

Breastfeeding Self-Efficacy as a Predictor of Exclusive Breastfeeding: A Clinical Trial

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ABSTRACT

Background: "Exclusive breastfeeding (EBF) is globally promoted as the ideal method of infant feeding during the first six months of life due to its health benefits to both the mother and child" (1). The aim of this study was to examine the effect of the interventions leading to increased awareness, knowledge, and self-efficacy regarding exclusive breastfeeding and duration of breastfeeding.

Methods: This clinical trial was conducted on 129 pregnant women before the gestational age of 21 weeks and 6 days referring to Vali-e-Asr Hospital in Tehran, Iran. The study population was selected using the convenience sampling method. The participants were randomly assigned into two groups of intervention (n=64) and control (n=65). The mothers in the intervention group received one training session on breastfeeding self-efficacy, as well as training and audio packages regarding postpartum care and relationship with neonates. In addition, the women who suffered from anxiety, stress, or depression were provided with psychotherapies. The data collection instruments included the Self-Efficacy Scale, Edinburgh Postnatal Depression Scale, and Spielberger's State-Trait Anxiety Inventory.

Results: Exclusive breastfeeding was higher in the intervention group than in the control group during the first six months postpartum (P=0.015). The follow-up study showed that there were higher rates of breastfeeding for the two-year-old children in the intervention group (P<0.001). In addition, self-efficacy was associated with anxiety and depression.

Conclusion: As the findings indicated, psychological intervention aimed at increasing self-efficacy had a significant impact on maternal breastfeeding self-efficacy and duration of breastfeeding.

Keywords: Exclusive breastfeeding, Psychiatric disorder, Psychological therapies, Self-efficacy

Introduction

The undeniable importance of maternal breastfeeding for child health and the vitality of the mother and child is accepted by all people around the world. The World Health Organization and United Nations International Children's Emergency Fund recommend that all infants should be exclusively breastfed from birth to the age of 6 months; thereafter, they should be fed solid and semi-solid food supplements in addition to breast milk (1).

Exclusive breastfeeding refers to the mere feeding with breast milk and non-use of other foodstuff or liquids in feeding the baby. Age at marriage, educational level, socioeconomic status, attitudes towards breastfeeding, breastfeeding problems, maternal sources of support, maternal self-confidence, and self-efficacy are among the known factors that affect exclusive breastfeeding and are actively at play in the breastfeeding duration (2).

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In 2003, the World Health Organization issued a report about 94 countries and announced that only 35% of suckling infants were exclusively breastfed until four months. The studies conducted in the USA in 2007 showed that 70.1% of mothers started breastfeeding after childbirth; however, only 33.2% of them continued exclusive breastfeeding up to six months and obeyed health advice in this regard. In today's world, the most important indicator of the success of lactation programs is exclusive breastfeeding in the first six months postpartum. In this regard, a survey conducted in 2004 showed that this figure was about 41% in Iran; additionally, this figure was announced to be 53.1% by media reports released by the Ministry of Health in 2014 (3, 4).

There are various psychological factors affecting lactation. Some of these factors include awareness regarding the importance of maternal breastfeeding, emotional distress, separation from infants, and the stressful environment of the Neonatal Intensive Care Unit (creating multiple problems for mothers whose children are in these units). Moreover, another breastfeeding problem is maternal sleep interruption and fatigue that can lead some women to discontinue breastfeeding (5, 6).

Psychological variables, like prenatal intent, willingness to and interest in lactation, and self-confidence in breastfeeding ability, are associated with breastfeeding and its duration. Kornberg et al. reported that positive belief, desire, and attitude increase the duration of breastfeeding (7-8). Other psychological factors involved in lactation and exclusive maternal breastfeeding include postpartum depression and mood disorders, anxiety, self-efficacy, and attachment to the neonate (9).

Self-efficacy and awareness refer to maternal knowledge of psychological factors in breastfeeding and its duration. Self-efficacy is built within a defined framework of one's judgment about his/her own ability based on individual's dominance, skills, and competencies. Such dominance and skills are formed based on the person's previous experiences and give him/her a sense of power to produce an effect or perform a task in a comprehensive manner (10).

Self-efficacy is one of the adjustable variables and important factors in the identification of those mothers who terminate the breastfeeding period quickly (11). In the psychological theory of social learning, Bandura defines self-efficacy as a dynamic cognitive process that evaluates people's ability in carrying out a health behavior and one of

the predictors of the health behavior of breastfeeding that shows the extent that a mother exercises stability in continuing breastfeeding and making an effort to achieve that objective (12).

