ORIGINAL ARTICLE

Effective education to decrease elective caesarean section

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Abstract

Objective: To examine the effect of education on deciding about natural delivery in women opting for elective caesarean section.

Methods: The quasi-experimental study was carried out between January and March 2012 and comprised a sample of 200 women in their third trimester of pregnancy attending women's clinics of Imam Ali Hospital, Zahedan, Iran, with the intention of having elective caesarean section. The subjects were voluntarily classified into three groups: one group received an educational package; the other had educational package along with group discussion, and the last one without any intervention was considered the control group. Post-test was conducted a month after intervention. Data were analysed using Kruskal Wallis, and logistic regression tests.

Results: Group A represented the controls and had 100 (50%) women; Group B with the educational package had 40 (20%), while there were 60 (30%) women in Group C who had exposure to the educational package as well as group discussion. There were significant changes in behaviour in Group B and C ($p < 0.01$) but no change among the controls in Group A. In Group C, 25 (42%) women decided to go for natural delivery, while 1 (2.5%) woman had a change of opinion in Group B. Four (4%) women in the control Group A had ultimately natural delivery, but they were all emergency cases.

Conclusion: The two educational methods increased model construct scores, including awareness, attitude, perceived behaviour control, subjective norms and behavioural intention. Nevertheless, educational package in conjunction with group discussion was more effective in influencing the choice towards natural delivery.

Keyword: Education, Elective caesarean, Pregnant women. (JPMA 64: 500; 2014)

Introduction

Caesarean section (CS), actually saves lives of the mother and the baby whenever it is needed.[1] However, its unnecessary use is substantially on the increase and might be selected by pregnant mothers with no medical justification.[2]

Generally, CS is often accompanied by many complications for both the mother and the baby, including haemorrhage,[3] infection,[4] increased mortality,[5] premature birth,[6] neonatal respiratory problems,[7] etc. Moreover, the family has to bear huge expenses of this operation.[8]

The World Health Organisation (WHO) has declared a target of 10 to 15 per cent for CS.[9] In spite of that, the statistics for CS in most countries are very high. For example, it has been reported to be 32.9% in the US in 2009, 39.8% in Italy in 2007, 30.6% in 2007 in Australia, 35.3% in 2008 in Korea, 37.7% in 2006 in Turkey[10] and 41.9% in Iran in 2008.[11]

There has been some evidence that due to lack of knowledge about childbirth, women tend to do what they are told by their peers, and while they are not able to discuss childbirth interventions effectively, they ultimately decide in favour of CS without proper medical reasons or knowledge of risks or possible advantages involved.[12]

In this respect, a study showed that to reduce CS rates, the primary healthcare system needs to be developed and reorganised. According to the study, the need for informing pregnant women about CS during their visits seems to be essential.[13] On the other hand, evidence indicates that when people are informed of their condition, they become more actively involved in the decision.[14]

The important question is whether educating pregnant women with health education models can effectively change their behavioural intention, given the conditions and their preference for CS? If so, which model has the most capability to change behaviour effectively?

Theory of planned behaviour is one of the health education models. This theory is useful in educating adults using new techniques.[15] According to the theory of

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planned behaviour, a specific behaviour can be predicted through its intent. Basically, behavioural intention is predictable by three factors: the existence of a positive attitude towards that behaviour in target individuals; feeling of social pressures (subjective norms) for that behaviour; and feeling that it can be done and that the participant is able to do it (perceived behaviour control).[1]

Research conducted on the basis of this model shows that educational interventions to achieve required behaviour such as exercise during pregnancy, spinal anaesthesia to reduce delivery pains, and breastfeeding have been effective.[16-18] Therefore, the current study was conducted to examine the effect of education based on the theory of planned behaviour to decrease the frequency of elective CS in the city of Zahedan, Iran.

Subjects and Methods

The study was carried out on a sample of 200 women in their third trimester of pregnancy during January to March 2012, attending women's clinic at Imam Ali Hospital in Zahedan, Iran. All the subjects had the intention of opting for elective CS. Women were excluded from the study if they had a history of pre-term labour, diagnosis of multiple pregnancies, small pelvis, diabetes, or a history of high blood pressure.

The required sample size stipulated at least 40 participants for each study group by using the equation for comparing two proportions with a power of 0.80 and a significance criterion of 0.05 and assumptions of P1=0.6 and, P2=0.3. Accordingly, a total of 100 women were included in two interventional groups, and another 100 in the control group.

