

ORIGINAL ARTICLE

EFFECT OF HEALTH BELIEF MODEL BASED EDUCATIONAL INTERVENTION ON PROMOTING BREAST FEEDING AMONG PRIMIPAROUS WOMEN OF PUNJAB, INDIA- A CASE-CONTROL QUASI EXPERIMENTAL STUDY

Harsh Vardhan Gupta¹, Manu Sharma Sareen², Gurmeet Kaur³, Vivek Vardhan Gupta⁴, Neha Chitkara⁵, Ruku Malik⁶

¹Associate Professor, ³Professor & Head, Dept. Of Pediatrics, GGS Medical College & Hospital, Faridkot, Punjab, India

²Assistant Professor, Dept. Of Pediatrics, PIMS Medical College & Hospital, Jalandhar, Punjab, India

⁴Assistant Professor, Dept. Of Public Health Dentistry, Christian Dental College & Hospital, Ludhiana, Punjab, India

⁵Assistant Professor, Dept. Of Oral Medicine & Radiology, Christian Dental College & Hospital, Ludhiana, Punjab, India

⁶Senior Resident, Dept. Of Pathology, GGS Medical College & Hospital, Faridkot, Punjab, India

ABSTRACT:

Objective: This study was conducted with the objective to determine the effect of breastfeeding education based on the health belief model (HBM) toward primiparous women of Punjab, India. **Materials and Methods:** In a case-control group, quasi-experimental study, 88 subjects were allocated in control and experimental groups. Subjects who were assigned to the experimental group were provided a program consisting of group education based on HBM during their prenatal period. Instrument for data gathering was made by the researchers and standard questionnaire from Dennis and Faux for Breastfeeding Self-efficacy Scale (BSES). Baseline interviews were conducted before delivery and follow-up visits were conducted after 30 days and at the fourth month after delivery. Data were analyzed using SPSS (version 20) and the test applied were independent sample *t*-tests, and paired *t*-test. **Results:** Mean age of pregnant women who participated in the study was 22 ± 3.29 years. After the program, the experimental group had significantly better scores in terms of self-efficacy, knowledge, and attitude scores statistically. In the fourth month, the mean of child weight in the experimental group was significantly higher than that of the control group ($P=0.001$) and exclusive breastfeeding was significantly higher than in the control group ($P=0.007$). **Conclusion:** Prenatal education in this study based on HBM was successful, and knowledge, attitude, self-efficacy, and related indicators improved. The necessity of producing standard education package and education of pregnant mothers, especially in their first pregnancy, by health professionals is perceived.

Keywords: Primiparous women, Health Belief Model, Breastfeeding, Self-efficacy

Corresponding author: Dr. Harsh Vardhan Gupta, Associate Professor, Dept. Of Pediatrics, GGS Medical College & Hospital, Faridkot, Punjab, India

This article may be cited as: Gupta HV, Sareen MS, Kaur G, Gupta VV, Chitkara N, Malik R. Effect of health belief model based educational intervention on promoting breast feeding /among primiparous women of Punjab, India- A case-control quasi experimental study. J Adv Med Dent Scie Res 2017;5(5):54-58.

Access this article online	
Quick Response Code 	Website: www.jamdsr.com
	DOI: 10.21276/jamdsr.2017.5.5.16

INTRODUCTION

Breast milk is accepted as the unique, natural and nutritious food, provided by the nature for newborn. [1] Breast feeding is universally recognized as the best form of nutrition for infants including ill and preterm infants as it fulfills specific nutritional needs. [2] It fosters the bond between mother and infant as well as providing the best sources of nutrients. WHO (1991) defines Breast feeding as 'the child has received breast milk (direct from the breast or expressed)'. [3] Breast feeding has also been related to possible enhancement of cognitive

development. [4] It also reduces mortality and morbidity rate of neonates worldwide. Literature shows that in India, infant mortality rate can be reduced (19%) by achieving 90% target of exclusive breast feeding in first 6 months of life. [5] This practice is to be initiated soon after birth of neonate and should be supported thereafter.

