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The Effect of Breast Massage Training to Mothers on the Exclusive Breastfeeding Rate and Its Problems in Mothers during the Neonatal Period

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Received: 5 September 2018

Accepted: 24 November 2018

Abstract

Background: Breast massage helps the mother relax, causing the secretion of oxytocin hormone. This makes the milk flow rapidly. The aim of this study was to examine the impact of breast massage training on reducing problems of breastfeeding in mothers and increasing the rate of exclusive breastfeeding.

Methods: This was a randomized clinical trial performed on 132 nulliparous women after childbirth. The participants were randomly divided into breast massage and control groups. Different methods of breast massage were trained to the intervention group before each breastfeeding and to the control group (routine training in breastfeeding after delivery) as well. Then, the questionnaires on breastfeeding and breastfeeding problems were completed by both groups on the 28th day after the childbirth.

Results: The intervention group mean age was 25.5 ± 4.52 based on the results and the mean age in the control group was calculated as 26.3 ± 4.9 . No significant difference was found between the groups regarding the demographic characteristics, suggesting the comparability of the two groups. However, we found a significant difference in the breastfeeding problems between the two groups ($P < 0.05$). The rate of exclusive breastfeeding in the intervention and control groups was measured as 54.5% and 45.5%, respectively. These values were not found to be statistically significant ($P < 0.05$). Employing descriptive statistics, chi-square test, and ANOVA and using the SPSS software, we analyzed the resulting data.

Conclusions: Demonstrated by the study results, massage training can lead to reduced breastfeeding-related problems. In addition, due to limited number of studies on this topic, we suggest to do more research on the effect of breast massage on breastfeeding and its beneficial.

Keywords: Breast massage, Exclusive breast feeding, Neonatal period.

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Please cite this paper as: 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(1):15-18.

Introduction

The best choice for feeding infants is breastfeeding. Human breast milk contains high quality substances that infants can easily absorb, which guarantee the provision of the infant energy and development.¹ Breast milk contains nutrients and antimicrobial agents such as macrophages, lymphocytes, and anti-streptococcal factors, which protect babies against infections.² WHO UNICEF recommend the start of breastfeeding within the first hour of birth along with increased exclusive breastfeeding up to 6 months to be continued until two years³ to obtain the Millennium Development goals 1 and

4 (eradicating extreme poverty and hunger, and reducing mortality of children under 5 years).

Exclusive breastfeeding in the first 6 months of life is recommended by the Academy of America pediatricians as they believe breastfeeding can provide the optimal health and mental growth along with the best results for children.⁴ It should be noted that mothers starting breastfeeding immediately after childbirth are able to nurse their children for a longer time.⁵ However, many mothers still stop breastfeeding earlier than they should or feed their infants with unnecessary liquids and extra nutrition even being aware of the advantages of breast milk for different reasons.⁶ Despite the recognition of promoting breastfeeding as a key strategy for child growth and survival by Ministry of Health and Medical Education in Iran along with taking effective measures accordingly, the current rate of exclusive breastfeeding until the age of six months is less than 28% in urban areas.⁷ The continual of breastfeeding is lower than this in women in the Us and Canada.⁸

Immediate breastfeeding training, shortly after childbirth, is not so effective in mothers' learning or convincing them to decide for breastfeeding their babies since even in most baby-friendly hospitals, this training only contains some information and short-lived recommendations to mothers for breastfeeding.⁹ According to Bandura, an individual's self-efficacy and capabilities can be enhanced by choosing proper strategies and using suitable educational interventions to acquire necessary skills and knowledge.¹⁰ According to the American Academy, the quality of breastfeeding can be improved by appropriate intervention and evaluation of the results.⁴ Massage therapy occurs in the scope of complementary medicine and families increasingly welcome it due to its simple implementation and easy-to-learn nature.¹¹ Breast massage can help the mother relax. Such relaxation can reduce the stress and worry of mothers before nursing the infant as the secretion of a little milk may calm down the mother for breastfeeding stage. This massage leads to the secretion of oxytocin hormone as well, causing the rapid flow of milk. Increased prolactin hormone is another benefit of breast massaging, which triggers the flow of milk from the breast associated with the resolving the congestion of the lobes and the breasts inflammation. In addition, the blood supply to the breast is increased by breast massaging, which strengthens effective milk production.¹²

The positive and effective role of educational programs in the improvement of breastfeeding outcomes is demonstrated by different interventions. The potential and direct role of midwives in encouraging and training mothers to breastfeed

their infants more and avoid its early discontinuing inspired us to design this study to examine the effect of breast massage on exclusive breastfeeding and breastfeeding problems during the infancy period.

