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Comparing the Effect of Electronic Software and Training Booklet on Maternal Self-Confidence and Awareness About Newborn Care: A Randomized Controlled Clinical Trial

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Abstract

Background: The use of a training booklet and electronic software has a special place due to lack of time and space constraints.
Objectives: This study aimed to compare the effect of electronic software and training booklet on maternal self-esteem and awareness regarding newborn care in nulliparous women.
Methods: This randomized controlled clinical trial was conducted on 126 pregnant women with a gestational age of 36 - 38 weeks in health care centers in the city of Miandoab, Iran from February 2015 until April 2016. Using a randomized block design, participants were assigned into 2 groups (42 mothers receiving electronic software and 42 mothers receiving training booklet) and control group (42 mothers receiving postpartum routine training). An oral training session was held for participants in both intervention groups. Then, a training booklet or electronic software was provided to them. Maternal self-esteem and awareness regarding newborn care questionnaires were completed by participants in the 3 groups at the start of the intervention and 4 weeks after the childbirth.
Results: After controlling the baseline values, the mean score of self-confidence in the training booklet group (adjusted mean difference = 5.6; 95% confidence interval = 1.2 to 10.0; P = 0.012) was significantly higher compared with the control group. Furthermore, the mean score of awareness regarding newborn care in the training booklet group (1.5; 0.6 to 2.3; P < 0.001) and the electronic software group (2.0; 1.2 to 2.9; P < 0.001) was significantly higher compared with the control group. There was no statistically significant difference between the 2 groups after the intervention in terms of level of awareness and self-confidence.
Conclusions: The results showed a significant effect of electronic software and training booklet in raising awareness about newborn care and self-confidence. Therefore, these methods are advisable to mothers.

Keywords: Software, Booklet, Newborn, Awareness, Education

1. Background

Following the transition of the infants from intrauterine life to extrauterine life, they will be exposed with so many stimuli such as light, noise, cold air, gravity, and touch stimuli for the first time and important adaptations are made simultaneously in the respiratory, circulatory, and body temperature control as well as other systems. These adaptations are important for neonatal health (1). Neonatal period is one of the most critical and vulnerable life stages that require more knowledge and accurate care (2). Neonatal deaths account for two-thirds of all deaths in the first year of life and medical, economic, social, and cultural factors affect that neonatal mortality rate (3). The transition of the infants from intrauterine life to extrauterine life is an exciting event that requires significant and effective physiologic changes by the infant to survive (4).

Increasing maternal information, awareness, and their ability to care for infants will improve infants' living environment and reduce the number of children exposed to damage caused by improper fulfillment of parental roles (5). Additionally, maternal knowledge of how to properly deal with infants' problems and how to provide essential neonatal care in this period can have a significant effect in enhancing the maternal self-confidence in taking care of the infants and eliminating many false beliefs and traditions in this area.

The researchers believe that parental self-confidence is a key factor in the maternal and neonatal outcomes. They defined the maternal self-confidence as the mother's understanding of her ability to take care of her children and correct interpretation of the signals (6). Kuo et al. reported that maternal self-confidence facilitates the development of the maternal role and promotes the optimal child growth and development (7). Considering the breadth of information required to mothers and some non-scientific beliefs in the face of a newborn (especially in the case of mothers who gave birth of their first child), mothers should be taught key points about everyday care

and manner of dealing with common problems in the neonatal period (1). Several training methods have been used to train individuals; however, due to problems such as: absence of a trainer, learners' attendance in classes, educational facilities, and access to new educational technologies have led to the increased use of unattended methods using educational software (8, 9). Furthermore, previous literature reveals that oral training in postpartum wards in hospitals does not significantly increase women's level of awareness (10). In the e-learning method, the patient recieves information on a face-to-face or remote basis and individuals learn how to learn (11). Moreover, there are no temporal and spatial constraints with this method and employed mothers who do not have enough time to visit the clinic can learn the educational material without the anxiety (12).

In a study entitled "the impact of video training on patients and health workers", Krouse showed that the video, which combines visual and auditory information, is an effective education tool for patients to learn, understand and easily keep information, decrease anxiety, and increase self-care behaviors (13). Kuo et al. (2009), in a study entitled "the impact of e-learning program on the newborns care in Taiwan", showed that e-learning program was more effective in infant care than the routine control method (7). Furthermore, in the study entitled "comparing the effect of e-learning and training booklet on women's' satisfaction of postpartum care", Mohammadi-rizi et al. (2012) showed that e-learning can increase satisfaction levels of nulliparous women in the postpartum period (14).

Education is an important factor in health promotion (15). However, unfortunately, patient education program is not desirable in Iran due to lack of or irregular implementation of the educational program (16) and according to the search conducted by the researcher, there is no study conducted in this field in Iran. Although, there was evidence that increased self-confidence of mothers, improve mother-infant relationship, infant development (6), and increase functional status (17). Therefore, the present study aimed to compare the effect of electronic software and training booklet on neonatal care awareness and self-confidence in nulliparous women.

