

The Effect of Breast Massage Training on Self-Efficacy and Perceived Stress of Prim Parous Women: A Clinical Trial Study

Abstract

Background: Breastfeeding is a highly efficacious, health-promoting activity that prevents many disorders and diseases. Successful breastfeeding depends on various maternal physiological and psychological factors, among which breastfeeding self-efficacy is an adjustable framework. This study investigates the effect of breast massage training on self-efficacy and perceived stress in primiparous women. **Materials and Methods:** This study is a clinical trial study on 132 eligible primiparous mothers referred to Bahar Hospital from August 15, 2019, to December 15, 2020. The women were randomly divided into intervention and control groups. The massage was performed in the intervention group before breastfeeding. The data were collected using a standard breastfeeding self-efficacy questionnaire and the Sheldon Perceived Standard Questionnaire. Data were entered into SPSS 18 and analyzed using descriptive statistics, Chi-square, and analysis of variance. **Results:** The results of this study showed that the mean (SD) breastfeeding self-efficacy in the breast massage training group with direct midwife involvement was 61.63 (9.21), higher than the one in the control group 51.51 (11.62). In addition, perceived stress was 19.81 in the intervention group and 24.84 in the control group, which was also statistically significant. **Conclusions:** Due to the increase in self-efficacy scores and decrease in stress scores after breast massage, this method can improve breastfeeding performance in women. Therefore, educational strategies should be developed in this area.

Keywords: Breast, massage, self efficacy

Introduction

Breastfeeding is the best start in children's life. The breastfeeding value and its role in reducing disease in babies, increasing their Intelligence Quotient (IQ), providing the best growth pattern and development, providing health in adulthood, and improving mothers' health are well known.^[1] Breast milk is a complex biological fluid and the ideal food for babies and can provide the maximum nutritional balance in terms of quality and quantity for the baby. Therefore, there is an emphasis on exclusive breastfeeding in the first 6 months and continued breastfeeding with complementary feeding for up to 2 years.^[2,3] The prevalence of exclusive breastfeeding at an international level is 56.8% at 4 months and 27.7% at 6 months. These statistics in rural areas of Iran stand at 58% at 4 months and 29% at 6 months, whereas, in urban areas, they are 56% at 4 months and 27% at 6 months.^[4]

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

Various factors, such as gestational age, delivery type, maternal employment status, family support, a suitable place to keep the infant in the workplace, and proper training of health personnel, play a role in breastfeeding.^[5,6] One of the effective factors is mothers' self-efficacy and stress. Self-efficacy is the belief a person has in his or her ability to accomplish a task and handle situations in the future.^[7] Self-efficacy is an adjustable variable that can be improved through appropriate educational programs. Because self-sufficiency for exclusive breastfeeding is influenced by previous breastfeeding experiences and stress, nulliparous women are expected to face problems in exclusive breastfeeding due to their lack of experience.^[8,9]

Breast massage helps parents experience lower anxiety levels following the therapy. In some countries, massage training is

How to cite this article: Ramezani S, Garkaz O, Khosravi A, Ghasemi Z, Paryab S, Bolbolhaghghi N. The effect of breast massage training on self-efficacy and perceived stress of prim parous women: A clinical trial study. *Iran J Nurs Midwifery Res* 2023;28:352-6.

Submitted: 14-Jul-2020. **Revised:** 26-Aug-2020.
Accepted: 18-Apr-2022. **Published:** 21-Jun-2023.

Somayeh Ramezani¹,
Omid Garkaz²,
Ahmad Khosravi³,
Zohra Ghasemi⁴,
Sahar Paryab⁵,
Nahid Bolbolhaghghi⁶

¹M.Sc. of Counselling in Midwifery, Bahar Hospital, Shahroud University of Medical Sciences, Shahroud, Iran,

²Department of Epidemiology, School of Public Health, Shahroud University of

Medical Sciences, Shahroud, Iran,

³Assistant Professor of Epidemiology, Center for Health-Related Social and Behavioral Sciences, Shahroud

University of Medical Sciences, Shahroud, Iran,

⁴Bahar Hospital, Shahroud University of Medical Sciences, Shahroud, Iran,

⁵School of Nursing and Midwifery, Shahroud University of Medical Sciences, Shahroud, Iran,

