proficiency scale – short form

It was developed by Bandura²⁰ and Tokat et al.²¹ and consists of a total of 14 questions evaluating breastfeeding self-sufficiency in Turkish validity and reliability breastfeeding. The scale is a 5-point Likert scale and the minimum score from the scale is 14 and the maximum score is 70. Higher scores indicate higher levels of self-sufficiency in breastfeeding. The Cronbach's alpha value of the scale was found to be 0.86 and was determined to be a reliable scale. In this study, Cronbach's alpha value was found to be 0.92.

Data collection method

Stage I: All primiparous mothers who delivered by cesarean section were randomized into intervention and control groups in the first 24 h after birth. The randomized researcher assigned the distribution of mothers into the control and intervention groups and did not share them with the other researcher. Data Collection Form and Breastfeeding Self-Proficiency Scale – Short Form was applied to mothers who met the sample selection criteria.

Stage II: In addition to the routine care of the clinic, breastfeeding techniques were applied to the mothers in the intervention group using demonstration method to develop breastfeeding skills after the importance of breastfeeding and breast milk was explained verbally with a face-to-face interview technique.

Mothers were given a breastfeeding training manual developed by researchers at the end of the training. The women in the control group received routine care at the clinic.

Stage III: Breastfeeding counseling was provided to the mothers in the intervention group by asking about

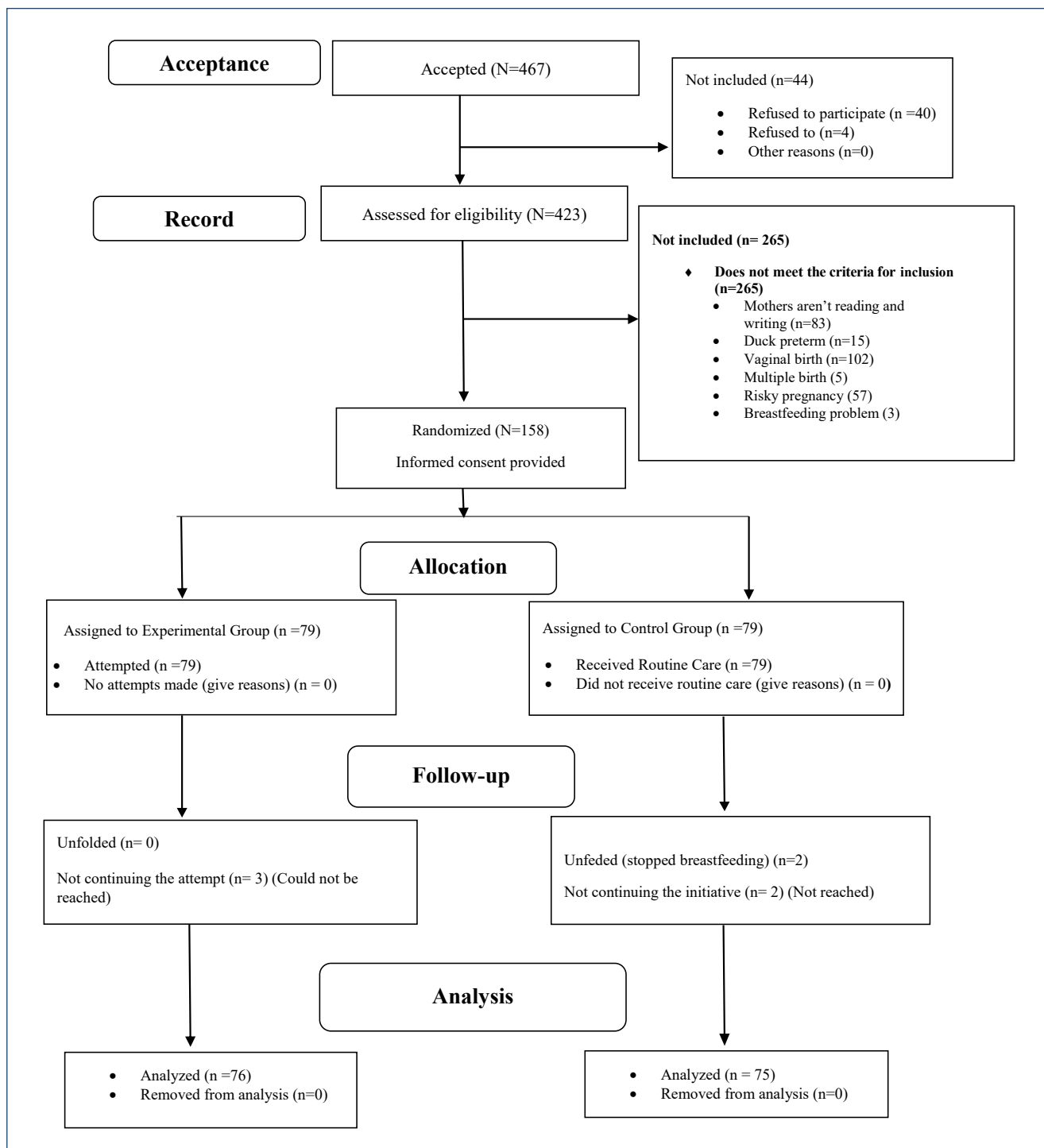


Figure 1. Consort flowchart was created to show compliance.

breastfeeding problems via an online interview method for 6 months. Mothers were given three follow-ups and repeated data measurements were collected at discharge and postpartum at 1 and 6 months.

