

# The Effect of Shared Decision Making on Anxiety and Satisfaction of Decision about Mode of Delivery in Pregnant Women with A History of Previous Cesarean Section: A Randomized Clinical Trial

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ARTICLE INFO	ABSTRACT
<p><i>Article type:</i> Original article</p>	<p><b>Background &amp; aim:</b> Anxiety in pregnant women can have negative perinatal consequences. The aim of this study was to determine the effect of shared decision making on anxiety and satisfaction of decision about mode of delivery in pregnant women with a history of previous cesarean section.</p>
<p><i>Article History:</i> Received: 08-Jan-2022 Accepted: 10-Mar-2022</p>	<p><b>Methods:</b> In this clinical trial, 78 pregnant women with previous cesarean section referred to the community health centers in Torbat-e Jam, Iran were selected and randomly assigned to the intervention and control groups. The Spielberger Anxiety Inventory was completed by the pregnant women at 24-30 weeks of pregnancy. In the experimental group, in addition to routine care, a counseling session based on three-stage shared decision making was held by a midwife and a supplementary counseling session by a gynecologist. The Anxiety Inventory was completed at 35-37 weeks of gestation and the Decision Satisfaction Questionnaire was completed 8 weeks after delivery for mothers in both groups in the community health centers and questions were asked about mode of delivery. Data were analyzed using Mann-Whitney, Chi-square, student t-test and paired t-test.</p>
<p><i>Key words:</i> Shared Decision Making Vaginal Birth after Cesarean Anxiety Decision Satisfaction</p>	<p><b>Results:</b> After the intervention, the total anxiety score of pregnant women in the intervention group was lower than the control group and the difference between the two groups was significant (70.35±11.90 vs. 75.51±6.64; P=0.02). The score of decision satisfaction two months after delivery was higher in the intervention group than the control group and there was a statistically significant difference between the two groups (21.87±3.18 vs. 19.94±3.13; P=0.008).</p> <p><b>Conclusion:</b> Shared decision making as a practical and effective approach can reduce the anxiety score and increase the score of decision satisfaction in pregnant women with a history of previous cesarean section.</p>

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## Introduction

Safe reduction of cesarean delivery rate is an important public health goal (1). The rate of cesarean section is high worldwide, which is

largely due to repeated cesarean section (2). In Iran, repeated cesarean section almost includes half of cesarean section (3). In the last 20 years,

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fewer women have selected trial of labor after cesarean (TOLAC), this rate has dropped from 28% in 1996 to 12% in 2015 (4). Although cesarean section can be life-saving for both mother and child, it is a major surgery which is associated with immediate maternal and perinatal risks and may have consequences for future pregnancies (5).

Vaginal birth after cesarean section (VBAC) is an important way to reduce the rate of cesarean section (5) and its success rate is 60-80% (6). Despite the high success rate, the VBAC rate is very low in many countries, including Iran (0.8%) (7).

While VBAC is a safe intervention, there is a significant reduction in VBAC due to concerns about uterine rupture and perinatal mortality. This is despite the evidence that uterine rupture and perinatal mortality are relatively low (8). Studies have shown that women who achieve successful VBAC, experience fewer complications and a shorter recovery period (9). VBAC is also associated with a decrease in the overall rate of cesarean delivery in the population (10).

Deciding to give birth naturally or by cesarean section is one of the most challenging decisions for the pregnant mother and medical team (11). Shared decision making (SDM), which is a key component of patient-centered care (12) is a process that not only considers the risks and benefits of each treatment option, but also examines the patient's values, preferences, and goals for achieving an optimal informed decision (9). SDM is a shared and two-side process through which patients are informed and participate in their health care decisions (12). Health care providers have a significant influence on women's decisions about delivery method after cesarean section (13). In other words, mode of delivery is strongly related to the physicians' consulting. Physicians should provide more in-depth information about TOLAC so that women can make informed decisions (6). The American College of Obstetricians and Gynecologists (ACOG) emphasizes that decisions about mode of delivery "should be made by the patient and her doctor" and also emphasizes the patient's preferences when discussing delivery options (14,15).