2. Methods

2.1. Study Type and Participants

The present study was a randomized controlled clinical trial, which was conducted on 126 pregnant women referring to healthcare centers in the city of Miandoab-Iran from February 2015 until April 2016.

The inclusion criteria included a willingness to participate in the study, being literate, 36 to 38 weeks pregnancy, nulliparous, singleton pregnancy, access to computers, and the ability to use computers. The exclusion criteria included having psychological diseases, a high-risk pregnancy according to the prenatal care records, malformed newborns or those admitted to NICU.

The sample size was calculated 38 using G-power based on the results of Jafarnejad (18) by taking into consideration (m1 = 176.8, sd2 = sd1 = 34.4) and the presumption of 15% increase in score due to the intervention (m2 = 203.32 (α = 0.05, power= 95%). However, the final sample size of 42 patients was considered in each group by taking into account the 10% loss.

2.2. Sampling

After approving the proposal and obtaining the ethics code from the ethics committee of Tabriz University of Medical Sciences (Code of ethics: TBZMED.REC.1394.344) and registering the study in the Iran randomized clinical trial site (IRCT2015071410324N23), sampling began. The present study was done in all health centers and posts of Miandoab city-West Azerbaijan province, Iran. This city has 5 health centers and 11 health posts. These health centers and posts are governmental and non-referral. The convenience sampling method was used and the researcher examined 36 - 38 weeks nulliparous women that were referred to health centers according to the inclusion and exclusion criteria. Additionally, if they had the eligibility criteria, the research objectives and method were explained to them and if they were willing to participate in the study, the written informed consent was obtained and questionnaires of socio-demographic and midwifery characteristics, newborn care awareness, and maternal self-confidence were completed by the participants through interview.

2.3. Randomization and Intervention

Participants were assigned into 2 intervention groups; including receiving training booklet (42 mothers), electronic software (51 mothers), and control groups (42 mothers) using block randomization method with block sizes of 3 and 6 with an allocation ratio of 1: 1: 1 and the control group (42 mothers receiving routine educations after delivery). A non-involved person took the randomization and the type of intervention received was written on a paper and was placed into numbered matte envelopes. An oral training session was held by the researcher for the participants in both groups at the health centers. Then they were provided with the training booklet or electronic software.

The electronic software was developed by the ministry of health and medical education of Iran and its content included newborn nutrition, care for newborn's umbilical cord, newborn's dressing and clothes, bathing, neonatal danger signs and more. The booklet was also codified with the same educational content by the researcher.

The participants were asked to refer to the health center at the end of the fourth week after delivery. At the end of the second and third weeks after the delivery, participants in the intervention groups were contacted via phone call and were reminded of reading booklet or software. At the end of the study (four weeks after the birth), self-esteem and newborn care awareness questionnaires were completed by participants in all 3 groups. Furthermore, the software and the training booklet were given to the mothers in the control group. Since it was an educational intervention, the blinding of researcher was not possible, therefor to reduce bias rate, the researcher assistant completed the fourth week questionnaires through interviews with mothers.

2.4. Data Collection Tool

Data collection tools included socio-demographic and midwifery characteristics, newborn care awareness, and maternal self-esteem questionnaires.

Socio-demographic and midwifery characteristics questionnaire included questions on age, mother's and husband's level of education, mother's and husband's job, income, housing status, planned pregnancy, desired fetal sex, desired fetal sex from the viewpoint of the husband, having assistance in neonatal care, and individuals supporting the mother.

Newborn care awareness questionnaire was a researcher-developed questionnaire that included questions on nutrition, breastfeeding, bathing etc. and measures maternal awareness about infant care. This questionnaire includes 20 items, each of which has three options: True, False, I do not know. Each correct answer is assigned +1 score and the wrong and I do not know answers were given a 0 score. The scores ranged from 0 to 32. The validity of newborn care awareness questionnaire was measured and confirmed using content validity index (CVI) and content validity ratio (CVR). The CVI and CVR values were 0.94 and 0.97, respectively. The reliability was measured using pre and post-test on 20 nulliparous mothers. Cronbach's alpha coefficient of 0.85 and ICC value of 0.83, which were acceptable values, were obtained.

The maternal self-esteem questionnaire was developed in 1993 by Lips and Bloom (19). It is a 24-item questionnaire based on the Likert scale (from strongly disagree to strongly agree), on which questions have been prepared as positive and negative. Scores range from 24 to 144 and higher scores indicate greater self-esteem. The reliability of the questionnaire is determined (Cronbach's alpha =0.72) in a study conducted by Jafarnejad et al. (2014) (18). In the present study, the reliability was determined by conducting a pre and post-test on 20 nulliparous mothers and an acceptable Cronbach's alpha coefficient of 0.91 and the ICC value of 0.79 were obtained.