Using random sampling method, participants were selected from amongst pregnant women attending four clinics at the hospital. Firstly, the four women's clinics were selected randomly from a number of clinics in the study area. Secondly, the permuted blocks of 6 were used to randomise the participants to intervention or control group. Using this random sampling method, 100 eligible women were classified as controls and 100 were grouped as the intervention group. Then, individuals within the intervention group were placed into one of the two educational groups voluntarily. Based on this categorisation, 200 women fully consented to be classified in one of the three groups of A (no intervention; n=100) as control; B (receiving intervention through educational package; n=40); and C (intervention through educational package and attending group discussion sessions; n=60).

Given that there was no existing standard questionnaire available, a questionnaire was designed based on the theory of planned behaviour using available databases and results of other studies.[16,19]

The questionnaire contained various sections: demographic information about pregnant women and her spouse; knowledge of advantages and disadvantages of natural delivery and CS which included seven questions with scores of 2 for every correct answer, 1 for 'I don't know,' and zero for wrong answers. Attitude towards natural delivery or CS (seven questions); and perceived behaviour control towards type of labour (seven questions) were designed based on a five-item Likert scale with scores between 1 to 5. Subjective norms included seven questions with two options (agree, disagree); and one question was asked for assessing motivation for obedience, whose answers were calculated in percentage. One question was specified for behavioural intention with four options (probably CS, definitely CS, probably natural delivery, definitely natural delivery); and a question was asked on behaviour with answers calculated in percentage. The final questionnaire contained content validity ratio (CVR) of 0.69, and current validity index (CVI) of 0.88, with average Cronbach's alpha score between 0.71 to 0.87, and correlation coefficient of 0.77 to 0.87.

The participants completed the pre-test questionnaire after receiving necessary information about the study, its aims and duration. Then with consideration for their desire, the women were placed into one of the three groups and the educational packages were made available to the women in groups B and C. The package included three booklets. The first one contained material about what mothers should know, including definitions of natural delivery and CS, psychological and medical benefits of natural delivery for the mother and the baby, complications of natural delivery and CS.

The second booklet was about the choice itself, including strategies for empowering women, prenatal massage, relaxation techniques and some wrong perceptions associated with natural delivery.

The third booklet was about preparing the women for natural delivery, including benefits of exercise and exercises during pregnancy, pain-reduction techniques and facilitating natural delivery.

The booklets were designed to enhance knowledge, change attitude and increase perceived behaviour control of women towards natural delivery. The package also contained a compact disc (CD) video of short footage of the stages of natural delivery, CS and third trimester

exercises. In addition, four postcards with messages encouraging natural delivery were posted to the subject norm of women, including wife, mother, spouse's mother, sister, or a friend according to information provided in the pre-test on a weekly basis.

Women in group C were additionally invited to discussion sessions in small numbers (5 to 8). The sessions lasted about 45 minutes with emphasis on attitudes of women and also finding answers to questions in the debate. The sessions were managed by a guide (project executor). At first, short video clips showing pregnancy massages, pictures of relaxation exercises and respiration, and delivery positions were presented to the participants for 10 minutes. For the next 25 minutes, women talked with each other in relation to the experiences of themselves and their family and friends regarding worries and reasons for selecting CS. The last 10 minutes were allocated to drawing conclusions from the discussions, specifically in respect of wrong information and misperceptions.

One month after intervention, post-test was carried out by visiting the participants at their homes. To follow up on the delivery behaviour of women, regular telephone contacts were made.

The collected data was analysed with SPSS version 15 using Kruskal Wallis test. At this stage, changes in constructs were classified qualitatively to examine the effect of the model and educational method used in the study. Changes in constructs toward natural delivery option, coded 1 for 'yes', and zero for 'no'. Then they were assessed using the regression analysis test.

This study was approved by the research ethics committee of Zahedan University of Medical Sciences, Iran. Furthermore, written informed consent was obtained from each eligible individual before any intervention. In an effort to maintain confidentiality, the personal information of the participants was kept strictly confidential. Each questionnaire was given a code number and was only to be accessed by the main investigators or with permission from the principal investigator.

Results

Of the 100 women in Group A, 71 (71%) had education up to high school diploma and higher. The corresponding data for Group B was 33 (82.5%), and for Group C 57 (95%). Overall, 141 (70.5%) were housewives and 112 (56%) were experiencing their first delivery (Table-1).

In terms of scores for awareness, attitude, perceived behaviour control and subjective norms before and after intervention, there were significant differences in the scores of constructs post intervention in Groups B and C ($p<0.001$), but no change was observed in the control group. Furthermore, score differences were more evident in Group C than Group B after intervention (Table-2).