Knowledge about delivery options affects a woman's ability to decide about mode of delivery (8). The results of studies showed that informing mothers about the choice of delivery method and empowering them in shared decision-making can affect women's request for VBAC (16,17). According to the findings of previous studies, more than half of women choose planned vaginal delivery if they receive comprehensive information (18,19).

While pregnancy can be a source of stress and anxiety for women with normal and low-risk pregnancies, high-risk pregnancy is associated with more stress and anxiety in mothers. According to a study in Vancouver/Canada (2017), the prevalence of anxiety in women with high-risk pregnancies was 5.2 times higher than women with low-risk pregnancies (20). Lack of knowledge and fear of the unknowns during pregnancy and childbirth makes mothers worried and anxious (21). Two major concerns of patients with a previous cesarean section when deciding to choose a normal delivery after a cesarean section are the chances of VBAC being successful and the possibility of uterine rupture (22). According to a systematic review study, women's anxiety and worry can have negative perinatal consequences (23). Therefore, it is necessary to find some effective interventional strategies to reduce maternal anxiety during pregnancy. Giving information about the advantages and disadvantages of available methods and sharing the experiences of other women about choosing a delivery method will reduce anxiety and help decision making (24).

Research has shown that although patients value the knowledge and guidance of providers, but women who are directly involved in decision-making reported higher levels of satisfaction with their delivery experiences (9).

Involving women in delivery decisions is a key aspect of the quality of care and has been emphasized as a priority in obstetric care because it affects the positive experience of childbirth and provides the health benefits for women and infants (25,26) including reduction of symptoms of perinatal depression, preterm delivery and low birth weight (25). Studies have shown that shared decision-making in patients, in most studies, led to positive cognitive-

emotional outcomes (such as increased satisfaction) and reduced costs, and almost no negative outcomes were reported (27).

Although shared decision making can play a role in reducing anxiety and increasing patients' satisfaction, but to our knowledge, so far no study was performed on the effect of shared decision making on gestational anxiety and satisfaction of decision about delivery method in pregnant women with a history of previous cesarean section. Therefore, the present study was conducted aimed to determine the effect of shared decision making on pregnancy anxiety and decision satisfaction in pregnant women with a history of previous cesarean section in Iran.

## Materials and Methods

This parallel randomized clinical trial was conducted from April 2019 to February 2020 in the comprehensive health service centers of Torbat-e Jam. This study has been approved by the license number (IR. GMU. REC.1397.132) in the ethics committee of Gonabad University of Medical Sciences, Iran and has been registered in Iranian Registry Clinical Trial (IRCT20190506043499N1).

Inclusion criteria were: Iranian pregnant women living in Torbat-e Jam, age 18 to 35 years, having a minimum literacy, willingness to participate in the study, having a phone number, a previous cesarean section with a transverse scar at the bottom, no contraindications for normal delivery, no medical or obstetric complications, gestational age 20 to 30 weeks, pregnancy with more than six months after previous delivery, single and live pregnancy, normal amniotic fluid volume, normal fetal status based on pregnancy ultrasound, no consultation except the routine consultation of the center (until the time of entry to the study).

Exclusion criteria were: unwillingness to continue participating in the research, not participating in each of the two counseling sessions, attending other counseling sessions other than the routine counseling of the center, and not completing the questionnaires in any of the follow-up steps, indication for cesarean section during the study and delivery before the end of the study.

Sample size was calculated based on the formula of difference of means in two independent groups and according to the mean and standard deviation of anxiety score ( $47.4 \pm 4.9$  and  $44.3 \pm 4.2$ ) in a similar study (28) and considering 95% confidence interval and 80% test power; 68 people were calculated that considering 30% drop, a total of 86 people ( $n=43$  in each group) were considered.