2.5. Data Analysis

The collected data were analyzed using SPSS 20. Kolmogorov-Smirnov test was used to determine the normality of quantitative data and all data had normal distribution. Chi-square test, chi-square test for trend, Fisher exact test and one-way ANOVA were used to study the homogeneity of intervention and control groups in terms of socio-demographic characteristics. One-way ANOVA test and ANCOVA test (by controlling baseline scores and level of education of participants and their husbands) were used to compare mean score of the maternal self-confidence and newborn care awareness between the study groups, respectively before and after the intervention. $P < 0.05$ was considered as significant, and the analyses were done based on intention to treat.

3. Results

The study began from January 21, 2015 until May 20, 2016. A total of 250 pregnant women were investigated in terms of eligibility criteria. A total of 126 of them had the inclusion criteria and were assigned into 3 groups (42 women each group). They were followed up until 6 weeks after delivery and there was no sample loss in each group (Figure 1).

Mean (SD = standard deviation) of participants' age in the electronic software, training booklet and control groups was 28.8 (5.2), 28.1 (5.7), and 28.8 (4.5) years, respectively. All 3 groups were similar in terms of socio-demographic and midwifery characteristics except the education level of the mother and her husband. These 2 variables were adjusted in the statistical tests (Table 1).

Before the intervention, there was no significant difference between groups in terms of the mean score of the maternal self-confidence score (P = 0.269). The mean (SD) score of self-confidence in the software group increased from 61.3 (11.7) before the intervention to 68.4 (12.2) in 4 weeks after the delivery. The same amount in the booklet and the control increased from 64.5 (9.2) and 64.1 (8.2) before the intervention to 71.6 (10.5) and 65.9 (6.9) in four weeks after the delivery, respectively. According to the general linear model and by controlling the baseline values, the mean adjusted score of the maternal self-confidence

