

## Effect of Electronic Education on the Awareness of Women about post Partum Breast Feeding

Fariba Fahami<sup>1</sup>, \*Soheila Mohamadirizi<sup>2</sup>, Parvin Bahadoran<sup>3</sup>

<sup>1</sup>MSc, Department of Midwifery, Nursing & Midwifery Care Research Center, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.

<sup>2</sup>MSc, Department of Midwifery, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.

<sup>3</sup>MSc, Department of Midwifery, Nursing & Midwifery Care Research Center, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.

### Abstract

#### **Introduction:**

Electronic education is there to enhance knowledge of patients especially mothers during postpartum and can provide an efficient way to enhance personnel-patient interaction. So, this study was conducted to define the effect of electronic education on the awareness of women about post partum breast feeding education.

#### **Materials and Methods:**

This is a quasi- experimental study conducted on 72 primiparous women during postpartum period referring to Shahid Beheshti Hospital in 2013 . In order to educate the subjects through electronic and paper based methods, the subjects were selected through random allocation. A pre- test before and a post- test after education were conducted with a 15 item questionnaire to measure women's awareness about breast feeding. The data were analyzed by descriptive statistical tests, and t-test and paired t- test through SPSS<sub>11.5</sub>. Significance level was considered ( $P<0.05$ ).

#### **Results:**

Mean scores of awareness about postpartum breast feeding after intervention in electronic education and control (paper based) groups were  $9.22\pm 0.43$  and  $13.12\pm 1.2$  respectively, which showed a significant difference ( $P=0.002$ ). Levels of increase of awareness in electronic education and control groups were 128% and 68% respectively.

#### **Conclusion:**

As electronic education method had a higher effect on level of awareness about postpartum breast feeding among mothers compared to paper based method, health providers are suggested to apply this method to increase mothers' knowledge and to provide them with care.

**Keywords:** Breast feeding, Electronic, Learning, Postpartum.

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#### **\*Corresponding Author:**

Soheila Mohamadirizi, Department of Midwifery, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.

E-mail: mohamadirizi@yahoo.com, Received date: Apr 29,2014, Accepted date: May 12,2014.

## Introduction

Breast feeding is one of the most important ways to promote children's health in various societies. Breast milk is the best food for the infants(1-5).

Role of breast feeding in health, growth and development of the children has been known for years (6). Based on united nations international children's emergency fund (UNICEF) report, more than three thousand children die of infectious diseases resulted from bottle feeding each day, and 1,500,000 children die due to lack of breast feeding each year (7). There are increasing evidences all over the world showing that breast feeding has numerous advantages for mothers and infants. The exclusive breastfeeding rates up to 6 months was 28-44% in Iran.

Isfahan city is one of the lowest exclusive breastfeeding rate at 6 month of age (8,9). Benefits of breast feeding for the infants include helping development of immunity system, stimulation of beneficial bacteria growth in digestive system, beginning of inactive immunity after birth, mother – infant optimum skin touch and reduction of cardiac disease and diabetes. It's benefits for the mothers are facilitation of weight loss in mothers , reduction of uterus bleeding and risk of breast cancer osteoporosis (10,11). It is recommended to continue breast feeding for at least one year, and this period can be lengthened with regard to mother's and infant's interest. Most of the important organizations suggest breast feeding at least for six months , and the health goal for 2010 for American women is a condition in which 75% of mothers start breast feeding and 50% continue that for six months (12,13).

After birth, the mother and infant spend a period of time in hospital during which mothers learn skills of efficient breast feeding (14). Various studies have been conducted on the association of education and successful breast feeding which have

emphasized on positive effect of education (15,16).

While, few studies have been conducted on the effect of electronic education, especially in Iran. Electronic education is counted as a personal education in which the learners can achieve educational goals based on their talents, and in fact, learn how to learn (17).

This alone is one of the educational goals as learning continues in the whole life. Electronic education is the most important application of information technology which is put forward in forms of open online learning in various forms such as computer based learning and web based learning, and closed online learning(18). Increasing development of access to appropriate hardware and software for electronic education has opened a new horizon for educational institutes. It seems that application of these facilities in education helps fulfillment of some ideals as the criteria for quality of education including student based learning, lifelong learning, active learning, interactions in learning and multimedia (19). Mohamadirizi (2013) showed that 69% of womens had low awareness about neonatal care at 4 weeks after e-learning (20).

