

# Impact of Peer Education on Breastfeeding Self-Efficacy among Primiparous Women with Hospitalized Neonate in Neonatal Ward of Amirkola Children's Hospital, Mazandaran Province, Iran

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## ABSTRACT

**Background:** Peers are influential people who can enhance self-efficacy (SE) factors by verbal encouragement and common experience sharing and affect maternal SE in promoting and maintaining breastfeeding (BF). This study aimed to determine the effect of peer education on BF SE among primiparous mothers.

**Methods:** This randomized clinical trial study was conducted on nulliparous mothers with hospitalized neonates in the neonatal ward of Amirkola Children's Hospital, Mazandaran Province, Iran, within May-September 2018. The statistical population of this research (n=120) was selected using the convenience method and randomly divided into two groups of intervention and control (n=60 each). The control group received the usual and standard center's education. However, the mothers in the intervention group received, two one-hour sessions of BF education from peers in addition to the usual training. These peers were qualified and experienced in two years of successful BF. The tools used for data collection were the demographic form and Breastfeeding Self-Efficacy (BE SE) Scale. The BE SE questionnaire was completed at the time of enrollment and the eighth week after primiparous delivery. The collected data were analyzed in SPSS software (version 18) using an independent t-test and paired t-test. A p-value of less than 0.05 was considered significant.

**Results:** The two groups were similar in demographic variables. The mean score of BF SE after the education in the control and intervention groups were obtained as 48.38±7.85 and 60.25±8.32, respectively, which was significant (P<0.001).

**Conclusion:** Based on the results, breastfeeding through peer education increased SE in primiparous women. Therefore, it is recommended to adopt it as an appropriate educational method to improve the quality of BF education among mothers with newborns hospitalized in the neonatal ward.

**Keywords:** Breastfeeding, Education, Self-efficacy, Mothers, Neonate

## Introduction

Breastfeeding (BF) is one of the most important factors in neonatal health (1). Although it is often initiated, its continuation is sometimes ignored in this context, highlighting the identification of factors associated with the BF continuation (2). Statistics showed that non-BF

increases neonatal mortality in developing countries to one child every 30 seconds (1.5 million children annually). Accordingly, 70% of children's mortality rate is due to non-BF in such countries (3).

Although BF is one of the most important ways

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to promote a child's development in societies, mothers who are affected by a variety of factors stop BF and start supplemental feeding for their baby. Therefore, it is important to use appropriate methods and principles to provide adequate training for mothers in this context at the right time (4). The results of a study performed by Jafari et al. (2014) in Rasht, Iran, showed that the most important factors in preventing the continuation of BF were related to mothers' misconceptions about the signs of BF adequacy and taking contraceptive pills (2).

Self-efficacy is one of the adjustable variables and an important factor in identifying mothers who stop their BF rapidly (3). Despite the known benefits of BF for mothers and neonates, various factors can influence the mother's decision to start and continue BF, such as mother's knowledge about the benefits of BF, supportive systems (e.g., family, friends, and healthcare workers), socioeconomic status, and BF SE (1, 5-7). Healthcare providers need to improve the outcomes by implementing effective changes in such variables as mothers' knowledge about the benefits of BF and BF supportive systems to enhance the mother's SE (1). In this regard, attention to the SE factor is of great importance, which is considered an important and changeable psychological and motivational factor for the continuation of BF (8-10).

Breastfeeding SE is one of the social cognitive theory constructs (Bandura, 1977) defining the individual's belief and confidence in one's ability to perform health behaviors, including exclusive and successful BF (11). Bandura believes that individuals can increase their self-efficacy and empowerment by adopting appropriate educational strategies and interventions to acquire the necessary skills and knowledge (12). Primiparous women will face more problems regarding exclusive BF due to their inadequate experience. Therefore, it is essential to formulate appropriate strategies to increase BF SE, especially among primiparous mothers (11).