Data analysis

The SPSS software (version 24) was used for data analysis. Sociodemographic characteristics, breastfeeding attitudes, and behaviors of both groups were compared using independent t-test and ANOVA, paired t-test, and variance analysis test in repeated measurements. A p-value <0.05 was considered statistically significant.

RESULTS

The mean age of the participants was 26.56 ± 6.36 years in the control group and 25.56 ± 7.36 years in the intervention group; the number of high school graduates was 48 (63.3%) in the control group and 47 (62.6%) in the intervention group, and the number of planned pregnancy was 52 (68.4%) in the control group and 55 (73.3%) in the intervention group. It was observed that the first breastfeeding time was 46 min (60.5%) in the control group and 39 min (52.0%) in the intervention group, for the first 30–60 min, and there was no significant difference between the two groups in terms of sociodemographic and postpartum characteristics ($p > 0.05$).

Compared with the breastfeeding status of the mothers, it was found that there was no significant difference in the rates of breastfeeding after childbirth, the time of the first breastfeeding, and the breastfeeding in the discharge. Breastfeeding rates in the first and sixth months in the control group were higher and more significant than mothers in the intervention group. Compared with anthropometric measurements of infants in both the groups, the difference between discharge, height, and weight measurements in the first and sixth months was significant ($p < 0.000$), while the difference between head measurements was not significant ($p > 0.05$) (Table 1).

Breastfeeding self-sufficiency scores in the intervention group were significantly higher in discharge, 4 weeks after birth, and 6 months after birth than in the control group ($p < 0.05$). The breastfeeding self-sufficiency scores of the women in the intervention group after discharge first increased, then somewhat decreased, and tended to rise as a whole. In the control group, the breastfeeding self-sufficiency score increased first, then decreased, and tended to decline as a whole (Table 2).

Table 1. Comparison of the characteristics and babies' anthropometric measurements of control and intervention group mothers regarding breastfeeding at 6 months (n=151).

Parameters	Control group (n=75)	Intervention group (n=76)	F/p-value
	n (%)	n (%)	
Breastfeeding only status			
At discharge			
Yes	69 (92.19)	76 (100)	-1.351
No	6 (7.81)	-	0.181
In the first month			
Yes	54 (71.87)	73 (96.87)	-3.142
No	21 (28.12)	3 (3.12)	0.002
In the sixth month			
Yes	19 (25.28)	40 (52.25)	-1.528
No	56 (74.72)	36 (47.75)	0.000
t ^{****}	0.518	-3.327	
p	0.097	0.001	
Stop breastfeeding			
At discharge			
Yes	0	0	0.413
No	75 (100)	76 (100)	0.098
In the first month			
Yes	4 (5.19)	0	75.00
No	71 (94.81)	76 (100)	0.000
In the sixth month			
Yes	24 (31.81)	0	68.00
No	51 (67.19)	76 (100)	0.000
t ^{****}	0.345	-2.127	
p	0.067	0.000	
Pacifier/Bottle use			
At discharge			
Yes	19 (25.28)	4 (4.68)	-6.278
No	56 (74.72)	72 (95.32)	0.000
In the first month			
Yes	39 (52.25)	19 (25.28)	-3.465
No	36 (47.75)	57 (74.72)	0.000
In the sixth month			
Yes	50 (67.19)	21 (28.25)	-1.758
No	25 (31.81)	55 (71.75)	0.000
t ^{****}	0.218	-1.276	
p	0.045	0.001	
	$\bar{X} \pm SD$ (n=75)	$\bar{X} \pm SD$ (n=76)	
Weight			
At discharge	3276.84±392.134	3255.17±422.40	.318 0.001
In the first month	4023.26±469.96	3878.81±457.18	2.240 0.000
In the sixth month	8545.24±239.324	9245.37±332.221	1.187 0.000
t	-2.082	-0.840	
p	0.037	0.001	

Continue...

Table 1. Continuation.

Parameters	Control group (n=75)	Intervention group (n=76)	F/p- value
	n (%)	n (%)	
Height			
At discharge	49.62±2.01	49.62±2.01	4.324 0.000
In the first month	52.51±2.11	56.82±1.23	-3.842 0.000
In the sixth month	65.89±2.32	69.89±2.32	-2.765 0.000
t	-1.034	-0.402	
p	0.004	0.001	
Head			
At discharge	35.22±1.02	35.22±1.02	-0.371 0.078
In the first month	36.24±1.15	36.82±1.23	0.184 0.084
In the sixth month	39.45±1.22	39.65±1.33	0.174 0.074
t	-3.026	-1.645	
p	0.065	0.075	

SD: standard deviation. Bold italics: $p < 0.05$.

