

Impact of delivery mode and maternal postpartum functional state on breastfeeding self-sufficiency

Tugba Enise Benli¹, Yeşim Aksoy Derya¹, Hatice Gül Oztas²

¹Department of Midwifery, Faculty of Health Sciences, Inonu University, Malatya, Turkey

²Department of Midwifery, Faculty of Health Sciences, Sutcu Imam University, Kahramanmaraş, Turkey

Abstract

Objective: This research was conducted for investigating the impact of delivery mode and maternal postpartum functional state on breastfeeding self-sufficiency.

Material and methods: Data of this research featuring cross-sectional design were collected between November 2018 and February 2019. Size of the sampling performed with Power analysis was calculated as 444 puerperants with a confidence interval at 97% and population representation at 80%. Data were collected by Personal Information Form, Barkin Index of Maternal Functioning (BIMF) and Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF). ANOVA, t test in independent groups and Pearson Correlation analysis as well as descriptive analyses were used in the analysis of data.

Results: The age average of puerperants is 26.97 ± 5.79 , it was found out that 34.9% of puerperants are secondary school graduates, 80.6% do not work, 71.6% have a moderate economic state and 77.0% have an elementary family type. The delivery mode of 59.2% of the puerperants is cesarean and no statistically significant relation is found between the delivery mode and breastfeeding self-sufficiency ($p > 0.05$). Total score average of puerperants taken from BIMF is 72.82 ± 10.59 . Total score averages taken from the sub-dimensions of BIMF are 10.65 ± 3.08 in the sub-dimension of "self-care"; 9.25 ± 1.73 in the sub-dimension of "mother's psychology"; 19.86 ± 3.00 in the sub-dimension of "baby-care"; 13.36 ± 2.93 in the sub-dimension of "social support" and 19.69 ± 3.57 in the sub-dimension of "adaptation to motherhood". Total score averages which mothers took in BSES-SF are 56.17 ± 8.54 . It was determined that there is a statistically significant weak relation between BIMF and each of its sub-dimensions and BSES-SF in positive way and as the maternity function of puerperants increases, the breastfeeding self-sufficiency also increases at significant level ($p < 0.001$).

Conclusion: While there is no significant relation between the delivery mode and breastfeeding self-sufficiency of puerperants, it is found out that the maternity function of puerperants increases, the breastfeeding self-sufficiency also increases.

Key words: maternity function, delivery mode, breastfeeding self-sufficiency

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Corresponding author:

Yeşim Aksoy Derya.

E-mail: yesim.aksoy@inonu.edu.tr;

ORCID: orcid.org/0000-0002-3140-2286

Introduction

Delivery is an important milestone in which woman acquires a new role and responsibilities and biological, physiological, sensual and emotional changes are experienced [1,2]. Although delivery act is a physiological event, the delivery mode may vary since it cannot be

completely controlled [3]. Both delivery modes also have advantages and disadvantages [4]. The cesarean section is a surgical operation and every surgical operation is a trauma [4,5]. Maternal-infant interaction and return to the pre-pregnancy state are delayed due to reasons such as postpartum pain, fatigue, a late recovery period and

hospitalization duration. Also, the cesarean section is a reason of anxiety like any surgical operation and has psychological impacts on woman [5]. After vaginal delivery, the maternal-infant interaction occurs in a very short time. Mother can breastfeed her infant within the first half an hour and return to her normal activities a few hours later. Thus, the involution period and length of stay at hospital are shorter. In the literature, it was reported that the delivery mode is effective on the breastfeeding [6,7]. The cesarean sections were associated with the experience of vaginal deliveries as lower rates of breastfeeding starting and shorter breastfeeding duration [8-10].

