

Effectiveness of Information Counseling on Delivery Method Decisions in Primiparous Women

by Aniseh Pourrasmi Mamaghani, MS, Mohammadhiwa Abdekhoda, PhD, and Parvin Bastani Alamdari, PhD

Abstract: Information counseling can be an appropriate way to reduce the number of unnecessary cesarean cases. This study was a before and after clinical trial conducted in the 28 weeks' gestation with non-medical indication of a cesarean delivery (CD). The awareness of delivery modes, the decision for delivery modes, understanding the risks of delivery modes and self-efficiency were improved by counseling intervention ($p < 0.01$). The implementation of information counseling has an effect on encouraging women to change their decision patterns to reduce CD. Some factors, especially the constant recommendation of physicians of CD as a programmable and convenient delivery, undermine the role of these interventions.

Keywords: prenatal education, primipara, counseling, delivery decisions, cesarean section

Introduction

Pregnancy is a physiological phenomenon and child-birth can be considered one of the most beautiful events in any woman's life (acquisition of the woman's identity). Sometimes, due to medical reasons and in order to prevent dangers to the mother and newborn, the natural course of delivery faces problems and this operation is not carried out

in its natural state. Therefore, in these conditions, it becomes necessary to proceed with a cesarean delivery. Cesarean delivery (CD) refers to the exit of the fetus and placenta through a cut in the abdominal wall and uterus. The CD rates in the world continue to rise, particularly in developing countries (Bettes, 2007; Health, 2005; Farr, 2007; Vafaei, 2013). The CD rate varies to a great extent in countries with health care facilities and obstetricians, partly due to different perceptions of its benefits and risks by health care providers as well as pregnant women (Dzakpasu, 2000). The current prevalence of CD contributes to increased perinatal morbidity and mortality as well as significantly higher health care costs compared to vaginal delivery (VD) (Gibbons, 2010).

Previous studies show that non-medical factors affect decision-making for delivery and are dependent on different factors such as women's age, education level, occupation, economic and social status, fear of natural labor pain, type of insurance coverage, policy of hospitals, and its facilities (Ostovar, 2013; Salehian, 2005). Strategies for reducing the CD rate and educational interventions in delivery methods should focus on primiparous women (Dias, 2016). The aim of information counseling was to reduce the roles of these factors and make the delivery experience as positive as possible, regardless of the delivery mode. The information transfer and educational preparation for delivery could strengthen a woman's self-confidence in her ability to give birth (Larsson, 2015). A Norwegian study performing crisis-oriented counseling made 86% of the women change their request for CD and the follow-up shows that 69% had a VD and 93% of these women stated that they would prefer a VD in the future (Nerum, 2006). A CD on maternal request that should be performed solely on medical reasons has been

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identified as a problem, as it affects the health of both the mother (Liu, 2007) and/or the fetus (Cardwell, 2008).

Previous studies also show that information counseling had a positive effect on reducing childbirth fear, improving the birth experience and decreasing CD rate (Larsson, 2015). More side effects such as severe infections, postpartum hemorrhage, surgical problems, thromboembolism attacks and pelvic injury in women also accompany CD as compared to VD. Also, the mortality associated with CD is seven times higher and re-hospitalization is twice as frequent compared to VD (Zamanialavijeh, 2011). Infections, endomyometritis and gastrointestinal inflammation are the most common complications within the first 10 days after CD (James, 2011; Smaill, 2010). Therefore, the aim of the current study was to investigate the role of information transfer and counseling for raising awareness of the advantages and disadvantages of VD and CD, as well as the comparison of maternal desire and decision-making for delivery methods before and after information counseling and follow-up after birth.

Materials and Methods

Methodology: The methodology of the present study was the clinical trial before and after information counseling intervention. A total of 120 pregnant women with gestational age of 28 weeks', primigravida women and no medical indication for CD and uncomplicated pregnancy were selected as the study samples. The follow-up stage was conducted from April to August of 2017. The participants were selected using a simple and random clustering method and were asked to complete the questionnaire of satisfaction in order to take part in this study. The validity and reliability of the questionnaire were approved and then it was offered to the eligible women participating in the study at the 28th week of pregnancy. The criterion for entry into the study was for primiparous women to have a health document to express their readiness to participate in the study. After the educational intervention, pregnant women completed the questionnaire again at the 36th week of gestation. Finally, in a follow up, the final delivery method was recorded. All data of pre, post and follow-up were entered into SPSS16 software and analyzed using the t-test for a comparison of score differences. The significance level was set at $p < 0.05$.

