

## The Effect of Peer Education on Pregnant Women's Choosing Mode of Delivery

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### ABSTRACT

**Background & aim:** Women's choice on the type of delivery mode is an important event in every pregnant women's lifetime. Proper education is one of the most important factors that can help women to choose the delivery type. In this regard, one of the educational methods is peer education. Therefore, this study aimed to determine the effect of peer education on the choice of delivery mode.

**Methods:** This quasi-experimental study was conducted on 160 primiparous women at 34-36 week of gestation without indications of cesarean section. The participants were selected from the health centers in Mashhad, Iran, during 2017 and randomly assigned into two groups of peer education and control group. In total, 10 participants were selected as peers and trained by a researcher. Then the peers were asked to train participants in eight-person groups, and the control group received routine care. A self-structured questionnaire was used to collect data in relation to mode of delivery. Moreover, the data were analyzed in SPSS software (version 19) using the independent t-test and Chi-square test.

**Results:** There were no differences between the groups regarding the intention to choose the delivery methods before the intervention ( $P=0.73$ ). However, the obtained results revealed higher levels of intention to choose vaginal delivery in the intervention group, compared to that in the control group ( $P<0.001$ ).

**Conclusion:** The participants who were subjected to peer education acquired higher levels of intention to choose vaginal delivery.

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## Introduction

Childbirth is regarded as one of the divine blessings to reproduce human beings on the earth and has been persisted up to the present time. Since one of the objectives of birth control policies is to have safe deliveries and healthy childbirth, cesarean section (C-section) was utilized to assist mothers with high-risk pregnancies in the last few decades. However, this mode of delivery is currently employed as a way of escaping from labor pain (1).

All pregnant women are concerned about the delivery mode before pregnancy and even after

beginning to feel the first signs of pregnancy. Decision-making regarding the delivery mode has always been accompanied by ambiguous beliefs and attitudes. Moreover, the decision-making process is related to sociocultural and political processes, including modernization, urbanization, and sociocultural development of human societies (2). In spite of great progress that has been made in the reduction of maternal mortality ratio during vaginal delivery, the rate of C-sections is increasing in developed and developing countries.

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According to the World Health Organization (WHO), 35% of all deliveries are conducted through C-section worldwide (3). Furthermore, C-section rates are estimated at 50% and 48% in Asia and China (4), as well as Iran, respectively (5). However, according to the WHO, this rate should be dropped to 5-15% (6). In most cases, vaginal delivery is the safest and most common mode of delivery, and C-section is performed on women with high-risk pregnancies.

Therefore, vaginal delivery is preferred to C-section regarding the complications and dangers related to C-section in addition to the high rate of C-section mortality, which is eight times more than that of vaginal delivery (7). There are three factors affecting mothers' decision to choose C-section, including anxiety, fear, and pain. Up to now, there have been no studies to investigate the effects of psychological interventions, counseling, or relaxation on the reduction of labor fear (8).

Pregnant women can be assisted regarding decision-making process with training during pregnancy (9). According to the results of several studies, education during pregnancy encouraged women to choose vaginal delivery (10, 11). Lashkari et al. utilized training videos, lectures, and pamphlets to educate participants in the intervention group. According to the results, pregnant women obtained higher levels of intention to choose vaginal delivery, compared to those in the control group who received routine care (12). On the contrary, some studies suggested the ineffectiveness of training in the mothers' choice of delivery type (13, 14). It should be noted that there are different educational methods to raise women's awareness (15).

Accordingly, pregnant women require assistance and education in terms of making a decision to choose vaginal delivery. As noted above, there are various methods with different approaches and outcomes to educate individuals. Among these methods, peer education is one of the techniques that can be utilized in this regard. Educated participants can interact with each other and engage themselves in the process of decision-making using the strategies caregivers are not aware of. Moreover, they can communicate effectively, transfer the information to their peers, and act

as available role models.

Peer education provides the participants with the opportunity to share their learning outcomes, feelings, attitudes, and values, as well as freely discussing the barriers to the implementation of made decisions. As a result, a problem-solving group, which is highly motivated, is created to successfully follow the program (16). Peer education focusing on the concept of role modeling is an important part of the learning process (17). A peer is a person who belongs to the same group, and the group members believe in his/her competencies. Furthermore, the peer can have strong motivational effects on the learning process (18).