There are many barriers which interfere with the success of breast feeding. These barriers are inappropriate hospital practices, poor knowledge of health professionals, lack of knowledge of mothers and medical-surgical problems of neonates. [6]

One of the reasons for the low breastfeeding rate is the fact that pregnant women were not provided with adequate health care professional's advice in terms of breastfeeding. To overcome lactation barriers, mothers must be encouraged to breastfeeding because they are not eligible in breastfeeding procedure.[7] While the benefits of breastfeeding are well known, we do not know the most effective means to promote breastfeeding among low-income, inner-city women. In an ideal setting (in developed countries), every pregnant woman's health care plan might include providing the necessary support to ensure successful breastfeeding.[8] However, in our country, limitation of resource to support breastfeeding is a fact.

In the view of above observations the present study was conducted with the objective to determine the effect of breastfeeding education based on the health belief model (HBM) toward primiparous women of Punjab, India.

MATERIALS AND METHODS

A case control group, pre-test–post-test quasi-experimental design was used. Eight health centers were randomly selected from Faridkot city and each of them was assigned randomly to either a control or an experimental group. Four of them were assigned as controls and the other four were assigned as experimental centers. The whole center was assigned as a group to prevent cross contamination.

Sample and sampling criteria

The sample size estimation was made based on reports of similar studies. In total, 88 subjects were considered in such a way that 44 cases were allocated to each of control and experimental groups. According to the following criteria, all subjects were selected before delivery: Primiparous mothers, mothers who underwent normal pregnancy (followed by vaginal delivery at term), and mothers having no chronic diseases and not taking any medication.

Intervention program

Subjects who were assigned to the experimental group were provided a program consisting of group education. HBM was utilized to formulate the strategy for the education and behavioral skill-building interventions. Perceived benefits, perceived barriers, and self-efficacy are three concepts from the HBM.

The mothers in the study group participated in the breastfeeding education program during their prenatal period. The instruction was given in three sessions (each group of educational session was of 30–40 minutes) in which each mother learned about the advantages of breastfeeding for herself and her child, nutrition of lactating women, how to position the infant on the breast and prevent common breastfeeding problems, rooming in, breastfeeding on demand, and the importance of exclusive breastfeeding, using the breast as the only source of

nutrients (except for vitamin drops) during the first 4 months of life. After the intervention, we summarized educational materials in different aspects in a pamphlet. The pamphlets were distributed to experimental groups for self-study. Mothers were also encouraged to contact the researchers at any time if they were worried about the baby's condition or their breastfeeding performance.

Measurements and instruments

Measurements of the infant's weight, length, and head circumference were recorded after delivery and during each follow-up in the groups. All measurements were carried out using standard procedures, equipment, and methodology. Instrument for data gathering which was made by the research team consisted of three sections (baseline sociodemographic, clinical knowledge and attitude, and the status of mother's breastfeeding at the level of lactation). The levels of breastfeeding were classified according to the current World Health Organization (WHO) definitions.[9] Content validity and construct validity were established and had a high internal consistency reliability ($\alpha=0.86$). The other instrument used in this study was Breastfeeding Self-efficacy Scale (BSES) from Dennis and Faux,[10] which had 33 items, and its minimum and maximum scores were 33 and 165, respectively.

The BSES was translated into Punjabi by two linguistics and two experts in the health care field independently. The four translators then met together and discussed the Punjabi version. After they reached an agreement, this version was back translated to English by two other persons. Any discrepancies between the original English version and the back-translated versions were discussed with the translators to ensure equivalency of meaning. The BSES was used previously in Iranian community. In a previous study, Persian version of BSES had high internal consistency reliability ($\alpha=0.82$).[11] In the current study also, internal consistency reliability was high ($\alpha=0.85$).

Collection of data

Baseline interviews were conducted with all subjects before delivery. Throughout the baseline interview, subjects were offered general information about the study. After signing the informed consent, subjects were asked to fill out the baseline data about the study. Follow-up visits at the patients' respective home were conducted 30 days after delivery and at the fourth month.

