

Comparison of the Effect of Face-to-Face and Distance Learning on Knowledge, Attitude and Practice of Females about Breastfeeding in Shiraz, Iran: A Randomized Controlled Trial

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Received: 08 October 2022

Revised: 22 November 2022

Accepted: 24 December 2022

Abstract

Background: The present study aimed to compare the effect face-to-face and distance learning on knowledge, attitude and practice of females about breastfeeding in Shiraz, Iran.

Methods: This randomized controlled trial was conducted in Shiraz, Iran in 2019 on 313 women who were referred to health centers (93 face-to-face group, 105 distance learning group, and 115 control group). The study outcomes included knowledge, attitude, and practice of the women about breastfeeding which were measured at the onset and one-month post-intervention. The data were analyzed using SPSS 21 software.

Results: Mean changes of knowledge and attitude were significantly higher in the face-to-face and distance learning intervention groups compared to the control group ($P < 0.05$). Mean practice changes from the baseline until one month after the intervention was significantly higher in the face-to-face intervention group compared to the control group ($P = 0.015$) and in the face-to-face intervention group compared to the distance learning intervention group ($P = 0.002$).

Conclusion: The present study showed that both face-to-face and distance learning breastfeeding interventions effectively increased the mothers' knowledge and attitudes, and that face-to-face intervention would lead to improved practice.

Please cite this article as: Ghavami L, Rakhshani T, Motlagh Z, Jafarnejad A, Dehghan A. Comparison of the Effect of Face-to-Face and Distance Learning on Knowledge, Attitude and Practice of Females about Breastfeeding in Shiraz, Iran: A Randomized Controlled Trial. *J Health Sci Surveillance Sys*. 2023;11(1):91-96.

Keywords: Knowledge, Attitude, Practice, Breast feeding, Education

Introduction

Breast milk is the most important source of nutrition for babies, and it is necessary to continue breastfeeding until 6 months.¹ Breast milk is recommended for infants due to its constant availability, suitable temperature, and lack of contamination, thus reducing the possibility of digestive problems.² It is rich in specific proteins and relatively high levels of non-protein nitrogen, which have nutritional and non-nutritional functions. Breast milk is also rich in fatty acids that are essential for the development of brain cells, and it also contains several types of non-lactose sugars that play a significant role

in the prevention of infection.³

In the review and meta-analysis study, the prevalence of exclusive breastfeeding was 49%. Breastfeeding was associated with the type of delivery, and breastfeeding in children born naturally was 1.36 times higher than in those born by cesarean section. Also, in housewives who were breastfeeding, it was 2.15 times more than working mothers.⁴

There is evidence across the world that breastfeeding has numerous benefits for mothers and infants. Breastfeeding protects the infant against many problems such as malnutrition, allergies,

gastroenteritis, and respiratory infection. It also reduces the risk of diabetes, ovarian cancer, and breast cancer in mothers and increases their abilities to adapt themselves to their maternal role in the long term.⁵ Besides, infants fed with breast milk have higher intelligence quotient.²

Unfortunately, the number of breastfed infants after discharge from the hospital is decreasing. The results of previous research showed that the causes of neglecting breastfeeding were often the lack of inadequacy of maternal knowledge and information about the benefits of breastfeeding and the lack of access to healthcare providers in the case of problems. Mother's misconceptions about the insufficiency of their milk, hunger and repeated demands of the infants for milk, and the lack of support and encouragement by the healthcare staff were among the problems with breastfeeding.⁶ Although lactation education is subconsciously transmitted from person to person through social and familial encounters, it can be seen in many cases that inadequate knowledge and existence of wrong beliefs impair lactation and sometimes even lead to the stop of breastfeeding and use of other nutritional methods, such as the use of formula or pasteurized milk.⁷

On the other hand, the provision of necessary and useful education during pregnancy and immediately after delivery in the maternity ward, having a healthy infant, maternal age, and the number of children are the main and effective factors in choosing the method of infant feeding.⁸ Considering the above-mentioned points, and given that proper support and education can play an effective role in raising the level of information and awareness of individuals, and as the knowledge and information of a mother about breastfeeding increases, her self-confidence which is the key to success in breastfeeding will also increase,⁹ the present study was conducted with the aim of comparison of the effect face-to-face and distance learning on knowledge, attitude and practice of females about breastfeeding in Shiraz, Iran.