Questionnaire: The data gathering tool was a researcher-made questionnaire based on a review of previous studies and its validity and reliability were tested as follows. The questionnaire included five parts, the first part containing demographic information. The second part comprised three

Table1: Study Protocol and Information Counseling Program

Visit	Questionnaire	Intervention Content	Stage
1 (28 weeks' gestation)	Questionnaire	None	Before intervention
2 (29 weeks' gestation)	None	Information brochures	Intervention phase 1
3 (30 weeks' gestation)	None	Information brochures	Intervention phase 2
4 (32 weeks' gestation)	None	Information booklet	Intervention phase 3
5 (34 weeks' gestation)	None	Education	Intervention phase 4
6 (36 weeks' gestation)	Questionnaire	None	After intervention
7 (2 day after delivery)	None	None	Follow-up

questions about awareness and preferred type of delivery, with a scoring response having three options including: 1 (vaginal delivery), 2 (neutral) and 3 (cesarean delivery). Also, the third part had eight questions about the decision for delivery mode. The fourth part had 32 questions about understanding the risks of delivery mode. The third and fourth parts include response ranking of the 5-point Likert scale including: "totally agree" (5 points), "agree" (4 points), "neutral" (3 points), "disagree" (2 points), and "totally disagree" (1 score). Finally, the fifth part contained 17 questions of self-efficacy, with response ranking, including: 1 (totally unconfident), 2, 3...10 (totally confident) for each question.

Reliability and validity tools: The content validity of the questionnaire was measured by the Content Validity Index (CVI), which had a score of 0.85. In order to validate content validity ratio, the opinion of 10 professors was recorded (five library and information science professors and five gynecology professors). Then each of the questions were designed in order to examine and approve the four properties of the necessity, relevance, transparency and simplicity of the questions that were set-up in the form of the tables and given to the specialist for the summation of the total question score. The content validity ratio (CVR) was evaluated based on the CVR formula and was adapted to the Lawshe number.

The reliability of the questionnaire was measured by a test-retest reliability formula. In the first stage, a questionnaire was provided to 30 subjects. Again, after a week, the

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questionnaire was returned to the same 30 subjects in the first stage. The correlation coefficient between the first and second stages was measured. Also, the internal consistency of different parts of the questionnaire was assessed separately by Cronbach's alpha, which was equal to 0.8, an acceptable value for the questionnaire.

Study protocol and information counseling program: The study protocol and information counseling program were carried out in seven visits (Table 1).

- **First visit (28 weeks' gestation):** Provide a questionnaire to women eligible to participate in the study.
- **The intervention stage was conducted in 4 phases (visits) including:**
 - *Phase 1:* Information brochures and pamphlets about the advantages and disadvantages of VD at the second visit (29 weeks' gestation).
 - *Phase 2:* Information brochures and pamphlets about the advantages and disadvantages of CD at the third visit (30 weeks' gestation).
 - *Phase 3:* Maternal information booklet with content comparing VD and CD, physiological delivery, vaginal delivery without pain and its methods and birth in water at the fourth visit (32 weeks' gestation).
 - *Phase 4:* 2-hour education about preparing for birth at the fifth visit (34 weeks' gestation).
- **Sixth visit (36 weeks' gestation):** The questionnaire was completed again by pregnant women.
- **Seventh visit (2 day after delivery):** Follow-up for mode of delivery.

Data analysis: The sample population was calculated using the equation below:

$$n = \frac{\left(Z_{\alpha/2} - Z_{\beta} \right)^2 \delta^2}{d^2}$$

Therefore, the participants were 120 pregnant women who were selected by cluster sampling. The city was divided into five regions: central, north, south, east and west. Then two health centers were selected from each region and seven pregnant women with and without medical indicators for CD were selected randomly from each center. A number of 70 women were selected from health centers and 50 women from hospitals.