Data collection tools included: demographic and midwifery characteristics questionnaire, satisfaction with decision scale (SWD), and Spielberger's state - trait anxiety inventory (STAI). The demographic and midwifery characteristics questionnaire had 23 questions related to age, education, occupation of mother and spouse and monthly income, as well as information about current and previous pregnancies such as the number of pregnancies and the interval between previous and current pregnancy. The Spielberger State-Trait Anxiety Inventory (STAI) is a 40-item self-assessment tool (29) in two scales for measuring state and trait anxiety (30). Each of these scales has 20 phrases as a 4-point Likert scale. Phrases 1 to 20 measure state anxiety (or overt anxiety), and each phrase has 4 options: at all, sometimes, generally, and very much (scores 1 to 4, respectively). Phrases 21 to 40 measure trait anxiety (or latent anxiety), and each phrase has 4 options: almost never, sometimes, most of the time, and almost always (scores 1 to 4, respectively). Each of the phrases in this scale will be assigned a score between 1 and 4 based on the answer. Score 4 indicates a high presence of anxiety. Some phrases are scored reversely. The total scores of the two scales of state and trait anxiety can be ranged 20-80 (31). Higher values indicate higher levels of anxiety. Scores 20-39 indicate mild anxiety, scores 40-59 indicate moderate anxiety, and scores  $\geq 60$  indicate severe anxiety (29). In the study by Mehram (1993), the validation and standardization of this test was performed in Mashhad and the reliability of the state anxiety scale was obtained 0.91, the trait anxiety scale was 0.90 and the whole test was 0.94 (31). In the present study, the reliability of the questionnaire was confirmed by internal consistency method with Cronbach's alpha coefficient of 0.90.

The Satisfaction with Decision Scale (SWD) measures satisfaction of health decision. The modified version has 4 questions and its reliability was confirmed in previous studies with Cronbach's alpha of 0.90. The 5-point Likert scale (1: strongly disagree, 2: disagree, 3: neither agree nor disagree, 4: agree, 5: strongly agree) was used to assess the level of agreement of the samples with the questionnaire's items (32). So far, no study has been conducted in Iran to check the reliability and validity of the modified SWD questionnaire, so in this study, face and content validity was used to evaluate the validity of the questionnaire. To evaluate the face validity, the questionnaire was completed by 10 people similar to the target group to find the level of difficulty, appropriateness, ambiguity of phrases or the existence of inadequacies in the meanings of the words, and their opinions were applied. The content validity index (CVI) and the content validity ratio (CVR) were used to calculate the content validity of the questionnaire, after translating it into Persian by two experts in English and Persian. The phrases with CVR value higher than 0.62 (based on the evaluation of 10 experts) and CVI higher than 0.79 were maintained. Thus, 4 phrases remained in the questionnaire. The reliability of this questionnaire was confirmed by internal consistency method and after completing the questionnaire by 20 research units with Cronbach's alpha coefficient of 0.82.

In this study, random cluster sampling was performed. Thus, 4 centers were randomly selected through a lottery among the comprehensive health service centers in Torbat-e Jam which were considered as clusters. Then, the mothers of the two centers were randomly assigned to the control group and the mothers of the other two centers were assigned to the case group, to prevent from communicating the mothers of the two groups with each other.