⁶Assistant Professor of Nursing and Midwifery, School of Nursing and Midwifery, Shahroud

University of Medical Sciences, Shahroud, Iran

E-mail: nbhaghghi349@yahoo.com

Address for correspondence:

Dr. Nahid Bolbolhaghghi,
Shahroud University of Medical Sciences, Shahroud, Iran.
E-mail: nbhaghghi349@yahoo.com

Access this article online

Website: <https://journals.lww.com/ijnmr>

DOI: 10.4103/ijnmr.ijnmr_87_20

Quick Response Code:



considered part of routine care.^[10] Massage therapy is part of complementary medicine which families increasingly use due to its simple practice and learning. Breast massage helps the mother relax. Thus, before breastfeeding by a mother who feels tired and anxious or has little milk secretion, it helps calm the mother and focus on her milk. Massage releases oxytocin, which leads to rapid milk flow. Another benefit of breast massage is the increased prolactin secretion, which starts the milk flow from the breast and relieves lobe congestion and breast inflammation.^[11,12]

Several studies show that supporting breastfeeding mothers is effective in breastfeeding. The hormone oxytocin stimulates and improves milk flow. Noticeable changes and breast problems occur during the first few weeks after delivery. When milk production begins, mothers' confidence declines and breastfeeding reduces.^[13,14] In general, several factors are effective in breastfeeding.^[8,14-16] These issues consequently affect the mental and physical condition of the mother. This study investigates the effect of breast massage training on self-efficacy and stress in primiparous individuals.

Materials and Methods

This study was conducted as a clinical trial from August 15, 2019, to December 15, 2020. Considering Dehghani *et al.*^[17] study, we selected eligible 132 primiparous women in the post-partum department [Figure 1]. The following quantities were used to calculate the sample size. The total sample size was 132 people and 66 people for each group.

After obtaining informed consent, we divided the participants into a breast massage intervention (66 people) and a control (66 people) group based on a quadruple accidental block. The participants were identified by a card

number and registered in the Iranian Registry of Clinical Trials (IRCT20155080422407). In this case, the confidence interval was 95%, and the test power was 80%. This study was a part of a master's thesis in midwifery, and another part was published in the form of another article.^[9]

Our inclusion criteria included primary educational background (at least), no breastfeed-banning diseases such as cancer, tuberculosis, and Acquired Immune Deficiency Syndrome (AIDS), primiparous situation, full consciousness in women with cesarean delivery, having a healthy termed baby, no mental illnesses, not addicted to alcohol, tobacco, and other narcotic drugs, no medical cardiovascular and renal diseases, no radiotherapy background, and no twin delivery experience. Those with normal delivery in the post-partum room, C-section delivery after gaining full consciousness, and spinal anesthesia after recovery received breast massage training. A midwife conducted this single-blind study based on the inclusion and exclusion criteria.

We trained the intervention participants on breast massage, which included mothers with vaginal delivery in the post-partum room, a cesarean section under general anesthesia after gaining complete consciousness, and spinal anesthesia after recovery. Both breasts were massaged by a trained midwife 4–5 minutes before the first lactation. The midwives conducted different types of breast massages, such as those by a fist, fingers, dancing gestures, and nipple. The mothers were taught to do the breast massage before every breastfeeding. The follow-up of breast massage before each breastfeeding was done at home through phone calls during the neonatal period. We provided routine training on breastfeeding for both groups. Finally, two standard questionnaires on breastfeeding

