Research Article

Efficacy of an Early Self-care-Based Education Program on the Self-evaluation of Primiparous Postpartum Mothers: A Randomized Controlled Clinical Trial

Maryam Chamangasht[1], Mahnaz Akbari Kamrani [2, 3, *] and Malihe Farid[4]

[1]Student Research Committee, Alborz University of Medical Sciences, Karaj, Iran
[2]Social Determinants of Health Research Center, Alborz University of Medical Sciences, Karaj, Iran
[3]Midwifery Department, Medicine Faculty, Alborz University of Medical Sciences, Karaj, Iran
[4]Non-Communicable Disease Research Center, Alborz University of Medical Sciences, Karaj, Iran

[*]*Corresponding author*: Social Determinants of Health Research Center, Alborz University of Medical Sciences, Karaj, Iran. Email: akbarikamrani21@gmail.com

Abstract

Background: During the postpartum period, due to the lack of knowledge about postpartum complications and care, women, especially primiparous women, lack the adequate skills to adapt to new conditions and have no confidence to care for themselves and their infants. The early mothers' assessment, education, counseling, and nursing interventions can increase their adaptation and reduce their incompatible responses to their infant and partner.

Objectives: This study aimed to examine the effect of early self-care based education program on primiparous women's self-evaluation.

Methods: A randomized controlled clinical trial was conducted from May to October 2018 on 58 primiparous women referred to the Neonatal Screening Center in Karaj (IRAN). A random allocation method was applied to select intervention and control groups. The data were collected using a three-part questionnaire consisting of general, developmental, and health deviation postpartum evaluation made by researchers. The intervention group received three education sessions throughout the 3 - 5, 10 - 15, and 17 - 22 days after childbirth. The control group received routine postpartum care. Data were analyzed by descriptive statistics (such as mean, standard deviation, and absolute frequency) and statistical tests (including t-test, paired t-test, and chi-square) or non-parametric statistical tests (e.g., the Wilcoxon and Mann-Whitney test) using SPSS version 19.

Results: Before the intervention, there was no statistically significant difference in the mean total self-evaluation scores between the intervention (131.269 ± 12.742) and control (137 ± 9.600) groups (P-value = 0.073), but six weeks after delivery, a significant difference was observed in the mean self-evaluation scores between the intervention (149.692 ± 7.625) and control (122.923 ± 11.495) groups (P-value < 0.001).

Conclusions: The results of this study showed that early self-care education program was effective for primiparous women's self-evaluation and increased the postpartum adaptation of the women.

Keywords: Postpartum Period, Self-care, Self-evaluation

1. Background

Postpartum period is a significant transitional period for a woman. In addition to physical changes, a woman is exposed to psychological and social changes (1). The new role and responsibilities are formed in the postpartum period. A woman as a parent should learn to take care of her newborn, create a safe environment for him/her, and talk with and listen to him/her (2). In addition, the postpartum period is a difficult and critical period for a woman (3) and has negative effects on the quality of life of a woman (3). Fatigue, pain, anxiety, breastfeeding difficul-

ties, sleep disturbances, worry about sexual intercourse, post-traumatic stress disorder, and feelings of loneliness are among postpartum problems (4-7). Despite postnatal care programs, complications and even death are still present for a woman after giving birth (8, 9). These problems have negative outcomes, such as early cessation of breastfeeding, negative maternal perceptions of newborn, threatening infant-mother attachment, and child behavioral problems (1, 6). Stress has an undesirable impact on the health of women who had given birth, decreases maternal self-confidence, and reduces maternal satisfaction with the newborn. It also affects mother-infant inter-

action, thereby reducing compatibility with the motherhood role (10). Primiparous women have the most physical and psychological challenge in the postpartum period, and in addition to learning how to care for their newborn, they have personal, health, and social needs. The results from the studies demonstrate that women do not receive adequate professional support after hospital discharge to adapt to their new role (11-14). Adaption to postpartum changes is necessary for a woman (15). The early mothers' assessment, education, counseling, and nursing interventions can increase their adaptation and reduce their incompatible responses to their infant and partner (16).