Methods

Study Design and Participants

This study was a randomized controlled trial conducted in Shiraz, Iran in 2019. The study population included the women referring to comprehensive urban and rural health centers in Shiraz. The inclusion criteria were having at least one child of 0-24 months of age, being at least in the 36th week of pregnancy, having a singleton and healthy baby (without major anomalies such as heart problem, down syndrome, cleft palate, etc.), not suffering specific diseases, being literate, and being willing to participate in the study. The exclusion criterion was unwillingness to continue to participate in the study at any stage of the research. This study was approved by the Ethics

Committee of Shiraz University of Medical Sciences with the code of IR.SUMS.REC.1395.164. Informed consent was obtained from the study participants. Also, they were assured of the confidentiality of their information.

Instruments

Awareness Questionnaire: The knowledge about breastfeeding was measured through 10 yes/no questions, and the scores were 1 (yes) or 0 (no). The total scores ranged from 0 to 10, and higher scores indicated higher awareness and knowledge.

Attitude Questionnaire: The attitude toward breastfeeding was measured using IIFAS standard questionnaire (Iowa Infant Feeding Attitudes Scale), which included 16 questions, scored in the 5-option Likert scale, ranging from 1 (fully agree) to 5 (fully disagree). Some of the questions were scored reversely. The scores ranged from 16 to 80, the higher of which indicated a better attitude. The practice of mothers in terms of breastfeeding and how they fed their infants with breast milk was assessed using 6 questions and by the researcher's direct observations. The practice scores ranged from 0 to 6, with higher scores indicating better practices.¹⁰ The validity and reliability of this questionnaire has been confirmed; also, its Cronbach's alpha coefficient has been reported 0.86.¹¹ Awareness, attitude, and practice questionnaires were completed before and one month after the intervention.

Intervention

Face-to-face intervention group: The face-to-face training was done in a workshop. The educational content of the workshop included some discussions related to the importance of breast milk, components of breast milk, effects of colostrum on the infants' health, duration of breastfeeding, importance of breastfed duration, benefits of breastfeeding for mothers and infants, benefits of breastfeeding for families and communities, and provision of physical and mental needs of infants. Furthermore, the right methods of breastfeeding after childbirth and during lactation, the ways of expressing breast milk and storing it, and some videos about the correct and incorrect lactation procedures were presented. At the end of the workshop, the mothers entered group discussions and talked about the misconceptions related to lactation. Lectures, group discussions, brainstorming, questions and answers, and educational aids such as a video projector and educational videos were used in the workshop. It should be noted that, in the implementation of the face-to-face education, health volunteers were asked for help to role play and express their experiences, as peer education. The education was conducted in two 2-hour sessions at an interval of one week, and in groups of 10- 20 people.

Distance learning Group: In this group, a CD containing educational materials on knowledge, attitude, and correct ways of breastfeeding were given to the participants. The booklet had been set up on 32 pages and included topics such as the importance of breast milk, components of breast milk, importance of breastfed duration, benefits of breastfeeding for mothers and infants, correct ways of breastfeeding presented by images, false beliefs about breastfeeding, and methods of expressing breast milk and storing it. The contents of the booklet had been confirmed by 6 faculty members.

Control Group: They received routine care.

Sample Size and Sampling Method

Considering the error rate of 0.05, acceptable error rate of 5, and standard deviation of 12.14 from the previous study,¹² we estimated the sample size in each group to be 93, and regarding the probability of decrease in each group, 120 subjects were included as the samples in each group. The multi-stage cluster sampling method was used, so that first each health center was considered a cluster, and 6 clusters were randomly selected. Then, regarding the sample size that had been estimated 360, 60 individuals were selected randomly in each cluster. Since our goal was to have an equal number of samples in each group, we used the block randomization method to divide the samples into 3 groups (two intervention groups and one control group).