The economic evaluation of peer education revealed that this strategy is much more cost-effective, compared to other educational methods (19). The beneficial effect of peer education was confirmed in studies conducted on HIV/AIDS (20), breast self-examination (21), sexual functioning (22), and primary dysmenorrhea (23). However, there is a dearth of research evaluating the effect of peer education approach on the intention to choose the mode of delivery.

With this background in mind, the present study aimed to compare the effects of peer education (i.e., community-based) and education by healthcare providers (i.e., hospital-centered) on the choice of delivery mode. Given that peer education is easy to use in healthcare centers and the utilization of hospital-centered educations with no focus on peer education in most studies, the purpose of this study was to determine the effect of peer education on choosing the type of delivery. It is hoped that this method can have remarkable influences on the improvement of education and training in the field of healthcare.

## Materials and Methods

This semi-experimental study was conducted on 160 pregnant women with a gestational age of 34-36 weeks referring to healthcare centers in Mashhad, Iran, during 2017. The study protocol was approved by the Ethics Committee of Mashhad University of Medical Sciences, Mashhad, Iran (IR.MUMS.REC.1395.517). Written informed consents were obtained from the participants,

and they were all assured of the confidentiality terms.

Moreover, the subjects were allowed to leave the research process in case of unwillingness to continue the study. Regarding the sampling, no similar studies were found to imitate the sample size. Therefore, the sample size was determined as 32 individuals using the formula for the comparison of the two proportions (24) with the significance level of 0.05 and test power of 95%.

With respect to the sample attrition of 20%, 38 women were assigned into each group. To obtain more accurate results related to sample-size calculations, the study population was estimated at 80 cases. In addition, the sample size was estimated based on a pilot study carried out on 10 subjects ( $P_1=30.0$  and  $P_2=70.0$ ).

The inclusion criteria were: 1) the Iranian nationality, 2) residency in Mashhad, 3) age range of 18-35 years, 4) gestational age of 34-36 weeks, 5) singleton pregnancy, 6) absence of clinical indications for C-section, 7) low-risk pregnancy, 8) no history of disease and no current medical complications, 9) no fetal abnormalities, 10) no drug abuse and addiction (i.e., drug, psychotropic and stimulant drugs, and alcohol), 11) no history of infertility, and 12) no speech and hearing impairment.

On the other hand, the pregnant women who were unwilling to continue the study, and those who left the training sessions, as well as the women with indications for C-section, were excluded from the study. The data were collected using an individual medical questionnaire containing 15 questions regarding personal and medical conditions of the participants. Furthermore, another questionnaire asked the intention of the women to choose the type of delivery with four options, namely "probably vaginal delivery", "probably C-section", "undoubtedly vaginal delivery", and "undoubtedly C-section".

In total, 10 faculty members of Mashhad University of Medical Sciences, Mashhad, Iran, were asked to determine the content validity of the questionnaire. The content validity was

confirmed after making the required revisions with a content validity ratio of 0.75 and content validity index of 0.87. In addition, the face validity of the questionnaire was approved by the faculty members. Furthermore, the test-retest reliability was confirmed at 92% correlation coefficient.

The peer educator required to have eight skills, including the ability to explain the purpose of the exercise, motivate the learners, employ video tutorials properly, perform body act, respond to learners questions, match body movements, have speech power, and receive feedback from the learners, which is scored based on a three-point Likert scale (i.e., weak=1, good=2, and excellent=3).

The tool utilized in this study was designed by the researcher based on the same pattern from the United Nations Population Fund publication. The validity and reliability of this tool have been investigated in various studies in Iran (25, 26). Initially, Health Center No. 1 was randomly selected from the registered health centers in Mashhad, Iran, using a two-stage cluster random sampling. Afterward, four health centers under the supervision of Health Center No. 1 with the same social context were chosen in this study. Subsequently, the participants were randomly assigned to groups using random tables.

Totally, 14 participants who did not belong to the intervention and control groups were selected to participate in a one-day peer educator training workshop. The researcher trained the educators in subjects, including the factors leading to labor fear, as well as the advantages and disadvantages of C-section and vaginal delivery, using lectures, programmed education, question and answer, group discussion, role play, and teaching aids. Finally, 10 subjects who obtained the highest score in terms of educational skills were chosen as peer educators.

Each peer educator selected a group of 8 pregnant women to provide them with educational programs (4 h and 5-25 min) through group discussion and role modeling. Peer educators provide training for educational topics, including labor fear, as well as the advantages and disadvantages of C-section and vaginal delivery. The control

group included pregnant women who received routine care from the healthcare providers in the health centers. The two groups were subjected to pretests and posttests using researcher-made questionnaires with confirmed reliability and validity.