Meanwhile, Sharafi (2009) showed that 71% of womens had moderate awareness (21). Lack of mothers' sufficient knowledge lead to failure in continuous breast feeding (22). If a woman has sufficient breastfeeding knowledge, she may be more likely to breastfeed. So breastfeeding education is necessary. Also health providers should let to mothers for active participate in breast feeding education (23).

Therefore, with regard to the importance of postpartum education, especially breast feeding, and new educational methods such as electronic education and as no reports concerning the effect of electronic education on breast feeding have been issued, the researcher decided to conduct a study to define the effect of electronic education on the awareness of women about post partum breast feeding education.

## Materials and Methods

This is a quasi- experimental study conducted on 72 mothers who had undergone delivery in Shahid Beheshti Hospital in Isfahan- Iran, in May 2012 to May 2013. Inclusion criteria were being primiparous, giving a written consent, having a contact number, Iranian nationality and residing in Isfahan, ability to use a computer and a VCR player and the ability to speak, hear and see.

High risk pregnancy, having an infant hospitalized in neonatal intensive-care unit (NICU) and giving information by each other such as mother or friends in during study were among exclusion criteria. Sample size was calculated 27 subjects based on means comparison formula and with consideration of confidence interval of 95% and test power of 80%. With consideration of 20% of subjects drop, the sample size was finalized by 35 subjects in each group, who were divided into two groups by random (for women giving written consent, one experimental and one control balls were put in a bag) allocation so that all primiparous delivered mothers were allocated to electronic education and paper based education groups within two hours post delivery and during data collection period every other day. Participants were recruited from one public hospital in Isfahan (Iran): Shahid Beheshti Hospital is a major public and teaching hospital with around 2000 births per year. Certified midwives, resident physicians, and obstetricians provide care in this hospital. Data collection tool included a checklist of subjects selection, form of personal and fertility information, delivered women awareness on breast feeding education questionnaire. The researcher made questionnaire of awareness was prepared with regard to national postpartum education program and included 15 questions ( for example: Breast milk is the ideal food for babies, the nutritional benefits of breast milk last only until the baby is weaned from breast). In form of statements for which one option (right – wrong –no idea) was selected by mothers. This questionnaire was completed before and two weeks after intervention in each group. The questionnaires were distributed to

five academic members of Isfahan University of Medical Sciences concerning its validity, and after doing necessary revisions based on their indications, the final tool was prepared to confirm its reliability in the next step. Its reliability was confirmed by test- retest with a two- week interval (on ten women) with Cronbach's alpha of 94%. Total score on the questionnaire of awareness range from 0-15 (Scores 0-5 were given for low awareness, 6-10 moderate and 11-15 were given for good awareness). Firstly, the researcher got research approval from ethical considerations committee of the university and obtained a letter of introduction from Isfahan Nursing and Midwifery School. She delivered the letter to the authorities of hospital, then after a brief introduction and explanation of the goals for the subjects and attaining their written consent, check the inclusion exclusion criteria. Questionnaires of personal – fertility information and awareness toward breast feeding were completed In both groups before any education (this education have been learned including verbal method for 15 minutes and during 2 hours postpartum by hospital personnel). After educating the subjects, a midwife gave multimedia electronic education to one group and an illustrated educational booklet to the other, and the subjects in each group were asked to complete the questionnaires again two weeks after education through telephone calls. Multimedia software packages allowed to researcher to assemble media elements and to add interactive feature. To use these packages, an audiovisual computer is necessary to able to import video from an outside source, such as camcorder, VCR player, video or TV. Also this programme gave preserves researcher combine text, graphics, animation, sound, images, animation and digital video. The quality of this programme and visualization of the multimedia were excellent. This software includes mother guides, voice or text instruction. The content of educational media was including: breastfeeding benefit, composition of colostrum and breast milk, health and skills of breastfeeding and handling the breastfeeding. As access to internet was not possible for some of the women, and since in similar studies, the subjects were educated by multimedia method and with regard to low

speed of internet, low quality of sound and picture during online education in Iran, it was tried to give them educational content in form of a webpage or FLV, WMV and MP4 Womens used software and booklet education twice a week for 30 min. In addition, software education content was in separated sections so that the women could rewind the material to listen to that again, if not understood. Data were analyzed by statistical tests of independent t-test, paired t- test and chi- square through SPSS version 11.5. Significance level was considered  $P < 0.05$ .