Statistical analysis

Data were analyzed using SPSS (version 20). Descriptive analyses were conducted using frequencies and proportions for categorical variables, and means with standard deviations ($mean \pm SD$) were calculated for continuous variables. Independent sample t-test and paired t-test were performed to evaluate the differences between and within the groups' dependent variables, pre-test and post-test. Distributional assumptions were met and statistical significance was set at $P \leq 0.05$.

RESULTS

Table 1: Mean age of pregnant women participating in the study was 22 ± 3.29 years and significant difference was not seen between the experimental and control groups. Literacy level in a majority of mothers in the experimental group (56.8%) and the control group (50%) was high school education, and baseline data showed that there was no significant difference in this item, baby gender, and intention to breastfeeding between subjects in the control group and the experimental group.

Table 2: Baseline data showed that there were no significant differences in terms of knowledge ($P=0.209$) and attitude ($P=0.404$) between subjects in the control group and the experimental group. The mean of child birth weight in the experimental group and control group was

3.11 ± 0.336 and 3.10 ± 0.281 kg, respectively. Moreover, no significant difference was noted between the two groups ($P=0.851$).

Table 3: After the intervention, the mean of children's weight in first month in the experimental group and the control group was 4.43 ± 0.285 and 4.34 ± 0.238 kg, respectively. No significant difference was seen between the two groups ($P=0.110$). In the fourth month, in brief, the mean of weight in the experimental group was significantly higher than that in the control group ($P=0.001$). In 1 and 4 months after delivery, post-test data showed that experimental group had significantly better scores in terms of self-efficacy scores statistically.

Table 1: Demographical data for study subjects

Variables	Groups		p-value
	Experimental (n %)	Control (n%)	
Education level			
Middle	18.2 (8)	20.5 (89)	0.812
High	56.8 (25)	50 (22)	
University	25 (11)	29.5 (13)	
Baby's Gender			
Male	63.6 (28)	36.4 (16)	0.379
Female	52.3 (23)	47.76 (21)	
Intention to breastfeeding			
Yes	88.6 (39)	84.1 (37)	0.194
No	11.4 (5)	15.9 (7)	
Mothers' age (Mean±SD)	21.7 ± 2.9	222.2 ± 3.5	0.404

Table 2: Baseline scores and comparison of study subjects

Variables	Groups		p-value
	Experimental (n %) (Mean±SD)	Experimental (n %) (Mean±SD)	
Self-efficacy	124.3 ± 12.9	122.2 ± 9.0	0.428
Birth weight (kg)	3.11 ± 0.336	3.10 ± 0.281	0.851
Breastfeeding knowledge	14.47 ± 1.47	14.06 ± 1.56	0.209
Breastfeeding attitude	63.70 ± 6.34	62.47 ± 7.35	0.404

Test applied Independent sample t-test. *indicates statistically significant association.

Table 3: Post-test scores and comparison of study subjects

Variables	Groups		p-value
	Experimental (n %) mean±SD	Experimental (n %) mean±SD	
First month of birth			
Self-efficacy	147.1 ± 7.9	127.9 ± 9.0	$P<0.01$
Birth weight (kg)	4.43 ± 0.285	4.34 ± 0.238	$P=0.110$
Fourth month of birth			
Self-efficacy	155.9 ± 5.7	139 ± 6.07	$P<0.01$
Birth weight (kg)	7.51 ± 0.306	7.20 ± 0.541	$P=0.001$
Breastfeeding knowledge	17.84 ± 1.39	14.29 ± 1.28	$P<0.01$
Breastfeeding attitude	80.93 ± 8.04	65.09 ± 6.69	$P<0.01$

Test applied paired t-test. *indicates statistically significant association.

DISCUSSION

Mothers in our study had moderate mean scores in knowledge and attitude (both the groups) which might have been influenced by literacy level. Some studies showed that among mothers with a high school education, breastfeeding initiation was 65%, compared to 86% among mothers with a college degree. [12,13] But a study from Somali reported that the knowledge and belief toward breastfeeding the child when the baby/mother gets sick and the mother gets pregnant is very poor.[14] These are potentially harmful beliefs which could lead to the dangerous practice of abrupt cessation. These harmful beliefs should be well addressed through continuous health education.

