Original Article

The effect of education based on health belief model on postpartum exercise in primiparous women

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ABSTRACT

Introduction: Modern life threats the social and mental health of women by involving them in different forms of unhealthy life style. This study was aimed to evaluate the effect of education based on health belief model (HBM on postpartum exercise in primiparous women. Materials and Methods: This quasi-experimental study was carried out on 128 primiparous women who were referred to health centers of Dehloran, Iran in 2015 and randomly divided into two groups of 64 participants (intervention and control groups). Education was done using the HBM in four while control group received the routine care. Mann- Whitney, and T-test Wilcoxon rank tests were used. Results: The mean scores of perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, self- efficacy in the intervention group before and after education showed a significant difference compared to the control groups (P<0.001). Conclusion: Education based on the health belief model has positive impacts on behavioral improvement.

Keywords: Exercise, health belief model, Primiparous.

Introduction

Postpartum is a critical period that affects not only the physical and mental health of mothers but also the whole family's structure [1]. Lack of awareness of these changes and how to deal with its potential problems may lead to injuries that sometimes can damage and cause problems the mother, even up to many years after childbirth [2]. Nowadays, the modern life and social structure of society endanger the physical and mental health of women. Women in various settings are involved in lifestyle, psychological and social changes that increase postpartum weight, physical inactivity, isolation and depression [3]. Overweight and obesity is an epidemic problem in the world [4] and the other hand women are at greater risk for long-term weight gain due to pregnancy and postpartum [5].

Most women in the first six months of postpartum reach a level of pre-pregnancy weight, but still have an average weight of 1.4 kg overweight [6]. However, the average return weight is a little after delivery (0.5 kg), but more than 20% of women at this stage are at least 5 kg overweight [5]. It is clear that physical activity can be a factor in health promotion for women, especially during postpartum [7]. Based on research, exercise activities in the postpartum have been shown to regulate lipoproteins and increase insulin sensitivity [5].

In the context of the effects of exercise on lactation, despite the concerns that have been reported, no adverse effects were reported on the volume and composition of breast milk, and even severe exercise resulted in a slight increase in lactic acid in breast milk [8] as well as their infants have suitable weight gain and normal growth [9]. Other study results showed that reducing energy levels and performing continuous and safe exercise in lactating women who had overweight in postpartum, has no negative effect on loss of bone density and growth of the newborn [10].

Health education is one of the most effective interventions for disease prevention [11] and the goal of health education is to change health behaviors in order to promote health [12]. Models

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are used to change behavior, so that the health belief model is one of the effective models in health education [13]. This model was introduced by Rosenstock for the first time in the 1950s and has been continuously revised [14]. Due to the limited studies done in the field of educational intervention based on the health belief model on postpartum exercise in our country, this study was conducted.

Method and Materials

This was a quasi-experimental interventional study. In the first stage, individuals who had the inclusion criteria of the study (Muslim and Persian, having a formal spouse, have ability of reading and writing, lack of experience in postgraduate training classes, passing at least 10-15 days after delivery, delivery by vaginal method, term delivery (weeks 37-42), lack of abnormal hemorrhage after delivery, absence of recent hospitalization, absence of surgery, and any known physical and psychological disorders and agreeing to participate in the study. In the second stage, individuals were randomly using random number table assigned to intervention and control groups from health center No. 1, No. 3 and No.5, in region 1 of Dehloran city and Center No. 6, No. 8 and No. 10 in region 2 of Dehloran city.

First, all participants responded to the questionnaire (pre-test) in writing and in the presence of the researcher (to resolve the probable questions). Then the intervention was performed for the test group. In the test group, education was based on the health belief model during the four educational sessions To conduct the intervention, the intervention group was divided into 3 subgroups of 21-22 individuals, and the necessary training based on the components of the health belief model (perceived sensitivity, perceived severity, perceived barriers, perceived benefits, self-efficacy and cues to action) was presented by the researcher to them for four-60 minutes sessions, one day per week, for each subgroup (Sunday, Tuesday, Thursday).

In the intervention group, educational sessions were lecture, question and answer sessions, group discussion, video watching, CD presentation, educational pamphlet and exercise. In the first and second sessions of the educational sessions, the expression of the benefits of postpartum exercise and the importance of the risk of overweight and complications from delivery including urinary incontinence and decreased strength of the abdominal and pelvic muscles, which were presented as a lecture as well as question and answer sessions, in the end, a tutorial pamphlet was provided including the items taught in these two sessions. This educational pamphlet derived from the book "Pregnancy and Postpartum Sports" was written and translated by Masoumeh Shakery Nejad and the purpose of this pamphlet was to present as cues to action, increasing perceived sensitivity, perceived severity, perceived benefits, and reduction of perceived barriers. In the third session, the educational content included a group discussion that was done to overcome the barriers.