The literature review has shown that BF SE is influenced by four sources of information, namely 1) past achievements (e.g., past experiences), 2) predatory or substitute experiences (i.e., modeling others), 3) verbal encouragement (e.g., encouragement from influential people, such as peers and friends, family, and BF counseling), and 4) physical reactions (e.g., weakness, stress, and anxiety) (13). In this regard, it has been suggested that peer group can strengthen SE factors with verbal encouraging and common experience

sharing, and has a significant effect on BF SE of mothers (3). On the other hand, research shows that individuals are more inclined to hear and believe messages and personalize them, especially when they recognize there are some similarities between them and the messenger and that the messenger has faced similar concerns and hardships (13).

The importance of BF, the relatively high prevalence of non-BF mothers, the effect of education on increasing mothers' SE in BF, and peer role have been demonstrated. However, to the best of our knowledge, no specific research has been dedicated to investigate the effect of peer BF training on mothers with hospitalized neonates having different problems from mothers of healthy neonates. Therefore, this study aimed to determine the effect of peer education on BF SE among primiparous mothers with hospitalized newborns.

## Methods

This clinical trial was conducted on newborns admitted to the neonatal ward of Amirkola Children's Hospital, Mazandaran Province, Iran. The samples of this study were selected using the convenience sampling method and assigned into two groups randomly (using a random number table). According to the following formula, 120 primiparous mothers with neonates admitted to the neonatal ward of Amirkola Children's Hospital were selected as the sample of the study. The samples were divided into two groups of control and intervention (n=60 each) and received the necessary training in the BF room of the neonatal ward.

$$n = \frac{2 \left( Z_{1-\frac{\alpha}{2}} + Z_B \right)^2 \delta^2}{(\mu_1 - \mu_2)^2} = \frac{2 \left( Z_{1-\frac{\alpha}{2}} + Z_B \right)^2}{\Delta^2} = \frac{2(1.96 + 0.84)^2}{0.5^2} \cong 60$$

The inclusion criteria were primiparous mothers with single and full-term infants (over 37 gestational weeks), no physical or mental illness, no medication for a particular disease, no structural defect in the breast, interested in participating in the study, maternal tendency to breastfeed, aged between 18 and 35 years, literate, no history of smoking, alcohol, and drugs, no complications during pregnancy and childbirth (e.g., preeclampsia and bleeding), no congenital diseases or problems that interfere with BF (e.g., cleft lip, cleft palate), and no respiratory or cardiovascular problems or requiring admission to the NICU. Exclusion criteria included the

mothers' unwillingness to cooperate, infant death, and prevented breastfeeding by the physician during the study.

Before the intervention, the mothers of the peer group were selected and trained to perform the intervention. The mothers in this group were those who already had a full-term neonate hospitalized in the neonatal ward and had a successful BF experience for two years. Initially, these peer mothers' communication skills and knowledge and attitude about BF were assessed by a pre-test. Subsequently, three one-hour sessions were held by the researcher, during which the necessary training was delivered to the peer mothers through face-to-face instructions and the educational booklet and CD were given to them. The mothers in this group were evaluated by a post-test and those achieving 75% of the post-test score were selected as peers. These peer mothers then provided BF instruction for the mothers in the intervention group during training sessions. The mothers in both intervention and control groups received usual and standard postpartum education at the center. The mothers in the intervention group received two one-hour BF sessions by peer mothers in the first week after delivery in addition to the center's routine training. These educational sessions were conducted through face-to-face lectures with questions and answers and providing educational booklets about BF skills.