Promoting self-care by educating women can enhance maternal self-confidence and women's knowledge in the postpartum period and ultimately lead to better self-care and better child care (11). Self-care is a voluntary and learnable activity that one can be done to preserve and promote one's health, well-being, and quality of life (17, 18). According to Orem's theory, self-care is a human regulatory function to provide the necessary resources for the survival and maintenance of a person's mental and physical performance (19, 20) and aims to encourage and prepare a person to develop self-care (20, 21). Also, each individual has the ability to perform self-care behaviors and roles (22). With self-care, one can preserve one's life and health, and therefore one is more likely to feel well. In Orem's self-care model, the role of the healthcare provider as a facilitator and adopter is essential (23), and his/her task is to determine the self-care capacity, assess the need for self-care and the presence or absence of self-care impairment in patients with chronic conditions (21).

A study conducted by Nazik and Eryilmaz (2008) in Turkey demonstrated that care given to women in the postpartum period using Orem's self-care model prevented postpartum complications and increased the self-care power of women (7). It can be said that vulnerability in women during this period is associated with reduced self-care during postpartum (1). The midwife is considered to play a significant role in postpartum transition (24), counseling and maternal care during pregnancy, childbirth, and postpartum (25), maintaining and improving maternal and infant health, providing favorable care, counseling, and teaching health to women, family and society (26). Therefore, the midwife should assess the women in terms of their risk factors, mental and physical health, and compatibility with postpartum conditions, and educate the appropriate preventative strategies and provide the necessary care (2). Considering the importance of self-care in the postpartum period (17) and maternal assessment of the early detection of risk symptoms (24), and also no study of women's self-evaluation during the postpartum period has so far been conducted in Iran.

2. Objectives

This study is designed to examine the effect of the early self-care-based education program on the self-evaluation of primiparous postpartum mothers.

3. Methods

3.1. Study Design

A randomized controlled clinical trial was conducted from May to October 2018 on 58 primiparous women referred to the Neonatal Screening Center Mohammad Shahr (Karaj, Iran). The researcher at the beginning explained the purpose of the research, voluntary participation, optional withdraw from the study, and confidentiality of the information was given. Then, after obtaining informed consent and completing the demographic and self-evaluation questionnaires, participants were randomly selected in each cluster. A simple randomized assignment was used to assign the participants into two groups, namely the intervention group and the control group.

The sample size was calculated using the formula below, two-mean test for a quantitative trait of the sample (95% confidence level, 90% statistical power), and based on the results of the study conducted by Apay et al. (2015) in Turkey (2) with $\mu 1 = 311/44$, $\mu 2 = 252/91$, $\sigma 1 = 46/75$, and $\sigma 2 = 79/06$. Eventually, the sample size of 20 mothers per group was determined.

$$n = \frac{\left(Z1 - \frac{\alpha}{2} + Z1 - \beta\right)^2 \left(\sigma_1{}^2 + \sigma_2{}^2\right)}{\left(\mu_1 - \mu_2\right)^2}$$

The inclusion criteria were having Iranian nationality, residency in Mohammad Shahr of Karaj and suburbs, literacy, fluency in Farsi, being married, low-risk pregnancy women, age over 18 years, primiparous singleton women, the birth of a term and healthy baby, women with no history of physical and mental illness, the willingness to participate in the study, women with no history of postpartum depression, ability to breastfeeding, and having no postpartum complications such as infection and excessive bleeding. The study exclusion criteria included women who were unwilling to continue to participate in the study, affected mother and infant to illness, their hospital readmission, the migration of mother, those provided an incomplete questionnaire, and woman who did not attend all training sessions.

3.2. Instruments

Demographic characteristics included age, marital status, marriage duration, ethnicity, women's education level, spouse's education level, women's occupation,

spouse's occupation, family income level, pregnancy status, independence status, mode of delivery, high-risk pregnancy, the medical interventions during labor, receiving support at household tasks and care of the infant, and the feeling of security in society. Additionally, the researcher-made postpartum self-evaluation questionnaire was used in the survey.