The delivery mode has an impact on the first breastfeeding time and first maternal-infant theme; accordingly, the breastfeeding success is affected [7,11]. While the oxytocin increases start the contractions in the normal delivery, it also increases the endorphin level. The oxytocin hormone provides the lactation to reach the lactiferous ducts [12,13]. In the cesarean sections, since the oxytocin is not released, lactation occurs late. In the last phase of normal delivery, the increase of catecholamine makes the infant alert and active. This provides the infant to start the breastfeeding at an early period [11,13]. It is found out that the breastfeeding process of mothers who breastfeed their infants within the postpartum first half an hour is more successful and feed their infants with their own milks for a longer period [7,11]. There is a parallel relation between the breastfeeding success and breastfeeding self-sufficiency [11]. Although some of the studies conducted demonstrated that the delivery mode is not effective on the breastfeeding success, it was found out in some studies that a delay is experienced in the first breastfeeding time after the cesarean section [7,11,14]. The delivery mode and first breastfeeding time were compared in the study performed by Akyüz et al.; it was found out that those who had cesarean section (56,3%) breastfed their infants between the first postpartum 2-4 hours, those who had normal delivery (48,9%) breastfed within the first 1 hour [15]. In the study conducted by Prior et al., it was found out that mothers who have normal delivery are more successful in breastfeeding [16]. Studies investigating the impact of the delivery mode on breastfeeding self-sufficiency are limited in our country [7,17,18]. In these studies, it was determined that the breastfeeding is not generally affected from the delivery mode [7,17,18].

The post-partum function state is a state where a mother meets her own self-care, needs of her infant, develops particularly a psychological adaptation, adopts the new maternity role and undertakes her social responsibilities [19,20]. A long post-cesarean section maternal recovery period and pain-associated functional disorders make the infant-care difficult. Also, these pains lead the mother to experience emotional problems and a deterioration in the lactation physiology [11,21]. However, a vaginal delivery enables the mother to recover in a shorter period and to give her infant a care more comfortably. Participation of mother into the baby-care has an impact on development of maternal-infant relation, building of positive feelings and breastfeeding self-sufficiency [7].

The breastfeeding self-sufficiency expresses the ability which a mother perceives for breastfeeding her baby and the self-confidence of the mother [22]. The breastfeeding self-sufficiency perception shows whether the mother will breastfeed or not, how much effort she will show, thoughts pertaining to breastfeeding and coping with difficulties she will face emotionally during the breastfeeding process [21,23]. Mothers whose breastfeeding self-sufficiency is high prefer the breastfeeding more, when they face with the breastfeeding difficulties they struggle more [17]. Being willing about the breastfeeding is an important factor for

increasing the breastfeeding success of the mother. Accordingly, the breastfeeding success and breastfeeding self-sufficiency perception is positively associated with each other [24]. There are many factors affecting the breastfeeding success. Plan of this study was created on the basis of the thought that the delivery mode and post-partum functional state of these factors have an impact on the breastfeeding self-sufficiency.

Material and methods

Type of research

Data of this research featuring cross-sectional design were collected between November 2018 and February 2019.

Population and sampling of research

Population of the research was consisted of mothers who stayed and gave birth in “Puerperant and Operating Room Wards” of a public hospital located in the east of Turkey. According to records, the number of deliveries realized within the recent one year is 7493, the size of the sampling performed with Power analysis was calculated as 444 puerperants with a confidence interval at 97% and population representation at 80%. The contact information of the puerperant women who voluntarily accepted to participate in the study was obtained. Interviews were made with the women when they came to the family health center for baby vaccination or postpartum follow-up between the 6th and 10th weeks. The puerperants who met the research inclusion criteria for reaching the determined sampling group were elected with improbable random sampling method. The research inclusion criteria were established as voluntarily acceptance of participating into research, having no communication difficulty and mental insufficiency, being in postpartum weeks 6-10, being above 18 years old and below 45 years old, not having a multiple pregnancy and absence of any complication in infant.

Data collection instruments

“Personal Information Form”, “Barkin Index of Maternal Functioning” and “Breastfeeding Self-efficacy Scale-Short Form” were used in collection of data.

Personal information form

Personal Information Form through which socio-demographical characteristics of the puerperants who are included into the research are questioned (age, educational and business background, income status, family type and place where they live, delivery mode, postpartum supporter, etc.) is consisted of 12 questions.

Barkin index of maternal functioning (BIMF)

BIMF developed by Lynn Jennifer Barkin is consisted of 20 questions [25]. BIMF whose Turkish validity reliability was performed by Aydın and Kukulcu in 2018 is consisted of 16 questions [20]. Turkish form of the scale has five sub-dimensions; self-care (items 2,11,13), mother’ psychology (items 8,10), baby-care (items 12,14,15,16), social support (items 6,7,9) and adaptation to motherhood (articles 1,3,4,5). The six-point Likert type scale is scored as follows; 0= “I strongly disagree” and 6 = “I strongly agree”. The lowest score taken from the scale is 0, the highest score is 96. Assessment in the scale is made over total scores. As the score increases, it means that the function is high. There is no breakpoint in the scale. Cronbach α coefficient of the scale is 0.73 [20]. The Cronbach α coefficient is found 0.86 in this research.