Materials and Methods

We performed this randomized clinical trial study following the approval of the ethics committee of Shahroud University of Medical Sciences. We initially described the research purpose and procedure to mothers. Also, all the participants signed an informed consent form. We randomly divided the subjects into two intervention and control groups based on the random blocks of four pattern. At the baseline, we selected 35 blocks by an alternative choice method from the 6 modes associated with the blocks of four using a random number table. Then, we put 132 cards for groups A and B in the envelopes and arranged them in order. The eligible subjects were assigned to group A or group B after obtaining the informed consents.

The inclusion criteria were having at least a primary education level, absence of health bans on breastfeeding such as cancer, tuberculosis, AIDS, etc., being nulliparous, complete consciousness in women with caesarean delivery, and having a healthy and term baby. The exclusion criteria were as follows: suffering from forbidden diseases for breastfeeding, mental illnesses, addiction to alcohol, smoking, and other drugs, twin delivery, history of medical conditions such as heart and kidney diseases, and ongoing radiation therapy.

We trained the breast massage to the subjects of the intervention group, which included mothers with vaginal delivery in the postpartum room, mothers with caesarean section under general Anesthesia after gaining complete consciousness, and mothers with 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 massage such as fist, fingers, and dancing gestures massages as well as nipple message. The mothers were taught to do the breast massage before every breastfeeding. The follow-up of mothers regarding breast massage before each breastfeeding at home was done through

phone calls during the neonatal period. We provided routine training on breastfeeding for both groups. Finally, two standard questionnaires for breastfeeding difficulties and exclusive breastfeeding were completed by mothers in both intervention and control groups on the 28th postpartum day. The standard breastfeeding difficulties questionnaire contained 19 Likert-type questions. The standard exclusive breastfeeding questionnaire consisted of seven items about the infants' nutritional status up to day 28 day the reasons for not breastfeeding exclusively.¹³ All interventions were made by the same researcher to avoid any kind of bias.

We analyzed the data using descriptive statistics tests, the chi-square test, and ANOVA with the help of SPSS software. The significance level was set at or less than 5%.

All mothers were explained regarding the research goal and procedure followed by obtaining an informed consent form from all the study participants. This study was approved by the Research Committee of Shahroud University of Medical Sciences (NO: 9420) and with the Iranian Centre for Registration of Trials (IRCT20155080422407).

Results

The mean age and of standard deviation of the subjects in the intervention group (breast massage training) were 25.5 and 4.52. These values in the control group were respectively 26.3 and 4.9. No significant differences were found between the two groups in comparing the demographic characteristics, including maternal age, education, occupation, type of delivery, and type of pregnancy ($P > 0.05$) (Table 1).

The 19 items of the breastfeeding problems inventory showed no significant differences in the two groups. The common problems are given in Table 2 ($P < 0.05$) (Table 2).

The rates of exclusive breastfeeding for mothers in the intervention and control groups were 54.5% and 45.5%, respectively, which were not significantly different ($P > 0.05$). However, a significant difference was found between the two groups regarding mothers' use of milk bottles in addition to breastfeeding ($P < 0.05$) (Table 3).

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

Variables	Intervention	Control	Test statistics	df	P
Mother's age (Year)*	4.52(25.52)	4.9(26.39)	1.04	129	0.29
Mother's Education (Year)*	3.29(12.31)	3.54(13.07)	1.23	123	0.22
Mother's occupation**					
– Working	7(10.60)	10(15.20)	0.61	1	0.3
– Housewife	59(89.40)	56(84.80)			
Delivery type**					
– Natural	34(51.50)	24(36.40)	4.21	1	0.24
– Caesarean	32(48.50)	42(63.60)			
Pregnancy type**					
– Wanted	60(93.90)	60(90.90)	0.74	1	0.69
– Unwanted	4(6.10)	6(9.10)			

* Findings are expressed as mean \pm SD.