3.2.1. Postpartum Self-evaluation Questionnaire

The researcher made a multi-part questionnaire designed in three self-evaluation subscales: (1) universal (14 questions), (2) developmental (24 questions), and (3) health deviation (4 questions). The validity of the questionnaire was assessed by content and face validity. Consequently, the questionnaire was organized based on papers published between 2010 - 2017 in the field of postpartum care, the study of textbooks, self-care guidelines based on Orem's model, and protocols of healthcare services in Iran. To evaluate the content validity in the quantitative method, the content validity ratio (CVR) and content validity index (CVI) with the support of academic members were used. According to eleven academic members with expertise in the relevant field (reproductive health, midwifery, health education, and preventive medicine) and considering the standard of above 0.59 in the Lawshe table, the ratio of content validity and the mean score of 0.73 for universal, 0.80 for developmental, 0.91 for health deviation dimensions of self-evaluation, and total score of 0.79, it was verified. To verify the CVI, we used the standard of above 0.79; the mean score of the CVI of the questionnaire in total and subscales (universal, developmental, health deviation) of the questionnaire were 0.93, 0.92, 0.94, and 0.95, respectively. Also, the 11 academic members were requested to assess the tool qualitatively according to the standards of compliance with grammar, dictation, putting items in the right place, and appropriate scoring, and then provide necessary feedback to correct the faults and ambiguities in the questionnaires. To measure the reliability, the internal consistency of the questionnaire items was assessed by Cronbach's alpha. In this study, the Cronbach's alpha value in total and subscales (universal, developmental, health deviation) of the questionnaire were 0.786, 0.716, 0.700, and 0.675, respectively. A four-point Likert scale (none = 1, low = 2, moderate = 3, high = 4) was used to measure the questions. For the total questionnaire, the minimum and maximum were 42 and 168. The scores for the universal dimension ranged from 14 to 56, for the general dimension ranged from 24 to 96, the scores for the health deviation dimension ranged from 4 to 16.

3.3. Procedure

The education sessions were conducted at intervals of one week and 3 - 5, 10 - 15, and 17 - 22 days after childbirth for the intervention group. The first session was conducted individually, and face-to-face with the subject for 45 min and an information booklet (based on Orem's self-care) was given to her. The second and third sessions were carried out as a group of 4 - 6 subjects for 90 min. At the intervals of sessions, we used text messages via mobile phone and cyberspace or contact via phone to remind participants of completing educational content, and also we answered their questions. The control group received only routine postnatal care. To observe research ethics, the control group received an education booklet after the completion of the study, and using contact via phone or meeting with subjects, their questions were answered. The self-evaluation questionnaire was once again completed by the control and intervention groups six weeks after giving birth.

The content of the sessions based the Orem's self-care subscale was as follows: universal self-care (e.g., providing education on how to breastfeeding and the care of the infant), developmental self-care (e.g., providing the self-esteem enhancement techniques, improving attitudes toward the weakened physical image, parental role, activating the father's role with the help of empowering the mother, family support and the effectiveness of maternal role) and health deviation self-care (e.g., providing information on returning to work, education and social activities).

All of the data were analyzed using SPSS software (version 19.0). Descriptive statistics (such as mean, standard deviation, and absolute frequency) and statistical tests (including *t*-test, paired *t*-test, and chi-square), and non-parametric statistical tests (e.g., the Wilcoxon and Mann-Whitney U test) were used.

4. Results

The normality of the quantitative variables was checked using the Shapiro-Wilk and Kolmogorov-Smirnov tests. The variables of universal and health deviation self-evaluation were not normally distributed ($P < 0.05$).

The mean age of the participants in the intervention group was 26.50 ± 5.20 and in the control group was 25.19 ± 4.43, and results from the independent t-test indicated that there was no statistically significant difference between the two groups (P-value = 0.334). The mean duration of marriage of the participants in the intervention group was 3.34 ± 2.07 years and in the control group was 2.88 ± 1.53 years, and results from the Mann-Whitney U test showed that this difference was not statistically significant (P-value = 0.460). The results from the chi-square test showed that there was no statistically significant difference between the two groups for ethnicity (P-value = 0.411). Also, according to the results from the chi-square test, no

significant difference was observed in the education level between the two groups (P-value = 0.974). Also, there was no significant difference between the two groups concerning the spouse's education level (P-value = 0.679). The results from the chi-square test demonstrated that there was no statistically significant difference between the two groups for the frequency of job, spouse's occupation, income level, pregnancy status, mode of delivery, independence status, receiving support at household tasks, receiving support for the care of the infant and the feeling of security in society(P > 0.05) (Table 1).