DISCUSSION

This research was carried out as a single-blind, randomized controlled study to examine the effect of breastfeeding training and counseling on breastfeeding time, attitude and self-sufficiency, and anthropometric measurements of the baby in the first 6 months. As a result of the study, breastfeeding training and online counseling increased breastfeeding self-proficiency scores, longer breastfeeding times, and higher anthropometric measurements. According to the results of the study, it is possible to say that breastfeeding education given to primiparous mothers in the early postpartum period positively affects breastfeeding.

After discharge, the mother's professional support for breastfeeding will increase its success¹². In this study, breastfeeding rates were higher in the first and sixth months compared with the control group of the mothers in the mid-first and sixth months, and there was a significant difference between them. According to a systematic review and methane study, it has been reported that three or more training and counseling interventions in the prenatal and postpartum period, both through face-to-face training and telephonic follow-up, can only be effective in increasing breastfeeding and partial breastfeeding for 6 months¹⁸. It is observed that the results of the research are parallel

with the literature. This suggests that mothers need breastfeeding training and post-discharge counseling. It can be said that it will be possible to increase breastfeeding rates by providing the necessary training and counseling. In a study by Chan et al.¹⁹ in Hong Kong, it was reported that postpartum did not affect breastfeeding rates of mothers who received telephonic counseling once after 2 weeks. The fact that this finding differs from the research finding, cultural differences, and the small number of consultations can be associated.

Breastfeeding and human milk are known to protect the child's health and ensure the best nutrition of the baby, maintain immunity, and regulate growth, development, and metabolism^{1,13}. In this study, it was found that the discharge of infants in the midge's group was higher in height-weight measurements in the first and sixth months compared with those in the control group, and there was a significant difference between them. It has been reported that the intervention of mobile phone assisted breastfeeding counseling in Nigeria is associated with the weight of babies in only the sixth month of anthropometric characteristics¹⁹. In another study, it was reported that the height and weight after breastfeeding education intervention were higher in the intervention group in the second postpartum month, while in the 12th month, when the difference decreased in 6 months, there was almost no difference²⁰. The results of the literature differ in themselves and with the findings of the research. This suggests that nutrition alone cannot be a parameter in infant and child development. The difference seen in infants receiving breast milk, especially in the first months, may be associated with breastfeeding reducing morbidity.

Breastfeeding self-sufficiency is related to how satisfied the mother feels about breastfeeding. The higher the self-sufficiency, the healthier the initiation and maintaining the breastfeeding²¹. In this study, breastfeeding self-proficiency scores of mothers in the intervention group were higher in discharge, in the first month and sixth month after birth, and there was a significant difference between them. Shi et al.²¹ reported in a systematic review of 15 intervention studies conducted in developing countries that effective health education interventions can improve breastfeeding knowledge level and help improve better breastfeeding behaviors. In a study with mothers with gestational diabetes, You et al.⁷ reported that the breastfeeding self-sufficiency scores of mothers in the intervention group were significantly higher than those of mothers in the control group at discharge, sixth week, fourth month, and sixth month after childbirth¹¹. It is seen that the studies are consistent with the research findings. This

Table 2. Comparison of breastfeeding self-efficiency scores of control and intervention group babies (n=151).

Group	n	BSES – discharge $\bar{X}\pm SD$	BSES – first month $\bar{X}\pm SD$	BSES – sixth month $\bar{X}\pm SD$	t/F p-value
Intervention	76	59.49±8.46	57.74±7.32	67.56±6.49	-3.142 0.002
Control	75	54.29±6.36	56.38±6.49	52.53±5.56	-1.351 0.181
F	151	-2.082	-0.840	5.237	
p		0.037	0.401	0.001	

SD: standard deviation; BSES: breastfeeding self-efficiency scores. Bold italics; p<0.05.

may be thought to be related to knowledge and encouragement in the education and counseling process of breastfeeding self-sufficiency in mothers.

Limitations

While the fact that the research is carried out in a single center reflects a certain sociocultural segment applying to the institution, the inclusion of cesarean mothers prevents them from generalizing to vaginal-born pregnant women.

CONCLUSIONS

It was found that early breastfeeding education and online breastfeeding counseling given to mothers who gave birth by cesarean section extended the breastfeeding period, increased

the breastfeeding self-efficacy score, and increased the anthropometric measurements of the babies at healthy levels.

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AUTHORS' CONTRIBUTIONS

AYK: Conceptualization, Data curation, Formal analysis, Writing – original draft, Writing – review & editing. **FSB:** Conceptualization, Data curation, Formal analysis, Writing – original draft, Writing – review & editing.

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