The participants were given the pretest a week before the intervention at the gestational age of 33-36 weeks and the post-test after the intervention. No sample attrition and complications were observed during the study. The normality of quantitative variables was evaluated using the Kolmogorov-Smirnov test, and the data were analyzed in SPSS software (version 19) through the independent t-test, Fisher's exact test, and Chi-square test. P-value less than 0.05 was considered statistically significant.

## Results

The obtained results of the independent t-test showed homogeneity regarding the mean age of the intervention ( $25.4 \pm 6.1$ ) and control groups ( $25.7 \pm 5.4$ ) ( $P=0.72$ ). Moreover, the results of the

Chi-square test revealed that the majority of the participants in the intervention ( $n=72$ , 90%) and control groups ( $n=73$ , 91.2%) were housewives ( $P=0.95$ ). In this study, 51 (63.8%) and 46 (57.4%) cases in the intervention and the control groups had self-employed husbands, respectively ( $P=0.52$ ).

With regard to the amount of information about the type of delivery, 26 (32.5%) and 22 (27.5%) participants marked the option "to some degree" in the intervention and control groups, respectively ( $P=0.23$ ). Moreover, the majority of the subjects in the intervention ( $n=28$ , 35%) and control groups ( $n=25$ , 31.3%) obtained information from midwives ( $P=0.26$ ), and there was no significant difference between the two groups in this regard.

Furthermore, the results of the Fisher's exact test showed that the majority of the participants had a diploma in the intervention ( $n=37$ , 46.3%) and control groups ( $n=29$ , 36.3%). Therefore, no significant difference was observed between the two groups in terms of educational level ( $P=0.42$ , Table 1).

**Table 1.** Comparison of demographic and midwifery characteristics of pregnant women in intervention and control groups

Variable		Intervention group n=80	Control group n=80	P-value	
<b>Personal characteristics</b>		<b>Mean±standard deviation</b>	<b>Mean±standard deviation</b>	<b>Total</b>	
<b>Age (year)</b>		25.4±6.1	25.7±5.4	25.5±5.8	**0.72
<b>Personal characteristics</b>		<b>Number (%)</b>	<b>Number (%)</b>	<b>Number (%)</b>	
<b>Education level</b>	Secondary education	15 (18.7)	19 (23.7)	34 (21.2)	*0.42
	Diploma	37 (46.3)	29 (36.3)	66 (41.3)	
<b>Occupational status</b>	Higher education	28 (35)	32 (40)	60 (37.5)	
	Employed	7 (8.7)	6 (7.5)	13 (8.1)	***0.95
	Housewife	72 (90)	73 (91.2)	145 (90.6)	
<b>Spouses' occupation</b>	University student	1 (1.3)	1 (1.3)	2 (1.3)	
	Employee	15 (18.7)	21 (26.3)	36 (22.5)	*0.52
	Worker	14 (17.5)	13 (16.3)	27 (16.9)	
	Self-employed	51 (63.8)	46 (57.4)	97 (60.6)	
<b>Midwifery characteristics</b>					
<b>Amount of information about type of delivery</b>	Very low	19 (23.8)	16 (20)	35 (21.9)	*0.23
	Low	13 (16.2)	24 (30)	37 (23.1)	
	To some degree	26 (32.5)	22 (27.5)	48 (30)	
<b>Information source</b>	Very much	22 (27.5)	18 (22.5)	40 (25)	
	Physician	20 (25)	17 (21.2)	37 (23.1)	*0.26
	Midwife	28 (35)	25 (31.3)	53 (33.1)	
	Family	11 (13.8)	22 (27.5)	33 (20.6)	

Studying	13 (16.2)	8 (10)	21 (13.1)
Media	8 (10)	8 (10)	16 (10)

\*The Chi-square test

\*\*The Independent t-test

\*\*\*The Fischer's exact test

The obtained results of the Chi-square test before the intervention revealed that 27 (33.7%) and 32 (40%) pregnant women in the intervention and control groups, respectively, intended to choose "probably vaginal delivery" option out of four options regarding the type of delivery (i.e., "probably vaginal delivery", "probably C-section", "undoubtedly vaginal delivery", and "undoubtedly C-section").

The difference was not significant between the two groups in the above-mentioned domain ( $P=0.73$ ). However, a significant difference was observed between the two groups after the intervention. The majority of the subjects in the intervention group chose vaginal delivery ( $n=52$ , 65%), compared to those in the control group ( $n=17$ , 21.2%) ( $P<0.001$ , Table 2).