In a cross-sectional study carried out on 198 pregnant women, 11 demographic and psychosocial variables (e.g., common beliefs, maternal trust, social learning, and religious behaviors about breastfeeding) were evaluated. With the entry of ten variables into the model, the results of the logistic regression model showed that breastfeeding self-efficacy was among the important and effective variables for continued breastfeeding that predicted the duration of breastfeeding. In addition, it was found that women with low self-efficacy went through early breastfeeding cessation 3.1 times more than those with high self-efficacy (13).

Maternal knowledge and awareness during pregnancy is a powerful tool for the enhancement of breastfeeding rate. Awareness and education during pregnancy for vulnerable groups, such as young and illiterate mothers, are very effective. In addition, the use of published training packages and, more importantly, face-to-face communication are important in breastfeeding and its continuation.

In a review article, exclusive maternal breastfeeding and duration of breastfeeding were examined. According to the mentioned review, in spite of the high importance of establishing child-friendly centers, training the health professionals, social support from health professionals, peer support, and media campaigns, the best approach was a multifaceted intervention (14).

Despite the great significance of exclusive maternal breastfeeding, it seems that only a small percentage of physicians actively recommend breastfeeding and its continuation to mothers. Moreover, given the great importance of spousal emotional support, husbands should attend counseling sessions with their wives (15). Those mothers who stop breastfeeding from the very beginning lack self-confidence in breastfeeding ability and also report some problems regarding milk sucking and chest pain and breast milk insufficiency. Moreover, they have received no encouragement to continue breastfeeding by relevant experts and physicians immediately after delivery (16-17).

According to the Ministry of Health and Medical Education, in 2007, only 28% of the infants under six months of age in Iran benefited from exclusive breastfeeding and more than half of the infants were deprived of exclusive

breastfeeding before they get four months old. The result of this reduction in the amount and duration of exclusive breastfeeding in developing countries has turned into a health issue that can double or triple the rate of malnutrition, infection, and death among suckling infants.

Accordingly, appropriate measures in the areas of notification, awareness-raising, attitudinal changes, and desirable practices of breastfeeding, as well as the investigation of the factors involved in successful breastfeeding, should be taken into consideration. Training the mother while establishing a good psychological communication with them and raising their self-confidence can be very important in breastfeeding and its continuation. With this background in mind, the present study was conducted to evaluate the impact of psychological factors, such as self-efficacy, awareness-raising, knowledge, and effective communication of medical staff with mothers, on lactation and exclusive maternal breastfeeding.

Methods

The current clinical trial was carried out on 129 pregnant women who referred to the Emergency Department of Vali-e-Asr Hospital for delivery over a period of two years, more specifically from April 2014 to October 2016. The inclusion criteria for the pregnant women included: 1) age group of 18-35 years, 2) nulliparity, 3) similar socioeconomic status, 4) decision to breastfeed, and 5) giving birth to a term or near-term and healthy neonate with no need for hospitalization. On the other hand, the exclusion criteria were: 1) history of systemic diseases during pregnancy, 2) history of postpartum psychosis, 3) previously trained about breastfeeding and the breastfeeding process, and 4) neonatal affliction with diseases or defects.

In case of the development of any disease or hospitalization of the suckling infant over the following months, the mother was excluded from the study as well. In addition, based on more accurate medical examinations over the course of a week, the mother and infant were excluded from the study if any disease was found in the infant or mother that influenced breastfeeding.

On the first postpartum day, the mothers were suggested to participate in the study, and in case of willingness, they completed the demographic information and informed consent forms for taking part in the study. First, a complete description was given to participants about the objective of the research. Then, the eligible

mothers interested in participating in the study were randomly divided into two groups of control ($n=65$) and intervention ($n=64$) after they announced their informed consent.

The assignment of the participants to groups was performed randomly using permutations. To this end, some random integers were selected from the table of random numbers before the study. Each even number meant the inclusion of one of the mothers in the control group while each odd number signified the inclusion of one mother in the intervention group. Before the initiation of the intervention, the mothers completed the Self-Efficacy Scale, the Edinburgh Postnatal Depression Scale (EPDS), and Spielberger's State-Trait Anxiety Inventory (STAI).