The present study shows that breastfeeding knowledge and attitude of the experimental group after intervention was significantly better than those of the control group. This finding is consistent with the findings of the study conducted by other researchers[15] that who reported a positive effect of the education on knowledge, attitudes, and support practices.

The results show that in the fourth month of birth, the exclusive breastfeeding rates in the experimental group (77.3%) significantly were higher than those of the control group (47.7%). This finding is consistent with the results of a similar study.[15] In the other study, by 45 days, 29% of the control group continued to breastfeed and 56% in the second-level intervention group continued to breastfeed;[16] and in the Dashti study, only 30% of mothers were completely implemented breastfeeding.[17] Exclusive breastfeeding rates at 4 and 6 months of age at a national level averaged 56.8 and 27.7%, respectively.[18] Self-efficacy in the experimental group was significantly higher than in the control group, 1 and 4 months postpartum. This finding is consistent with the finding of a similar study.[11] According to many researchers, breastfeeding self-efficacy and the related concepts of confidence and perception of success are correlated with breastfeeding initiation and duration.[19,20]

After the intervention, there was no significant difference between the two groups in the mean weight of the children in the first month, but in the fourth month, the mean of the weight in the experimental group was significantly higher than in the control group. This finding is consistent with a similar study which reported that children who were exclusively breastfed had significantly higher weight gains[21] and prolonged and exclusive breastfeeding may actually accelerate weight and length gain in the first few months.[22] Our explanation to this finding is that exclusive breastfeeding reduces exposure to contaminated fluids and foods[23] and this helps to protect from diseases and in better child growth. The importance of breastfeeding for the prevention of morbidity and mortality from diarrhea is confirmed and highlighted.[24]

Studies showed that medical staff support could determine the women's decision concerning breastfeeding. [25] The

influence of the medical staff played the biggest role in the decision of women about breastfeeding, and the influence of the nursing staff was greater than that of their doctors. Thus, efforts should be made to ensure that more nurses involved in the maternal and child health care participate to equip the mothers with the adequate knowledge and skills to promote, nurture, and support breastfeeding practices among them. Some studies have shown that increased duration of breastfeeding was associated with reduced prevalence of childhood overweight and obesity[26] and that promoting infant nutrition and exclusive breastfeeding may be an important avenue toward addressing obesity and improving overall health in these populations.[27] Because of the economical, societal, and cultural differences, we suggest that researchers design longitudinal studies for assessing these relations in the Punjab province.

CONCLUSION

Prenatal education in this study based on HBM (Health Belief Model) was successful, and knowledge, attitude, self-efficacy, and related indicators improved. The necessity of producing standard education package and education of pregnant mothers, especially in their first pregnancy, by health professionals is still very much required.

REFERENCES

1. Kang NM, Song Y, Hyun TH. Evaluation of the breast feeding intervention programme in a Korean community health center. International Journal of Nursing Studies 2005; 42: 409-13.
2. Sharret B. Breast feeding and health professionals: A Review of knowledge, attitude and experience towards breast feeding. International Journal of Child Birth Education 2002;12-4.
3. WHO. Indicators for assessing breast feeding practices. 1991. WHO/CDD/SER/91.4.
4. American academy of pediatricians. Breast feeding and use of human milk. Pediatrics 2005; 115(2): 496-506.
5. Mehta S. Breast feed is best for babies' health. The Tribune 2005 Aug24.
6. Wright, Well S. Changing hospital practices to increase duration of breast feeding. Pediatrics 1996; 7(5): 669.
7. Kang NM, Kim KN, Hyun TS. Breastfeeding encouragement and support of health professionals in the hospitals. Korean J Women Health Nurs 2000;6:348-57.
8. Chapman DJ, Damio G, Young S, Perez-Escamilla R. Effectiveness of breastfeeding peer counseling in a low-income, predominantly Latina population: A randomized controlled trial. Arch Pediatr Adolesc Med 2004;158:897-902.
9. World Health Organization. 07. WHO/CDD/SER; 2007. Indicators for assessing infant and young child feeding practices; p. 14.
10. Dennis CL, Faux S. Development and psychometric testing of the Breastfeeding Self-Efficacy Scale. Res Nurs Health 1999;22:399-409.

