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Effect of health education on knowledge, attitudes, and practice of pregnant women in reducing elective cesarean delivery rate

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Abstract

This study was carried out to investigate the effect of education on knowledge, and attitudes, and practice of pregnant women in order to decrease tendency to elective cesarean delivery. This study conducted on 160 nulliparous Iranian pregnant women who referred to the health and wellness centers. The participants were randomly divided into the experimental and control groups. The data were collected through administering questionnaires, holding interviews and referring to the health records. The experimental group was educated about cesarean section and vaginal delivery through group meetings, face to face education, playing videos, and distributing pamphlets whereas the control group received routine cares. One month after intervention, the level of knowledge and attitudes was again measured along with the level of practice performance of two groups in choosing cesarean or vaginal delivery for childbirth. The findings of the study showed that before the intervention, there was not a significant difference in knowledge and attitudes between two groups. After training, however, the experimental group showed a significantly more knowledge and attitudes towards the vaginal delivery. There was also a significant difference between two groups with respect to practice (kind of delivery) as the cesarean section reduced about 15% in the experimental group compared to the control group. This study showed that training can enhance the level of knowledge and attitudes of pregnant women, leading to the less likelihood of having cesarean without a medical reason.

Keywords: Attitude, Elective Cesarean, Knowledge, Vaginal Delivery

Introduction

Parturition is a natural phenomenon with a history as old as human history. Since the advent of mankind, the human has been always involved with the issue of pregnancy and parturition and women have been always following this issue with trepidation. With the passage of time and scientific and practical advancements, effort has been made to reduce this anxiety. One of these advancements is parturition in cesarean form [1]. In recent years, a significant increase is observed in the rate of unnecessary cesarean delivery. Unfortunately, the ratio of vaginal delivery to cesarean delivery is decreasing [2]. The increase in the rate of cesarean in

recent decades is not due to the necessity of doing cesarean; rather it seems that the decision made to do cesarean is carried out with little contemplation [3]. The cesarean rate is higher in women with good socioeconomic situation referred to the physicians in private sections. So that, 80 percent of deliveries are carried out by physicians in the private hospitals through cesarean and the main reason is the insistence of mothers [4]. The average rate of cesarean statistics in America and Western countries is now nearly 20 percent. The world health organization has recommended the maximum rate of cesarean for scientific and necessary cases as 15 percent [15]. According to the report of public relations of ministry of health and Medical Education, the statistics of cesarean in year 2012 is about 44 percent throughout our country, Iran, and it is between 55 to 60 percent in big cities of the country. In addition, the percent of cesarean in the city of Maragheh has been reported as 45.12%. The statistics of parturition in Dr. Beheshti hospital of the city of Maragheh, which is the only specialized hospital for obstetrics and gynecology in the city, was about 50.97% for cesarean and 49.02% for vaginal delivery in year 2012 [6]. The most common cases of cesarean include: 1) Repetitive cesarean, 2) Lack of natural progress in parturition period (labor dystocia), 3) Bottom first birth (breech birth), and 4) Cesarean for the health of fetus [7]. The other reasons for cesarean include prolapsed umbilical cord (falling the umbilical cord into the vagina), bleeding of placenta, abnormal pelvis (abnormal connection of placenta bone after accident), transverse position of fetus, and serious problems threatening the health of mother (infections, diabetes, heart disease, high blood pressure, etc.). The complications of cesarean are greatly noticeable compared to the vaginal delivery. The main causes of complications include infection, bleeding, thromboembolism, and infection of urinary tract. The complications of cesarean delivery are greatly increased in the obese women. It has been reported that 38% of elective parturition is due to the mothers' request [8]. Of the important reasons for choosing the cesarean delivery by pregnant women has been recognized as the insufficient knowledge and negative attitude towards vaginal delivery, so that about 70% of women have negative attitude towards vaginal delivery [9]. The social, economical, and folk factors may play a role in the rate of cesarean section. Moreover, it seems that the rate of cesarean section increases with an increase in the height of mother. The programs proposed to reduce unnecessary cesarean sections have been concentrated on the educational issues and precise analysis, encouraging vaginal delivery after transverse cesarean, and limiting cesarean delivery caused by difficult parturition to the women who have well-defined criteria. Such efforts along with understanding the proper use of electronic monitoring of heart rate of fetus may reduce the number of cesarean delivery more and more. Trying to have vaginal delivery, in fact, is an attempt to have more comfortable delivery through removing fear and stress of the pregnant woman. This is perfectly based on this valid assumption that the parturition is carried out easier in women having self-confidence, relaxation, and willingness to cooperation [10]. One of the useful solutions for reducing cesarean and achieving the defined targets of World Health Organization is health education. The health education should create healthy thinking and give this opportunity to the person to remove a considerable number of removable memories or to minimize them [11]. One of the most important decisions is about parturition way that should be made with full knowledge. Indeed, it is possible to increase the knowledge of pregnant women towards parturition ways using health training in the pregnancy period so that they could choose a proper way with physician discretion to avoid cesarean without having a clinical reason [12]. The aim of this study was to investigate the effect of health training on the knowledge, attitudes, and practice of pregnant women to reduce the elective cesarean in the city of Maragheh.