To collect the necessary data for this study, two questionnaires, namely the demographic form and Breastfeeding Self-Efficacy (BF SE) Scale were completed by the mothers in both groups at the baseline and end of the eighth week after delivery. The demographic form included personal information, such as maternal age, gestational age, neonate age, birth weight, economic status, level of education, type of delivery, and mother's and spouse's willingness to breastfeed. The BF SE Scale (developed by Dennis) is a 14-item questionnaire scored on a 5-point Likert scale (never or not at all=1 to quite sure=5). The total scores obtained from this instrument ranged from 14-70. Regarding this, higher mean scores were indicative of higher BF SE and lower mean scores were representative of lower BF SE. Therefore, mothers who scored above 51 (mean score) had high BF SE and mothers who scored lower than 51 had low BF SE (13). The validity of this tool has been confirmed in Iran by a study performed by Hassanpour et al. (14). Bastani et al. evaluated the reliability of this scale using Cronbach's alpha coefficient method

( $\alpha=0.87$ ), which confirms the internal correlation of the instrument (15).

### **Statistical analysis**

The collected data were analyzed in SPSS software (version18) using a Chi-square test to correlate the qualitative and group variables and an independent t-test to compare the quantitative variables between the two groups. A paired t-test was also used to compare the SE scores between the time before and after the intervention. Finally, multiple linear regression was applied to investigate the moderated effects of the variables. A p-value of less than 0.05 was considered significant.

### **Ethical considerations**

The current study was approved by the Ethics Committee of Babol University of Medical Sciences, Mazandaran, Iran, (IR.MUBABOL.HRI.REC.1397.012, date: May 6, 2018). The newborns were enrolled in the study as soon as their parents signed the informed consent form. The parents were informed about the possibility of study withdrawal at any research stage. The ethical principles for medical research established by the Iranian Ministry of Health and Medical Education, Tehran, Iran, were observed by the researchers throughout the study. The study was registered in the Iranian Registry of Clinical Trials (IRCT20180519039708N1).

### **Results**

The results of this study revealed that the two groups were similar in terms of demographic characteristics ( $P>0.05$ ). The mothers aged 18-35 years and the mean age score was obtained as  $25.81\pm 3.98$  years. The results of the Chi-square test showed no significant relationship between the two groups regarding the mentioned qualitative variables ( $P>0.05$ ; Tables 1).

According to the findings, the mean SE score in the intervention group was significantly higher after the intervention than before the intervention, while the control group observed a reverse trend in this regard (Table 2). The self-efficacy scores were significantly different in the intervention and control groups before the intervention despite the application of random sampling. In this respect, to eliminate the effects of baseline self-efficacy, the researchers performed regression analysis and compared the intervention group with the control group in terms of the adjusted effect of BF SE.

Multiple regression results indicated that the

**Table 1.** Demographic characteristics of mothers and neonates in the intervention and control groups

Variables	Variable levels	Groups			P-Value
		Intervention Frequency (Percentage)	Control Frequency (Percentage)	Total Frequency (Percentage)	
Type of delivery	Caesarean section	30 (50)	29 (48.3)	59 (49.2)	0.855
	Normal vaginal delivery	30 (50)	31 (51.7)	61 (50.8)	
Mother's willingness to breastfeed	Low	0 (0)	1 (1.7)	1 (0.8)	0.546
	Much	25 (41.7)	27 (45)	52 (43.3)	
	Too much	35 (58.3)	32 (53.3)	67 (55.8)	
Spouse's interest in breastfeeding	Low	2 (3.3)	0 (0)	2 (1.7)	0.061
	Much	24 (40)	15 (25)	39 (32.5)	
	Too much	34 (56.7)	45 (75)	79 (65.8)	
Level of education	Elementary	37 (61.7)	38 (63.3)	75 (62.5)	0.135
	Diploma	17 (28.3)	21 (35)	38 (31.7)	
	Academic	6 (10)	1 (1.7)	7 (5.8)	
Economic status	Low	3 (5)	4 (6.7)	7 (5.8)	0.697
	Medium	57 (95)	56 (93.3)	113 (92.2)	
Maternal age (years) *	-	25.83±4.23	3.75±25.78	-	0.946
Gestational Age (Week) *	-	38.85±1.14	38.88±1.01	-	0.197
Neonate's age (days) *	-	5.47±1.43	4.93±1.84	-	0.080
Birth Weight (g) *	-	3369.02±437.09	3406.08±374.35	-	0.619

\* The numbers represent the mean ± standard deviation in different groups.