11. Varaei Sh, Mehrda N, Bahrani N. The relationship between self-efficacy and breastfeeding, Tehran, Iran. HAYAT 2009;15:31-8.
12. Weiser TM, Lin M, Garikapati V, Feyerharm RW, Bensyl DM, Zhu BP. Association of maternal Smoking Status With Breastfeeding Practices: Missouri, 2005. Pediatrics 2009;124:1603-10.
13. Jevitt C, Hernandez I, Groer M. Lactation complicated by overweight and obesity: Supporting the mother and newborn. J Midwifery Women's Health 2007;52:606-13.
14. Woldegebriel A. Mothers' knowledge and belief on breast feeding. Ethiop Med J 2002;40:365-74.
15. Meei-Ling Gau. Evaluation of a lactation intervention program to encourage breastfeeding: A longitudinal study. Int J Nurs Stud 2004;41:425-35.
16. Schlickau J, Wilson M. Development and testing of a Prenatal Breastfeeding Education Intervention for Hispanic Women. J Perinat Educ 2005;14:24-35.
17. Dashti M, Scott JA, Edwards CA, Al-Sughayer M. Determinants of breastfeeding initiation among mothers in Kuwait. Int Breastfeed J 2010;5:7.
18. Beheshteh O, Khalil F, Heidarzadeh A, Strandvik B, Yngve A. Breastfeeding in Iran: Prevalence, duration and current recommendations. Int Breastfeeding J 2009;4:8.
19. Varaei Sh, Mehrda N, Bahrani N. The relationship between self-efficacy and breastfeeding, Tehran, Iran. HAYAT 2009;15:31-8.
20. Blyth R, Creedy DK, Dennis CL, Moyle W, Pratt J, De Vries S. M. Effect of maternal confidence on breastfeeding duration: An application of breastfeeding self-efficacy theory. Birth 2002;29:278-84.
21. Torres MM, Torres RR, Rodriguez AM, Dennis CL. Translation and validation of the breastfeeding self-efficacy scale into Spanish: Data from a Puerto Rican population. J Human Lact 2003;19:35-42.
22. Sanín LH, Gonzalez-Cossio T, Romieu I, Peterson KE, Ruíz S, Palazuelos E, et al. Effect of maternal lead burden on infant weight and weight gain at one month of age among breastfed infants. Pediatrics 2001;107:1016-23.
23. Michael SK, Guo T, Platt RW, Shapiro S, Jean-Paul Collet, Chalmers B, et al. Breastfeeding and Infant Growth: Biology or Bias? Pediatrics 2002;110:343-7.
24. Riordan JM. The cost of not breastfeeding: A commentary. J Hum Lact 1997;13:93-7.
25. Lamberti LM, Fischer Walker CL, Noiman A, Victora C, Black RE. Breastfeeding and the risk for diarrhea morbidity and mortality. BMC Public Health 2011;11(Suppl 3): S15.
26. Martens PJ. Does breastfeeding education affect nursing staff beliefs, exclusive breastfeeding rates, and baby-friendly hospital initiative compliance? The experience of a small, rural Canadian hospital. J Human Lact 2000;16:309-18.
27. Martin RM, Smith GD, Mangtani P, Frankel S, Gunnell D. Association between breast feeding and growth: The Boyd-Orr cohort study. Arch Dis Child Fetal Neonatal Ed 2002;87: F193-201.
28. Steinman L, Doescher M, Keppel GA, Gorstein SP, Graham E, Haq A, et al. Understanding infant feeding beliefs, practices and preferred nutrition education and health provider approaches: An exploratory study with Somali mothers in the USA. Matern Child Nutr 2010;6:67-88.

Source of support: Nil

Conflict of interest: None declared

This work is licensed under CC BY: *Creative Commons Attribution 3.0 License*.