Method

This research was a quasi-experimental study. The population of the study included all nulliparous pregnant women (160 participants) in 30-40 weeks of pregnancy (considering that indications leading to the cesarean delivery are recognized during this period) who referred to the health and wellness centers of No. 4 and Khodajoo in the city of Maragheh in May 2012. They were included in the study by examining available health records in the health centers. Among identified cases, 80 participants were randomly assigned to the experimental group and 80 participants to the control group. The inclusion criteria were defined as follows: the nulliparous singleton pregnancy, lack of having infertility background, lack of obstetric indication for cesarean, lack of training about delivery ways, and gestational age of 30-40 weeks. The exclusion criteria were as: having pregnancy background leading to delivery, diagnosis with medical disease, diagnosis with abnormal and unable to survive fetus by ultrasonography, and abnormal volume of amniotic fluid, and the location of placenta.

At first, the level of knowledge and attitude in pregnant women towards the elective cesarean was measured and then, they were given an equal opportunity to freely express their thoughts and ideas while the administrator of the session recorded attitudes, beliefs, and fears of each participant about parturition. Finally, the experimental group was trained in a mix manner as follows:

The training procedure was performed during one weak as face to face training along with educational pamphlets provided for each participant in the experimental group. After a week of training, the advantages of vaginal delivery and disadvantages of elective cesarean were expressed through a speech in a group meeting and training videos approved by the Ministry of Health. After video playing, the participants were asked to express their views and ideas and ask questions about the issues related to the videos. The questions were answered by the experts. This procedure was continued for 4 weeks (during May 2012) and repeated for 4 experimental groups in the same way. The control group only received routine programs ongoing in the health and wellness centers. In addition, during 4 weeks after finishing the intervention, texts containing advantages of vaginal delivery and disadvantages of parturition in cesarean section were sent on the cell phone of participants in the experimental group as a reminder. After a month of intervention, the knowledge and attitudes of both groups were measured and compared with the results obtained before training. In order to study the practice of pregnant women in two groups, the kind of parturition was recorded at the time of occurrence. The data related to knowledge and attitudes were collected using questionnaires, interviews, and health records. The reliability and validity of the applied questionnaire on the knowledge and attitudes have been approved in another study [13]. The internal consistency was used to reinvestigate the reliability of the questionnaire. The type of parturition was revealed by asking from available mothers or referring to the health records and documents. The data were analyzed using statistical software SPSS-19. Considering the data distribution, non-parametric tests were used for data analysis. It is worth noting about the ethics of scientific studies that this study has received an approval from the Ethics Committee of Tarbiat Modares University. In addition to presenting the introduction letter, the researchers gained the informed consent of participants and assured them that the obtained information will be kept confidential.