Then, using the pregnant mothers' registration system, women with previous cesarean section who were eligible were listed and were invited to participate in the study during the phone call. A total of 86 eligible pregnant women, who were willing to participate in the study, were included in the study and were randomly assigned to the intervention and control groups (n=43 in each

group). During the phone call, the mothers of the experimental group were informed about the first counseling session (at gestational weeks 24-30). In the first counseling session, the demographic and midwifery questionnaire and the anxiety questionnaire were completed by the pregnant mother. In addition to routine care in both groups, for the experimental group, a 90-minute counseling session based on the Three talk model of shared decision making (33) was held with the presence of the researcher, pregnant mother, spouse and also others who the pregnant mother or her husband was willing to attend. The summary of the content of the shared decision-making session was as follows:

At first stage (choice talk), the types of delivery options (vaginal birth after cesarean section, repeated cesarean delivery) were stated. At second stage (option talk), the participants' information and knowledge of the options as well as their main narratives were evaluated and, if necessary, more information and evidence was provided. At third stage (decision talk), while examining the values/preferences, concerns and worries of the mother and companions, the advantages and disadvantages/costs of each delivery option were explained. Successful mothers in VBAC were interviewed.

While supporting the mother to make a decision, the final decision was left to the mother and her companion. The counseling was done by MSc student in midwifery who was working in the Torbat-e Jam maternity ward and had received the necessary training in counseling. At the end of the session, a pamphlet on the advantages and disadvantages of vaginal birth after cesarean section was given to each mother. To answer the mothers' possible questions, the researcher provided her telephone number to the intervention group. For the second counseling session, the pregnant mothers of the intervention group and her companions were introduced to the office of a gynecologist who was a member of the research team, to obtain the necessary information and also to answer any questions of the mothers. Anxiety questionnaire was completed at 35-37 weeks of gestation, and the Decision Satisfaction Questionnaire was completed two months after delivery for mothers in both groups in the

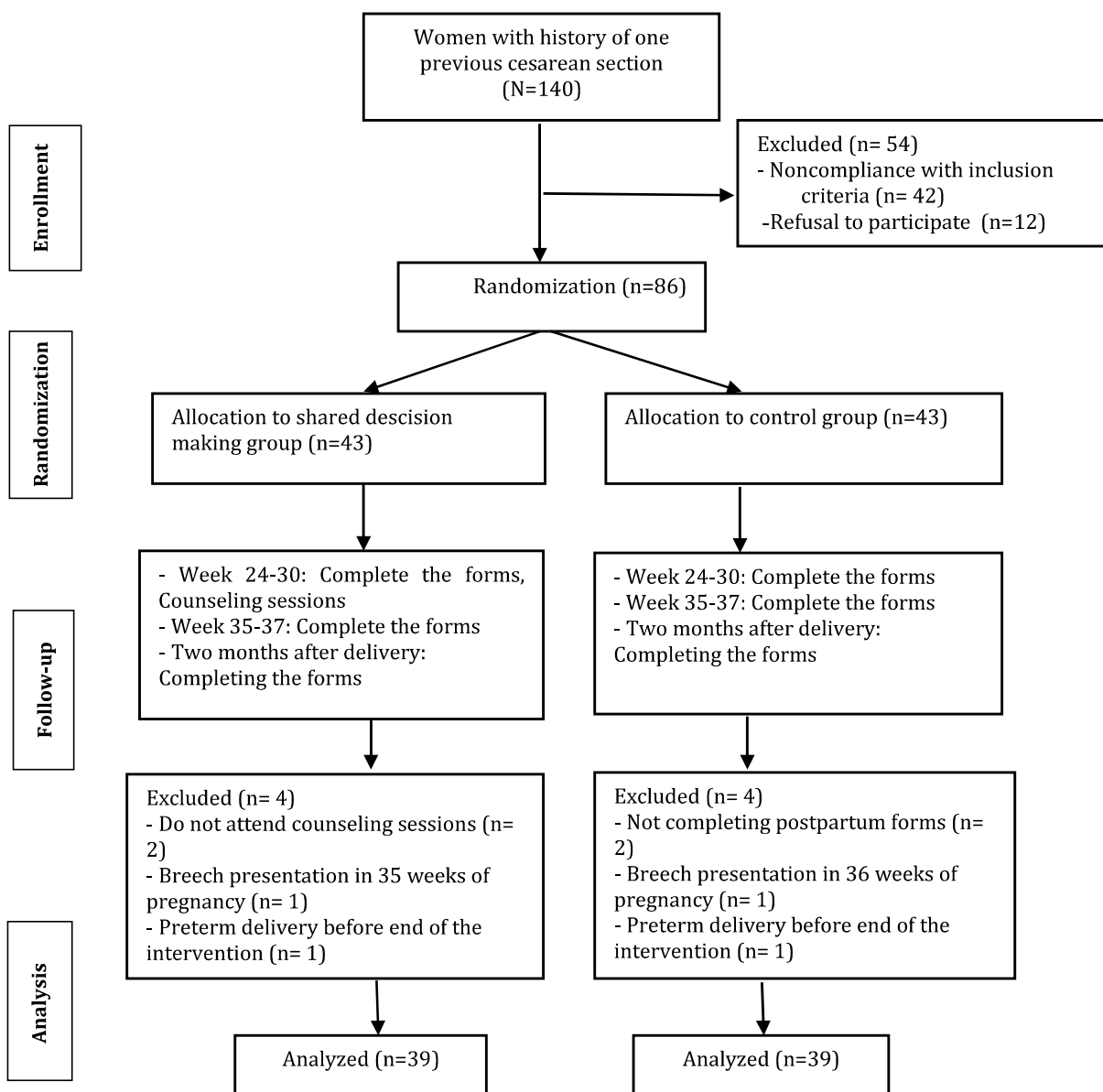
comprehensive health service centers and the mothers were asked about delivery method. Data were analyzed using SPSS statistical software (version 19) and Mann-Whitney, Chi-square, Student t-test and paired t-test.  $P < 0.05$  was considered significant.