The Self-Efficacy Scale is a questionnaire taken from the Breastfeeding Self-Efficacy Scale developed by Dennis and Faux with 33 items, with each item presenting a positive attitude towards breastfeeding. The sum of the item scores represents a breastfeeding self-efficacy score. The minimum and maximum scores in this instrument are 33 and 165, respectively. Comments and suggestions of ten professors of Tehran University were used to assess the face and content validity of the questionnaire. Thereafter, a preliminary study was conducted to determine the reliability of the scale using 20 cases out of the qualified samples. A Cronbach's alpha coefficient of 82% indicated a high internal consistency for this tool (18, 19).

The Edinburgh test has been developed for the early diagnosis of postpartum depression status. Research has shown that 90% of mothers who have received a depression score beyond the natural limits of depression have experienced varying degrees of postpartum depression. The EPDS evaluates the mother's mental condition and mood status over the previous week, and this evaluation can be repeated after a passage of two weeks. This instrument is a screening scale that can identify only patients suspected of depression; therefore, the diagnostic accuracy of this tool should be determined under clinical conditions.

To fill out this scale, the mother should choose the right alternative according to her mental condition over the previous week (i.e., 7 days). The EPDS can be used up to 6 weeks after birth during the manifestation of depressive symptoms. In such circumstances, the symptoms of depression are also traceable in the lowest values. The EPDS score ranges within 0-30; accordingly, a score of 12 or higher is indicative of postpartum depression. The validity of the EPDS has been

confirmed by Khodadoostan (20, 21).

The STAI is widely used in clinical research and activities. This questionnaire includes separate self-report scales to measure state and trait anxiety. State anxiety can be considered as a person's stage of life; in other words, the incidence of state anxiety is contextual and is specific to stressful situations (e.g., arguments, loss of social positions, and threat of security and health). However, trait anxiety implies individual differences in response to stressful situations with different levels of state anxiety.

State and trait anxieties are comparable with each other in some areas just like kinetic and potential energies. State anxiety, similar to kinetic energy, refers to a tangible reaction or process that occurs at a certain time and at a certain level of intensity. On the other hand, trait anxiety, similar to potential energy, is ascribed to individual differences in reactions. Potential energy refers to some differences in the amount of kinetic energy that has been followed by a special physical issue and can appear if an appropriate force comes into existence. Therefore, the STAI consists of separate self-report scales to measure state and trait anxieties. The State Anxiety Scale (Y1 form) consists of twenty statements that evaluate one's feelings "at this moment and at response time". The Trait Anxiety Scale (Y2 form) also contains twenty statements that measure the general feelings of the respondents (22).

Following the completion of the questionnaires, the mothers in the intervention group received one training session of breastfeeding self-efficacy as the intervention, in addition to psychological therapies in case of suffering from anxiety, stress,

or depression. The mothers were also provided with breastfeeding training pamphlets and CDs, and one session was held using the training package to make mothers aware of parenting methods, including postpartum care and the relationship with infants. The mothers were asked about their breastfeeding method and its duration by telephone follow-up at the beginning of the study, and 6, 12, 18, and 24 months after delivery.

This project was registered in the Iranian Registry of Clinical Trials, numbered IRCT2013123010746N3. Data analysis was performed in SPSS statistical software, version 20 (SPSS Inc., Chicago, IL, USA). The obtained data were analyzed using descriptive statistics (i.e., mean, standard deviation, as well as relative and absolute frequency) and inferential statistics via the Chi-square test, independent t-test, and ANOVA for the comparison of the two groups. The significance level of 95% and statistical power of 80% were considered for this study.

Result

In the present study, both groups were matched in terms of demographic characteristics. In other words, the intervention and control groups were homogeneous with each other; therefore, any difference between the groups after the intervention would signify the effectiveness of psychological interventions. As can be observed in Table 1, the results of independent t-test revealed no significant difference between the two groups in terms of demographic characteristics, such as delivery age, weight and height of infants at birth, and head circumference of infants at birth.