Results

The results showed that the level of internal consistency for both structures was within the acceptable limit (α>0.7). In this research, both groups were statistically similar in terms of demographic and body characteristics including age, marriage age, weight, height, weeks of pregnancy (Table 1), level of education, marital status, occupation, monthly income, previous parturition type,

care provider of previous parturition, number of parturition, place of previous parturition, disease and surgery background. In terms of education, 30% of pregnant women in both groups were under diploma whereas 45% in the experimental group and 43.8% in the control group had diploma degree. Additionally, 16.3 % of total women had bachelor's degree and 1.3 % master's degree. Both control and experimental groups were at first marriage. In terms of job status, there was 70% household woman in the experimental group and 65% in the control group. There was 30% employed woman in the experimental group and 21.5% in the control group. They all had no disease and surgery background. The care provider of previous parturition in 7.5% of women in the experimental group and 8.8% of women in the control group was midwife while in 42% of experimental group and 40.5% of control group the previous delivery was conducted by a trained physician. 51.3% of mothers participated in the study were primiparous. 26.3% in the experimental group and 18.7% in the control group were secondiparous. 5.1% of experimental group and 5% of control group had born 3 or more child. The place of previous parturition in both groups was 35% in the private sector and 12.5% in the public sector. In terms of husband's education, 8.8% in the experimental group and 13.8% in the control group were under diploma, 50% in the experimental group and 38.8% in the control group had diploma degree, 20% in the intervention group and 17.5% in the control group had associate degree, 16.3% in the experimental group and 23.8% in the control group had bachelor's degree, and 5% in both groups had master's degree. 18.8% of members in the experimental group and 17.5% in the control group were self-employed; and 76.4% in the experimental group and 78.9% in the control group were employees. In both groups, 2% of members had army husbands. 82% of gynecologists and obstetricians and 80% of midwives working in the hospitals recognized the vaginal delivery as a proper way for childbirth and 17.5% of physicians and 20% of midwives recognized cesarean section as a proper way of delivery. The reason for tendency to cesarean in the pregnant women was 55% due to the fear of parturition and easiness of cesarean, 22% due to the dropping and prolapsed of bladder and uterine, and 18% due to the request for tubal ligation.

Table 1 *Frequency distribution of knowledge and attitude levels in the experimental and control groups before intervention*

levels	Knowledge				Chi square test	Attitude				Chi square test
	Control .		Experimental .			Control .		Experimental .		
	Percent	Number	Percent	Number		Percent	Number	Percent	Number	
Low	12.5	10	12.5	10	p-value>0.05	25	20	26.25	21	p-value>0.05
Moderate	77.5	62	77.5	62		62.5	50	62.5	50	
High	10	8	10	8		120.5	10	11.25	9	
Total	100	80	100	80		100	80	100	80	

According to the Chi-square test, there was not a significant difference between the participants in two groups in terms of the level of knowledge and attitudes (Table 1); In other words, the experimental group and control group were homogenous before the intervention in terms of above mentioned variables ($p>0.05$).

According to Wilcoxon test, participants in the experimental group had a significant difference in terms of the level of knowledge before and after the intervention ($p<0.01$); however, this difference was not significant for the control group ($p>0.05$) (Table 2).

Table 2 *Frequency distribution of knowledge levels in the experimental and control groups after intervention*

Levels	Knowledge									Wilcoxon test
	Control .					Experimental .				
	After		Before		Wilcoxon test	After		Before		
	Percent	Number	Percent	Number		Percent	Number	Percent	Number	
Low	16.25	13	12.5	10		10	8	12.5	10	
Moderate	75	60	77.5	62	p-value>0.05	12.5	10	77.5	62	p-value<0.01
High	8.75	7	10	8		77.5	62	10	8	
Total	100	80	100	80		100	80	100	80	

Table 3 *Frequency distribution of attitude levels in the experimental and control groups after intervention*

Levels	Attitude									Wilcoxon test
	Control.					Experimental.				
	After		Before		Wilcoxon test	After		Before		
	Percent	Number	Percent	Number		Percent	Number	Percent	Number	
Low	26.25	21	25	20		25	20	26.5	21	
Moderate	68.75	55	62.5	50	p-value>0.05	62.5	50	62.5	50	p-value<0.01
high	5	4	12.5	10		12.5	10	11.25	9	
Total	100	80	100	80		100	80	100	80	

According to Wilcoxon test, participants in the experimental group had a significant difference in terms of the level of attitude before and after intervention ($p<0.01$); however, this difference was not significant for the control group ($p>0.05$) (Table 3).