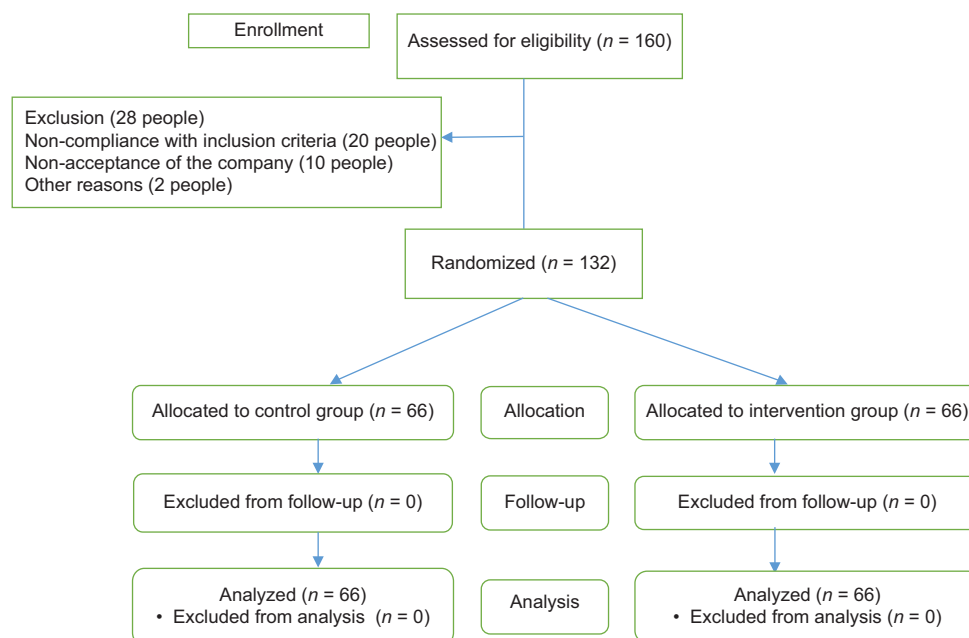


Figure 1: Consort diagram

difficulties and exclusive breastfeeding were completed by mothers in both intervention and control groups on the 28th post-partum day.

The self-efficacy and perceived stress before the intervention in both control and intervention groups were measured by a questionnaire. The 14-item breastfeeding self-efficacy questionnaire with a positive charge begins with the prefix questions (I can always) on a 5-point Likert scale, ranging from I am always or completely confident (score 5) to never or not at all confident (score 1). Hence, the highest score represents the highest level of efficacy in breastfeeding.^[7] The validity of this questionnaire was reviewed and confirmed by Mirghafourvand *et al.*^[18] The reliability was investigated by Bastani *et al.*,^[19] and Cronbach's alpha was 0.87.

The Perceived Stress Questionnaire was developed by Cohen *et al.* (1983). This tool is suitable for determining people's awareness of their stress in unpredictable and uncontrollable events in life. The tool contains 14 questions, and the answers are arranged on a five-point Likert scale. A score of 0 to 4 is awarded for each option (0 = never, 1 = rarely, 2 = sometimes, 3 = most of the time, and 4 = all time). In the case of positive questions,^[4,7,9,10,13] the scores are calculated inversely. The range of scores varies between 0 and 56. The cutoff score is 21.8, and higher scores indicate more perceived stress.^[20,21] In a study by Ghorbani *et al.*,^[22] Cronbach's alpha in American society was calculated to be 0.86, whereas, in an Iranian sample, the value was 0.81. The data were analyzed using SPSS 18, and descriptive statistics, the Chi-square test, and analysis of variance were used in this study.

Ethical considerations

This study was approved by the Research Committee of Shahroud University of Medical Sciences and approved with the code of ethics (IR.SHMU.REC.1394.46). This research was also reviewed and approved by the Research

Council of Shahroud University of Medical Sciences. Moreover, informed consent was obtained from the research sample.

Results

In this study, nine mothers in the intervention group (13.63%) had under-diploma and 57 (86.36%) above-diploma education. In the control group, there were 10 (15.15%) under diploma and 56 (84.84%) above diploma participants. Regarding intervention mothers' careers, 7 (10.60%) were employed and 59 (89.40%) were housewives. In the control group, 10 (15.20%) were employed and 56 (84.80%) were housewives; 34% and 48.50% had normal and cesarean deliveries, respectively, in the intervention group. There were 24 (36.40%) normal deliveries and 42 (63.60%) cesarean sections in the control group. In both groups, most pregnancies were wanted. There was no significant difference between the two groups regarding employment status, education, and delivery type [Table 1].

The mean level of breastfeeding self-efficacy showed significant differences ($p = 0.002$) between the two groups. The experimental group had a higher mean score in self-efficacy 61.63 (9.21), and the stress levels perceived by mothers in both groups were significantly different ($p = 0.005$). In the intervention group, the stress level was 24.84 (7.31) and 19.81 (7.92) in the control group. Thus, the control group had higher stress, showing a significant difference between the groups [Table 2].

