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The Effects of Educational Intervention on the Constructs of Social Cognitive Theory and Theory of Planned Behavior on Cesarean Intention among Nulliparous Pregnant Women

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Abstract: Although, cesarean section has a higher rate of complications compared with vaginal delivery, there is a growing trend for cesarean section in Iran. This theory-based study was aimed to investigate the effect of an educational intervention on cesarean intention in nulliparous pregnant women. This study was a randomized controlled study. In total, 146 nulliparous pregnant women in the third trimester of pregnancy were recruited in different health centers in Kermanshah City in 2015. Before intervention, a baseline data collection was done by using a valid and reliable questionnaire on participants in both groups. In addition to routine prenatal care, the intervention group received the educational program designed on the constructs of the social cognitive and planned behavior theories. After 4 weaks of completing the educational program, data were collected in both groups. A SPSS Software version 21 was used for data analysis. Results showed that there were significant differences between the intervention and control groups after the educational intervention in terms of attitudes toward cesarean, outcome expectations, outcome expectancies, perceived behavior control, subjective norms and cesarean intention ($p<0.05$). The findings indicated that an intervention based on a combination of the constructs of the social cognitive and planned behavior theories can affect cesarean intention in women. Therefore, it seems that conducting such interventions, particularly in nulliparous pregnant women, can decrease cesarean intention.

Key words: Nulliparous women, cesarean intention, social cognitive theory, theory of planned behavior, cesarean

INTRODUCTION

Cesarean is an operation in which contents of pregnancy are extracted from the womb through a cut in abdominal wall (Cunningham *et al*., 2014). The World Health Organization recommended that the caesarean delivery rate should not be higher than 5-15% while this rate is increasing all over the World (Zamani-Alavijeh *et al*., 2012). For instance, in 2011 cesarean delivery rate was reported 50% in Brazil (Rebelo *et al*., 2010). In America, cesarean delivery rate increased from 20.7 in 1996-32.7 in 2013 (Martin *et al*., 2014). In Iran, cesarean delivery rate was reported 48% in 2012 (Azami-Aghdash *et al*., 2014). In Kermanshah, Iran cesarean delivery rate has increased from 38.2% in 2005 to 47.7% in 2009 (Bahadori *et al*., 2013) while in the neighbor countries this rate is relatively lower. In this regard, Ministry of Health and Medical Education recommended that this rate should not be higher than 20% in public hospitals. The most important factor of this high rate is the mothers' request for cesarean because of their fear of the pains in vaginal delivery (Karami-Matin *et al*., 2014). Cesarean delivery, besides complications of operation and anesthesia in the current pregnancy, affects the subsequent pregnancy results. For instance, cesarean delivery increases the possibility of abnormal placental adhesion and also increases the possibility of some diseases like metabolic syndrome, type A diabetes and asthma in long term (O'Neill *et al*., 2014; Hyde and Modi, 2012). In addition, the cost of each cesarean delivery for health centers in relation to vaginal delivery is relatively higher. Thus, educational and consultation intervention to change women's attitudes toward cesarean intention seems to be necessary (Ardakani *et al*., 2013). Researches in this field have shown that the most effective educational programs are based on theoretical approaches (Tavousi and Heidarnia, 2009). Social cognitive theories and theory of planned behavior are of the most common theories used for the behavior analysis (Ginis *et al*., 2011). The social cognitive theory states that

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what determine the personality of individuals is individuals' psychic and cognitive functions with regard to the interaction between personal and environmental factors. Outcome expectations and outcome expectancies are among the constructs of this theory (Safari *et al*., 2009). The planned behavior theory also states that the determiner factor in individual's future behavior is behavior intention and perceived behavior control. Behavior intention is originated from attitude, subjective norms and perceived behavior control (Jalilian and Emdadi, 2011). On this basis in 2014, a study was done in Kermanshah, Iran that led to the recognition of some cognitive factors related to nulliparous women's cesarean intention. These factors included attitude, outcome expectations, outcome expectancies, subjective norms and perceived behavior control (Karami-Matin *et al*., 2014). Although, evidences indicate that in order to lower the cesarean delivery rate a polychotomous intervention approach is necessary (Yazdizadeh *et al*., 2011) attitude and women's cesarean intention still have great roles because finally the women should decide whether to choose their delivery type. Thus, the current study was designed to investigate the effect of an educational intervention based on social cognitive and planned behavior theory on cesarean intention in nulliparous pregnant women in Kermanshah, Iran in 2015.