In relation to whose opinion was the most important regarding decision of delivery type, before and after intervention, women in the study groups reported the physician, themselves, and their spouses, respectively.

Behavioural intention towards natural delivery increased significantly in Group C ($p <0.001$), but not in the other groups. In Group C, 25 (41.7%) women changed their behavioural intentions after intervention and decided to probably/definitely have natural delivery, while in Group B, 1 (2.5%) changed her behavioural intentions. Group A decided to probably/ definitely have CS.

Table-1: Baseline characteristics.

Variable	Group C (n = 60)	Group B (n = 40)	Group A (n = 100)
Education			
Elementary school	3(5%)	7(17.5%)	29(29%)
Diploma/higher diploma	37(62%)	20(50%)	42(42%)
Degree and higher	20(33%)	13(32.5%)	29(29%)
Occupation			
Housewife	38(63%)	26(65%)	77(77%)
Employed	22(37%)	14(35%)	23(23%)
Childbirth type			
First	36(60%)	20(50%)	56(56%)
Previous natural delivery	17(28%)	3(7.5%)	18(18%)
Previous caesarean section	7(12%)	17(42.5%)	26(26%)
Mean Age	28±6	27±6	27±5

Table-2: Comparison of mean and standard deviation in scores of awareness, attitude, perceived behaviour control, and subjective norms.

Construct (Min and Max of scores)	Group	Pre-test Mean (SD)	Post-test Mean (SD)	Differences Mean (SD)	P value
Awareness (0-14)	C	9.78 (2.53)	12.40(1.87)	2.62(2.42)	
	B	10.35 (2.63)	12.38(1.87)	2.03(2.00)	P<0.001
	A	9.95 (2.70)	10.59(2.52)	9.95(2.70)	
Attitude (7-35)	C	22.03(4.23)	25.80(5.63)	3.77(4.80)	
	B	22.45(4.30)	23.83(4.45)	1.38(1.90)	P<0.001
	A	22.68(3.94)	22.34(4.20)	-0.34(2.59)	
Perceived behavioural control (7-35)	C	18.30(5.20)	21.88(5.65)	18.30(5.20)	
	B	18.70(4.83)	19.35(5.32)	0.65(2.86)	P<0.001
	A	20.94(6.60)	20.42(5.85)	-0.52(2.87)	
Subjective norms (7-14)	C	9.83(2.28)	11.8(2.27)	1.93(2.14)	
	B	9.73(1.67)	9.73(1.75)	0.00(0.87)	P<0.001
	A	10.28(2.04)	9.92(1.85)	-0.36(1.25)	

Table-3: Predictive variables of vaginal delivery.

Construct	Univariate			Multivariate		
	OR	95%CI	p	OR	95%CI	p
Group C	13.900	4.500-42.990	0.001	8.650	2.250-23.160	0.002
Behavioural intention	9.300	2.700-32.030	0.001	6.250	1.660-23.560	0.007
Perceived behaviour control	6.410	2.320-17.740	0.001	3.770	1.009-13.020	0.036

Notably, 4 (4%) women in Group A finally had natural deliveries, but they all were emergency cases.

Results of logistic regression test showed that women with increased behavioural intention scores were 6 times more likely to have natural delivery compared to women who did not show any change in behavioural intention (Odds ration [OR] = 6.25; 95% confidence interval [CI]= 1.66-23.6). Moreover, women with increased scores of perceived behavioural control toward natural delivery were 4 times more likely to have natural delivery compared to women with no change. [OR=3.77; 95% CI: 1.01-13.02)]. The probability of having natural delivery in women of Group C was 8 times more compared to women in Group B [OR=8.65; 95% CI: 2.25-23.16] (Table-3).

Discussion

The study showed that the educational model based on the theory of planned behaviour was significantly effective in increasing awareness, causing positive attitude, and changing subjective norms. It increases natural delivery behaviour by enhancing perceived behavioural control and behavioural intention. In addition, results indicated that both educational methods (educational package; educational package in conjunction with group discussion) similarly increased awareness. However, the second method was more effective in increasing other model constructs, and then significantly increased natural delivery behaviour. Additionally, behavioural intention and perceived behavioural control were identified as predicting factors of natural delivery behaviour as well.

The results of studies in Iran indicate low to medium levels of awareness and attitude among pregnant women.[19-21] The initial assessment in this study also indicated that awareness of majority of women was medium to good, and half of the women had positive attitude toward natural delivery. However, only a third of women expressed that they had a good level of perceived behavioural control for natural delivery. Therefore, enhancement of levels of attitude and perceived behavioural control toward natural delivery seems necessary. In relation to educational methods, numerous studies have shown the effect that education has on enhancing intended behaviour level using different methods.