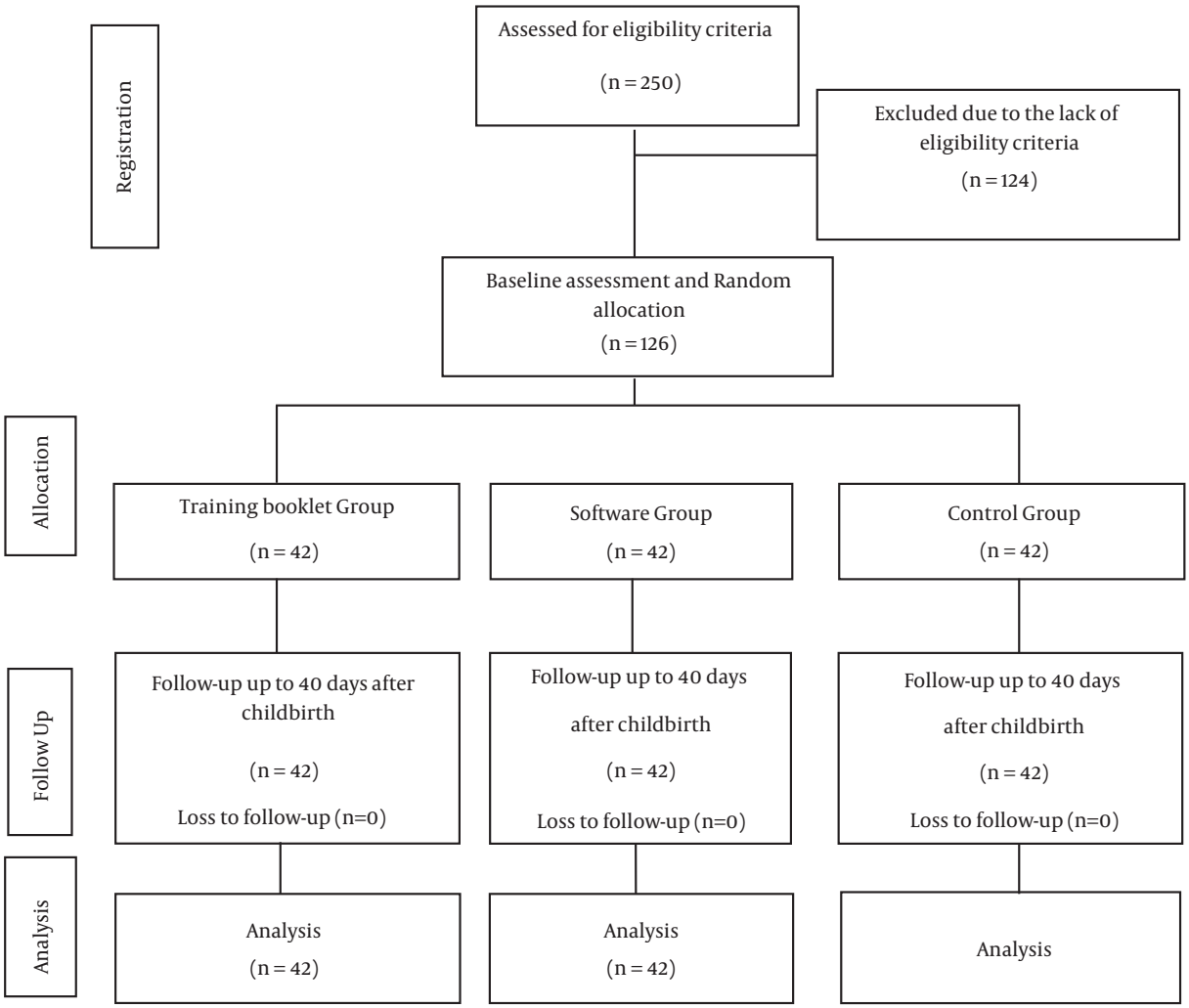

Figure 1. Study Flowchart

in the booklet group (adjusted mean difference = 5.6; 95% confidence interval = 1.2 to 10.0; P = 0.012) had a statistically significant increase compared to the control group. There was no statistically significant difference between the booklet and software groups after the intervention (Table 2).

There was no statistically significant difference between the 3 groups in terms of mean scores of the awareness about newborn care before the intervention (P = 0.979). The mean (SD) score of the awareness about newborn care in the software group increased from 12.7 (3.1) before the intervention to 15.3 (2.5) in 4 weeks after the delivery. The same amount in the booklet and control groups increased from 12.9 (2.7) and 12.8 (2.5) before the intervention to 14.7 (1.8) and 13.2 (1.5) in 4 weeks after the delivery, respectively. According to the general linear model and by controlling the baseline scores and level of participant's education and her husband, the mean adjusted score of awareness in the booklet (1.5; 0.6 to 2.3; P < 0.001) and the software groups (2.0; 1.2 to 2.9; P < 0.001) had a statistically significant increase compared to the control group. There was no statistically significant difference between the booklet and software groups after the intervention (Table 3).

4. Discussion

The results showed that mean score of awareness about newborn care in the software and training booklet groups showed a significant increase compared to the con-

Table 1. Socio-Demographic and Midwifery Characteristics in Study Groups[a]

Variable	Booklet, n = 42	Software, n = 42	Control, n = 42	P Value
Age	28.1 (5.7)	28.8 (5.2)	28.6 (4.5)	0.815[b]
Education				
Secondary school	(45.2) 19	(33.3) 14	(19.0) 8	0.001[c]
High school	(16.7) 7	(28.6) 12	(9.5) 4	
Diploma	(38.1) 16	(21.4) 9	(52.4) 22	
University	0 (0)	(16.7) 7	(19.0) 8	
Spouse's level of education				
Primary school	(30.9) 13	(23.8) 10	(4.8) 2	0.008[c]
Secondary school	(33.3) 14	(21.4) 9	(19.0) 8	
Diploma	(19.0) 8	(35.7) 15	(38.1) 16	
University	(16.7) 7	(19.0) 8	(38.1) 16	
Job				
Employed	(5.4) 2	(12.9) 5	(9.6) 4	0.722[d]
Housewife	(94.6) 35	(88.1) 37	(90.5) 38	
Spouse's job[e]				
Employee	(16.7) 7	(19.0) 8	(19.0) 8	0.366[d]
Self-employed	(83.3) 35	(81/0) 34	(81/0) 34	
Income adequacy				
Income more than expenditure	(16.7) 7	(4.8) 2	(9.5) 4	0.052[c]
Expenditure more than income	(59.5) 25	(47.6) 20	(28.6) 12	
Equal income and expenditure	(40.5) 17	(47.6) 20	(61.9) 26	
Planned pregnancy	(85.7) 36	(85.7) 36	(90.5) 38	0.751[d]
Desired fetal sex	(78.6) 33	(90.5) 38	(3.83) 35	0.323[d]
Desired fetal sex according to the husband	(81.0) 34	(100.0) 42	(90.5) 38	0.012[d]
Having help in neonatal care	(66.7) 28	(73.8) 31	(78.6) 33	0.465[d]
Mother's supporters				
Mother	(60.7) 17	(35.5) 11	(36.4) 12	0.450[d]
Mother-in-law	(14.3) 4	(32.3) 10	(33.3) 11	
Spouse	(17.9) 5	(19.4) 6	(18.2) 6	
Other[f]	(7.1) 2	(12.9) 4	(12.1) 4	
Receiving education on newborn care	(59.5) 22	(47.5) 19	(67.5) 27	0.190[d]

[a] Value are expressed as number percent expect age which is expressed as mean ± SD.
[b] One-way ANOVA.
[c] Chi-square for trend.
[d] Chi-square.
[e] There were two women in the e-software group whose husband had no job.
[f] Sister or sister-in-law or newborn sitter.

trol group after the intervention. There was no statistically significant difference between the 2 intervention groups after the intervention. Furthermore, the mean score of self-confidence in the booklet group was significantly higher than that of the control group after the intervention, however, the mean maternal self-confidence in the software group was similar to that of the control group.