Table 1. Comparison of relative and absolute frequencies of demographic characteristics between the intervention and control groups

Variables	Intervention group frequency (%)	Control group frequency (%)	P-value
Maternal education			
Below high school diploma	24 (37.5%)	24 (36.9%)	0.985
High school diploma	27 (42.2%)	27 (41.5%)	
Above high school diploma	13 (20.3%)	14 (21.5%)	
Paternal education			
Below high school diploma	36 (56.3%)	33 (50.8%)	0.181
High school diploma	16 (25%)	25 (38.5%)	
Above high school diploma	12 (18.8%)	7 (10.8%)	
Maternal job			
Housewife	58 (90.6%)	61 (93.8%)	0.494
Employed	6 (9.4%)	4 (6.2%)	
Type of delivery			
Natural	17 (26.6%)	16 (24.6%)	0.957
Caesarean	47 (73.5%)	49 (75.4%)	
Mother's wish for the Type of delivery			
Natural	30 (46.9%)	38 (58.5%)	0.188
Caesarean	34 (53.1%)	27 (41.5%)	
Physical problems	19 (29.7%)	14 (21.5%)	0.289
Psychological problems	5 (7.8%)	4 (6.2%)	0.712

Table 2. Comparison of mean demographic variables between the intervention and control groups

Variables	Intervention group M± SD	Control group M± SD	P-value
Age of mother	28.61±5.28	28.45±5.62	0.771
Age of father	32.72±5.78	32.61±5.6	0.675
Length of marriage	7.21±5.17	7.18±5.60	0.782
Delivery age	38.18±1.80	37.83±1.97	0.805
Weight of neonate at birth	3057.5000±765.05	3076.4615±638.16	0.252
Height of neonate at birth	48.05±5.50	47.71±5.59	0.744
Head circumference of neonate at birth	34.400±3.73	34.900±5.41	0.292

Table 3. Comparison of the frequency and percentage of duration method between the intervention and control groups

Breastfeeding	Intervention group frequency (%)	Control group frequency (%)	P-value
Breastfeeding immediately after birth	56 (87.5%)	49(75.4%)	0.077
Exclusive breastfeedinguntil 6 months	36(40.9%)	20 (23.5%)	0.015
Breastfeeding untilone year	34 (52.9%)	21 (32.8%)	0.025
Breastfeeding up to one yearand six months	29 (44.6%)	14 (21.9%)	0.006
Breastfeeding up to twoyears	22 (33.8%)	5 (7.8%)	0.001
Powdered milk up to 6 months	16(25%)	21 (32.3%)	0.359

Table 4. Comparison of the frequency and percentage of state and trait anxiety and postnatal depression between the intervention and control groups

Variables	Intervention group frequency (%)	Control group frequency (%)
State anxiety (STAI 1)		
Mild anxiety	10 (15.6%)	12(18.5%)
Moderate anxiety and below	21(32.8%)	27(41.5%)
Moderate anxiety and above	23 (35.9%)	22 (33.8%)
Relatively severe anxiety	9 (14.1%)	3 (4.6%)
Severe anxiety	0 (0%)	1 (1.5%)
Extremely severe anxiety	1 (1.6%)	(0%) 0
Trait Anxiety (STAI 2)		
Mild anxiety	13 (20.3%)	12 (18.5%)
Moderate anxiety and below	16 (25%)	20 (30.8%)
Moderate anxiety and above	25 (39.1%)	26 (40%)
Relatively severe anxiety	8 (12.5%)	7 (10.8%)
Severe anxiety	2 (3.1%)	0 (0%)
Extremely severe anxiety	0 (0%)	0 (0%)
Edinburgh Postnatal Depression Scale	25 (39.1%)	19 (29.2%)
Self-Efficacy Scale	*121.44±28.40	122.52±21.66

* Mean±SD

As can be observed in Table 2, the rate of exclusive breastfeeding was significantly higher in the intervention group (n=36, 41%) than that in the control group (n=20, 23.5%) during the 6 months after birth (P=0.015). Similarly, the results of the Chi-square test indicated that breastfeeding was significantly different between the intervention and control groups at the infants' ages of one year (52% vs. 33%), one year and six months (45% vs. 30%), and two years (39% vs. 8%) (Table 3).

The degrees of mild, moderate, and severe anxiety in STAI 1 (state anxiety) were estimated as 15.6%, 68.7%, and 15.7% in the intervention group, respectively. These percentages were equal to 18.5%, 75.3%, and 6.1% in the control group, respectively. In addition, the degrees of mild, moderate, and severe anxiety in STAI 2 (trait anxiety) were obtained as 20.3, 64.1%, and 15.6%

in the intervention group, and 18.5%, 70.8%, and 10.8% in the control group, respectively. No significant difference was found between the two groups in terms of the state anxiety (P=0.311), trait anxiety (P=0.633), and postnatal depression (P=0.239).