MATERIALS AND METHODS

The current study was a randomized intervention study. The required number of subjects for this study was calculated 73 individuals in each group, according to the study by Sanavi *et al*. (2014) 95% confidence score, statistical power of 90 and 5% sample loss possibility and using comparison formula 2 for the calculation of population size:

$$n = \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2 (p_1 q_1 + p_2 q_2)}{(p_1 - p_2)^2}$$

Multistage clustering sampling was used in this study. Initially Kermanshah City, Iran was classified into six clusters according to city regions. Then, one health center was randomly used in each cluster. And 3 of them were again selected randomly such that one of them was from the socially and economically high region another from meddle region and the last one from the low region. Using simple random sampling the subjects were chosen for the study. Subjects were randomly put into two intervention and control group such that all of the qualified clients that attended the first health center on Saturday and Sunday, the second health center on Monday and Tuesday and the third health center on Wednesday on Thursday were respectively put into intervention, control, intervention groups. Next week this process was exchanged. That is clients were put respectively in control, intervention and control group and this process went on until the required number of subjects for the study was obtained. The qualification criteria for subjects was for them to be in at least the third trimester of pregnancy to be a nulliparous to be free of anxiety disorder and also free of medical indications for cesarean section which includes: multiplicity, placenta prevail and Breech presentation. The subjects who did not attend all of the educational sessions were removed from the study. Totally, two individuals from intervention group and one individual from control group were removed. A pre-test (questionnaire) the reliability and validity of which were confirmed in previous studies (Karami-Matin *et al*., 2014) was completed through self-report. The questionnaire included 39 questions which were divided into two parts. The first part included demographic questions (9 questions) and the second part was related to some constructs of social cognitive and planned behavior theories including attitude, outcome expectations, outcome expectancies, subjective norms, perceived behavior control and behavior intention (30 questions). The four session educational intervention was done according to the designed educational program in intervention group. To design this educational program , a general model of educational design was used which included analysis, design, development, implementation and evaluation (Shabani, 2011). In the first session were presented some information about vaginal and cesarean delivery. In the second session, there was discussion on attitude, outcome expectancies and subjective norms about cesarean. In the third, there was a discussion on perceived behavior control, outcome expectations, perceived self-efficacy and presenting a desirable behavior role model. And in the fourth session was devoted to subjective norm and an educational pamphlet was given to the subjects for them to study the subjective norms of pregnant women. In the educational sessions, speech, question and answer and group discussion were used as educational method. A self-report post-test was given to the subjects of both groups after 4 weeks. Kolmogorov-Smirnov, Chi-square, Independent t, Mann-Whitney, Paired t and Wilcoxon tests were used for the analysis of the data. Data analysis was done by SPSS 21. In all stages of the study, human dignity as the most fundamental moral principle in research was considered by the researchers such that initially, a testimonial is taken from the subjects for their presence in the study and this study was permitted to be done by research committee of Kermanshah University of Medical Sciences, Kermanshah, Iran.

RESULTS AND DISCUSSION

The results obtained from demographic information of research units are presented in Table 1. In addition, the between intervention and control group in terms of age (p = 0.667). The comparison of the scores of intervention and control groups' pre and post-test regarding attitude, outcome expectations and outcome expectancies are presented in Table 2. Before the intervention, according to Mann-Whitney test, there is no significant difference between intervention and control group in terms of behavior intention (p = 110), subjective norms (p = 0.225) and perceived behavior control (p = 0.690). However after the intervention the difference is significant (p = 0.001) between the intervention and control group. According to Wilcoxon test subjective norm score of the control group had slightly increased (p = 0.022) while this variable decreased in intervention group (p = 0.001) (Fig. 1). Furthermore, according to Wilcoxon test, the perceived behavior control score decreased significantly in control group (p = 0.011) while this score increased significantly in intervention group (p = 0.001) (Fig. 2). According to Wilcoxon, behavior intention score did not change significantly (p = 0.130) while in intervention group it decreased significantly (p = 0.001) (Fig. 3).

The results of the study indicated that educational intervention was effective in decreasing the cesarean intention. Statistical analysis revealed that there was no significant difference between the background variables of the subjects (age, education, job, economic situation and pregnancy age) however the number of jobholders was significantly more in intervention group. There are contradicting results in different studies regarding to the relationship between cesarean intention and employment status. Dadashi (2013) concluded in his study that there is no significant relationship between cesarean intention and subjects' job while some other studies there is a positive and significant relationship between women's employment status and cesarean intention (Naseriasl *et al*., 2014). Thus, the heterogeneity of the two groups regarding the employment status cannot be counted as weakness of this study. The results indicated

Table 1: Sociological characteristics research units in control and intervention group