At the fourth session, a 60-minute film was presented to present an applied self-efficacy example, which was presented as a CD to all intervention group members. The Health Belief Model questionnaire was completed in the first stage by all the participants and then the educational intervention was conducted for the intervention group and after three months, the participants were asked to respond to the post-test questionnaire.

Results

The results of Chi-square and Fisher exact tests indicated that none of the demographic variables was statistically significant in two groups ($P < 0.05$) and the two groups were highly homogeneous for demographic variables. According to Table 1, the highest percentage of subjects under study was in the ages of 20-24 years and the mean BMI of most of them was in the range of 19.8-26 and the lowest BMI was below than 19.8, which these individuals due to the low body mass index, were less involved in this study. The highest percentage of studied units in all three groups had pre-university education and the majority of them were housewives. The majority of the studied units did not have previous marriage history in the control (90.6%) and intervention (95.3%) groups. Regarding occupation, the highest percentage of spouses were self-employed and only 9.4% and 7.4% of the spouses in the control and intervention groups were unemployed, respectively.

The highest percentage of information source in all three groups were books, brochures and magazines. According to the results of paired t-test and Wilcoxon test, in the intervention group before, after intervention, the opinions, knowledge, perceived sensitivity, perceived severity, perceived benefits, perceived barriers, self-efficacy and cues to action were statistically significant ($P<0.001$). In other words, education based on the health belief model affects these structures. This means that the use of educational intervention based on health belief model has been able to increase the amount of postpartum exercise in women participating in the present study.

Table 1: Demographic characteristics of the participants in the control and intervention groups

Variable		Control		Intervention		df	P value
		Frequency	Percent	Frequency	Percent		
age	15-19	7	10.9	10	15.6	4	0.88
	20-24	23	35.9	25	39.1		
	25-29	22	34.4	20	31.2		
	30-34	4	6.2	3	4.7		
	<40	8	12.5	6	9.4		
BMI	19.8	5	7.8	7	10.9	2	0.63
	19.8-26	44	68.8	39	60.9		
	<26	15	23.4	18	28.1		

Mother's education	Elementary	6	9.4	7	10.9	4	0.86
	Middle	11	17.2	9	14.1		
	High school	12	18.8	16	25		
	Pre-university	23	35.9	19	29.7		
	Collage	12	18.8	13	20.3		
Mother's occupation	Housekeeper	44	68.8	48	75	1	0.43
	Employee	20	31.2	16	25		
Husband's age	15-19	9	14.1	6	9.4	4	0.75
	20-24	33	51.6	30	46.9		
	25-29	12	18.8	15	23.4		
	30-34	4	6.2	7	10.9		
	<40	6	9.4	6	9.4		
Husband's occupation	labor	6	9.4	11	17.2	3	0.26
	Employee	17	26.6	11	17.2		
	Unemployment	6	9.4	3	4.7		
	Self-employment	35	54.7	39	60.9		
Husband's education	Elementary	3	4.7	3	4.7	4	0.92
	Middle	12	18.8	10	15.6		
	High school	23	35.9	20	31.2		
	Pre-university	10	15.6	11	17.2		
	Collage	16	25	20	31.2		

Table 2: Comparison of the mean score of the health belief model structures before and after the intervention in the control and intervention groups

HBM structures			Mean	SD	X^2	P-value
Knowledge	Intervention	Before intervention	0.31	0.81	19.22	<0.001
		After intervention	2.89	0.44		
	Control	Before intervention	0.28	0.88	1.18	0.24
		After intervention	0.35	0.75		
Perceived sensitivity	Intervention	Before intervention	16.77	14.31	14.31	<0.001
		After intervention	21.54	1.22		
	Control	Before intervention	16.18	2.23	1.55	0.12
		After intervention	16.75	2.35		
Perceived severity	Intervention	Before intervention	16.20	2.23	9.91	<0.001
		After intervention	19.62	1.31		
	Control	Before intervention	15.70	2.38	0.36	0.71
		After intervention	15.83	1.94		
Perceived benefits	Intervention	Before intervention	16.71	2.24	9.85	<0.001
		After intervention	20.44	2.01		
	Control	Before intervention	16.56	2.70	1.79	0.07
		After intervention	15.81	2.15		
Perceived barriers	Intervention	Before intervention	10.01	2.06	8.94	<0.001
		After intervention	12.88	1.16		
	Control group	Before intervention	9.51	2.46	0.87	0.38
		After intervention	9.81	1.81		
Self-efficacy	Intervention group	Before intervention	19.16	2.44	8.28	<0.001
		After intervention	22.59	1.77		
	Control group	Before intervention	19.15	2.43	0.68	0.49
		After intervention	18.88	2.61		
Cues to action	Intervention group	Before intervention	!4.50	2.00	12.91	<0.001
		After intervention	19.18	12.43		
	Control group	Before intervention	14.45	2.09	0.65	0.51
		After intervention	14.66	2.22		

Discussion

In the present study, the mean score of knowledge after intervention was 2.89 % in the intervention group and 0.35% in the control group, which according to the t-test, these differences in the two groups after the intervention had a statistically significant difference (P <0.001). In a study performed by Mason et al., entitled "Guidelines for training pelvic exercises during pregnancy and postpartum," women in their study criticized the insertion of an instruction pamphlet near the bed, and reported that it is not an effective way to train [15].