In the current study, both software and training booklet methods were effective in raising newborn care awareness. There are several studies regarding the effect of the

Table 2. Comparing the Mean Score of Maternal Self-Confidence in Study Groups[a]

Variable	Before Intervention Mean (SD)[b]		After Intervention Mean (SD)[b]	
Booklet (n=42)	64.5 (9.2)		71.6 (10.5)	
Software (n=42)	61.3 (11.7)		68.4 (12.2)	
Control (n=42)	64.1 (8.2)		65.9 (6.9)	
P Value	0.269		0.042	
Comparing groups	**MD (95% CI)[c]**	**P Value**	**MD (95% CI)[c]**	**P Value**
Booklet with Software	3.2 (-1.0 to 7.4)	0.138	3.2 (-1.0 to 7.5)	0.139
Booklet with control	0.4 (-3.8 to 4.6)	0.859	5.6 (1.2 to 10.0)	0.012
Software with control	2.8 (-7.0 to 1.4)	0.191	2.5 (-1.9 to 6.8)	0.226

[a]One-way ANOVA test was used to compare t groups before the intervention and the general linear model was used to investigate group's differences by controlling baseline scores and level of education of participants and their husbands after the intervention.
[b]Mean (Standard Deviation).
[c]Mean difference (95% Confidence Interval).

Table 3. Comparing the Mean Score of Newborn Care Awareness in Study Groups[a]

Variable	Before Intervention Mean (SD)[b]		After Intervention Mean (SD)[b]	
Booklet (n=42)	12.9 (2.7)		14.7 (1.8)	
Software (n=42)	12.7 (3.1)		15.3 (2.5)	
Control (n=42)	12.8 (2.5)		13.2 (1.5)	
P Value	0.979		< 0.001	
Comparing groups	**MD (95% CI)[c]**	**P Value**	**MD (95% CI)[c]**	**P Value**
Booklet with Software	0.1 (-1.1 to 1.3)	0.846	-0.5 (-1.4 to 0.3)	0.208
Booklet with Control	0.0 (-1.2 to 1.2)	0.696	1.5 (0.6 to 2.3)	< 0.001
Software with Control	-0.1 (-1.3 to 1.1)	0.876	2.0 (1.2 to 2.9)	< 0.001

[a]One-way ANOVA test was used to compare t groups before the intervention and the general linear model was used to investigate group's differences by controlling baseline scores and level of education of participants and their husbands after the intervention.
[b]Mean (Standard Deviation).
[c]Mean difference (95% Confidence Interval).

different types of training (workshop, lecture, tutorial and booklet, pamphlet and e-learning) in raising awareness of maternal care. All studies confirm the results of the current study.

Golshiri et al. (2010) stated that maternal awareness about growth and nutritional development stages is not sufficient. Furthermore, it was suggested that training has been effective in any manner and it is necessary to implement programs to improve maternal awareness and performance regarding the nutritional and developmental stages (20). These researchers stated that the lecture and tutorial methods bring similar results on maternal awareness about children's growth. Several studies revealed the effect of education in promoting the maternal awareness about the newborn care. Sajadi et al. (2010) showed that the level of maternal awareness about their children's risk of febrile seizures is less than average and education would increase their awareness in this area (21). Mozaffari et al. (2007) referred to education as a factor in increasing the maternal awareness about newborn care (22). Mazani et al. (2012) stated that both in-person and unattended trainings increase the maternal awareness of newborn nutrition although, the in person training was more effective in this regard (23).

On the other hand, other studies revealed the effect of e-training in raising maternal awareness of infant care. Huang et al. (2007) and Sohrabi et al. (2015) showed that e-training increases maternal awareness and attitude score towards breastfeeding (24, 25). Mohammad Rizi et al. (2013) showed that e-training is effective on nulliparous women's satisfaction in the postpartum period care (14). Increased maternal information, awareness and ability in