Ethical considerations: All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation and approved by

Table 2: Demographic Characteristics of Women (N=120)

Demographic characteristics	n (%)
Age, y	
<20	14 (11.7)
20-25	40 (33.3)
26-30	49 (40.8)
31-35	15 (12.5)
>35	2 (1.7)
Education level	
High school	14 (11.7)
Diploma	65 (54.2)
BSc	34 (28.3)
MSc & PhD	7 (5.8)
Occupation	
Employee	10 (8.3)
Housewife	103 (85.8)
Student	7 (5.8)
Giving birth after marriage (years)	
<1	15 (12.5)
2	41 (34.2)
3	25 (20.8)
4	16 (13.3)
5	17 (14.2)
>6	6 (5)
History of Disease	
Yes	22 (18.3)
No	98 (81.7)
Insurance	
Yes	101 (84.2)
No	19 (15.8)
Pregnancy counseling	
Yes	22 (18.3)
No	98 (81.7)
Awareness from DPE*	
Yes	74 (61.7)
No	46 (38.3)
Participation in DPE*	
Yes	46 (38.3)
No	74 (61.7)

*DPE: Delivery Preparation Educations

the Ethics Council of Tabriz University of Medical Sciences (IR.TBZMED.REC.1395.1247). (All the patients signed the research consent form in order to observe ethical points before the intervention, and participants were assured that their information would be kept confidential. Also, freedom to participate in the research was considered among the research ethics of this study.

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Results

Demographic data (Table 2) show that 40.8% of the participants were in the age range of 26-30 years old. Data also showed that most participants (54.2%) had a diploma, and 85.8% of the women were housewives. Most births were conducted in the range of 2-3 years after marriage. The data indicate that 81.7% of the participants had no history of illness and more than 84% had insurance.

Table 2 also illustrates that only 22 (18.3%) of the pregnant women were referred to pregnancy counseling before our interventions, and 74 (61.7%) pregnant women had an awareness of delivery preparation education (DPE), while 46 (38.3%) participated in DPE.

The data of Table 3 shows that there is a significant difference in awareness and priority of the delivery mode between pre (1.3 ± 0.5) and post (1.7 ± 0.66) intervention as well as on the delivery mode decision between pre (3.5 ± 0.4) and post (4.1 ± 0.13) intervention. Also, Table 3 indicates that there are significant differences between pre (3.5 ± 0.3) and post (4.0 ± 0.41) interventions in the item of understanding the risks and advantages of the delivery mode. There is a significant difference between self-efficacy in the pre (4.4 ± 1.9) and post (6.2 ± 2.04) intervention.

Based on Table 4, in pre-intervention, 80 (66.7%) women had preferred VD and 40 (33.3%) women desired CD. In the post-intervention stage, 94 (78.4%) had selected VD as their delivery method. After delivery, in the follow-up stage, data showed that 53 (44.2%) women had performed a VD and 60 (50%) women had a CD. A number of seven participants were excluded in the post-intervention phase and the final follow-up of the study due to lack of cooperation (Table 4).

Figure 1 shows the relationship between the age category and selected type of delivery by women. In the age group

Figure 1: Relationship Between the Age Category and Delivery Mode

The percentage of three columns in each category with no common superscript differ significantly ($p < 0.05$)

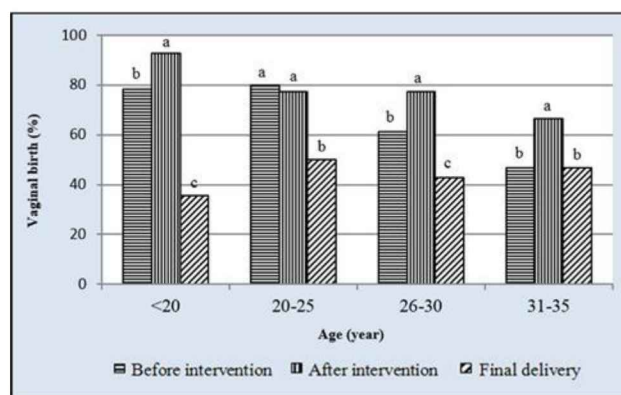


Table 4: Comparing Two Modes of Elective Delivery, Pre and Post Intervention and Final Delivery (N=120)