Based on the independent *t*-test results, no statistically significant difference was found between the two groups in the mean total self-evaluation scores before the education program (P-value = 0.073), but after the training program, there was a significant difference between the two groups (P-value < 0.001). Also, the results from the Mann-Whitney U test indicated that there was a statistically significant difference in the mean self-evaluation scores of universal and health deviation self-care between both intervention and control groups after the education program (P-value < 0.001). Additionally, based on the *t*-test results, a statistically significant difference was found between the two groups for the mean self-evaluation scores of developmental self-care after the education program (P-value < 0.001) (Tables 2).

The *t*-test results showed that in the intervention group, there was a statistically significant difference in the mean total self-evaluation scores before and after the education program (P-value < 0.001). Thus, the mean total score increased by 18.423. Also, in the control group, there was a significant difference in the mean total scores before and after the intervention. Thus, the mean self-evaluation score decreased by 14.076 (Table 3).

5. Discussion

In the present study, the effect of an early self-care education program on the self-evaluation of postpartum mothers was examined. These findings showed the effect of an education program on improving primiparous women's self-evaluation. The results of this study indicated that intervention group participants were more likely to adapt to the postpartum period. It is expected that primiparous women in the postpartum period have low self-assessment when facing their new maternal role and its problems to deal with the care of the infant and perform their assigned tasks in the early weeks after they've given birth. The findings of this study are consistent with the results of previous studies (2, 7, 9, 12).

A study conducted by Serçekuş and Mete (2008) in Turkey demonstrated that prenatal education had an effect on maternal adaptation during pregnancy, and also

there was a statistically significant difference in the self-evaluation questionnaire scores during pregnancy between both intervention and control groups, but the education had no effect on postpartum adaptation, and no significant difference was observed in the self-evaluation questionnaire scores at six weeks postpartum between the two groups, which might be due to the lack of concentration of women on postpartum problems and their concentration on the delivery problem (15). Therefore, prenatal education classes cannot affect maternal adaptation during the postpartum period, and these education classes should continue in the postpartum period.

According to the results from the studies, quality of life in women was moderate at 6 - 8 and 12 - 14 weeks postpartum (24, 27). Therefore, the protective measures by the spouse, family members, and caregivers during pregnancy and postpartum are necessary to improve the quality of life and health status of the mothers (27). In the present study, the intervention group participants had a higher self-evaluation at six weeks postpartum after receiving the related education.

The results of this study revealed that the self-evaluation scores in the control group significantly decreased at six weeks postpartum. In this study, in the first stage, women's self-evaluation score was hyperbolic, which might be due to a lack of their complete involvement in the care of the newborn and household activities and the support from their close relatives in the first days after childbirth, which often this support continued until the tenth day after childbirth, after which the women were more involved in tasks related to infant and household activities. These results are consistent with the results of previous studies (3, 28).

In this study, primiparous women had a lot of physical and emotional problems during the postpartum period due to a lack of knowledge, experience, and appropriate training. Also, some of the women affected by their families had misconceptions about their care and their newborn, which were corrected in education sessions. It seems that early self-care education to postpartum women via phone and communication through cyberspace is also highly welcomed, and it is recommended that the appropriate content education is provided by the midwife to women either at home or in healthcare centers. This study has some limitations which have to be pointed out. The self-evaluation questionnaire was filled out as a self-report, and we assumed participants' responses. Another limitation of this study was the women's psychological state that affected their response.

5.1. Conclusions

The results of this study showed the early self-care education program was effective and increased the postpar-

Table 1. Comparison of Demographic Characteristics of the Intervention (N = 26) and Control (N = 26) Groups