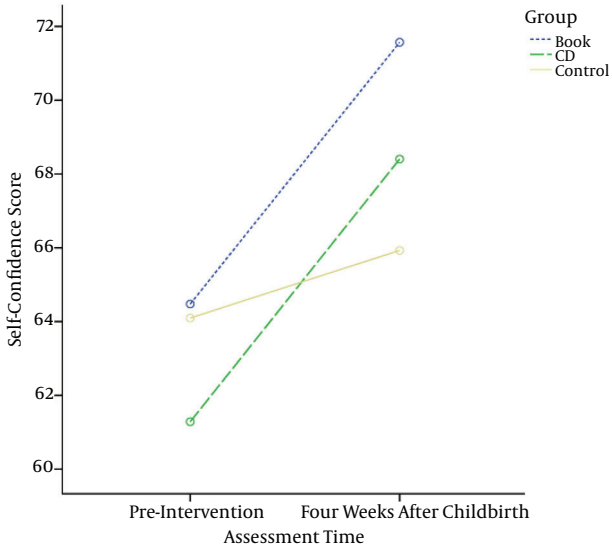

Figure 2. Trend in the Mean Score of Self-Confidence at the Pre-Intervention And Four Weeks After Childbirth According to Repeated Measurement Analysis

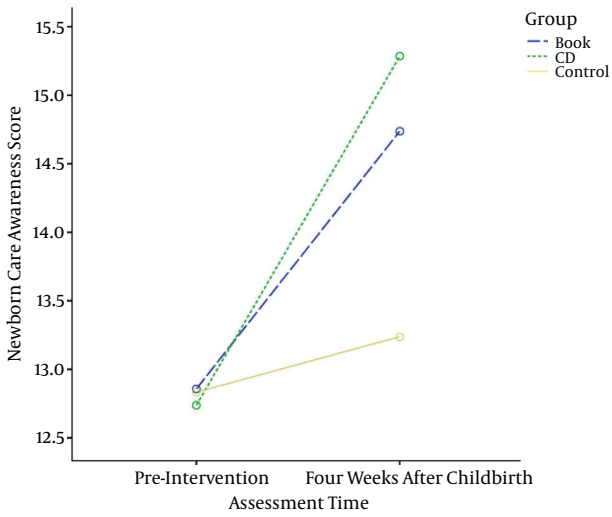

Figure 3. Trend in the Mean Scores of Newborn Care Awareness At yhe Pre-Intervention And Four Weeks After Childbirth According to Repeated Measurement Analysis

newborn care, improved the living environment of infants and children and reduces number of children exposed to vulnerabilities caused by improper fulfillment of parental roles.

In this study, the training booklet was effective in improving the maternal self-confidence. In review on the effect of educational packages (including booklet, common questions and answers about infants' health care and instructional videos), maternal self-confidence and newborn care, Jafarnejad et al. (2014) reported that maternal education and support about caring for infants based on the self-efficacy theory leads to enhanced maternal self-efficacy, however, there was no significant difference in the maternal self-confidence score after the intervention (18).

Perez-Blasco et al. (2013) showed that use of self-awareness techniques significantly increased the maternal self-confidence (26). Ostuka et al. (2008) showed a significant relationship between the maternal awareness and self-confidence regarding breastfeeding (27). Bagherinia et al. (2016) showed that training women has a positive effect in increasing their self-confidence (28). Fabian et al. (2005) reported that nulliparous women have lower level of self-confidence, competency and awareness and more stress in relation to the maternal duty, most of which could be due to lack of experience in this case (29). Therefore, it is essential to plan for a variety of trainings for the nulliparous women so that Ozkan et al. (2011) stated that educating mothers about the infant care based on the maternal identity development stages during the pregnancy and after delivery leads to the enhancement of maternal self-esteem confidence during the postpartum period (4).

There are several studies on the importance of maternal self-confidence and newborn care, such as Bolten et al.'s study (2012). They pointed out that if the method of increasing maternal self-confidence and self-efficacy is used even in stressful situations during pregnancy, unexplained newborn crying in the early postpartum period will be reduced (30). The results of the Cinar et al. (2014) study in Turkey showed that training women in the postpartum period through home visits and providing a booklet increases maternal self-confidence in the intervention group compared to the control group (31). However, the questionnaire used in that study, as well as the educational method, was different from that of the present study. Kuo et al. (2012) also concluded that maternal training in the third trimester of a pregnancy, according to Bandura's self-efficacy framework, through online indirect education, leads to enhanced maternal self-confidence in the postpartum period (32). However, the study of Kuo et al. has differences with our study in terms of educational method, intervention timeframe, and study instruments. Although all the self-confidence promoting strategies can be combined using online training, not everyone has access to the Internet yet in our current society and cannot receive the education in this way; however, all newborn care information can be collected and given to mothers in software education.

The identity of the maternal role in the process of becoming a mother is comprised of 2 components: cogni-

tive and emotional; and maternal self-confidence belongs to the emotional component of maternal identity (33). In general, women who lack self-confidence in the early postpartum period may have a negative experience of motherhood and are unable to adequately take care of their children. Therefore, given that maternal self-confidence is considered as a fundamental variable to adapt to the motherhood and maternal role, it is very important to help mothers increase their self-confidence.