** Relevant findings have been expressed as a percentage.

Table 2. Comparison of Breastfeeding problems frequency in the two groups

Variables	Intervention (%)	Control (%)	Chi-2	df	P
Nipple sore (yes)	26(39.40)	40(61.60)	6.42	1	0.0011
Nipple crack (yes)	17(25.80)	36(55.40)	11.9	1	0.001
Breast congestion (yes)	17(26.20)	28(43.80)	4.39	1	0.036
Difficulty in latching the breast (yes)	20(30.80)	42(64.60)	14.92	1	0.0001
Breast infection (yes)	0	8(12.30)	8.39	1	0.004
Concern about the lack of milk (Yes)	22(33.30)	47(72.30)	19.95	1	0.0001
Difficulty in sucking the breast (Yes)	10(15.40)	38(59.40)	26.71	1	0.0001

Table 3. Comparison of the use of milk bottle besides breastfeeding in the two groups

Use of milk bottle besides breastfeeding	Intervention	Control	P
Yes	12.1%	27.3%	0.02
No	87.9%	72.7%	

Discussion

There are direct relationships between the health of every community with the factors of improved nutrition, child development, prevention of infectious diseases, family planning, and population control. Breastfeeding can be helpful to gain such benefits.¹⁴ However, some crucial gaps are seen in the understanding and potential for changing the behavior despite the recognized benefits of exclusive breastfeeding.¹⁵ Yet, a key to improve the health and well-being outcomes of mothers and babies seems to be a rise in the rate of breastfeeding.¹⁶

There is relationship between breastfeeding in the first hour after childbirth with the educational level of mother, the gestational age of more than 37 weeks, history of breastfeeding, natural childbirth, newborn weight higher than 2500 grams, the disease-free infant, and no hospitalization in the NICU.¹⁷ Longer periods of breastfeeding have also shown association with lower risks of birth weight, obesity in adulthood, and developing non-communicable diseases.¹⁸

The rates of exclusive breastfeeding in the experimental and control groups were found to be 54.5% and 45.5%, respectively, in this research. This implies that about half of mothers did not adhere to the exclusive breastfeeding plan. Accordingly, one can conclude that the babies were not exclusively breastfed during the first 28 days and received other common nutrients like sugar water, fruit juice, and herbal medicines besides breast milk. based on the results, not complying with exclusive breastfeeding was not significantly associated with any of the mother's individual variables (such as age, education level, occupation, type of delivery, and type of pregnancy) (Table 1). Our results of this can be generalized so much as the research environment was limited to one hospital, and thus, making definite conclusions will need more studies. However, there are several studies with findings indicating the relationships between compliance with exclusive breastfeeding with age,¹⁹ education level, occupation,²⁰ and type of delivery.²¹ The statistical population in all these studies included multiparous as well as nulliparous women.

In a study by McQueen et al. (2011), the practicality, adaptability, and the acceptance of protocols (interventions) to increase the efficacy of breastfeeding in the period after

childbirth were studied. They also evaluated the relationship between the type of intervention and breastfeeding self-efficacy, duration, and exclusive breastfeeding. According to their results, interventions focused on increasing the exclusive breastfeeding are highly practical, consistent, and acceptable to the participants. The group received interventions showed higher rates of breastfeeding self-efficacy, duration of breastfeeding, and exclusive breastfeeding at weeks 4 and 8 after delivery compared to those who only received the routine postpartum care.²²

We used the breast massage training in this study as a practical intervention. Shown by the results, the breastfeeding problems such as sore and cracked nipples, breast congestion, breast infection, concerns about the lack of milk, difficulty in sucking the breast, feeling so tired, etc. appeared to be significantly different ($P < 0.05$) between the intervention group (breast massage before each breast-feeding) and the control group (Table 2). This finding is consistent with the result of Sukhee Ahn et al.²³ In addition, the intervention group had used milk bottle less than the control group with a statistically significant difference ($P < 0.05$) (Table 3). This may be because of fewer breast problems due to using correct massage before milking and higher milk flow rates caused by the secretion of oxytocin and prolactin hormones occurring after breast massage. As a result, the mothers' sense of self-efficacy and self-esteem for exclusive breastfeeding improved.

Hence, one can conclude that the early onset and maintenance of exclusive breastfeeding by mothers can be promoted through eliminating the maternal and neonatal problems by practical training and in-person counseling. In general, it seems we need to provide initial breastfeeding training for nulliparous mothers with insufficient knowledge and experience on breastfeeding. Also, providing training for mothers in hospitals and health care centers by doctors, midwives, nurses, and other health professionals may enhance exclusive breastfeeding and improve the infants' growth and development as breast massage appears to be an easy and effective method to reduce breastfeeding problems.

Demonstrated by the findings, massage training is capable of reducing the breastfeeding-related problems in mothers. As little research has been done on the impact of breast massage on breastfeeding and given the promising results of this study,

we recommend to do further studies in this regard. Doing breast massage showed no effect on the exclusive breast feeding rate.

Acknowledgement

The researchers would like appreciate the support provided by the Deputy of Research of Shahroud University of Medical Sciences.

Conflict of Interest

The authors declared that they have no conflict of interest.

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