## Results

During the study process, 4 women in the control group were excluded from the study due to non-completion of postpartum forms (n=2),

breech presentation at 36 weeks of gestation (n=1), preterm delivery before the end of the intervention (n=1), and 4 women in the intervention group due to not participating in counseling sessions (n=2), breech presentation at 35 weeks of gestation (n=1), preterm delivery before the end of the intervention (n=1) were excluded. Finally, data analysis was performed on 78 mothers (Figure 1).

**Figure 1.** Flowchart of the study process



The results of data analysis showed that the two groups were not significantly different in terms of demographic and midwifery

characteristics and were homogeneous ( $P > 0.05$ ) (Table 1).

**Table 1.** Comparison of demographic and midwifery characteristics of participants in the shared decision making and control groups

Variable	Intervention N = 39	Control N = 39	P-value
<b>Maternal age (years)</b>			
Mean±SD	29.58 ± 4.60	30.48 ± 3.79	Z = - 0.70
Median (first quarter, third quarter)	30.00(26.00, 34.00)	31.00(28.00, 33.00)	P*= 0.47
<b>Mother's educational level (years)</b>			
Mean±SD	10.30 ± 2.05	11.38 ± 3.86	Z = - 1.74
Median (first quarter, third quarter)	9.00(5.00, 11.00)	12.00(9.00, 16.00)	P*= 0.08
<b>Body mass index (kg/m<sup>2</sup>)</b>			
Mean±SD	23.87± 3.31	25.69± 4.08	Z = - 1.95
Median (first quarter, third quarter)	23.50(21.60, 26.17)	24.00(23.00, 29.00)	P*= 0.06
<b>Number of pregnancy</b>			
Mean±SD	3.02 ±1.22	2.53± 0.76	Z = - 0.51
Median (first quarter, third quarter)	3.00(2.00, 3.00)	2.00(2.00,3.00)	P*= 0.60
<b>Interval between previous delivery to current pregnancy</b>			
Mean±SD	5.11 ±2.02	5.74± 2.71	Z = - 0.75
Median (first quarter, third quarter)	5.00(4.00, 7.00)	5.00(3.50,6.00)	P*= 0.45
<b>Mother's job N (%)</b>			
Housewife	29(74.4)	26 (66.7)	$\chi^2= 2.4$ P**= 0.32
employee	9(23.1)	13 (33.3)	
Worker	1(2.6)	0(0)	
<b>Monthly income N (%)</b>			
Less than enough	18(46.2)	9 (23.1)	$\chi^2=4.6$ P** =0.09
Enough	20(51.3)	28 (71.8)	
More than enough	1(2.6)	2 (5.1)	
<b>History of vaginal delivery N (%)</b>			
Yes	25(64.1)	21 (53.8)	$\chi^2= 0.84$ P** = 0.35
No	14(35.9)	18 (46.2)	