The strong points of this study include comparison of the 2 educational methods (electronic software, and booklet) as well as observance of all clinical trial principles, including random allocation and allocation concealment. Another strength point of this study was sampling in all health centers and posts of city that increase the generalizability of findings. One of the limitations in this study was the short follow-up period. Thus a follow-up period longer than 4 weeks after childbirth in the future researches was suggested. Also, a newborn care awareness questionnaire was a researcher-developed questionnaire and not a standard questionnaire. For reducing the effect of this limitation, we determined the indices of content validity (CVI and CVR) and reliability of this questionnaire before starting the research project. It is recommended to conduct similar studies with longer follow-up periods. Considering the significant effect of the husbands' social support in improving maternal-child outcomes, it is recommended to provide husbands with training packages (booklet, e-software, pamphlets, etc.) to raise their awareness of newborn care.

4.1. Conclusion

The results showed that the mean score of awareness regarding newborn care in electronic software and booklet groups significantly increased compared to the control group after intervention. Furthermore, the mean maternal self-confidence score in the booklet group significantly increased compared to the control group. There was no statistically significant difference in terms of raising awareness and self-confidence between 2 intervention groups. It is recommended that health care providers provide pregnant women with a similar training booklet and e-software in order to raise their level of awareness and self-confidence and ultimately improve the babies' health status.

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Footnote

Conflict of Interests: The authors declare that there is no conflict of interest.

References

1. Bowman KG. Postpartum learning needs. *J Obstet Gynecol Neonatal Nurs.* 2005;**34**(4):438–43. doi: 10.1177/0884217505276054. [PubMed: 16020411].
2. Kliegman RM. Nelson textbook of pediatrics: Saunders Elsevier. ; 2012.
3. Hoseini BL, Sadati ZM, Rakhshani MH. Assessment of neonatal mortality in the Neonatal Intensive Care Unit in Sabzevar City for the period of 2006-2013. *Electron Physician.* 2015;**7**(7):1494–9. doi: 10.19082/1494. [PubMed: 26767103].
4. Ozkan H, Polat S. Maternal identity development education on maternity role attainment and my baby perception of primiparas. *Asian Nurs Res (Korean Soc Nurs Sci).* 2011;**5**(2):108–17. doi: 10.1016/S1976-1317(11)60019-4. [PubMed: 25030260].
5. Tarverdy M, Basiri P, Alave H. An investigation on the effects of home care education on mortality and morbidity for preterm infant's mothers Tajrish Hospital, 2Q03-2004. *J Urmia Nurs Midwifery Fac.* 2006;**4**(1):2–14.
6. Reck C, Noe D, Gerstenlauer J, Stehle E. Effects of postpartum anxiety disorders and depression on maternal self-confidence. *Infant Behav Dev.* 2012;**35**(2):264–72. doi: 10.1016/j.infbeh.2011.12.005. [PubMed: 22261433].
7. Kuo SC, Chen YS, Lin KC, Lee TY, Hsu CH. Evaluating the effects of an Internet education programme on newborn care in Taiwan. *J Clin Nurs.* 2009;**18**(11):1592–601. doi: 10.1111/j.1365-2702.2008.02732.x. [PubMed: 19490296].
8. Alizadeh Charandabi M, Mirghafourvan. M. , Rahmani A, Seidi S, Safari E, Mahini M, et al. The effect of software on knowledge and performance of teenage girls toward puberty hygiene: A randomized controlled trial. *Iranian J Med Educ.* 2014;**14**(2):110–21.
9. Jones TL, Prinz RJ. Potential roles of parental self-efficacy in parent and child adjustment: a review. *Clin Psychol Rev.* 2005;**25**(3):341–63. doi: 10.1016/j.cpr.2004.12.004. [PubMed: 15792853].
10. Hung CH, Chung HH. The effects of postpartum stress and social support on postpartum women's health status. *J Adv Nurs.* 2001;**36**(5):676–84. [PubMed: 11737500].
11. Masic I. E-learning as new method of medical education. *Acta Inform Med.* 2008;**16**(2):102–17. doi: 10.5455/aim.2008.16.102-117. [PubMed: 24109154].
12. Zolfaghari M, Mehrdad N, Parsa Yekta Z, Salmani Barugh N, Bahrani N. The effect of lecture and E-learning methods on learning mother and child health course in nursing students. *Iranian J Med Educ.* 2007;**7**(1):31–9.
13. Krouse HJ. Efficacy of video education for patients and caregivers. *ORL Head Neck Nurs.* 2003;**21**(1):15–20. [PubMed: 12616999].
14. Mohamadi-rizi S, Bahadoran P, Fahami F. Comparing the effect of electronic education and booklet on women's satisfaction from postnatal cares. *Iran J Obstet Gynecol Infertil.* 2013;**16**(61):1–8.
15. Baheiraei A, Mirghafourvand M. Health promotion from concepts to practice. *Tehran: Noor-e-Danesh.* 2011.
16. Dehghani A, Orang M, Abdollahyfard S, Parviniyan nasab AM, Vejdani MA. Barriers to Patient Education in Clinical Care; Viewpoints of Nurses. *Iranian J Med Educ.* 2014;**14**(4):332–41.
17. Reck C, Noe D, Gerstenlauer J, Stehle E. Effects of postpartum anxiety disorders and depression on maternal self-confidence. *Infant Behav Dev.* 2012;**35**(2):264–72. doi: 10.1016/j.infbeh.2011.12.005. [PubMed: 22261433].