With regard to self-efficacy, the results of the independent t-test were representative of the absence of any significant difference between the intervention and control groups (P=0.095). The two groups were consistent and homogeneous in terms of psychological variables and self-efficacy (Table 4).

Regarding the impact of anxiety and depression on breastfeeding self-efficacy, the results showed that trait anxiety and postnatal depression had a significant association with breastfeeding self-efficacy. In this regard, self-efficacy scores would increase with the reduction

of trait anxiety ($P=0.02$). However, such a trend was not observed in state anxiety. Based on the Edinburgh test, depressed patients received significantly lower scores in self-efficacy ($P=0.03$).

Even the Pearson correlation test revealed a significant negative correlation between self-efficacy scores and trait anxiety ($r=0.183$, $P=0.04$). In other words, a reduction in self-efficacy led to increased anxiety. A significant direct relationship was also reported between self-efficacy and postnatal depression ($r=0.626$, $P=0.03$). According to the results, the nature of depression and anxiety affected self-efficacy.

Discussion

At first, self-efficacy theory was described as a way to promote women's cognition with the aim of organizing and taking measures towards long-term breastfeeding. Birth territory theory is an important subjective concept of successful breastfeeding among women that fully examines the effects of the environment and women's power. This power can be considered in an integrated mode to strengthen breastfeeding confidence and success or lead to reduced confidence and breastfeeding failure. The theory of self-efficacy is a helpful strategy; however, it does not suffice to promote breastfeeding to 6 months.

Educators in the field of women's health need to establish relationships with women and develop a sense of trust among them towards their bodies and their children for spontaneous breastfeeding. The environmental influences of how a woman breastfeeds her neonate by using her integrated power is crucial for long-term breastfeeding (23). The results of this study showed that teaching self-efficacy, provision of information, and knowledge, as well as psychological interventions had a significant effect on exclusive breastfeeding and duration of breastfeeding in the intervention group in comparison with those in the control group.

A randomized controlled trial was carried out in Ahvaz, Iran, for the first time to determine the effect of training programs on breastfeeding self-efficacy and duration of exclusive breastfeeding on 120 pregnant women. They randomly assigned the women into two groups. The training program was conducted within two days for the intervention group (two two-hour training sessions). One month after the delivery self-efficacy scores were determined. Six months after delivery, the duration of exclusive breastfeeding was assessed. The findings of the mentioned study

showed that breastfeeding self-efficacy increased in the intervention group one month after delivery, compared to that in the control group (123.6 vs. 101.7; $P<0.001$). Furthermore, the duration of exclusive breastfeeding was greater in the intervention group than in the control group ($P<0.001$) (24).

Küçükoğlu et al. (2014) examined the effectiveness of self-efficacy, breastfeeding success, and breastfeeding training in neonatal growth among the mothers of children with low birth weights. They concluded that breastfeeding training led to the enhancement of self-efficacy and success in breastfeeding ($P<0.05$). In addition, the intervention group had an increase in the rate of exclusive breastfeeding, compared to the control group ($P <0.001$). The results of the mentioned study also showed that breastfeeding training increased the level of self-efficacy and duration of breastfeeding (25).

In this regard, Joshi et al. (2016) conducted a quasi-experimental study of breastfeeding training based on knowledge, awareness, self-efficacy, and breastfeeding tendency among Spanish mothers using computer tools. Breastfeeding training in the intervention group was implemented by means of a computer program with a touch screen; however, printed training materials were used for the control group. The participants were enrolled in the study while they were in the sixth weeks of gestation. Post-delivery follow-ups were performed on the third and seventh days, in the second and sixth weeks, and in the third and sixth months. The results were representative of a significant improvement in knowledge, awareness, and breastfeeding tendency for all participants ($P<0.05$). A gradual increase was also observed in breastfeeding self-efficacy scores up to the sixth week. This was followed by a decrease in the third month ($P<0.46$) and the sixth month ($P<0.54$).

In the mentioned study, there was a significant difference between the intervention and control groups in terms of awareness and knowledge of breastfeeding in the sixth week ($P=0.03$). The control group witnessed a gradual decline in self-efficacy scores in the third and sixth months, compared to the intervention group. However, the intervention group experienced a gradual increase in self-efficacy scores at different times during the follow-up period. The control group gained more negative emotional scores on breastfeeding on the third ($P=0.02$) and seventh days ($P=0.03$) than the intervention group. The results showed that the sixth week and the third month are critical

periods to conduct interventions aimed at the continuation of breastfeeding (26).