Table 4 *Frequency distribution of kind of delivery (practice) in the experimental and control groups after intervention*

Chid Birth (Behavior)	Control .		Experimental		Chi square test
	Percent	Number	Percent	Number	
Natural	55	44	72.5	58	
Cesarean	45	36	27.5	22	p-value<0.01
Total	100	80	100	80	

Table 4 shows that according to the Chi-square test, the practice of the study units was significantly different between the experimental and control groups ($p<0.01$); In other words, the ratio of vaginal delivery to cesarean delivery was higher in the experimental group than the control group. In other words, the ratio of vaginal delivery to cesarean delivery was higher in the experimental group than the control group after intervention.

In addition, a negative correlation was observed between the age of pregnant women and their practice ($p=0.004$), that is to say that the tendency to cesarean increased by an increase in age of pregnant woman. There was also a significant correlation between the level of education and income with practice, as by an increase in the level of education and income, the rate of cesarean increased.

Discussion

One of the reasons for pregnant women to have cesarean was the fear of parturition that occupies their mind during pregnancy. Therefore, being supportive for women during the pains of parturition can be effective in reducing the rate of cesarean. Training pregnant women about parturition and its procedure can mentally prepare them to deal with this phenomenon. In the study of Melender, the absence of nulliparous women in the preparation classes of parturition was related to the anxiety in pregnancy and fear of vaginal delivery and as a result, the request for cesarean ($p=0.009$) [14]. Using audio-visual equipments to support and strengthen pregnant women has great influences in health education. Sjorgen in a study entitled "reasons for anxiety childbirth in 100 pregnant women" found out that the fear of parturition is related to the factors including lack of trust in the obstetrical staff, fear of own incompetence , fear of mother or infant's death, unbearable pain, and loss of control [15]. In a research by Gamble et al. that carried out in Australia, the reason for tendency of women to cesarean has been mentioned as previous unpleasant experience of vaginal delivery, mother's anxiety, and lack of adequate knowledge about the risks of cesarean [16]. In a study by Fatemeh Abbas Ali Zadeh et al. that was carried out in order to study women's tendency to the type of parturition after a cesarean in Tabriz, 2003, it was reported that 67.5% of women tended to repeat cesarean. The main reason (in 88% cases) for this tendency was mentioned as less pain with cesarean delivery. 32.5% of women tended to have vaginal delivery wherein 83% of cases mentioned easiness of vaginal delivery compared to cesarean delivery as the main reason for this desire [17]. According to the previous studies, 60-80% of women with previous cesarean experience can have successful vaginal delivery. In a research by Malihe Arab in the city of Hamedan, that was carried out in order to investigate the vaginal delivery after a cesarean delivery, the results showed that of 81 cases of vaginal delivery, no maternal mortality has been reported and the complications of parturition was only observed in 3 cases, while the complications after cesarean delivery were observed in 19 cases out of 271 cases of cesarean [18]. The results of the present study also showed that the complications increase after cesarean compared to the vaginal delivery. According to the results obtained, among the complications after cesarean delivery were fever in 36 cases, bloat in 13 cases, constipation in 3 cases, hysterectomy in 1 case, and damage to uterus and appendages in 1 case. While after vaginal delivery, only one case of fever was reported and no complication was observed in uterus and appendages. Meanwhile, in the study carried out in the city of Hamedan, the average duration of hospitalization in the cesarean group was 2.8 days and in the vaginal delivery was 1.1 days. The most important complication of vaginal delivery following previous cesarean was the risk of uterine rupture. As available evidences showed, the rate of uterine rupture following the vaginal delivery is 0.2-1.5% in the women who had transaction in their previous parturition. Fortunately, there was not any uterine rupture in the present study.

Conclusion

Health education with respect to the cultural, economic, and social situation of pregnant women and their families as a part of prenatal cares can lessen the burden of ever increasing cesarean rate on the healthcare system of the country. Group training and playing educational videos can enhance the level of knowledge of pregnant women, modify their attitudes towards vaginal delivery and cesarean, remove the fear as the main reason for choosing cesarean over vaginal delivery and finally, reduce the rate of cesarean without a medical reason; because the trained and aware women can accept cesarean merely as a medical emergency.

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Contribution

Study design: ShS, MT
Data collection and analysis: ShN
Manuscript preparation: ShS, MT, LS.

Conflict of Interest

"The authors declare that they have no competing interests."

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