Breastfeeding Self-Efficacy Scale- Short Form (BSES-SF)

Breastfeeding Self-Efficacy Scale is a scale which was developed by Dennis in 1999 and is consisted of 33 items [26]. Later, the scale was reduced to 14 items in 2003 and a shorter form was developed [21]. The shorter form of the scale provides ease of application and evaluates the self-efficacy properly. Turkish valid form of the scale was developed by Aluř Tokat et al. [27]. It is a five-point Likert type scale. It is scored as follows; 1= "I am not sure" and 5= "I am always sure". All items are positive. Minimum score which can be taken from the scale is 14, maximum score is 70. Elevation in score is the indicator of high breastfeeding self-sufficiency. There is no breakpoint in the scale. Cronbach alpha coefficient of the scale is 0,94 [27]. Cronbach α coefficient in this research is 0.96.

Data collection

The research data were collected by using a face-to-face interview method by the researchers in the concerned institution. The questionnaire questions consisting of "Personal Information Form, Barkin Index of Maternal Functioning and Breastfeeding Self-Efficacy Scale-Short Form" were asked to puerperants by the researchers and answers given were marked and filled on paper. Interviews performed at everyday on weekdays lasted for 15-20 minutes in average.

Data analysis

SPSS (20.0) statistical package program was used in assessment of data. ANOVA, t test in independent groups and Pearson Correlation analysis as well as descriptive analyses were used in the analysis of data.

Ethical aspect of research

It was contacted with the authors of the scales used in the research by e-mail and necessary consents pertaining to the availability of the scales were obtained. A written consent from the institution where the research was conducted was taken for performing the research and an approval was obtained from Inonu University Health Science Scientific Research and Publication Ethics Board (Decision Nr.: 2019/3-30). Also, the participants were informed of the research, it was notified that their personal information would be protected and those who were voluntary were included into the research.

Results

Distribution of puerperants' socio-demographical and obstetric characteristics was given in Table 1. The age average of puerperants is 26.97 ± 5.791 , their spouses' age average is 30.43 ± 5.841 . 34.9% of puerperants are secondary school graduates, 41.4% of their spouses are high-school graduates. 80.6% of puerperants do not work, 71.6% of whom have an equal income-expense, 77.0% have an elementary family type. Once questions pertaining to the recent delivery of puerperants were examined; 59.2% had a cesarean section delivery mode, pregnancy of 73% is a planned pregnancy. Also, 71.6% of the puerperants fed their infants only with breast milk and about half of whom stated that everybody around her gave support in the postpartum period.

Distribution of score averages which puerperants obtained in BIMF and BSES-SF total and sub-dimensions is given in Table 2. Total score averages which puerperants took in BSES-SF were determined as 56.17 ± 8.54 (Table 2). Also, total score

Table 1

Distribution of Puerperants by Socio-Demographical and Obstetric Characteristics (n=444)

Socio-Demographical and Obstetric Characteristics	n	%
Education Level		
Primary school	94	21.2
Secondary school	155	34.9
High School	126	28.4
University and above	69	15.5
Education level of puerperants spouses		
Primary school	57	12.8
Secondary school	99	22.4
High school	184	41.4
University and above	104	23.4
Occupation		
Employed	86	19.4
Unemployed	358	80.6
Economic situation perception		
Less than income-expense	66	14.9
Equal income-expense	318	71.6
More than income-expense	60	13.5
Family type		
Elementary family	342	77.0
Extended family	102	23.0
Delivery mode		
Vaginal delivery	181	40.8
Cesarean section	263	59.2
Was it a planned pregnancy		
Yes	324	73.0
No	120	27.0
How old is the baby		
6 week	98	22.1
7 week	38	8.6
8 week	148	33.3
9 week	62	14.0
10 week	98	22.0
Baby's feeding type		
Only with breast milk	318	71.6
With breast milk and formula	114	25.7
Only formula	12	2.7
Who is your postpartum supporter		
No one	37	8.3
My partner	143	32.2
My mother and my father	45	10.2
Everyone around me	219	49.3
Total	444	100
The age average of puerperants: 26.97 ± 5.791 (min: 18, max: 42)		
Puerperants spouses' age average: 30.43 ± 5.841 (min: 19, max: 51)		