Variables	Control Group	Intervention Group	P-Value
Ethnicity			0.411
Fars	7 (26.9)	11 (42.3)	
Tork	11 (42.3)	9 (34.6)	
Lor	3 (11.5)	0	
Kord	3 (11.5)	3 (11.5)	
Other	2 (7.7)	3 (11.5)	
Women's education level			0.974
Elementary level	1 (3.8)	0	
Middle degree	3 (11.5)	3 (11.5)	
High school level	4 (15.4)	4 (15.4)	
Diploma level	12 (46.2)	11 (42.3)	
Academic level	6 (23.1)	8 (30.8)	
Spouse's education level			0.679
Elementary level	2 (7.7)	2 (7.7)	
Middle degree	5 (19.2)	6 (23.1)	
High school level	2 (7.7)	5 (19.2)	
Diploma level	11 (42.3)	10 (38.5)	
Academic level	6 (23.1)	3 (11.5)	
Women's occupation			0.350
Housewife	22 (84.6)	25 (96.2)	
Employed	4 (15.4)	1 (3.8)	
Spouse's occupation			0.325
Unemployed	0	1 (3.8)	
Worker	5 (19.2)	10 (38.5)	
Employee	4 (15.4)	3 (11.5)	
Self-employed	16 (61.5)	12 (46.2)	
Other	1 (3.8)	0	
Family income level			0.421
High	1 (3.8)	4 (15.4)	
Moderate	20 (76.9)	19 (73.1)	
Poor	5 (19.2)	3 (11.5)	
Pregnancy status			0.668
Wanted	22 (84.6)	24 (92.3)	
Unwanted	4 (15.4)	2 (7.7)	
Mode of delivery			0.577
Vaginal delivery	16 (61.5)	13 (50.0)	
Cesarean delivery	10 (38.5)	13 (50.0)	
Independence status			> 0.99
Yes	22 (84.6)	22 (84.6)	
No	4 (15.4)	4 (15.4)	
The medical interventions			> 0.99
Yes	0	0	
No	26 (100.0)	26 (100.0)	
Receiving support at household tasks			> 0.99
Yes	12 (46.2)	12 (46.2)	
No	14 (53.8)	14 (53.8)	
Receiving support for the care of the infant			0.523
Yes	12 (46.2)	12 (46.2)	
No	14 (53.8)	14 (53.8)	

Table 2. Comparison of the Mean Score of the Self-evaluation Scores of Total, Universal, Developmental, and Health Deviation Self-care Before and After the Intervention in the Intervention and Control Groups

Self-evaluation Subscale	Before the Intervention		P-Value	After the Intervention		Test Type	P-Value
	Intervention Group	Control Group		Intervention Group	Control Group		
Total	131.269 ± 12.742	137 ± 9.600	0.073	149.692 ± 7.625	122.923 ± 11.495	*t* test	< 0.001
Developmental	76.307 ± 8.117	79.269 ± 6.251	0.147	84.884 ± 5.630	73.307 ± 7.867	*t* test	< 0.001
Universal	41.230 ± 6.218	44.347 ± 4.542	0.044	50.307 ± 2.881	37.730 ± 4.512	Mann-Whitney test	< 0.001
Health deviation	13.730 ± 2.569	13.384 ± 2.079	0.310	14.500 ± 1.392	11.884 ± 2.612	Mann-Whitney test	< 0.001

Table 3. Distribution of the Mean Difference Self-Evaluation Scores of the Total, Universal, Developmental, and Health Deviation Self-care Before and After the Intervention in the Intervention and Control Groups

Self-evaluation Subscale	Intervention Group; Mean Difference Before and After (± SD)	P-Value	Test Type	Control Group; Mean Difference Before and After (± SD)	P-Value	Test Type
Total	18.423 ± 11.538	< 0.001	*t* test	-14.076 ± 12.588	< 0.001	*t* test
Developmental	8.576 ± 6.604	< 0.001	*t* test	-5.961 ± 7.329	< 0.001	*t* test
Universal	9.076 ± 5.754	< 0.001	*t* test	-6.615 ± 6.481	< 0.001	Wilcoxon- test
Health deviation	0.770 ± 1.980	0.148	Wilcoxon- test	-1.500 ± 2.249	0.002	Paired *t*-test

tum adaptation of the women. Therefore, the self-care model is recommended by a midwife for women with normal vaginal or cesarean deliveries during the postpartum period.

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Footnotes

Authors' Contribution: Study concept and design, M.CH., M.A.K., and M.F; Analysis and interpretation of data, M. F., and M.A.K.; Drafting of the manuscript, M.CH., M.A.K., and M.F; Critical revision of the manuscript for important intellectual content, M.CH., M.A.K., and M.F; Statistical analysis, M. F.

Conflict of Interests: None declared.

Ethical Approval: This clinical trial was approved by the Ethics Committee of Alborz University of Medical Sciences (ethical code: 1396.203Abzums.Rec.) and registered in a system for registration of clinical trials (IRCT20160424027557N8) and received the permission of the healthcare center.

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Informed Consent: Written informed consent was obtained from the participants.

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