**Table 2.** Comparison of pregnant women intentions to choose delivery mode before and after intervention in two groups

Variable	Intervention group	Control group	Total	P-value
	n=80	n=80		
	Number (%)	Number (%)	Number (%)	
<b>Before intervention</b>	Probably vaginal delivery	27 (33.7)	32 (40)	*0.73
	Probably cesarean section	24 (30)	19 (23.8)	
	Undoubtedly vaginal delivery	13 (16.3)	15 (18.7)	
	Undoubtedly cesarean section	16 (20)	14 (17.5)	
<b>After intervention</b>	Probably vaginal delivery	28 (35)	32 (40)	* $<0.001$
	Probably cesarean section	0 (0)	15 (18.8)	
	Undoubtedly vaginal delivery	52 (65)	17 (21.2)	
	Undoubtedly cesarean section	0 (0)	16 (20)	

\* The Chi-square test

## Discussion

This study aimed at determining the effect of peer education on the choice of delivery mode among primiparous women referring to health centers in Mashhad, Iran. According to the obtained results, peer education affected the intention to choose vaginal delivery. Furthermore, the participants in the intervention group showed higher levels of intention to choose vaginal delivery after the intervention, compared to those in the control group who received routine care. The obtained difference between the groups was significant after the intervention. Hosseini et al. (2009) investigated the effect of education during pregnancy on the level of anxiety, pain, and duration of labor pain. According to the results, education during pregnancy increased the levels of self-confidence among pregnant women (27).

The results of a study conducted by Khanzadeh et al. (2016) entitled "Effect of cognitive behavioral education on the choice of delivery mode" demonstrated that education had a remarkable effect on the choice of delivery type (28). Furthermore, Kazemzadeh et al. (2007) conducted a study entitled "Promotion of safe delivery through educating health professionals and pregnant women with the goal of reducing C-section rate". The results of this study showed that education played an effective role in encouraging pregnant women to choose vaginal delivery (29).

The results of the abovementioned studies were in line with those obtained in the present study. The differences between this study and all other studies can be attributed to individuals who trained the participants. In other studies, the training was given by healthcare providers or researchers; however, peer education was utilized in this study to educate pregnant women. Since the present study aimed to investigate the effect of education, it utilized the abovementioned studies.

According to the reports published by the British Association of Perinatal Medicine, the most important strategy for reducing C-section rate is the promotion of women's awareness (30). Therefore, it is necessary to provide pregnant women with information regarding the types of delivery and related benefits and risks. Accordingly, the informed women are

encouraged to choose vaginal delivery leading to the reduction of C-section rates.

The findings of social studies conducted on the preference for a particular type of delivery showed higher levels of women's reliance on unofficial sources of information (i.e., friends, relatives, television, internet, and lay people's experiences) in terms of pregnancy and labor. On the contrary, the centers which provide maternity care services receive less attention, and they had the least impact on the women's perception of pregnancy and labor (31).

Peer education has been utilized in different populations with various age groups and purposes, including reproductive health (32). The results of a study conducted by Abedian et al. (2014) entitled "Factors affecting self-care behaviors in primary dysmenorrhea through education by peers and healthcare providers" demonstrated the optimum performance of peer education (23). However, Tafazoli et al. (2012) showed that peer support and healthcare provider education had no effect on the onset of the first breastfeeding among mothers (33).

Therefore, lack of proper education regarding the vaginal delivery process and awareness of the complications and consequences of C-section have a significant effect on the intention to choose the type of delivery. Given that the majority of pregnant women do not have sufficient information about the benefits and risks of delivery types, it is necessary to inform them of different delivery modes and associated advantages and disadvantages.

One of the strengths of this study was the employment of community-based education. Despite other training that has been provided up to now, this study utilized trained peers to interact with pregnant women by engaging themselves in the activities and acting as role models. Although this study paved the way for the effect of peer education, there were some limitations in the present study. One of the limitations of this study includes the subjects under investigation who were the individuals in the health centers of Mashhad, Iran. Therefore, there should be caution considering the generalization of the results to other study populations in other cities. Accordingly, it is recommended to perform future studies on the effect of peer education on different cultures.

## Conclusion

According to the obtained results of this study, peer education has a significant effect on the intention to choose the mode of delivery.

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## Conflicts of interest

The authors declare no conflicts of interest.

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