**Table 2.** Mean score of breastfeeding self-efficacy among primiparous mothers with neonates admitted to the neonatal ward in both groups

Groups	Breastfeeding self-efficacy scores			
	Pre-intervention	Post-intervention	Significance level with paired t-test	Mean difference before and after (Confidence interval)
	Mean*	Mean*		Mean*
Intervention	46.73±10.40	60.25±8.32	0.001	13.51 (+15.89 and +11.13)
Control	50.95±8.45	48.38±7.85	0.001	-2.56 (-1.13 and -3.99)
Significance level with independent t-test	0.016	0.001		0.001

\*The numbers in the table are mean ± standard deviation in different groups studied.

group variable had the most significant effect on BF SE score among all demographic factors. Based on this result, the intervention group increased the SE score by 0.71. Furthermore, pre-intervention lactation SE score with a beta of 0.53 had a significant effect on the lactation SE score, with an increase of one point in pre-intervention BF SE by 0.53. Therefore, by a one-score increase in BF SE before the intervention, there was a 0.51 increase in SE score. Additionally, as shown in Table 3, maternal age (beta 0.007) and gestational age (beta

0.017) have an increasing, though insignificantly, effect, on SE scores. On the other hand, the type of delivery (normal to cesarean with -0.029 beta), maternal education (elementary and diploma to university with -0.033 beta), and economic status (low-to-high classes with -0.063 beta) had a reducing and no significant effect on SE scores. The coefficient of determination was estimated at 0.623; consequently, the multiple regression model could explain approximately 62% of the variation in lactation SE score (Table 3).

**Table 3.** Multiple linear regression analysis and determinants of breastfeeding self-efficacy score predictability for primiparous mothers with neonates admitted to the neonatal ward

Variable	Non-standard coefficient (Beta)	Standard error	Standard coefficient (Beta)	T-value	P-value
Constant	4.28	23.227	-	0.184	0.854
Intervention vs. Control group	14.136	1.191	0.708	11.866	0.001
Self-efficacy score before intervention	0.547	0.063	0.528	8.659	0.001
Maternal age (years)	0.019	0.165	0.007	0.113	0.910
Gestational age (weeks)	0.162	0.566	0.017	0.286	0.776
Type of delivery (natural vs. cesarean section)	-0.588	1.255	-0.029	-0.468	0.641
Maternal education (elementary and high school vs. diploma)	-0.690	1.414	-0.033	-0.488	0.627
Economic Status (Low vs. High)	-2.670	2.497	-0.063	-1.069	0.287

## Discussion

The present study showed that peer education increased BF SE in the intervention group, compared to that in the control group. The mean BF SE score of mothers in the intervention group ( $46.73 \pm 10.40$ ) increased after the intervention ( $60.25 \pm 8.32$ ), while the same score of mothers in the control group ( $50.95 \pm 8.45$ ) observe a decrease ( $48.38 \pm 7.85$ ). The reason for this decrease might be due to the interruption of the hospital routine BF training that the mothers in the control group received during their neonate hospitalization. Goodarzi et al. (2015) carried out a study to evaluate the effect of peer education on BF SE among primiparous mothers referring to health centers in Damghan, Iran. According to the results of the mentioned research, the BF SE score of primiparous women was significantly higher in the intervention group than in the control group (13). The results of this study are consistent with those of the present study. Sang and Park (2016) showed that BF empowerment programs increased SE, adaptation, and continuity of BF in primiparous women (16). The results of the above study are also in agreement with our findings.