The results of a study on children with asthma indicated that use of educational package (booklet and educational CD) increased awareness and self-management of these children.[22] Sweeny's study also demonstrated that the home exercise educational package caused improved self-efficacy of people with joint problems.[23] In a study, Fender showed that educational package led to reduced use of steroids in people with uterine bleeding problems.[24]

Study results in Iran with respect to delivery behaviour also indicated the beneficial effect of education. A study revealed that training health workers and also mothers in health centres reduced elective CS.[25] Another study also reported that CS rate was 15% less in the group that participated in pregnancy preparation classes compared to the control group.[26]

In another study of primiparous women who had been exposed to educational film and booklets, the choice of natural delivery significantly increased compared to the control group.[27] Results of a study by Sharifirad indicated that educating spouses of pregnant women led to reduced elective CS.[28]

The findings of a study by Alavijeh stated that almost half of the women with intention of CS, in respect of educational methods, preferred taking part in classes, than individual training, educational books, films, consulting on the phone, and finally talking with their peers, respectively. Additionally, women preferred these trainings to be given by their physicians.[1]

Similarly, the present study has shown that educational package along did not have a significant effect on natural delivery behaviour, but educational package combined with group discussion increased the probability of natural delivery by 8 folds, and roughly 40% of women in this group selected natural delivery behaviour which might be possibly due to increased motivation, ability to decide and women's skills in direct training.

In studies based on behavioural intention among

primiparous women, women's awareness, attitude, behavioural intention in respect of natural delivery increased after educational intervention compared to the control group. Besides, in respect of subjective norms and motivation, physicians had the first priority. Ultimately, CS rate in the intervention group was 16% less compared to the control group.[9,28,29] Another study also reported that physicians have the most deciding role in the choice of delivery type.[30]

A study also demonstrated that although the involvement of women in the decision-making process seems to be important, the final decision is with the physician.[31] Another study based on this model, with the aim of examining the effect of educating primiparous women's spouse, showed that this led to a significant increase in the level of knowledge and positive attitude toward natural delivery and reduced CS without medical reasons (20.5% less than control group).[28]

Studies based on the theory of planned behaviour indicated that in relation to attitudes and exercise during pregnancy and after delivery, the most subjective norms of women were due to their spouses. There was also a significant correlation between exercise behaviour before pregnancy and during pregnancy.[17] A study in 2007 on the attitude of young mothers towards breastfeeding based on this model indicated that the most subjective norms of these people were their mothers, spouses, family, friends, and health workers, respectively. There was a significant correlation between knowledge and behavioural intention as well.[32]

A study in respect of breastfeeding behaviour displayed that training with this model enhanced model constructs, and there was a significant difference between intervention and control groups.[18] In a study based on theory of planned behaviour on primiparous and second pregnancy women (with previous natural delivery), there was a significant difference between intervention and control groups in the mean scores of knowledge, evaluation of results, attitudes, perceived behaviour control, subject norms, and behavioural intention.

Additionally, results indicated that elective CS was 27.8% less in intervention group compared to control group.[33] In the present study also, training based on theory of planned behaviour enhanced model constructs in women of both intervention groups compared with control group. In addition, women reported that the most subjective norms and motivation for obedience was their physician. In relation to delivery behaviour, nearly 4 out of 10 women who received education package and participated in group discussions had natural delivery behaviours and only a small number in the other two groups had natural delivery.

There were several limitations that warrant consideration regarding the interpretation of results. Firstly, some of the private gynaecologists and obstetricians were not happy to collaborate with the investigators at the beginning of the study. Similarly, sampling from all clinic offices was also difficult due to disagreement of specialists in this field. Furthermore, there were some barriers in following women for post-test frequently. However, the main investigators used different approaches (i.e. presenting gifts and money, holding meetings and consultation sessions and adjusting time according to the participants' suggestion) to persuade gynaecologists, obstetricians, related persons and eligible pregnant women for regular participation in the study.

Conclusion

Direct training with just one 60-minutes discussion group is an effective method for increasing women's motivation for selecting natural delivery. Thus, it is recommended that this method be employed for pregnant women to increase awareness, change attitudes, influence decision making, and managing control skills of women. Since most motivation for obedience of women is the physician and his advice, it is necessary for the management to have appropriate strategies that would enable specialists to provide suitable guidelines for patients. In addition, we suggest further studies with a larger sample size to be carried out on primiparous women or those with the first experience of elective CS.

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