Statistical Analysis

The results for the quantitative and qualitative variables were reported as mean±standard deviation (SD) and numbers (%), respectively. Chi-square test

was used to examine the distribution of demographic variables in the intervention and control groups separately. Kruskal–Wallis Test was also used to compare the mean knowledge, attitude and practice of the three groups (two intervention groups and one control group) before and after the intervention, and the mean changes of knowledge, attitude, and practice of the three groups (before–after). The Bonferroni connection test was used to compare the post hoc. $\alpha=0.05$ and $P<0.05$ were considered as significant. The data were analyzed using SPSS 21 software.

Results

Based on the inclusion criteria, 313 mothers who referred to the comprehensive healthcare centers and health houses in Shiraz in 2018 were entered into the study. The mean age of the women was 29.05 ± 5.57 years. Of the 313 participants in the study, 115 (36.7%) were in the control group, 105 (33.5%) in the distance learning education group, and 93 (29.7%) in the face-to-face education group. It should be noted that the control, distance learning, and face-to-face education groups had a drop of 5, 15 and 27 people, respectively.

Table 1 shows the frequency distribution based on the demographic variables of the face-to-face education, distance learning education, and control groups. The results of Chi-square test and independent t-test showed that there was no significant difference between the face-to-face intervention, distance learning intervention, and control groups in terms of the variables studied (Table 1).

The mean±SD of knowledge, attitude and practice before and after the intervention in the face-to-face intervention, distance learning intervention, and

Table 1: Comparison of demographic characteristics of the subjects studied in face-to-face intervention, distance learning intervention, and control groups

Characteristics	Face to face intervention	Distance learning intervention	Control	P value
Age	29.20±5.51	29±6.05	28.98±5.19	0.953
Birth rank	1.86±0.86	1.73±0.81	1.81±0.76	0.539
Job				
Housewife	83(89.25)	95(90.5)	111(96.5)	0.142
Employed	10(10.75)	10(9.5)	4(3.5)	
Education				
Elementary	34(36.53)	39(37.14)	42(36.5)	0.962
High school diploma	46(49.46)	52(49.52)	61(53.04)	
Academic	13(13.97)	14(13.33)	12(10.43)	
Number of children				
One	34(36.6)	14(44.8)	42(36.5)	0.848
Two	43(46.2)	43(41.0)	57(49.6)	
Three	13(14.0)	12(11.4)	12(10.4)	
Four and more	3(3.2)	3(2.9)	4(3.5)	
Infant sex				
Male	54(58.1)	61(58.1)	53(46.1)	0.122
Female	39(41.9)	44(41.9)	62(53.9)	
Infant's age (month)	6.88±6.08	6.99±6.09	8.11±6.12	0.247
Residence				
Urban	58(62.4)	57(54.3)	60(52.2)	0.311
Rural	35(37.6)	48(45.7)	55(47.8)	

Table 2: Comparison of the mean scores of knowledge, attitude, and practice in the three groups: face-to-face intervention, distance learning intervention, and control, before and after the intervention

		Before		After		P value	Mean difference	
		Mean	SD	Mean	SD		Mean	SD
Knowledge	Face to face intervention	7.82	1.83	8.82	0.95	<0.001	1	1.72
	Distance learning intervention	8.08	1.36	9.29	1.15	<0.001	1.20	1.70
	Control	7.83	1.76	8.32	1.68	0.028	0.48	1.57
	P value	0.667		<0.001			<0.001	
Attitude	Face to face intervention	33.86	5.59	63.97	7.18	<0.001	30.11	6.31
	Distance learning intervention	35.67	5.33	66.37	5.37	<0.001	30.76	5.30
	Control	35.03	5	35.82	6.04	0.271	0.77	4.59
	P value	0.09		<0.001			<0.001	
Practice	Face to face intervention	5.32	0.89	6.63	1.81	<0.001	1.31	1.64
	Distance learning intervention	5.44	0.97	6.35	0.25	<0.001	0.91	0.95
	Control	5.22	1	5.75	0.78	0.102	0.52	0.83
	P value	0.119		<0.001			0.004	

control groups are shown in Table 2. Before the study, the mean scores of knowledge, attitude, and practice showed no significant difference in the 3 groups. (Table 2). After the intervention, the mean scores of knowledge, attitude, and practice were significantly different in three groups ($P<0.001$) (Table 2).