18. Sehati Shafaie S, Mirghafourvand M, Bagherinia M. Association between maternal self-confidence and functional status in primiparous women of postpartum period, 2015-2016. *IJWHRS.* ;**In press**.
19. Jafarnejad F, Azmoudeh E, Mazloum SR, Reyhani T. Investigate the effect of self-training package based on maternal self-esteem nulliparous women in health care. *IJOGI.* 2014;**17**(104):18–28.
20. Bloom K, Lips HM. New scale of maternal selfconfidence. 1988.
21. Golshiri C, Sharifirad GR, Baghernejad F. Effect of lecture and tutorial on the knowledge and practice of mothers about growth and nutritional development stages of children less than three years. *Iranian J Med Educ.* 2010;**5**(10):936–27.
22. Sajadi Hazave M, Shamsi M. The effect of educational program on knowledge, attitude and practice of mothers referred to Arak Health Centers for prevention of febrile convulsion in children. *daneshvarmed.* 2010;**17**(88):51–8.
23. Kermani RM, Zoljalali SH, Azari A, Kouhpayezadeh J. The role of training workshops of newborn cares in promotion of mothers' knowledge. *Iran J Pediatr.* 2007;**17**(Suppl 1):41–6.
24. Mazani M, Hamidzadeh Arbabi Y, Nemati A, Mash'oufi M, Mahdavi R. Comparing the Effectiveness of Attendance and Non Attendance Education of Health Workers on Knowledge of Mothers and Anthropometric Changes of Infants. *Journal of Health.* 2012;**3**(1):74–86.
25. Hong J, Nguyen TV, Prose NS. Compassionate care: enhancing physician-patient communication and education in dermatology: Part II: Patient education. *J Am Acad Dermatol.* 2013;**68**(3):364 e1–10. doi: 10.1016/j.jaad.2012.10.060. [PubMed: 23394924].
26. Sohrabi Z, Sohrabi N, Hashemzadeh M, Mehran A. Mirmohammadaliei M. An evaluation of the effect of electronic education on breastfeeding knowledge in the postpartum period.. *J Health Syst Res.* 2015;**11**(4):741–6.
27. Perez-Blasco J, Viguer P, Rodrigo MF. Effects of a mindfulness-based intervention on psychological distress, well-being, and maternal self-efficacy in breast-feeding mothers: results of a pilot study. *Arch Womens Ment Health.* 2013;**16**(3):227–36. doi: 10.1007/s00737-013-0337-z. [PubMed: 23512648].
28. Otsuka K, Dennis CL, Tatsuoka H, Jimba M. The relationship between breastfeeding self-efficacy and perceived insufficient milk among Japanese mothers. *J Obstet Gynecol Neonatal Nurs.* 2008;**37**(5):546–55. doi: 10.1111/j.1552-6909.2008.00277.x. [PubMed: 18811774].
29. Bagherinia M, Mirghafourvand M, Shafaie FS. The effect of educational package on functional status and maternal self-confidence of primiparous women in postpartum period: a randomized controlled clinical trial. *J Matern Fetal Neonatal Med.* 2016:1–22. doi: 10.1080/14767058.2016.1253061. [PubMed: 27806666].
30. Fabian HM, Radestad IJ, Waldenstrom U. Childbirth and parenthood education classes in Sweden. Women's opinion and possible outcomes. *Acta Obstet Gynecol Scand.* 2005;**84**(5):436–43. doi: 10.1111/j.0001-6349.2005.00732.x. [PubMed: 15842207].
31. Bolten MI, Fink NS, Stadler C. Maternal self-efficacy reduces the impact of prenatal stress on infant's crying behavior. *J Pediatr.* 2012;**161**(1):104–9. doi: 10.1016/j.jpeds.2011.12.044. [PubMed: 22289357].
32. Cinar IO, Ozturk A. The effect of planned baby care education given to primiparous mothers on maternal attachment and self-confidence levels. *Health Care Women Int.* 2014;**35**(3):320–33. doi: 10.1080/07399332.2013.842240. [PubMed: 24236569].
33. Kuo CP, Chuang HL, Lee SH, Liao WC, Chang LY, Lee MC. Parenting confidence and needs for parents of newborns in taiwan. *Iran J Pediatr.* 2012;**22**(2):177–84. [PubMed: 23056883].