Mir Ali et al. (2014) found that face-to-face training with the direct intervention of the trainer increased BF SE in the third month after delivery (17). Moreover, the results of a study performed by Parsa et al. (2016) indicated that BF counseling increased the sense of mothers' SE, making them continue BF (1). The results of the aforementioned studies were in line with those of the current study. The results of the present study are also in line with the findings of a study conducted by Ingram (2013), which aimed to evaluate peer support and its effects on BF. Accordingly, peer support in the form of educational behaviors increased BF SE in the intervention group (18).

Another study conducted by Azhari et al. in Sabzevar, Razavi Khorasan Province, Iran, compared the effects of two methods of BF training with and without the direct intervention of the educator on BF SE among primiparous mothers. The result of the above study revealed an increase in BF SE regarding the method of face-to-face BF training without direct trainer intervention (11), which was in line with the results of our study. According to the findings of a study carried out by Moody et al. (2015), the impacts of support by peers and education by healthcare providers were the same. Furthermore, there was no difference in education between these two groups; however, the SE score was higher in the trained groups than in the control

group (19). These results were consistent with those of our study.

Joshi et al. performed a study in Spain to evaluate computer-based bilingual BF education on the knowledge of BF, SE, and BF decision among rural Hispanic women. The results of the aforementioned research indicated that the designed training program improved the knowledge of BF and SE and ultimately increased the decision to breastfeed in these mothers (20). The results of this study supported the results of the present study. Nevertheless, the results of clinical trials conducted by Karen McQueen et al. in Canada were not in agreement with those of the current study. In the above study, the intervention failed to significantly increase SE in primiparous women (21). The reason for this discrepancy could be attributed to the use of peer education for the mother in the present study, as well as the type of education which was performed in groups in our study, compared to the individually conducted training in Karen's study.

The findings of a study carried out by Tafazeli et al. in primiparous women in Mashhad, Iran, showed that there was no significant difference at the time of the first BF initiation among the three groups of peer support, healthcare training, and control (19). The reason for peer support's ineffectiveness was probably related to the fact that this support was provided only during pregnancy and in the form of person-to-person support for the mother, whereas in the present study education was provided in groups. Overall, no significant relationship was found between mothers' demographic characteristics (i.e., maternal age, gestational age, type of delivery, maternal education, and economic status) with BF SE. However, increasing maternal age and gestational age had positive effects on BF SE score, while maternal low education and poor economic status had negative impacts. These results are in agreement with those of studies carried out by Bastani et al. (15), Blyth et al. (22), and Dennis (23).

Some studies have shown that maternal education level, age, economic status, and other underlying factors are associated with BF SE. For instance, Mercer (24) showed that age and socioeconomic levels were significant factors affecting the achievement of mothers and BF roles, which is inconsistent with the findings of the present study. The reason for this discrepancy can be related to the population of the present study which included only primiparous mothers. In

another study, it was found out middle-class women had higher levels of SE and exclusive BF than low-income women (25). Mothers with low gestational age or low birth weight neonates consider these major traumatic events after childbirth. These factors, along with the mental stress caused by the hospitalization of the neonate, put extra pressure on mothers, which can harm the process of BF SE (26). A study conducted by Varaee et al. showed that education level was significantly associated with SE of BF. In other words, a higher level of maternal education increased the BF SE score (3). The present study also showed that maternal low education levels had negative effects on BF SE score; however, this relationship was not significant.

### Conclusion

Peer education significantly increased the mean score of BF SE among mothers in the intervention group, compared to that in the control group. Additionally, the use of peer mothers is an affordable and effective way to increase the BF SE of primiparous mothers. With these reasons in mind, it can be concluded that the adoption of such an appropriate educational method can increase BF SE in mothers with neonates hospitalized and improve the quality of education in such mothers. Furthermore, since one of the main duties of nurses is education at all levels of care, they should consider successful mothers as a supporter in BF in their educational planning to help other mothers overcome the barriers of BF.

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### Conflicts of interest

The authors declare no conflict of interest in this study.

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