The mean changes of knowledge from the baseline until one month after the intervention were significantly different in the face-to-face intervention, distance learning intervention, and control groups ($P<0.001$). However, the mean changes of knowledge from the baseline until one month after the intervention were significantly higher in the face-to-face intervention and distance learning groups compared to the control group ($P=0.004$) (Table 2)

The mean changes of knowledge, attitude, and practice of the baseline and one month after the intervention were significantly different in the two intervention groups ($P<0.001$), but in the control group, none of the dimensions (knowledge, attitude and practice) was significantly different before and after the intervention. (Table 2)

Discussion

In this study, the educational program could significantly increase knowledge in the intervention groups (face-to-face and distance learning education groups) compared to the control group. In a study by with the aim of determining the effect of face-to-face and pamphlet-based education on the knowledge of nursing mothers, the knowledge of the mothers in the two groups was significantly higher than that of the control group after the educational intervention.¹³ In another study which aimed at increasing exclusive breastfeeding and lactation, the mothers in the intervention group were more likely to have a better knowledge of the key skills of breastfeeding compared to the control group.¹⁴ This finding is consistent with that of other similar studies,^{12, 15-20} and reflects the effect of the implementation of educational interventions on raising maternal knowledge

and information about the benefits of breastfeeding.

In the present study, the educational program resulted in a significant increase in the attitude of the intervention groups compared to the control group. In the study with the aim of determining the effect of an educational program based on the theory of planned behavior to encourage pregnant women to breastfeed their infants, the attitude in the intervention group was significantly higher than in the control group after implementing the educational program.¹⁶ In their study which aimed to determine the effect of education on empowerment of mothers in terms of proper nutrition of their 0-to-2-year-old children, It was seen that education could be an effective tool for raising the mothers' knowledge, attitude and practice towards children nutrition.¹⁵

In a study conducted on the women referred to primary health care centers, after the educational intervention, the attitude scores in the intervention group was significantly higher than the control group,²⁰ which is consistent with the results of the present study. Similar results were obtained in other studies.^{12, 17, 19, 21}

In this study, the educational program could significantly increase the practice of the women in the intervention group compared to the control group. In one study seen that, five 30-minute face-to-face counseling sessions on breastfeeding led to an increase in lactation practice in the intervention group compared to the control group.²² In another study, on the mothers with the children under the age of two, three sessions of face-to-face education, in which questions and answers as well as group discussions were used, led to an increase in lactation practice in the intervention group compared to the control group,¹⁵ which is consistent with the findings of the present study. Another study also showed that one-hour educational program on breastfeeding resulted in an increase in the duration of breastfeeding in the intervention group compared to the control group.²³ Other similar studies are consistent with the present study.^{18-20, 24}

In the present study, the mean score of practice change from the baseline until one month after the intervention was significantly higher in the face-to-face education group than in the distance learning education one. Also, in a similar study, the practice of the mothers participating in the face-to-face education group was better than that of the distance learning education group, with 92.3% and 82.8% of mothers in the face-to-face education group and 63% and 56.5% of those in the distance learning group used exclusive breastfeeding in the 3rd and 6th months after the intervention, respectively.²⁵ In another study, the mean score of breastfeeding practice in the face-to-face education group was higher than that of the distance learning group, which is consistent with the results of the present study.¹¹ These results are in the same line with the theory of adult education that believes the methods used for teaching skills are practical representation, role play, video tapes, and model use,¹¹ indicating the need for paying more attention to face-to-face teaching methods compared to distance learning methods for increasing practice in terms of the correct ways of breastfeeding.

Study Limitation

Among the limitations of this study were the lack of cooperation by some mothers in completing the questionnaires, and the difficulty in collecting information and holding educational classes due to the dispersion of health centers in Shiraz. However, the researchers somewhat overcame these problems by spending more time and attracting the cooperation of healthcare providers and healthcare workers. Also, due to the concern of nursing mothers in taking care of their newborns and not having enough time, our workshop was held in two 2-hour sessions and within a one-week interval.