In the present study, the mean perceived susceptibility score after the intervention was 21.54% in the intervention group and 16.75% in the control group. In a study conducted by Rahimi et al. (2007) entitled "The Impact of Education Based on the Health Belief Model on the Choice of Delivery Method", Wilcoxon test results in both the intervention and control groups (P <0.001) and control group (P <0.02) significant differences between the scores of the health belief model and the type of delivery were observed before and after training, and the mean scores of the intervention group (trained according to the model) were higher than the control group in the post-test and it was significant (P <0.001). Indeed, it is a

rule the more sensitive a patient and the more susceptible to the illness [16].

Based on t-test, there was a significant difference between the mean perceived severity of exercise in the control group (15.83%) and the test group (19.62%) (p <0.001). In a study done by Lagampan et al. (2004) entitled "The Effect of Health Education Based on the Health Belief Model on Thalassemia Test in High School Students", results showed that in the post-test immediately after the intervention, the mean scores of the health belief model constructs in both groups increased, which was significantly different (p <0.001), and was consistent with our study [17].

Comparison of perceived benefits score for postpartum exercise in both the intervention and control groups before and after the intervention showed a significant difference, so that in the control group was 15.81% and in the control group 20.44% (p <0.001). In general, people who have positive opinions about the sensitivity and severity of a disease, do not act on the proposed behavior unless they realize that doing it can potentially reduce risk or threat [18].

In the present study, there was a significant difference between the mean perceived barriers of exercise after training, in the control group (9.81%) and the intervention group (12.88%) (p <0.001), and the change of the structures in the intervention group was significantly difference compared to the control group. In the study of Trekker et al. (2009) entitled "The effect of education based on health belief model on preventive behaviors of smoking in girl adolescents", independent t-test showed statistically differences in the mean scores of perceived barriers in the control group (16.92) and the intervention group (20.72%) and the perceived benefits in the control group (24.03%) and the test group (26.46%) (p <0.001). Also in other dimensions of the structures of the model had significant differences between the two groups (p <0.001) [19]. As well as some other studies also showed the effectiveness of health belief model to reduce bad behavior in student [20-22].

Self-efficacy scores for postpartum exercise was significantly different in the control group (18.88%) and test group (22.59%) (p <0.001). Considering that in the intervention group, educational intervention was performed based on the health belief model. Given that self-efficacy refers to the person's belief in the desired behavior, it can be analyzed that the education based on the health belief model in the field of postpartum exercise increases their self-efficacy in this regard. [18]. In a study conducted by Motamedi et al. (2009) entitled "The Impact of Education Based on the Health Belief Model on Promoting Preventive Behaviors of Cutaneous Leishmaniosis" and the study conducted by Pinto et al. (2006) entitled "Using the Health Belief Model to examine the effective factors in the maintenance of diabetic patients in the drug service plan ", the results showed that there was a significant difference between the mean scores of the health belief model constructs in the intervention and control groups (p <0.001) [23].

The rate of cues to action for exercise in postpartum was 14.66% in the control group and 19.18% the intervention group 19.18% (p <0.001). In a study done by Torshizi et al. (2009) entitled "Investigating the Impact of Education Based on the Health Belief Model on Osteoporosis Preventive Factors in Postmenopausal Women" showed that there was a significant difference between the mean scores of health belief model constructs in the intervention and control groups (P <0.05) that are consistent with the present study [24].

The rate of behavioral score for postpartum exercise was 8.3% in control group and 94.9% in the experimental group. The Chi-square test showed that there was a significant difference between the rate of postpartum exercise between the intervention and control groups (p <0.001). Considering the educational intervention based on the health belief model, this level in the intervention group was significantly different from those received routine postpartum care only.

Conclusion

Education based on the health belief model has positive impacts on behavioral improvement in regular exercise.