**Results**

Total of 72 subjects attended this study. Mean age of the subjects was  $24.27 \pm 1.3$  years, mean body mass index (BMI)  $24.6 \pm 1.5$  kg/m<sup>2</sup>, 66% had education  $\leq$  high school diploma , 34% had university education , 88% were homemakers , 12% were employed, 91% were interested in another pregnancy and 45% had natural

vaginal delivery(NVD). Mean age of their spouses was  $28.4 \pm 2.01$  years, 62% of them had education  $\leq$  high school diploma and 96% were employed. The main source of subjects' information in each group before intervention was their mothers (52%), health personnel (31%) and TV (10%).

There was no significant difference between two groups concerning age, BMI, pregnancy age, education and women's and their spouses' occupation ,type of delivery (NVD and Cesarian Section), The main source of subjects' information and score of awareness about breastfeeding as the groups were homogenous ( $P < 0.05$ ).

Paired t- test and independent t- test showed a significant difference in scores of awareness before and after intervention in electronic and booklet education groups (Table. 1).

**Table 1:** Differences between breastfeeding awareness in two groups

Awareness score	Electronic group		Booklet group	
	Mean (SD)	P value	Mean (SD)	P value
Pretest	4.02(0.01)	P= 0.010	3.42(0.12)	P=0.002 df=35 t=-3.34
Post-test	13.12(1.2)	df=35 t=-1.14	9.22(0.43)	

About 80% of the mothers before intervention and only 5% two weeks after intervention in electronic education group

had low awareness about postpartum breast feeding (Table. 2).

**Table 2:** Awareness Score levels before and two weeks after intervention in two groups.

Awareness level	Groups			
	Electronic pretest/post-test		Booklet pretest/post-test	
	N(%)	N(%)	N(%)	N(%)
Low	29(80%)	2(5%)	31 (86.1%)	3 (8.3%)
Moderate	5 (13.8%)	6 (16.6)	4 (11.1%)	18 (50%)
Good	2 (5%)	28 (77.7%)	1 (2.7%)	15 (41.6%)
Total	36 (100%)	36 (100%)	36 (100%)	36 (100%)

**Discussion**

The results showed that mean scores of awareness two weeks after intervention

had a significant increase in both groups compared to before intervention which indicates the effect of both methods on the

level of mothers' awareness change. With regard to electronic education, Huang (2007) in an experimental two group study, conducted in Taipei, defined the effect of a multimedia educational program on women's awareness about feeding.

In study group, education was conducted through pictures, slides, text and animation with content of advantages and disadvantages of breast feeding, and the score of awareness increased from 14.7 (before intervention) to 19.2 (after intervention) two weeks after intervention.

In addition, there was a significant difference concerning subjects' awareness and attitude toward breast feeding between two groups (24) ( $P < 0.001$ ). Kuo (2009) showed that pregnant women's awareness about postnatal care showed a significant difference two weeks after multimedia electronic education in both educational groups (multimedia and conventional) ( $P < 0.001$ ) (25).

In the present study, there was a significant difference between percentage of awareness score change in two groups ( $P = 0.002$ ), and the change in awareness score has been 60% more in electronic education group compared to booklet group (128% VS 68% increase of awareness score). Therefore, the effect of electronic education on promotion of awareness level was more. Davis (2002) showed that pamphlets and educational packages were more effective than conventional methods, and the number of physicians' visits to patients lowered after education through a booklet (26). Meanwhile, Hosseini showed that pamphlet education method was not effective on students' awareness. He indicates that the reason may be not studying the pamphlets (27).

In fact, verbal education accompanied with written materials was more effective than each of these methods alone (28).

In electronic education (multimedia), access to information in written form, accompanied with verbal sound and animation, can be possible at any time during a day or night, at the time of travel or when women are working and have no time to refer to receive education from health providers. Meanwhile, lack of computers skills, low internet speed in Iran and inaccessibility to download the existing programs existing on the websites are among limitations of electronic education.

In addition to aforementioned issues, as in electronic education, the learners are themselves responsible for their learning, learning is deeper and the emphasis of education is on construction of knowledge and not necessarily acquirement of knowledge (29). In this study there are two limitations; First, the overall sample was small and limited to one hospital and may not be generalizable to other regions, so it is recommended that future studies should focus on a broader sample of women of varied. Second, the effects were measured in only a convenience sample. The study needs to be replicated in other centers.

### **Conclusion**

With regard to the obtained results of the present study, it seems that it is better to educate the mothers about breast feeding in postpartum period through electronic education method by multimedia educational software.

This method helps the managers in planning strategies for modification of postpartum education about breast feeding and promotion of these learners' level of awareness as well as reduction of costs and consumed time of health providers.

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