Conclusion

The present study showed that face-to-face and distance learning educational interventions on breastfeeding effectively increased the knowledge and attitude of the mothers during breastfeeding. Given the effectiveness of distance education in increasing awareness and attitudes about breastfeeding, it is recommended that this method of education should be used more. In the present study, face-to-face educational intervention led to better practice of the mothers about breastfeeding that is due to the use of different educational methods, such as clouding of thoughts, peer education and educational videos, and active participation of mothers that has led to better and deeper effects on lactating behavior. Therefore, it is recommended that in order to promote breastfeeding practice among pregnant and lactating mothers, we should use face-to-face education with emphasis on the use of methods for increasing the active participation of mothers.

Conflict to Interest: None declared.

References

- 1 WHO. Exclusive breastfeeding for optimal growth, development and health of infants. http://www.who.int/elena/titles/exclusive_breastfeeding/en/ (2017). Accessed 15 July 2017.
- 2 Victora CG, Bahl R, Barros AJ, França GV, Horton S, Krasevec J, Murch S, Sankar MJ, Walker N, Rollins NC, Group TL. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet*. 2016 Jan 30; 387(10017):475-90. DOI: 10.1016/S0140-6736(15)01024-7 PMID: 26869575.
- 3 Shattnawi KK. Healthcare professionals' attitudes and practices in supporting and promoting the breastfeeding of preterm infants in NICUs. *Advances in Neonatal Care*. 2017 Oct 1; 17(5):390-9. doi: 10.1097/ANC.0000000000000421 PMID: 28787301.
- 4 Baba Ahmadi A, Pajouhideh ZS, Mohammadi S. Prevalence of exclusive breastfeeding and its related factors in Iran: A systematic review and meta-analysis. *The Iranian Journal of Obstetrics, Gynecology and Infertility*. 2021; 24(5):103-15. doi: 10.22038/IJOGI.2021.18576.
- 5 Darby-Carlberg, Cheryl Lynn, "Attitudes of young adults about breastfeeding and the association of breastfeeding exposure" (2010). UNLV Theses, Dissertations, Professional Papers, and Capstones. 195. doi: 10.34917/1439129
- 6 Palda VA, Guise J-M, Wathen CN. Interventions to promote breast-feeding: applying the evidence in clinical practice. *Canadian Medical Association Journal*. 2004; 170(6):976-8 % 0820-3946. doi: 10.1503/cmaj.1031197 PMID: 15023925.
- 7 Lawrence RA, Lawrence RM. *Breastfeeding E-Book: A Guide for the Medical Professional*: Elsevier Health Sciences; 2010.
- 8 Almasi H, Saberi H, Moravveji SA. The pattern of exclusive breast feeding in neonates under healthcares in health centers of Kashan city during 2006. *Kaums Journal (FEYZ)*. 2010 Jul 10; 14(2):163.
- 9 Mardazad N, Nahidi F, Jannasari S, Amiri Z. Assessment of effect of mother consulting on weighting of low birth weight neonate. *Jentashapir Journal of Cellular and Molecular Biology*. 2012; 3(3): 417-426.
- 10 Bahri N, Bagheri S, Erfani M, Rahmani R, Tolidehi H. The comparison of workshop-training and booklet-offering on knowledge, health beliefs and behavior of breastfeeding after delivery. *The Iranian Journal of Obstetrics, Gynecology and Infertility*. 2012; 15(32):14-22. doi: 10.22038/IJOGI.2012.155.
- 11 Kamali Z, Rasouli B, Roodpeyma SH, Haji Mirsadeghi Z, Eivani MJ. Assessment of breastfeeding and related factors in three hospitals of Tehran, 2008. *Iranian Journal of Nutrition Sciences & Food Technology*. 2013 Mar 10; 7(5):125-34.