Mode of Delivery	Pre- Intervention	Post- Intervention	Final Delivery
	n (%)	n (%)	n (%)
Vaginal delivery	80 (66.7)	94 (78.4)	53 (44.2)
Cesarean delivery	40 (33.3)	19 (15.8)	60 (50)
Exclusion	-	7 (5.8)	7 (5.8)

Table 3: Effectiveness of Information Counseling on Chief Indicators of Delivery Modes Determination

Component	Pre-intervention	Post-intervention	Paired sample t-test	
	Mean \pm SD	Mean \pm SD	t	p-value
Awareness and preferred delivery mode	1.3 \pm 0.5	1.7 \pm 0.66	4.37	0.00
Decision for delivery mode	3.5 \pm 0.4	4.1 \pm 0.13	-9.79	0.00
Understanding the risks of delivery mode	3.5 \pm 0.3	4.0 \pm 0.41	-9.93	0.00
Self-efficiency	4.4 \pm 1.9	6.2 \pm 2.04	-6.13	0.00

of less than 20 years, 26-30 years and 31-35 years, the trend of women to VD increased ($p < 0.05$) after the counseling intervention, except for the age group of 20-25 years. In the final follow-up stage, there was a significant decrease in all age groups for VD (a number of seven participants were excluded in the post-intervention phase and the final follow-up of the study due to lack of cooperation).

Figure 2 shows the relationship between the education levels and type of delivery. In the after-intervention stage, there was a significant increase in the incidence of a VD by women with high school and BSc education, in comparison to the before-intervention stage. Pregnant women with MSc and PhD education levels displayed a significant decrease

Figure 2: Relationship Between Education Levels and Delivery Mode

The percentage of three columns in each category with no common superscript differ significantly ($p < 0.05$)

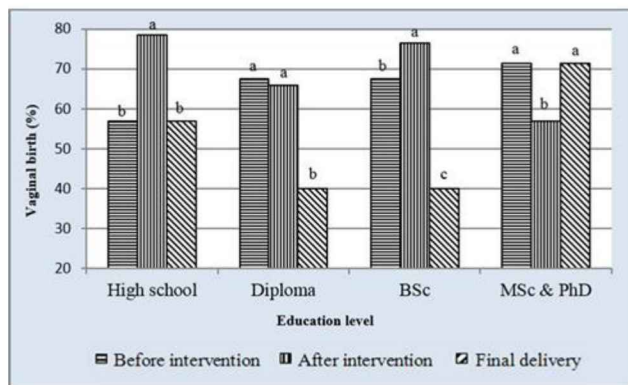
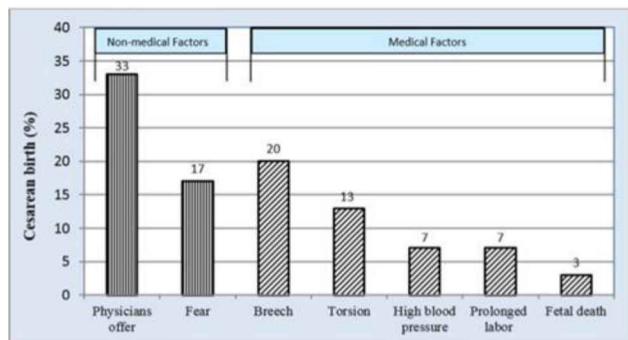


Figure 3: The Factors of the Cesarean Delivery Elevation in the Final Delivery (follow-up)



in the trend of VD after intervention. The follow-up results showed that VD was reduced in the three levels of high school, diploma and BSc education. Only women in the group of MSc and PhD degree had a significant increase in the rate of VD (a number of seven participants were excluded in the post-intervention phase and the final follow-up of the study due to lack of cooperation).

Figure 3 shows that after delivery, in the follow-up stage, the CD rate was increased contrary to our expectation, when women were asked for their reasons of requesting for CD. As the figure shows, 50% of CD are due to non-medical reasons (physician's offers and fear) and 50% of CD have medical implications (breech, torsion, high blood pressure, prolonged labor and fetal death). The women's point of views reflected the physician's offers for CD without medical reasons (33%). Surprisingly, 17% of women chose a non-medical CD for fear of having vaginal labor pain, despite the importance of having more information counseling and awareness about the complications of CD. According to Figure 3, other reasons for an increase of CD were a breech condition of the fetus (20%), torsion (cord twist around the neck of the fetus), high blood pressure, prolonged labor and fetal death, as highlighted in this study.