Discussion

This study investigated the effect of breast training on self-efficacy and perceived stress in primiparous women. As a result of the intervention, self-efficacy increased and stress levels decreased. There are direct relationships between a community's health and improved nutrition,

Table 1: Comparison of the demographic characteristics of mothers in the two groups

Variables	Intervention	Control	Test statistics	df	p^{****}
Mother's age (years)*	25.52 (4.52)	26.39 (4.90)	1.04	131	0.298
Mother's Education**					
Under diploma	9 (13.63)	10 (15.15)	1.23	123	0.222
Above diploma	57 (86.36)	56 (84.84)			
Mother's occupation**					
Working	7 (10.60)	10 (15.20)	0.61	1	0.322
Housewife	59 (89.40)	56 (84.80)			
Delivery type**					
Normal vaginal delivery	34 (51.50)	24 (36.40)	4.21	1	0.244
Cesarean	32 (48.50)	42 (63.60)			
Pregnancy type**					
Wanted	60 (90.90)	60 (90.90)	0.74	1	0.692
Unwanted	6 (9.10)	6 (9.10)			

*Findings are expressed as mean(SD). **Frequency (percentage). ****Chi-square and analysis of variance

Table 2: Comparison of self-efficacy and perceived stress of mothers in both intervention and control groups

Variables	Intervention Group (n=66) Mean (SD)	Control Group (n=66) Mean (SD)	F	p
Breastfeeding self-efficacy	61.63 (9.21)	51.51 (11.62)	130	0.005
Perceived stress	19.81 (7.92)	24.84 (7.31)	123.74	0.002

child development, infectious disease prevention, family planning, and population control. Breastfeeding can be helpful to gain such benefits.^[23,24] However, a key to improving the health and well-being of mothers and babies seems to be an increased rate of breastfeeding.^[25]

The results of the present study showed that mothers who received breast massage training from midwives had higher self-efficacy than those who received routine care, which increased breastfeeding. This finding is consistent with the studies of Shahri *et al.*,^[26] Yang *et al.*,^[27] All of these studies showed positive effects of massage on breastfeeding mothers' self-efficacy, a point that requires more attention.

Furthermore, this study showed that self-efficacy increased as a result of the intervention, and anxiety decreased. Thus, taking appropriate actions to increase self-efficacy is important, as highlighted by other studies.^[28-30] In fact, all such issues indicate the self-efficacy effect on stress management that ultimately leads to effective breastfeeding.^[29,31] According to the findings of Dennis, women with high self-efficacy significantly showed higher breastfeeding and self-esteem and lower depression and perceived stress.^[32] In Dehghani *et al.*'s^[17] study, the breast massage intervention calmed the mother and initiated milk flow by increasing prolactin and oxytocin secretion. This consequently improved breastfeeding reduced the stress perceived by mothers and increased breastfeeding self-efficacy. Such interventions are of vital importance. Therefore, these points reflect the impact of breast massage training on mothers' self-efficacy and stress, indicating a good and effective trend.

In general, it is necessary to teach effective methods to increase breastfeeding, including breast massage training in the early stages^[33] of childbirth, to mothers who do not have sufficient experience and information about breastfeeding.^[34] In this regard, doctors,^[35] midwives, nurses, and other health professionals must identify mothers with breastfeeding risks and provide them with the necessary training to improve breastfeeding self-efficacy and perceived stress. Exclusive breastfeeding should also be increased. This study could be a pioneering attempt in the province to examine an important issue such as the self-efficacy of first-breastfeeding mothers. One of the weaknesses of this study was its selection of mothers referring to one particular hospital. Thus, our study may not be socio-economically representative of the whole society.

Conclusion

The study results showed that appropriate training such as breast massage reduces stress and increases self-efficacy, which requires appropriate measures and plans.

Acknowledgments

This research is a part of the dissertation entitled "The Impact of Breast Massage on Exclusive Infant Breastfeeding at the End of Infancy and the Problems of Breastfeeding in Postpartum Primary Women." A part of the project was published and has been approved with code no. 9420 by the Shahroud University of Medical Sciences. We sincerely thank the Research of Shahroud University of Medical Sciences, the esteemed director of Bahar Hospital in Shahroud, and all dear mothers who contributed to this research.