\*Mann-Whitney test \*\* Chi-square test

The results of the study showed that before the intervention, there was no significant difference between the two groups in terms of mean score of state anxiety ( $P=0.48$ ), trait anxiety ( $P=0.40$ ) and total score of anxiety ( $P=0.38$ ), and the two groups were homogeneous. After the intervention, there was a statistically significant difference between the two groups in terms of mean score of state anxiety ( $P=0.009$ ) and mean total anxiety score ( $P=0.02$ ), while there was no significant

difference between the two groups in terms of mean score of trait anxiety, ( $P=0.11$ ). Also, there was no statistically significant difference in the control group before and after the intervention in the mean score of state anxiety ( $P=0.84$ ), trait anxiety ( $P=0.58$ ) and total anxiety score ( $P=0.55$ ), while in the intervention group, the mean score of state anxiety ( $P=0.002$ ), trait anxiety ( $P=0.01$ ) and total anxiety score ( $P=0.001$ ) significantly decreased after the intervention compared to before the intervention (Table 2).

**Table 2.** Comparison of mean and standard deviation of state, trait and total anxiety scores before and after the intervention by the groups

Variable	Intervention	Control	T-test result
	N = 39	N = 39	
<b>State anxiety</b>			
Before the intervention	38.79± 9.41	37.35 ±8.47	T= - 0.70 P= 0.48
after the intervention	34.79± 6.44	38.00±3.64	T= 2.7 P= 0.009
Test result between before and after the intervention (Paired T-test)	T= 3.40 P= 0.002	T= - 0.46 P= 0.84	
<b>Trait anxiety</b>			
Before the intervention	38.43± 8.89	36.87±7.33	T= 0.84 P= 0.40
after the intervention	35.56±6.51	37.51±4.05	T= 1.58 P= 0.11
Test result between before and after the intervention (Paired T-test)	T= 2.48 P= .001	T= - 0.55 P= 0.58	
<b>Total</b>			
Before the intervention	77.23±15.99	74.23± 13.93	T= 0.88 P= 0.38
after the intervention	70.35±11.90	75.51± 6.64	T= 36.00 P= 0.02
Test result between before and after the intervention (Paired T-test)	T= 3.54 P= 0.001	T= -0.59 P= 0.55	

**Table 3.** Comparison of mean and standard deviation of decision satisfaction score made by the study's groups

Variable	Intervention group (n=39)		Control group (n=39)		Mann-Whitney test results
	Mean±SD	Median (first quarter, third quarter)	Mean±SD	Median (first quarter, third quarter)	
Score of decision satisfaction	21.87±3.18	23.00(20.00, 25.00)	19.94±3.13	20.00(18.00, 22.00)	Z = -2 .66 P=0.008

Moreover, 48.7% of women in the intervention group, and 20.5% in the control group had vaginal delivery. The mean score of satisfaction with the decision about delivery method two months after delivery was higher in the intervention group than the control group and there was a statistically significant difference between the two groups (P=0.008) (Table 3).

