

Comparing the Effects of “Hands-on” and “Hands-off” Educational Techniques on Exclusive Breastfeeding among Primiparous Mothers

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Abstract: Exclusive breastfeeding is undoubtedly significant in the mother's health and liveliness and the infant's growth and development. Considering the important role of good training in promoting mothers' awareness and, as a result, increasing exclusive breastfeeding; and taking adult learning principles into account, the current study was conducted in order to compare and contrast the effective of hands-on and -off educational techniques on exclusive breastfeeding among primiparous mothers. **Method:** The present study is a single-blind experimental one where 124 primiparous mothers were selected simply sampling and randomly divided into three groups. During the first two hours after childbirth, mothers in the two experimental groups were trained how to correctly hold their infants near their breast and breastfeed them through hands-off method by displaying pictures and hands-on method by individual consulting by the researchers. Participants in the control group received usual care in the ward. Participants were observed and tested during the first, fourth, and eighth weeks after the childbirth. Data collecting was carried out through interview forms, examination and observation, breastfeeding status list, and exclusive feeding forms. Collected data were analyzed through chi-square test, Kruskal-Wallis, Mann-Whitney, and independent t-test using SPSS 11.5. Significance level was assigned at 0.05 and the study power was 80%. **Results:** During the first, fourth, and eighth weeks, the frequency of exclusive breastfeeding was respectively 71.4%, 61.9%, and 47.6% in hands-off group, 47.6%, 26.2%, and 9.5% in hands-on group, and 32%, 22.5%, and 15% in usual group, which proved a significant difference regarding the three groups' observation during those three periods (P=0.000). **Conclusion and Discussion:** Hands-off technique was associated with an increase in exclusive breastfeeding during the first 8 weeks after childbirth.

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Introduction

Undeniable importance of breastfeeding for the mother and the infant's health and liveliness is proved all over the world. As in a 1997 statement by American Academy of Pediatrics it is announced that breastfeeding is the golden standard feeding way for healthy and neonates; therefore, in most cases infants should be fed with breast milk until about the first 6 months after childbirth [1]. Breastfeeding is an acquirable skill and women should learn it through training, observation, and performance [2, 3]. Teaching about advantages of breastfeeding, especially breastfeeding technique in maternity ward, is critically significant and it helps breastfeeding prolong [4]. In this regard, in 1989 WHO and UNICEF introduced mothers' training as an essential path to increase breastfeeding level [5]. Based on the principles of adult learning, methods of skill teaching

include practical illustration, role play, audio tapes and visual videos, and modeling. Adults can learn best if they get involved in learning process. Therefore, it seems that utilizing educational methods in which mother's autonomous performance is highly supported in learning process can have the utmost effect on leaning outcomes [6]. Educational programs and methods of enhancing mothers' tendency to breastfeed during the first hours of their infant's birth have been investigated in different studies. Moreover, various methods and programs have been taken into consideration in order to enhance mothers' breastfeeding tendency and capacity [7]. An educational method to teach nursing mothers is hands-off technique that was proposed in 1995 [8]. In this technique, midwife helps to modify the infant's holding state without touching the mother or the infant but through answering the mother's questions

and providing needed information orally or by means of videos, pictures, and role play. This will facilitate learning. The mother is actively involved with learning task which is in her complete control. This technique is based on the principle of adult learning [9, 10]. Nowadays, in most hospitals, even in infant friendly ones, breastfeeding is taught through trial and error technique by the nurses and mothers [7]. Bandura; however, believes that whatever is learnable through direct experience can also be learned through indirect or alternative experience. In addition, we can learn better through modeling because most trial and error endeavors that are made in learning through direct experience will disappear in learning through modeling [11]. Since good training can play an effective role in promoting mothers' awareness and, as a result, increasing exclusive breastfeeding, the current study was aimed at providing mothers with hands-on and -off techniques and comparing the effect of them on exclusive breastfeeding.