- 12 Sharifirad G, Golshiri P, Shahnazi H, Barati M, Hassanzadeh A. The impact of educational program based on BASNEF model on breastfeeding behavior of pregnant mothers in Arak. *Journal of Arak University of Medical Sciences*. 2010 Apr 10; 13(1):63-70.
- 13 Mokhtary L, Khorami Marekani A, Habibpoor Z. The effect of face to face education and pamphlet giving on knowledge of mothers about breast feeding. *The Journal of Urmia Nursing and Midwifery Faculty*. 2014 Dec 10; 12(9):825-32.
- 14 Flax VL, Negerie M, Ibrahim AU, Leatherman S, Daza EJ, Bentley ME. Integrating group counseling, cell phone messaging, and participant-generated songs and dramas into a microcredit program increases Nigerian women's adherence to international breastfeeding recommendations. *The Journal of nutrition*. 2014 Jul 1; 144(7):1120-4. DOI: 10.3945/jn.113.190124 PMID: 24812071.
- 15 Babazadeh MF, Zibae N. Impact of educational intervention on mother Empowerment about proper nutrition in 0-2 years' infants covered by Homes of Health district 18 of Tehran. *Iran J Health Educ Health Promot*. 2014; 2(3):242-50.
- 16 Keramat A, Masoumi SZ, Shobeiri F, Raei M, Andarzgo M, Babazadeh R. Effectiveness of educational program related to persuade women for breast feeding based on theory of planned behavior (TPB). *Avicenna Journal of Nursing and Midwifery Care*. 2013 Jul 10; 21(2):21-31.
- 17 Akbarzadeh M, Bahmani N, Moatari M, PourAhmad S. The impact of the BASNEF educational programme on breastfeeding behaviour in Iran. *British Journal of Midwifery*. 2013 Apr; 21(4):276-84. doi: 10.12968/bjom.2013.21.4.276.
- 18 Heidari B, Etemadifar S, Raeisi M. The Effectiveness of a supportive educative program on mothers' knowledge and behavior about breast feeding in health care centers of Shahrekord city 2012. *Journal of Clinical Nursing and Midwifery*. 2016 Apr 10; 5(1):67-75.
- 19 Panahi F, Simbar M, Lotfi R, Rahimzadeh M. The effect of parents' training on their knowledge, attitudes and practice in exclusive breastfeeding up to four months: A randomized clinical trial. *The Iranian Journal of Obstetrics, Gynecology and Infertility*. 2017;20(5):48-57.
- 20 Hanafi MI, Shalaby SAH, Falatah N, El-Ammari H. Impact of health education on knowledge of, attitude to and practice of breastfeeding among women attending primary health care centres in Almadinah Almunawwarah, Kingdom of Saudi Arabia: controlled pre-post study. *Journal of Taibah University Medical Sciences*. 2014;9(3):187-93. doi: doi.org/10.1016/j.jtumed.2013.11.011.
- 21 Mohammadi Zeidi I, Pakpour Hajiagha A, Mohammadi Zeidi B. Effectiveness of educational intervention on exclusive breast feeding in primipara women: application of planned behavior theory. *Razi Journal of Medical Sciences*. 2015;21(127):12-23.
- 22 Masoumi SZ, Khalili A, Roshanaei G, Ahmadi S. Effects of exclusive breastfeeding consultation for mothers on continuation of breastfeeding and weight-gaining of late preterm infants hospitalized in Fatemeh Hospital in Hamadan, 2016. *International Journal of Medical Research & Health Sciences*. 2016;5(9):61-6.
- 23 Wajed H. Prenatal breastfeeding intervention program to increase breastfeeding duration among low income women. *Health*. 2012;4(03):143. doi:10.4236/health.2012.43022.
- 24 Forster DA, McLachlan HL, Lumley J. Factors associated with breastfeeding at six months postpartum in a group of Australian women. *International breastfeeding journal*. 2006 Dec;1(1):1-12. doi:10.1186/1746-4358-1-18 PMID: 17034645.
- 25 Saba MS, Bazmamoun H, Razavi Z. Comparison of Face to Face Education with Other Methods to Pregnant Mothers in Increase Exclusive Breast Feeding. *Scientific Journal of Hamadan University of Medical Sciences*. 2005;12(3):42-47. eng.