Financial support and sponsorship

Deputy of Research and Technology of Shahroud University of Medical Sciences

Conflicts of interest

Nothing to declare.

References

1. Parmar S, Viswanath L. The effectiveness of a breastfeeding self-efficacy programme on breastfeeding self-efficacy and breastfeeding practice among primigravida mothers. *Int J Nurs Care* 2019;7:69-73.
2. Haghighi M, Varzandeh R. Maternal knowledge and attitude toward exclusive breastfeeding in six months after birth in Shiraz, Iran. *Int J Pediatr* 2016;4:3759-67.
3. Gianni ML, Bezze E, Sannino P, Stori E, Plevani L, Roggero P, *et al.* Facilitators and barriers of breastfeeding late preterm infants according to mothers' experiences. *BMC Pediatr* 2016;16:179-86.
4. Ranjbaran M, Nakhaei MR, Chizary M, Shamsi M. Prevalence of exclusive breastfeeding in Iran: Systematic review and meta-analysis. *Int J Epidemiol Res* 2016;3:294-301.
5. Ghanbari S, Majlessi F, Ghaffari M, Mahmoodi Majdabadi M. Evaluation of health literacy of pregnant women in urban health centers of Shahid Beheshti Medical University. *Daneshvar Med Basic Clin Res J* 2020;19:1-12.
6. Nasrabadi M, Vahedian-Shahroodi M, Esmaily H, Tehrani H, Gholian-Aval M. Factors affecting exclusive breastfeeding in the first six months of birth: An exploratory-descriptive study. *J Midwifery Reprod Health* 2019;7:1749-64.
7. Charoghchian Khorasani E, Peyman N, Esmaily H. Relations between breastfeeding self-efficacy and maternal health literacy among pregnant women. *Evid Based Care* 2017;6:18-25.
8. Maleki-Saghooni N, Amel Barez M, Moeindarbari S, Karimi FZ. Investigating the breastfeeding self-efficacy and its related factors in primiparous breastfeeding mothers. *Int J Pediatr* 2017;5:6275-83.
9. Ramezani S, Bolbolhaghghi N, Kolahdozan S, Khosravi A. The effect of breast massage training to mothers on the exclusive breastfeeding rate and its problems in mothers during the neonatal period. *Int J Health Stud* 2018;4:15-8.
10. Mardante K, Kliegman RM. *Nelson Essentials of*