There are different studies, such as those of Mirmohamadi, (2014) and Goudarziet, al. (2015), assessing the effect of training and provision of information to mothers via clinical trials. The results of the mentioned studies showed that face-to-face breastfeeding training followed by the direct involvement of educators led to increased breastfeeding self-efficacy in the third postpartum month ($P < 0.001$). According to the results of the mentioned investigations, peer breastfeeding training led to the enhancement of breastfeeding self-efficacy in nulliparous women of the intervention group, compared to that in the control group, within the range of eight weeks after the intervention (27, 28).

Self-efficacy seems to be associated with different variables. In this regard, the results of a cohort study revealed that perceived self-efficacy is correlated with mothers' perception of milk availability. The mentioned study examined the relationship of self-efficacy and maternal perception of milk availability with the use of prescribed medications for the increase of mother's milk in 76 lactating women aged 18-40 years during a period of 6 months. On average, the mothers who had used domperidone gained significantly lower scores in self-efficacy ($P < 0.05$) and were more likely to use powdered milk ($X^2 = 6.87$, $df = 1$, $P < 0.05$) (29). In addition, self-efficacy was correlated with demographic characteristics.

In a quantitative study conducted on 209 women in Latin America, early breastfeeding rates and the factors associated with breastfeeding at 4-6 postpartum weeks were investigated. In the mentioned study, higher education ($\beta = 0.21$ [0.08, 0.56]), previous breastfeeding rate equal to or more than 6 months ($\beta = 0.35$ [0.57, 1.8]), and higher scores on breastfeeding self-efficacy ($\beta = 0.38$, [0.02, 0.05]) were associated with greater breastfeeding. Furthermore, higher scores on breastfeeding self-efficacy were correlated with exclusive breastfeeding [adjusted OR = 1.18 [1.05, 1.32]]. Based on the results of the mentioned study, breastfeeding self-efficacy, in itself, was among the most important factors associated with exclusive maternal breastfeeding (30).

According to the results of the present study and other studies in the same scope, self-efficacy is effective in exclusive maternal breastfeeding and can also increase the duration of breastfeeding, which is certainly important in maternal and child health. The psychological

characteristics of the mother are other important factors in self-efficacy. The present study showed that symptoms of anxiety and depression are associated with self-efficacy; in this regard, maternal self-efficacy increased with the decline of anxiety.

An empirical study was performed on 201 women who were hospitalized immediately after birth for at least 6 h to examine the impact of a flip chart entitled "I Can Breastfeed My Child". The results of the mentioned research showed that the interventions were useful because the mothers in the intervention group received higher scores. Most of the mothers continued breastfeeding, and the duration of exclusive breastfeeding was significantly longer both at the discharge time and in the second month after delivery (31).

Howell et al. reported that behavioral training interventions were effective in the duration of breastfeeding. Mothers in the intervention group were less likely to cease breastfeeding in the first six months after childbirth (hazard ratio: 0.79, 95% CI [0.65-0.97]) (32). Chien Wen Kao et al. (2015) examined the impact of group interpersonal psychotherapy on the prevention of postpartum depression by using a social support method, developing interpersonal skills during the transitional period of mothers, and assessing the effects on breastfeeding. Their results were indicative of a positive impact of the interventions on breastfeeding (33).

Loke et al. reported that self-confidence was an important predictor of the duration of breastfeeding and exclusive maternal breastfeeding and that health professionals must monitor breastfeeding behaviors and give mothers not only enough information, but also necessary self-confidence for breastfeeding before hospital discharge (34). According to the present study and other studies in this domain, psychological interventions can lead to the improvement of self-efficacy, which may also support breastfeeding.

It seems that psychological treatments and training programs can increase self-efficacy, exclusive breastfeeding, and duration of breastfeeding among mothers. These results can attract the attention of authorities to the importance of training programs on exclusive breastfeeding for mothers.

Conclusion

Teaching self-efficacy, provision of information and awareness, as well as psychological interventions were significantly effective in exclusive breastfeeding up to 6 months after birth

in the intervention group, compared with that in the control group. Breastfeeding for the durations of one year, one year and six months, and two years after the childbirth were significantly longer in the intervention group than those in the control group. The results also showed that the psychological symptoms of anxiety and depression were associated with breastfeeding self-efficacy. Training and behavioral interventions were effective in the enhancement of long-term breastfeeding self-efficacy.

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Conflicts of interests

None declared.

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