Materials and Methods

The present research was a single-blind experimental study including 3 groups. It was aimed at investigating and comparing the effects of hands-on and -off techniques on exclusive breastfeeding among primiparous mothers at Om-ol Banin Hospital, Mashhad from November of 2009 to April of 2010. Participants entered the study based on some criteria such as natural childbirth, normal infant, lack of discontinuation of breastfeeding by mother or infant, contact number, and willingness to take part in the study. Base on basic studies and through the formula of mean comparison, ratio, and with a reliability coefficient of 95% and power of 80%, sample size of the study was assigned as 136. Participants were randomly divided into three groups; 45 in the hands-on group, 45 in the hands-off group, and 45 in the usual care group. In the end of the study, because of a decrease in the sample size (as a result of infants' illness, lack of cooperation, moving to other cities, etc.) data analysis was conducted on the collected data from 124 participants. In the two experimental groups, correct state of breastfeeding was taught to the mother in the first 2 hours after childbirth. While teaching, a face-to-face technique was utilized by the researcher. Depending on the mothers' capacity, training would take 20 to 40 minutes. Training included principles of holding the infant and putting the breast into its mouth, which was conducted through direct interference of the researcher (hands-on technique) in one of the experimental groups in order to help the mother carry out the procedures precisely. In this technique, mothers were permitted to ask questions if they had

had any. The procedures would be illustrated again by the researcher in case of any ambiguity. In the hands-off experimental group, breastfeeding principles were taught through pictures. In this technique, mothers would have been allowed to see the pictures again if they had had any questions. In both of the experimental groups, training continued until the mother was skilled enough to breastfeed her infant correctly. This skill was measured through breastfeeding observation form. The basis for such training was adopted from nursing mothers' manual retrieved from Journals of Health Ministry, Medicine, and Education. In the usual care group, typical health care and common training for hospitalized women in labor in the recovery room of the maternity ward were conducted by the related personnel. Face-to-face technique was utilized through providing individual training and oral recommendations to the mother. Data collection was conducted through questionnaires that were completed in two phases. Questions in the first phase were on demographic information before and after childbirth. Data of the second phase were on the frequency of exclusive breastfeeding in the first, fourth, and eighth weeks after childbirth, which were collected through interviewing the mothers. Whenever a mother showed unwillingness to continue the study, to take relaxing medicine that influenced their psychological state, or stressful events occurred, she would be crossed off from the study. Data analysis was carried out through chi-square test, Kruskal-Wallis, Mann-Whitney, and independent t-test using SPSS 11.5.

Moral Considerations

After receiving a confirmation from the moral committee of the university and a referral letter from the nursery and midwifery faculty and submitting it to the hospital, the researcher started collecting required data. Before the study, the aim and the method of the study were explained to the participants and they entered the study on their will. All the patient information was kept confidential and the results were presented as general information. The patients could have quit they study any time they wished to. Several months later, the results of the study were provided to the patients in the nursery and midwifery faculty.

Results

The three groups were homogenous regarding their demographic information and interfering variables. The range of the participants' age was 18-33. 96% of them were housewives and only 8.1% of them had a university degree. Even though 77.4% of the mothers had not participated in breastfeeding classes during pregnancy, 96.8% of them decided to

breastfeed their infants during the first 6 months. Gained mean score from the observation list of breastfeeding status was 4.7 with a standard deviation of 1.58. And there was no significant difference among the groups.

Frequency of exclusive breastfeeding in the first week after the training

Regarding the level of the participants' exclusive breastfeeding during the first week after childbirth, the results of the chi-square test showed that there was a significant difference among the three groups ($p=0.002$). The highest level of exclusive breastfeeding during the first week was related to the hands-off group (71.4%) and the lowest to the usual care group (32.5%) (see Table 1).

Exclusive breastfeeding during the fourth week after the training

Regarding the level of the participants' exclusive breastfeeding during the fourth week after childbirth, the results of the chi-square test showed that there was a significant difference among the three groups ($p=0.000$). The highest level of exclusive breastfeeding during the first week was related to the hands-off group (61.9%) and the lowest to the usual care group (26.2%) (see Table 2).