Sociological characteristics	Intervention group	Control group	Statistical test
Age	Year±SD	Year±SD	
Subject's age	26.01±4.66	25.69±3.80	Independent t 0.654
Husband's age	29.66±4.91	30.22±4.06	Independent t 0.458
Education	Individual (%)	Individual (%)	
High school drop out	6 (8.5)	7 (9.0)	0.951
High school	38 (53.5)	37 (51.4)	Chi-square
University	27 (38)	28 (38.9)	
Husband's education	Individual (%)	Individual (%)	
High school drop out	13 (18.3)	9 (12.5)	0.267
High school	30 (42.3)	40 (55.6)	Chi-square
University	28 (39.4)	23 (31.9)	
Job	Individual (%)	Individual (%)	
Jobholder	16 (22.5)	5 (6.9)	0.008
House wife	55 (77.5)	67 (93.1)	Chi-square
Husband's job	Individual (%)	Individual (%)	
Government employee	15 (21.1)	18 (25)	0.574
Private section employee	12 (16.9)	8 (11.1)	Chi-square
Self-employed	44 (62)	46 (63.9)	
Economic situation	Individual (%)	Individual (%)	
Low	3 (4.2)	7 (9.7)	0.359
Medium	67 (94.4)	63 (87.5)	Chi-square
Good	1 (1.4)	2 (2.8)	

Table 2: The comparison of pre and post- test of control and intervention group before (BI) and after intervention (AI) in terms of attitude, outcome expectations and outcome expectancies

	Average±SD		
Variables	Intervention group	Control group	Statistical test
Attitude BI	31.19±9.44	28.04±9.98	Independent t 0.054
Attitude AI	16.35±7.30	27.98±10.14	Independent t 0.001
Paired t	0.001	0.832	
Outcome expectations BI	21.05±3.70	19.65±4.61	Independent t 0.084
Outcome expectations AI	12.98±3.46	20.11±4.74	Independent t 0.001
Paired t	0.001	0.080	
Outcome expectancies BI	22.5±6.90	23.19±5.19	Independent t 0.497
Outcome expectancies AI	23.09±6.41	14.56±4.03	Independent t 0.001
Paired t	0.054	0.001	

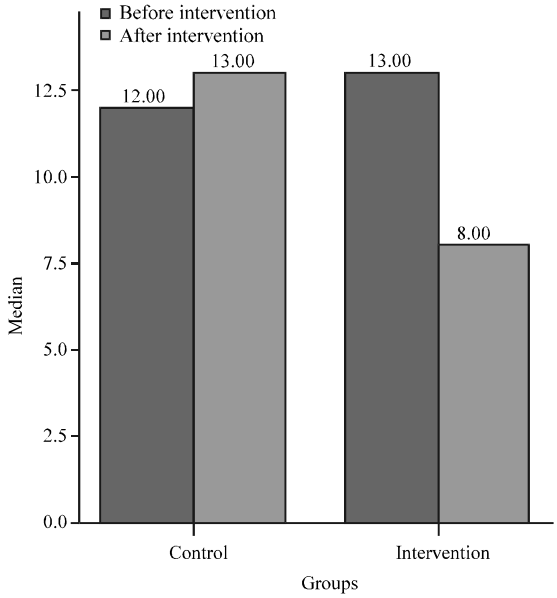

Fig. 1: The comparison between subjective norms scores before and after intervention in the control and intervention group

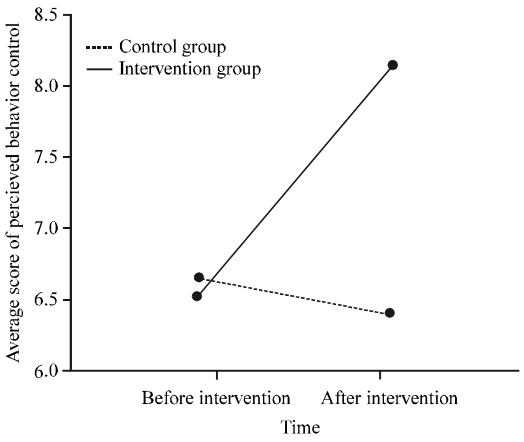

Fig. 2: The comparison between perceived behavior control score before and after intervention in control and intervention group

that the average score of pregnant women's attitude toward cesarean in intervention group decreased while there was no significant change in control group. It can be concluded that women's positive attitude toward cesarean is taken from their environment and after attending the educational interventions and gaining more information and discussing the issue with experts and other women; they came up with a better understanding of vaginal and cesarean delivery and changed their attitude and intention. A study in South Korea revealed that one of the factors of increased rate of cesarean in