### Discussion

The results of the present study showed that shared decision making along with the use of a decision aid (pamphlet) reduces the mean total score of anxiety, so that the changes in the mean score of anxiety before and after counseling in the intervention group had a significant

decrease of 6.88 scores. While in the control group, there was an increase of 1.28 score and the mean total score of anxiety after the intervention were significantly different in the intervention and control groups. This finding is important because, according to some studies, providing detailed explanations and possible information about the complications of delivery may be potentially worrying for mothers (34), while our results showed that shared decision making along with using a decision aid in the mid-pregnancy can address many of a woman's questions and concerns, and this effect lasts until delivery. During shared decision making, pregnant women and their families had more opportunity to express their views and could easily answer their questions, which could be

one of the possible reasons for the impact of shared decision making on reducing maternal anxiety.

In the study by Montgomery et al. (2007) entitled "two computer-based decision aids (information program and decision analysis) on mode of delivery in women with previous cesarean section", the results showed that although anxiety scores increased in three groups in late pregnancy, but the anxiety score was lower in the intervention group (decision analysis, information program) compared to the control group. There was no difference between the two intervention groups in terms of anxiety (34). These results are in line with the findings of the present study. In the study of Khanzadeh et al. (2017), aimed to determine the effect of cognitive-behavioral education on gestational anxiety and the type of delivery choice in nulliparous women, the results showed that the mean scores of gestational anxiety significantly decreased in the intervention group compared to the control group (35). In the study of Ghorbani et al. (2020), group counseling based on cognitive-behavioral therapy had an effect on reducing anxiety in pregnant women suffered from constipation (36). In the study of Haidarpour et al. (2020), mindfulness-based counseling was effective in reducing pregnancy anxiety (37). In the study of Dafie et al. (2020), cognitive-behavioral group counseling of pregnant women in the presence of husbands has reduced the anxiety of pregnant women (38). In the study by Dihim et al. (2020) on determining the effect of group counseling on gestational anxiety, the results showed that after group counseling, there was a significant difference between the intervention and control groups in terms of state anxiety, but this difference was not significant for trait anxiety. Also, changes in trait and state anxiety scores were significantly higher in the counseling group than the control group (30).

The results of these studies are consistent with the present study. Thus, it can be said that shared decision-making plays an important role in reducing pregnancy anxiety by finding the root causes and providing convincing answers to them. The formation of trust and confidence, encouragement and support, desensitization and strengthening of knowledge and attitude

are also among the most important points in the effectiveness of shared decision making. The level of anxiety decreased probably because the person gains a rational awareness of the situation and thus interprets the situation as less threatening and risky (30).

The results of the present study also showed that shared decision-making increased the mean score of decision satisfaction two months after delivery in the intervention group, so that there was a statistically significant difference between the two groups in terms of mean score of decision satisfaction. In the study of Montgomery et al. (2007), which measured overall satisfaction with decision about delivery method six weeks after delivery, the results showed that compared to usual care, satisfaction was higher in the decision analysis group and the difference was significant, while in the information program group, the difference was not significant with the usual care. There was no difference between the two intervention groups in terms of decision satisfaction (34). These results were consistent with the findings of the present study.

Therefore, shared decision-making, in addition to facilitating decision-making, is associated with relative to absolute satisfaction due to women's participation and considering preferences and values. As in the present study, decision satisfaction in the intervention group based on individual preferences has been significant.

Some of the strengths of the present study include using the RCT plan, selecting participants from the comprehensive health service centers throughout the region, maximum participation of family members who could affect the mother's decision in the counseling sessions, providing phone numbers and answering participants' questions during the study. One of the limitations of the present study was that unknown personality and mental disorders of pregnant mothers may affect state anxiety. Lack of blindness can be mentioned as another limitation.

## Conclusion

Shared decision making as an effective and applicable approach can reduce the anxiety score of pregnant women with a history of previous cesarean section and increase their



score of decision satisfaction. Since proper management of pregnancy anxiety in pregnant women with a history of previous cesarean section is important, so the implementation of this intervention along with the routine care is recommended during pregnancy.

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## Conflicts of interest

Authors declared no conflicts of interest.

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