Exclusive breastfeeding during the eighth week after the training

Regarding the level of the participants' exclusive breastfeeding during the eighth week after childbirth, the results of the chi-square test showed that there was a significant difference among the three groups ($p=0.000$). The highest level of exclusive breastfeeding during the eighth week was related to the hands-off group (47.6%) and the lowest to the hands-on care group (9.5%) (see Table 3).

The score of breastfeeding experience in the first, fourth, and eighth weeks after the training

Regarding the breastfeeding experience score during the first, fourth, and eighth weeks, the results of the Kruskal-Wallis showed that the three groups were homogenous in the first ($p=0.38$) and eighth ($p=0.06$) weeks and in the fourth week ($p=0.06$) there was a significant difference among them. The highest mean score of breastfeeding experience in the fourth week was respectively related to the usual care group (29.6), the hands-on group (26.9), and the hands-off group (26.4) (see Table 4). The results of the Mann-Whitney test showed that in the first week there was a significant statistical relation between exclusive breastfeeding and training duration ($p=0.000$) and breastfeeding duration in each meal in the first week ($p=0.04$). This means that the more the duration of training and breastfeeding, the more the exclusive breastfeeding will be. The results of the Mann-Whitney test showed that there was no significant relation between the level of exclusive breastfeeding

and the mother's education ($p=0.14$), the spouse's support ($p=0.24$), others' support ($p=0.185$), and also the spouse's agreement about breastfeeding ($p=0.385$). The results of the independent t-test showed that there was no significant relation between the level of exclusive breastfeeding and the mother's age ($p=0.97$) and the infant's weight ($p=0.99$). The results of the Fischer test showed that there was no significant relation between the mother's occupation and the level of exclusive breastfeeding ($p=0.372$).

Discussion

The results of the study showed that during the first week after the childbirth, frequency of exclusive breastfeeding in the hands-off group was 1.5 times higher than that of the hands-on group and 2.2 times higher than that of the usual care group. And during the fourth week, it was respectively 2.4 and 2.8 times higher than those of the hands-on and the usual care groups. Finally, in the eighth week after childbirth, it was respectively 5 and 3.2 times higher than those of the hands-on and the usual care groups. The results of the study are in complete agreement with the principles of adult learning which state that if the mother's independent and active performance are supported and the midwife only acts as a facilitator, learning will be fostered [6]. Feletcher and Harris (200) reported that continuation of breastfeeding and exclusive feeding in mothers trained through hands-off technique is more than mother whose infants are put on their chest by a midwife (i.e. hands-on technique) [13]. In a study conducted by Wallas, there was no significant difference between the level of breastfeeding and the two educational techniques of hands-off and the usual care; and the exclusive breastfeeding in the hands-off group was lower than the control group, which is not in line with the results of the present study. In Wallas's study, there was not much difference between the hands-off technique and the usual care method because the routine training in the hospital was not much different from that of the experimental group; i.e. hands-off technique [14]. The results of the study conducted by Weiss are in line with those of the present study. In both studies, hands-off group had a higher exclusive breastfeeding in the eighth week [15]. In a study conducted by Ingram *et al*, the level of exclusive breastfeeding in

The second and fourth weeks was higher in the hands-off group compared to the control group [16]. It seems like the hands-off technique results in the mothers' trust in their ability to successfully breastfeed their infants; therefore, a higher level of exclusive breastfeeding will be achieved. The present study proved no significant relation between the mothers' education and the breastfeeding duration.

This is because most of the participating mothers were housewives.

Table 1. Frequency distribution of the participants according to exclusive breastfeeding in during the first week after training

Frequency of exclusive feeding Groups	Has		Does not have	
	Number	Percent	Number	Percent
Hands-off group	30	71.4	12	28.6
Hands-on group	20	47.6	22	52.4
Usual care	13	32.5	27	67.5
Chi-square test	P=0.002			

Table 2. Frequency distribution of the participants according to exclusive breastfeeding in during the fourth week after training

Frequency of exclusive feeding Groups	Has		Does not have	
	Number	Percent	Number	Percent
Hands-off group	26	61.9	16	38.1
Hands-on group	11	26.2	31	73.8
Usual care	9	22.5	31	77.5
Chi-square test	P=0.000			