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References

1. Kamel H, Navi BB, Sriram N, Hovsepian DA, Devereux RB, Elkind MS. Risk of a thrombotic event after the 6-week postpartum period. New England Journal of Medicine. 2014;370(14):1307-15.
2. Biesmans K, Franck E, Ceulemans C, Jacquemyn Y, Van Bogaert P. Weight during the postpartum period: what can health care workers do? Maternal and child health journal. 2013;17(6):996-1004.
3. Woolhouse H, Gartland D, Perlen S, Donath S, Brown SJ. Physical health after childbirth and maternal depression in the first 12 months' post partum: results of an Australian nulliparous pregnancy cohort study. Midwifery. 2014;30(3):378-84.
4. Organization WH. WHO recommendations on postnatal care of the mother and newborn: World Health Organization; 2014.
5. Pligt P, Willcox J, Hesketh K, Ball K, Wilkinson S, Crawford D, et al. Systematic review of lifestyle interventions to limit postpartum weight retention: implications for future opportunities to prevent maternal overweight and obesity following childbirth. Obesity Reviews. 2013;14(10):792-805.

6. Black MH, Sacks DA, Xiang AH, Lawrence JM. The relative contribution of prepregnancy overweight and obesity, gestational weight gain, and IADPSG-defined gestational diabetes mellitus to fetal overgrowth. Diabetes Care. 2013;36(1):56-62.
7. Blomstrand E. Utilisation of different energy sources during exercise and nutritional strategies for effective recovery. 2014.
8. Katuli SD, Knutsen SF, Knutsen R, Oda K, Mataya R, Fraser GE. P-25 The association of the cumulative/lifetime duration of breast feeding and the development of post menopausal breast cancer. Results from Adventist Health study-2. 2015.
9. Dewey KG, Lovelady CA, Nommsen-Rivers LA, McCrory MA, Lonnerdal B. A randomized study of the effects of aerobic exercise by lactating women on breast-milk volume and composition. New England Journal of Medicine. 1994;330(7):449-53.
10. Neville CE, McKinley MC, Holmes VA, Spence D, Woodside JV. The Effectiveness of Weight Management Interventions in Breastfeeding Women—A Systematic Review and Critical Evaluation. Birth. 2014;41(3):223-36.
11. Tones K, Robinson YK, Tilford S. Health education: effectiveness and efficiency: Springer; 2013.
12. Sharma M. Theoretical foundations of health education and health promotion: Jones & Bartlett Publishers; 2016.
13. Green EC, Murphy E. Health belief model. The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society. 2014.
14. Rosenstock IM. Historical origins of the health belief model. Health Education & Behavior. 1974;2(4):328-35.
15. Mason L, Glenn S, Walton I, Hughes C. The instruction in pelvic floor exercises provided to women during pregnancy or following delivery. Midwifery. 2001;17(1):55-64.
16. Safarzadez S, Behboodi Moghaddam Z, Saffari M. The impact of education on performing postpartum exercise based on health belief model. medical journal of mashhad university of medical sciences. 2014;57(6):776-84.
17. Lagampan S, Lapvongwatana P, Tharapan C, Nonthikorn J. Health belief model teaching program for thalassemia education in high school students. Chula Med Journal. 2004;48(11):725-35.
18. Glanz K, Rimer BK, Viswanath K. Health behavior and health education: theory, research, and practice: John Wiley & Sons; 2008.
19. Rahnavard Z, Mohammadi M, Rajabi F, Zolfaghari M. An educational intervention using health belief model on smoking preventive behavior among female teenagers. Journal of hayat. 2011 Sep 15;17(3):15-26.
20. Valizadeh R, Taymoori P, Yousefi F, Rahimi L, Ghaderi N. The Effect of Puberty Health Education based on Health Belief Model on Health Behaviors and Preventive among Teen Boys in Marivan, North West of Iran. Int J Pediatr 2016; 4(5): 3271-81.
21. Mohammadi S, Ghajari H, Valizade R, Ghaderi N, Yousefi F, Taymoori P, et al. Predictors of smoking among the secondary high school boy students based on the health belief model. Int J Prev Med 2017; 8:24.
22. Valizadeh R, Ghaajari H, Ghaderi N, Yousefi F, Taymoori P, Ahmadi MA. Factors Related to Puberty Health in Male Students in the First Year of Undergraduate Second Grade in the City of Marivan Using Health Belief Model: A Cross-sectional Study. Int J Prevent Public Health Sci. 2016;2(3):4-9.
23. Motamedi N., Hejazi S. H., Hazavehei S. M. M., Zamani Aaa. R., Saberi S., Rahimi E. Effect of education based on Health Belief Model on promoting preventive behavior of coetaneous leishmaniasis. J Mil Med. 2010; 11 (4) :231-236.
24. Torshizi L, Anoosheh M, Ghofranipour F, Ahmadi F, Houshyar-rad A. The effect of education based on Health Belief Model on preventive factors of osteoporosis among postmenopausal women. Iran Journal of Nursing. 2009 Aug;22(59):71-82.