Discussion

The aim of this study was to investigate the effect of information counseling on the decision-making delivery method in nulliparous women referred to health centers and the hospital. Previous studies indicate that information counseling and increased awareness and knowledge of pregnant women have a significant impact on their decision-making process for delivery mode. In the present study, regarding the effect of information counseling on the decision-making of pregnant primiparous women for delivery type, the data showed a significant change after an educational intervention. Therefore, this finding is in agreement with the results of Amina (2015) that demonstrate the importance of counseling and providing information to pregnant women for proper decision-making regarding delivery mode selection. Also, the findings of the present study showed that there was a significant difference between the self-efficacy score before and after the intervention. These results are in agreement with the study of Taheri (2014) that showed exercise-based self-efficacy can be effective in encouraging VD.

The increase in cesarean rates has been associated with the established social paradigm, which has been strongly influenced by CD as a good culture. Some false beliefs among women have been established based on information that CD is easier, less painful and safe for both the mother and new-

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born. Also, some physicians encourage women to demand CD, for fear of the result of weak monitoring performances, and plan for CD prior to reaching their delivery date. Fear of childbirth pain is related to a general fear of pain and women's personality traits. The cesarean requests can be reduced through supportive treatments to cope with stress during childbirth. Pregnant women with preferred elective cesarean report fear of VD and the safety of the newborn. These women all generally share the characteristics of young age, high level of education and being housewives. Therefore, women preferred primary elective cesarean on the basis of labor pain fear and fear of later vaginal and sexual problems. Hence, they should not be allowed to select cesarean without receiving counseling on how to solve their mental problems (El-Nemer, 2015; Rahmati-Najarkolaei, 2014).

The results of the present study indicate that in the first pregnancy, awareness and preferred type of delivery, decision on delivery, understanding the risks of delivery modes, and self-efficiency with request of women shift from CD to VD in the after-intervention phase compared to before intervention. Arjomandi et al. (2007) reported that women had low awareness (10.8%), good awareness (55.6%) and appropriate or excellent awareness (33.5%) about CD and the awareness level among pregnant women with elective CD is lower than that of total pregnant women. This can lead to a high predisposition for CD. According to the study results of Shahraki-Sanavi et al. (2012), awareness should thus be increased and attitude structures should be reformed. Also, they suggested that the required training should begin from adolescent age in high schools, because increased awareness requires continuous education. In addition, cyberspace and social networks can play a significant role in building the right culture and creating a change in attitude. Since the majority of women had low perceived behavior control, it is necessary to train mothers with the intention of an elective CD.

Based on the present study, most women choose CD only due to their physician's insistence. This is in agreement with several previous studies. Amina (2015) highlighted the bold role of some physicians in pressing women to demand CD. Oliveira et al. (2016) reported that CD has become a symbol of social status, as well as a comfort factor for women and physicians who like to plan birth for a determined hour of the workday. Pregnant women assisted by private health-care have a greater decision-making power, as the organization structure of care in the private sector enables programming of CD upon request, the choice of the physician, the staff and even the health facility. The factors why women

propose CD to VD are understood, and it should be the role of the medical society, managers and other health professionals to identify these misconceptions. Oliveira et al. (2016) emphasized that only 30 percent of women start pregnancy preferring a CD; however, by the end of pregnancy, 80 percent opt for CD. This increased rate of CD by the end of pregnancy is due to the influence of prenatal counseling that overestimates the risks of VD and encourages fear and insecurity. Also, despite the governmental efforts in developing prevention for unnecessary CD, the actions carried out to date have been ineffective in stopping the rising trend, both in the unified health care system and in the private system (Oliveira, 2016).

Conclusion

The choice of the cesarean delivery is mainly based on inadequate knowledge about the type of delivery. Childbirth counseling aims to provide enough information to pregnant women to fill the gap of adequate knowledge and to create a correct decision pattern about the type of delivery, in the absence of medical symptoms for cesarean delivery. The results highlighted the role of physicians in their commendation of cesarean as a convenient, programmable delivery and encouraging women to CD, which undermines the role of these interventions in practice.

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