Table 3. Frequency distribution of the participants according to exclusive breastfeeding in during the eighth week after training

Frequency of exclusive feeding Groups	Has		Does not have	
	Number	Percent	Number	Percent
Hands-off group	20	47.6	22	52.4
Hands-on group	4	9.5	38	90.5
Usual care	6	15.0	34	85.0
Chi-square test	P=0.000			

Table 4. Number, mean, and standard deviation of the mothers' breastfeeding experience score during the 1st, 4th, and 8th weeks

Breastfeeding experience	Investigated groups			The results of Kruskal-Wallis test
	hands-off Mean±SD	hands-on Mean±SD	usual care Mean±SD	
1 st week	29.9±7.7	29.9±6.2	8.0±32.0	P=0.380
4 th week	26.4±4.8	26.9±4.4	29.6±5.9	P=0.018
8 th week	24.7±3.2	26.0±3.9	26.6±4.2	P=0.065

As a result, statistical tests could not prove any significant relation between these variables. Hajian *et al* have also showed this finding in their study [17, 18]. There was no significant difference between the participants in the three groups regarding their skills before training, which can be related to the fact that all of the mothers were primiparous and as a result lack enough information on breastfeeding. In this regard, Nifer (2004) asserts that holding the infant in a correct position near the chest is the most important concern for primiparous mothers [19]. Moreover, Irzen states that young mothers need more training on breastfeeding compared to other mothers [20]. A study conducted in Italy, an investigation in the University of Pennsylvania, and a research

administered by Khayati in Iran showed that higher education has a positive correlation with breastfeeding duration. The results of the present study; however, showed no relation between these two variables [21]. In the present study, there was no significant relation between breastfeeding duration and the mother's age or the infant's weight. In Jalali's study; however, there was a significant relation between these variables. In Khayati's study, there was no relation between the mother's age and breastfeeding duration. However, in a study conducted in the University of John Hopkins in 1998, it was concluded that the age of lower than 19 and over 25 had a negative effect on breastfeeding duration [21, 22]. In the present study, the spouse's

support and his agreement about breastfeeding had no significant correlation with the amount of breastfeeding during the first, fourth, and eighth weeks. However, in studies conducted by Froozani, Whelan, and Lopten, spouse's support, his encouragement, and frequency of breastfeeding were introduced as the most effective factors on breastfeeding duration [23, 24]. In a study conducted in Hong Kong, it was reported that spouses had a heroic role in initiation of breastfeeding. In studies conducted by Jamshidi, Dennis, and Belyth, the spouse's support and agreement about breastfeeding were introduced as effective factors. In the present study; however, since fathers in all three groups strongly supported their wives, no significant relation between these variables was proved [4, 23, 25]. Cropley holds that breastfeeding training after childbirth is really necessary for the mother and points about breastfeeding physiology, preventing and controlling common problems of breastfeeding period such as breast swelling and fissures, and also breast problems and how to deal with them after discharging from the hospital, the rule of supply and demand, and frequency of breastfeeding should be taught. In this study there was a significant relation between training duration and exclusive breastfeeding, too [25]. In the present study, during the fourth week there was a significant difference between the three groups regarding their breastfeeding ($p=0.018$). In Ingram's study, breastfeeding problems in the first six weeks were observed and no significant difference was spotted [21]. In Henderson's study, there was a significant difference only during the first 2-3 days [16]. In Wallas's study, there was also no significant difference between the groups regarding breastfeeding problems [14].

Conclusion

Therefore, it can be concluded that hands-off technique can be an appropriate technique to replace the present methods.

Research Applications

The results of the present study can be used as a basis for future studies of breastfeeding.

Training Applications

Midwives are members of healthcare teams and they have a supportive role; and also mothers' success in breastfeeding requires awareness, skill learning, and support; therefore, they should first learn and then teach mothers.

Clinical Applications

Since this training technique is effective in promoting exclusive breastfeeding, hospitals need to change their policies and replace the usual care with hands-off technique.

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