The Effect of Educational Intervention on Selection of Delivery Method Based on Health Belief Model

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Abstract

Introduction: Pregnancy is a natural process that can lead to fatal accidents and serious injuries to the mother and fetus. When there is no possibility of vaginal delivery for the mother and there is a possible risk to the mother and children, Cesarean delivery is performed.

Materials and Methods: This was an experimental study that was done on pregnant women who were referred to health centers of Yazd city. The samples were 130 first pregnant mothers who were divided into two groups by random sampling (65 case groups and 65 control group). The data were collected by a researcher making a questionnaire including 4 sections. At first, two groups completed the questionnaires and then the intervention was conducted for the case group based on the Health Belief Model. About 2 months after intervention, two groups completed the questionnaires twice. The data were analyzed with SPSS18 using Mann-Whitney, Kruskal-Wallis and Chi-square tests.

Results: In this study, the mean age of women was 24.36 ± 3.73 and the mean gestational age 31.53 ±2.35. The results showed that there was a significant difference between case and control groups after intervention in perceived susceptibility (p=0.001), perceived threat (p=0.001), perceived benefit (p=0.01), perceived barrier (p=0.01) and knowledge (p=0.001).

Conclusion: In this study educational intervention based on health belief model increased the awareness of pregnant women, but, it has not been effective on their performance because many factors other than knowledge are involved in the choice of delivery method.

Keywords: Education, HBM, Method of Delivery and Pregnant Women

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Introduction

Pregnancy is a natural process that can lead to fatal accidents and serious injuries to the mother and fetus. When there is no possibility of vaginal delivery for the mother and there is a possible risk to the mother and children, Cesarean delivery is performed which has played an important role in reducing the morbidity and mortality of preterm labor in the past century [1]. The number of maternal deaths due to pregnancy complications in the world in 2008 was about 358,000, which shows a 34% decrease compared to that of 1995 [2]. Despite the overall decrease, 99% of these deaths occurred in developing countries. Over 25% of these deaths occurred during childbirth and in the first 24 hours after childbirth in developing countries and 50% of the deaths occurred in the first week after birth due to birth complications [3]. The results of a recent report published by the World Health Organization in 2011 show that during 2000-2011, Cyprus (50.9%) and Chad (4%) had the highest and lowest caesarean sections respectively [4]. Vaginal delivery has numerous advantages including low cost, short duration of hospital stay, no need for anesthesia, and less likely bleeding and infection [5]. In contrast, cesarean delivery has many side effects for the mother and baby including uterine and surgical site infections, injury, surgical site bleeding, and blood clots in the arteries, cerebral complications and infant mortality [6]. The mortality rate for cesarean delivery is 4-5 times more than that of vaginal delivery [7]. The infants from cesarean sections are five times more at risk for pulmonary hypertension than those of a normal vaginal delivery [8]. Several studies in Iran have shown that previous cesarean section, respiratory distress, pelvic disease, and gestational diabetes are the main reasons for choosing cesarean as the method of delivery [9].

For researching in the field of health education and health promotion we can use behavioral patterns related to health theories [10]. Selecting a model for health education is the first step in the process of education planning. One of the educational models is the health belief model [11]. HBM is based on the principle that people make healthy behavior if they feel that they are at risk (perceived susceptibility construct), risks of unsafe behavior are serious (perceived severity), healthy behavior is beneficial for them (perceived benefits), barriers to healthy behavior can be removed (perceived barriers), and they are able to have healthy behavior (self-efficacy) [10]. According to this model, a person adopts a kind of behavior if he or she has personally perceived it; that kind of behavior can be adjusted to his or other behaviors; and he or she has the possibility of doing that kind of behavior [12-14]. Self-efficacy is derived from the Bandura's social cognitive theory which in most recent formula templates is considered a key factor [15]. The aim of this study is to determine the effect of an educational intervention based on health belief model to choose the delivery method.

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Materials and Methods

This was an experimental study that was done on primiparous pregnant women, in the third trimester that were referred to the health centers of Yazd city. The samples were selected by sampling method. The sample size was determined by considering a correlation coefficient of 25% and a test power of 80%.

For selecting the samples, six health centers of Yazd city were randomly selected and these centers were randomly assigned to two experimental and non-experimental groups. The list of eligible mothers was found in these centers and the sample size in each group increased to 65.