Table 2

Distribution of Score Averages which Puerperants obtained in BIMF and BSES-SF Total and Sub-dimensions (n=444)

Scales	Min-Max Values That Can Be Taken From Scales	Min-Max Values Taken From Scales	Mean \pm Sd
BIMF Total	0-96	24-95	72.82 ± 10.594
Self care	0-18	3-18	10.65 ± 3.082
Mother's psychology	0-12	3-12	9.25 ± 1.731
Baby care	0-24	8-24	19.86 ± 3.000
Social support	0-18	3-18	13.36 ± 2.934
Adaptation to motherhood	0-24	3-24	19.69 ± 3.571
SBES-SF Total	14-70	17-70	56.17 ± 8.548

BIMF: Barkin Index of Maternal Functioning
BSES-SF: Breastfeeding Self-Efficacy Scale- Short Form

average of puerperants participating into the research taken from BIMF was found as 72.82 ± 10.59 . Total score averages taken from the sub-dimensions of BIMF were calculated as 10.65 ± 3.08 in the sub-dimension of “self-care”; 9.25 ± 1.73 in the sub-dimension of “mother’s psychology”; 19.86 ± 3.00 in the sub-dimension of “baby-care”; 13.36 ± 2.93 in the sub-dimension of “social support” and 19.69 ± 3.57 in the sub-dimension of “adaptation to motherhood”.

In Table 3, a comparison of total score averages which puerperants obtained from BIMF by the deliver modes was given. A statistically significant relation was not found between the delivery modes and breastfeeding self-sufficiencies of puerperants (Table 3).

Table 3 Comparison of Total Score Averages of Puerperants obtained in BIMF by Delivery Modes

Delivery Modes	n	Mean±Sd	Statistical analysis
Vaginal delivery	181	55.93±8.03	t=-0.487
Cesarean section	263	56.33±8.89	p=0.626

The relation between the score averages which puerperants obtained from BIMF and BSES-SF scales was given in Table 4. It was found out that there is a positive statistically significant weak relation between BIMF total and each of sub-dimensions (self-care, mother’s psychology, baby-care, social support, adaptation to motherhood) and BSES-SF and as the maternity function of puerperants increases, the breastfeeding self-sufficiency increases at a significant level ($r=0.445$; $r=0.237$; $r=0.379$; $r=0.280$; $r=0.268$; $r=0.476$; $p<0.001$, respectively).

Discussion

In this study, it was aimed to investigate the impact of delivery mode and maternal post-partum functional state on the breastfeeding self-sufficiency and the obtained findings were discussed with the related literature.

It was scientifically proved that the breast milk and breastfeeding are beneficial on social health as much as child health [28]. The use of breast milk is not at a desired level in our country and world yet. The failure to reach such a desired level causes many health problems and child deaths [11,28]. For this reason, applications pertaining to increase the breastfeeding self-sufficiency should be performed for enabling the breastfeeding to reach this desired level. As the breastfeeding self-sufficiency increases, the breastfeeding success of mothers also increase, the mother struggles for breastfeeding much more and breastfeed their babies for a longer period [29]. There are many factors affecting the breastfeeding behavior, a certain part of these is unalterable factors such as age, education background and marital status of mother; however, there are alterable factors such as breastfeeding will of mother, first breastfeeding time, spouse and social circle support, breastfeeding self-sufficiency, post-partum pain, psychological status of puerperant [11]. For this reason, midwives should specifically emphasize the alterable factors and should provide the necessary midwifery support. Delivery mode and maternal functional status may be listed among these factors.