- Pediatrics-E-Book: First South Asia Edition. Elsevier Health Sciences; 2016.
11. Lang S. Breastfeeding Special Care Babies. Baillière Tindall; 2002.
 12. Gallegos-Martínez J, Reyes-Hernández J, Torres-Carreón FdSC, Esther B, Cuéllar-Miranda AL, Scochi CG. Factors and survival of exclusive breastfeeding in preterm infants upon discharge at six months of age. *J Nurs Educ Pract* 2020;10:30-8.
 13. Kollmann M, Aldrian L, Scheuchenegger A, Mautner E, Herzog SA, Urlesberger B, *et al.* Early skin-to-skin contact after cesarean section: A randomized clinical pilot study. *PLoS One* 2017;12:e0168783. doi: 10.1371/journal.pone.0168783.
 14. Monazzami M, Yousefzadeh S, Afiat M, Esmaeili H. The Effect of Ginger (*Zingiber officinale*) compression for treatment of Breast Engorgement on Lactation Self-efficacy. *Iran J Obstet Gynecol Infertil* 2019;22:54-62.
 15. Kılıç H, Çoban A. The correlation between breastfeeding success in the early post-partum period and the perception of self-efficacy in breastfeeding and breast problems in the late post-partum. *Breastfeeding Med* 2016;11:188-95.
 16. Oh S, Hahs-Vaughn DL, Hagedorn B. Exploring the relationships between counseling students' cultural factors, academic aptitude, and self-efficacy. *Couns Educ Supervision* 2019;58:257-77.
 17. Dehghani M, Babazadeh R, Khadivzadeh T, Pourhoseini SA, Esmaeili H. Effect of breast Oketani-massage on neonatal weight gain: A randomized controlled clinical trial. *Evid Based Care* 2018;8:57-63.
 18. Mirghafourvand M, Malakouti J, Mohammad-Alizadeh-Charandabi S, Faridvand F. Predictors of breastfeeding self-efficacy in Iranian women: A cross-sectional study. *Int J Women's Health Reprod Sci* 2018;6:380-5.
 19. Bastani F, Rahmatnejad L, Jahdi F, Haghani H. Breastfeeding self efficacy and perceived stress in primiparous mothers. *Iran J Nurs* 2008;21:9-24.
 20. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav* 1983;24:385-96.
 21. Leung DY, Lam T-H, Chan SS. Three versions of Perceived Stress Scale: Validation in a sample of Chinese cardiac patients who smoke. *BMC Public Health* 2010;10:513. doi: 10.1186/1471-2458-10-513.
 22. Ghorbani N, Bing MN, Watson P, Davison HK, Mack DA. Self-reported emotional intelligence: Construct similarity and functional dissimilarity of higher-order processing in Iran and the United States. *Int J Psychol* 2002;37:297-308.
 23. Javanmardi M, Khodakarami N, Jannesari S, Akbarzadeh Baghban A. Related factors associated with exclusive breastfeeding in Isfahan province. *Sarem J Reprod Med* 2017;2:49-53.
 24. Hazemba AN, Ncama BP, Sithole SL. Promotion of exclusive breastfeeding among HIV-positive mothers: An exploratory qualitative study. *Int Breastfeed J* 2016;11:1-10.
 25. Sharp D, Entwistle F. Why women stop breastfeeding in the early days. *Pract Midwife* 2015;18:30-3.
 26. Shahri MM, Nourian M, Varzeshnejad M, Nasiri M. The Effect Of Oketani Breast Massage On Successful Breastfeeding, Mothers' Breastfeeding Support Need, And Breastfeeding Self-Efficacy: A Clinical Trial Study. *Shahid Beheshti University of Medicine Science*; 2020. p. 1-22. doi: 10.21203/rs.3.rs-64870/v1.
 27. Yang X, Gao L-l, Ip W-Y, Chan WCS. Predictors of breast feeding self-efficacy in the immediate post-partum period: A cross-sectional study. *Midwifery* 2016;41:1-8.
 28. Corby K, Kane D, Dayus D. Investigating predictors of prenatal breastfeeding self-efficacy. *Can J Nurs Res* 2021;53:56-63.
 29. Azizi E, Maleki A, Mazloomzadeh S, Pirzeh R. Effect of stress management counseling on self-efficacy and continuity of exclusive breastfeeding. *Breastfeed Med* 2020;15:501-8.
 30. Shiraishi M, Matsuzaki M, Kurihara S, Iwamoto M, Shimada M. Post-breastfeeding stress response and breastfeeding self-efficacy as modifiable predictors of exclusive breastfeeding at 3 months post-partum: A prospective cohort study. *BMC Pregnancy Childbirth* 2020;20:1-10. doi: 10.1186/s12884-020-03431-8.
 31. De Roza JG, Fong MK, Ang BL, Sadon RB, Koh EYL, Teo SSH. Exclusive breastfeeding, breastfeeding self-efficacy and perception of milk supply among mothers in Singapore: A longitudinal study. *Midwifery* 2019;79:102532. doi: 10.1016/j.midw.2019.102532.
 32. Dennis CL. Breastfeeding initiation and duration: A 1990-2000 literature review. *J Obstet Gynecol Neonatal Nurs* 2002;31:12-32.
 33. Sari LP, Salimo H, Budihastuti UR. Optimizing the combination of oxytocin massage and hypnobreastfeeding for breast milk production among post-partum mothers. *J Matern Child Health* 2017;2:20-9.
 34. Kent JC, Prime DK, Garbin CP. Principles for maintaining or increasing breast milk production. *J Obstet Gynecol Neonatal Nurs* 2012;41:114-21.
 35. Galipeau R, Dumas L, Lepage M. Perception of not having enough milk and actual milk production of first-time breastfeeding mothers: Is there a difference? *Breastfeed Med* 2017;12:210-7.