Inclusion criteria were the age group of 18-30 years, height more than 145 cm, the weight range of 50-90 kg, first generation, gestational age of 28 weeks pregnancy, consent and cooperation of pregnant women. Exclusion criteria included placental problems, multiple pregnancies, small hips, gestational diabetes, and history of hypertension, preeclampsia, and abortion. The data were collected by a researcher making a questionnaire including 4 sections.

The first part was related to maternal demographics (16 questions), the second section included questions about knowledge (18 questions), the third section included questions about perceived susceptibility (6 questions), perceived severity (10 questions), perceived benefits (18 questions), perceived barriers (10 questions) and perceived self-efficacy, (6 questions) and the fourth part of the questionnaire was related to the behavior (1 question).

Grading the questions about the knowledge was in this way: for correct answers 1 score and for wrong answers and not knowing the answer 0 score were considered. The total score was 0-18. Questions about the health belief model constructs were based on a Likert scale from totally agree to totally disagree that included 5 scores for a correct answer and 1 score for a wrong answer. The total score of perceived susceptibility was 6-30. The total score of perceived severity was 10-50. The total score of perceived benefits was 18-90. The total score of perceived barrier was 10-50. The total score of perceived self-efficacy was 6-30. The validity of the questionnaire was measured by using views of several experts and its reliability was measured by using Cronbach's alpha on 20 pregnant women. Cronbach's alpha coefficient for internal consistency of the model structures was 0.78 for perceived susceptibility, 0.69 for perceived severity, 0.91 for perceived barriers, 0.75 for perceived benefits and 0.85 for perceived self-efficacy.

At first, two groups completed the questionnaires, then the intervention was conducted for the case group based on the Health Belief Model in 5 given 45-minute sessions. About 2 months after intervention, the two groups completed the questionnaires twice. The data were analyzed by SPSS18. The relationship between structural and

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demographic variables were analyzed using Mann-Whitney, Kruskal-Wallis and Chi-square

Results

The results showed that the mean age of women 24.36 ± 3.73 and their mean gestational age were 31.53 ± 2.35, respectively. 119 (91.5%) of the participants were housekeepers and 11 (805%) were employees.

Table 1: Mean and SD of grades of components of the health belief model to the mode of delivery of pregnant women referred to the health centers of Yazd

Group	Component	Experimental Mean	Experimental SD	No-experimental Mean	No-experimental SD	P
Perceived severity	Before intervention	31.78	5.65	31.81	5.4	0.33
	After intervention	35.35	4.44	29.67	5.53	0.001
	P	0.001		0.53		
Perceived susceptibility	Before intervention	19.44	3.57	18.96	4.42	0.41
	After intervention	23.66	3.19	20.1	3.84	0.001
	P	0.001		0.41		
Perceived Benefits	Before intervention	69.5	9.59	69.7	9.06	0.94
	After intervention	74.01	9.45	67.41	9.03	0.01
	P	0.001		0.94		
Perceived barrier	Before intervention	37.64	6.95	35.72	6.69	0.1
	After intervention	33.43	6.19	41.09	4.97	0.01
	P	0.15		0.01		

About the education of mothers: Illiterate 2 (1.5%), primary 13 (10%), guidance school 23 (17.7%), diploma 51 (39.2%) and university degrees 41 (31.5%).

The education level of the participants' husbands were: Illiterate 3 (2.3%), primary 8 (6.2%), guidance school 26 (19.5%), diploma 53 (40.82%) and university degrees 38 (29.2%). There was no significant difference between the demographic variables of two the groups before intervention.

Wilcoxon test showed a significant difference between the perceived susceptibility (p=0.001) perceived severity (p=0.001), perceived benefits (0.001), self-efficacy (p=0.01) and the type of delivery in the experimental group (p=0.001) before and after intervention. Also the Mann-Whitney test

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revealed a significant difference between perceived severity (0.001), perceived susceptibility (p=0.001) perceived benefits (0.01), perceived barrier (p=0.01), self-efficacy (p=0.001) and knowledge (p=0.001) in the two groups after intervention. While before the intervention there was not a significant difference between the two groups (p=0.053).

There was a significant difference between the knowledge of the two groups before and after intervention (p=0.001). There was no significant difference between self-efficacy (p=0.069) and methods of delivery between the two group after intervention (table2).