Total score averages which puerperants obtained from BIMF is 56.17 ± 8.548 in our study (Table 2). In the related literature, total score average of mothers’ breastfeeding self-sufficiency was found as 55.48 ± 9.87 in the study conducted by Baysal et al. (2014), $58,98 \pm 8,14$ in the study of Cömert (2011) and 59.48 ± 7.21 in the study of Kılıcı (2014), they obtained

results which support our finding [11,17,30]. If we consider that the minimum score of the related scale is 14 and maximum score is 70, it can be said that BIMF we found in our study is at moderate level. Thus, the knowledge level of women in breastfeeding particularly in the post-partum period should be evaluated, and training and consultation being suitable for their individual needs should be given for increasing the breastfeeding self-sufficiency [11]. While it is reported in the literature that mothers whose breastfeeding self-sufficiency is high is more successful in breastfeeding and they are more willing in starting and maintaining the breastfeeding, it is emphasized that mothers whose breastfeeding self-sufficiency is low wean their babies at a shorter time than recommended period [17]. Practices pertaining to increase the breastfeeding self-sufficiency should be implemented in order to increase the breastfeeding success.

A significant relation is not found between the delivery mode and BSES-SF in our study ($p<0.001$; $p<0.05$ Table 3). Results supporting our finding were obtained in the literature and a statistically significant difference was not found between the delivery mode and BSES-SF score averages [7,30-32]. In contrary, it was found out in the study conducted by Tokat (2009) that mothers who had vaginal delivery have higher BSES-SF score compared with those who had cesarean section delivery [12]. Likewise, in the study performed by Sullivan et al. (2014), while there was a difference within the first 24-48 hours between the breastfeeding self-sufficiency score by the delivery mode, there was no difference at postpartum day 10 and 8th week [33]. The reason of this was explained that conditions such as late lactation in the post-cesarean early postpartum period, pain in incision region, delay in maternal-infant contact and first breastfeeding time lead to breastfeeding difficulties [22]. It is needed to conduct more studies in regard to the impact of delivery mode on the breastfeeding self-sufficiency.

In our study, correlation between BIMF and BSES-SF was examined (Table 5). It was determined that there is a statistically significant weak relation between BIMF and each of its sub-dimensions such as self-care, mother’s psychology, baby-care, social support, adaptation to motherhood and BSES-SF in positive way and as the maternity function of puerperants increases, the breastfeeding self-sufficiency also increases at significant level ($p<0.001$ $p<0.05$, Table 5). It is addressed in the literature that there is a continuous interaction between the postpartum functional state and breastfeeding, the functional states of mothers who feed their babies with breast milk are positively affected in regard to the baby-care [19]. If a puerperant takes a strong social support at postpartum period, she gets tired less, spares time for herself, spends much more time with baby, her postpartum functional state strengthens, her physiological and psychological adaptation in addition to the maternity adaptation also get easy [20]. Training and consultancy to be given for providing the mother to adapt to physiological and psychological changes at postpartum period will be the key of a successful breastfeeding which will strengthen the postpartum maternal functions.

Conclusion and recommendations

This research was conducted for investigating the impact of delivery mode and maternal postpartum functional state on breastfeeding self-sufficiency. While there is no relation between the delivery mode and breastfeeding self-sufficiency of puerperants, it is found out that as the maternal function increases, the breastfeeding self-sufficiency also increases. Accordingly, great responsibilities fall onto midwives. The

Table 4

Relation between Score Averages which Puerperants Obtained in BIMF and BSES-SF Total and Sub-dimensions (n=444)

	BIMF Total	BIMF				
		Self care	Mother's psychology	Baby care	Social support	Adaptation to motherhood
BSES-SF Total						
r	.445*	.237*	.379*	.280*	.268*	.476*
p	.000	.000	.000	.000	.000	.000

Pearson Correlation

*p<0.001

breastfeeding training should be given to puerperants once pregnancy is detected for the purpose of increasing the breastfeeding self-sufficiency. Midwives should provide the breastfeeding to be started within the first one hour, maternal-infant interaction, proper breastfeeding position and mobilization particularly in cesarean sections. Pain and fatigue of puerperants should be minimized, visitors should be restricted if required and elimination of negative feelings such as anxiety, stress should be assisted [7]. Midwives should know the factors which affect the postpartum functional state very well and apply midwifery care pertaining to the strengthening of functional state by planning.

This study was presented as a verbal statement at the 6.

International 10. National Congress of midwifery students, which was held on 19-21 April 2019 by the Department of Midwifery of the Faculty of Health Sciences of Sivas Cumhuriyet University.

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