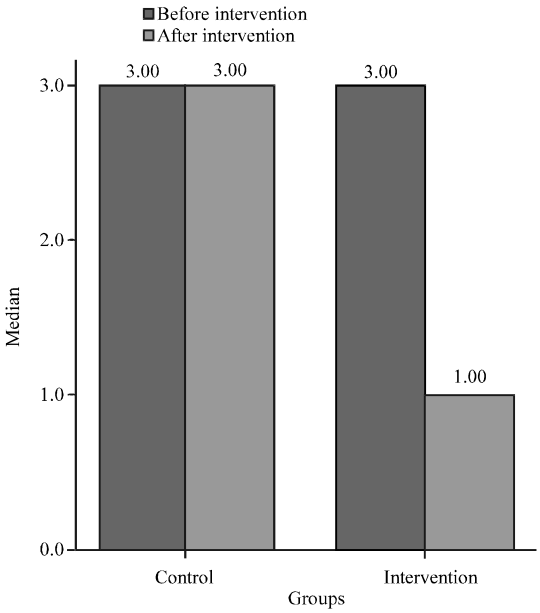

Fig. 3: The comparison between cesarean intention before and after intervention in control and intervention group

South Korea was related to the effect of hospital personnel on pregnant women's intention (Lee *et al*., 2004). However, there are different attitudes toward cesarean among midwifes and experts; midwifes believe that cesarean delivery rate is high (Monari, 2008). In another study, 89.4% of the intervention group developed a positive attitude toward vaginal delivery (Khorsandi *et al*., 2012). In the current study, a suitable environment was provided for the subjects to share their worries and fears. One of the reasons of the decrease in attitudes toward cesarean could be this discussion sessions. One of the most important factors of cesarean intention is the women's fear of vaginal delivery (Ryding *et al*., 2015). Likewise, Wiklund *et al*. (2008) concluded that women's fear of vaginal delivery is a very important factor in women's cesarean intention. In another Cohort study, it was also shown that fear of vaginal delivery is a decisive factor in cesarean intention and this fear is much higher in nulliparous women (Ryding *et al*., 2015). The most important finding of this study was that cesarean intention decreased significantly in intervention group but there was no significant change in control group and this can be due to the educational session and the effect of intervention on women that changed their attitude and intention. This finding is in line with results by Aziken *et al*. (2007). The results show that the average score of outcome expectations and outcome expectancies of cesarean significantly decreased

in intervention group while there was no significant change in control group. This can be due to the effect of educational intervention in developing positive expectation and expectancies of vaginal delivery because behavioral beliefs can be changed by new information and it is expected that if individuals have positive expectancies toward behavioral beliefs the will consider that behavior as positive. This finding is also in line with other studies (Khan-Jeihooni *et al*., 2014) (Porreco, 1990). Thus, in this study an educational pamphlet was designed. The results revealed that the average score of women's cesarean intention through their subjective norms increased significantly in control group while in intervention group it decreased significantly. This increase in control group may be due to their being nulliparouses and approaching the delivery time increased their fear and anxiety thus their subjective norms, to lessen their fear and anxiety, encouraged them to choose cesarean delivery. The reason for the the decrease of abstract norms average score in encouraging cesarean intention can also be addressed to the effects of educational pamphlets. As Ryding (1993) found the possibility of vaginal delivery can be increased by mental and physical support of the pregnant women. This support can only be helpful when the supporters are informed enough about the types of delivery. However, as the instruction of subjective norms was done indirectly in this study it is recommended that direct instruction take place in future interventions. In this study, the average score of perceived behavior control decreased significantly in control group while it had a significant increase in intervention group. This decrease in control group can be addressed too to their approaching to delivery time and their increased fear and anxiety which lessened their perceived behavior control and their self confidence in doing vaginal delivery and as Nieminen *et al.* (2009) found fear of delivery will incline women toward cesarean. And also the increase in perceived behavior control in intervention group can be addressed to the effects of educational intervention and presenting a desirable behavior model which in turn will increase self confidence in women to do the vaginal delivery. These findings are also in line with other studies (Besharati *et al*., 2011). After the educational program it can be expected cesarean delivery rate should decrease because generally, behavior follows intention (Porreco, 1990). One of the distinctive point's features of this study was using the constructs of social cognitive and planned behavior theory.

CONCLUSION

Generally, the results indicated that interventions based on social cognitive and planned behavior theories can be effectual in changing women's cesarean intention in nulliparous women. Thus, it is recommended that these theories or similar theories be used for educations of pregnant women to encourage them to vaginal delivery.

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