Table2: Mean and SD of grades of knowledge and self-efficacy of pregnant women referred to health centers of Yazd

Group	Component	Experimental		No-experimental		P
		Mean	SD	Mean	SD	
Self-efficacy	Before intervention	22.16	4.76	19.67	5.22	0.001
	After intervention	23.6	5.48	21.72	4.09	0.069
	P		0.06		0.01	
Knowledge	Before intervention	6.14	3.65	3.57	3.10	0.01
	After intervention	11.09	3.20	4.67	2.68	0.001
	P		0.001		0.001	

The results of Table 3 showed that there was no significant difference between methods of delivery in the two groups, but the number of cesarean section in intervention groups was lower than the other group.

Table3: Frequency of method of delivery chosen by the applicant pregnant women receiving prenatal care

Group	Experimental		No- experimental		P
Method of delivery	N	%	N	%	
NVD	54	83.1	51	78.5	0.44
Cesarean	11	16.9	14	21.5	0.65
Total	65	100	65	100	

Discussion

This was an experimental study that was done on primiparous pregnant women in the third trimester that were referred to the health centers of Yazd city. The results showed that there was a significant difference between scores of perceived susceptibility and severity of experimental group before and after intervention (p=0.001). These results are the same as the results of Rahimikian [16].

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Tahvildari et al. showed that education based on the Health Belief Model, increased perceived susceptibility of participants to breast cancer [17]. Based on Disney et al.'s study whose aim was to examine pregnant women's decisions about the choice of delivery methods, perceived susceptibility was an effective factor to the selection of delivery method and perceived risk factors of delivery methods for each mother and baby was effective on the chosen delivery method [18]. The results revealed that there was a significant difference between perceived benefit and the choice of delivery methods in the intervention group before and after

intervention and between the intervention group and no-intervention group after intervention. These results about perceived benefits are the same as those of the studies of Rahimikian [16], Amidid and Akbarzadah [19]. Perception of mothers about barriers for normal delivery in both groups before the intervention was almost the same and Mann-Whitney test showed no significant difference in this field. But the significant differences in the perceived barriers between the two groups after intervention suggest the effect of educational intervention on the perceived obstacles in the intervention group. Studies have shown that perceived barriers have been the main components of the health belief model in recommended behavior [20]. The results of study of Sharifirad et al. showed that decreasing the perceived barriers led to a decrease in smoking by teens [21] which is the same as our results. The data of Negahban et al. revealed that the main reason for choosing cesarean section by mothers is fear of pain of NVD and the main reasons for choosing normal vaginal delivery (NVD) are the serious complications of cesarean [22]. Regarding self-efficacy, the results showed that there was no significant difference between the two groups after the intervention. But the results of this study showed that the scores of self-efficacy of the intervention group after intervention increased and those differences were significant and these results were the same as the findings of Huharn [23]. In their study, there was no significant difference between the self-efficacy of the delivery of the two groups, but the scores of the self-efficacy of those that participated in the educational class for delivery increased. The results of Khorsandi et al. [24], showed that the self-efficacy of people who participate in delivery classes is higher than the control group and their fear of delivery is less.

Self-efficacy refers to a certain depth of a person's personal performance [25]. There was a significant difference between the knowledge grade scores of the two groups before and after intervention. After intervention the knowledge scores of the intervention group increased compared to the no-intervention group. The results of the study of Amidi and Akbarzadah [19] about the effect of education on knowledge and attitude of pregnant women about caesarean section revealed that there was no significant

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difference between knowledge and attitude of the intervention and no-intervention groups, but there was a significant difference after intervention that is the same as our results. Our data about the participants' knowledge are the same as the results of studies by Rahimikian et al. [16], Gangi et al. [26] and Fathian et al. [27]. The data of the present study revealed that there was no significant difference between the method of delivery in the two groups after intervention which is the same as the data of Qafari et al. [28], but is not the same as the results of Rahimikian et al. [16], and Fathian et al. [27]. This discrepancy could be due to the fact that the choice of the method of delivery is influenced by several factors and educational intervention can only lead to an increase in the awareness and attitudes, while it has no effect on other factors affecting labor, such as socioeconomic factors, subjective norms, and so on. On the other hand, medical indications affected the results. However, the 6 patients who were going to have a normal delivery had to have cesarean deliveries because of medical contraindications.

Conclusion

The results of this study showed that the choice of the methods of delivery by pregnant women is influenced by several factors and it is difficult to change it to vaginal delivery with education

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