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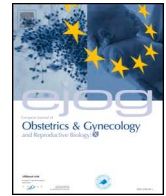


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## Relationship between Primigravid women's awareness, attitude, fear of childbirth, and mode of delivery preference



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### ABSTRACT

**Introduction:** Fear of childbirth is the main factor, which has decreased the tendency toward selecting natural birth. The immoderate increase in the number of C-sections has increased maternal and neonatal morbidity and mortality. The present study investigates the relationship between awareness, attitude, fear of childbirth, and mode of delivery preference in Primigravid women referring to healthcare centers in Khorramabad, Iran.

**Method:** In this descriptive-analytic study, 179 nulliparous pregnant women with the gestational age of > 2,0 weeks who visited selected healthcare centers in Khorramabad for routine pregnancy care in 2020 were selected in two stages and studied. The data were collected via the childbirth attitude questionnaire (CAQ), awareness, attitude, demographic characteristics, current pregnancy characteristics, midwifery history, and history of infertility treatment questionnaires. The data were analyzed via the Chi-squared test.

**Results:** The participants had a mean gestational age of  $33.73 \pm 4.71$  weeks. There was a significant different between the level of awareness, and mode of delivery preference ( $p = 0.005$ ). The majority of the participants (57.5%) had a moderate level of awareness about the mode of delivery. There was a significant different between the level of, attitude, and mode of delivery preference ( $p = 0.001$ ). Most of the participants (71.5%) had a negative attitude towards the mode of delivery. There was also a significant different between fear of childbirth and mode of delivery preference ( $p < 0.001$ ), and most of the participants (71.5%) showed fear of childbirth.

**Conclusion:** According to the results of this study, the majority of participants had afraid of childbirth, moderate awareness of mode of delivery, and negative attitudes. So, the healthcare providers should pay special attention to the fear of childbirth and the relevant factors during pregnancy.

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### Introduction

Pregnancy and childbirth are major events in the life of a woman [1]. Fear of childbirth is the main factor, which has reduced the tendency toward selecting natural birth [2]. Fear of natural childbirth or Tokophobia is a psychological disorder and a pathological fear of childbirth [3]. Fear of pain, fear of perineal damage, low self-efficacy, concerns about postpartum sexual dysfunctions, and fear of

maternal or neonatal death are the main reasons for fear of childbirth [4]. This fear can range from mild to severe and excessive [5]. When fear of childbirth is so severe that disrupts the daily activities of pregnant women, it is classified as a pathological fear, which is, in fact, the severe form of Tokophobia [6].

In general, the prevalence of fear of childbirth is estimated as 20–25% and the prevalence of severe fear of childbirth is about 14% [7]. Fear of childbirth is estimated as 5–20% among Iranian women, and one in every five pregnant women suffers from this fear [8]. In the third trimester of pregnancy, 33% of pregnant women reported anxiety and fear of childbirth, about 11–14% of which was severe fear [9].

The level of fear is higher in nulliparous than multiparous women [10]. This fear of childbirth can be correlated with post-

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traumatic stress disorder (PTSD). If the woman experiences severe fear of childbirth in her current delivery, this fear can lead to a form of PTSD and repeat in later pregnancies [11]. PTSD following childbirth may manifest itself as nightmare, intrusive thoughts, automatic rumination over the events occurring during childbirth, and the re-experiencing of fear during the next childbirth [12]. If fear of childbirth is not resolved, this disorder can affect not only the first pregnancy, but also the next pregnancies, and lead to negative outcomes [13], including abnormal fetal heart rhythm, low APGAR score, increased mortality near birth, and low birth weight. In most women, fear of childbirth is associated with increased pain and prolonged delivery [14]. In addition, the hypoxia caused by reduced blood flow to the pelvic muscles in response to a fear-induced elevation in serum catecholamines and cortisol can increase maternal pain [4]. In addition to physical impacts, fear of childbirth significantly correlates with psychological consequences such as depression, anxiety, and eating disorders. Negative mood is another psychological complication that leads mothers to visit counseling centers in the postpartum period [13].

Besides these negative consequences, fear of childbirth can contribute to the choice of Cesarean delivery (C-section) by pregnant women [8]. It is a prevalent cause of C-section preference in the absence of medical justifications by pregnant women [7]. Several studies in Iran show that the most important cause of women's tendency to C-section is fear of severe childbirth pain and lack of awareness of the C-section side effects [5,8].

Request for C-section without medical and midwifery reasons is a public issue of the recent century, which is principally motivated by fear of childbirth. So far, various studies have aimed to reduce the fear of childbirth [15]. Nieminen et al. showed that Internet-based cognitive behavioral therapy improves women's attitude towards childbirth, thereby reducing their fear of childbirth [16]. In the study by Najafi et al., the fear of childbirth was worse in pregnant women who had not taken childbirth preparation courses [17]. These courses are an effective way to reduce the fear of childbirth [11].

Women have different and complex experiences of fear of childbirth. Some view it as bearable and tolerate to benefit from its advantages, while others feel it is unbearable and requests a C-section. At present, the reduction of the C-section rate to the level approved by the World Health Organization (10–15%) is pursued by all international organizations as well as the Iranian Ministry of Health and Medical Education. The researcher has observed the role of awareness, beliefs, and attitudes about fear of childbirth. Thus, the present study was conducted on Primigravid women referring to the healthcare centers in Khorramabad, Iran, to better understand the actual experiences of women who had chosen natural birth or C-section due to fear of childbirth, and to determine the relationship between awareness, attitudes, as well as fear of childbirth and mode of delivery preference.

## Methods

### Participants and study design

In this cross-sectional study, 179 eligible pregnant women referring to the healthcare centers in Khorramabad were enrolled. The inclusion criteria were nulliparous pregnancy, gestational age of > 20 weeks, no definitive/suspected indication for C-section, no serious pregnancy problem (threats of abortion, hemorrhage, or pre-term labor), and absence of medical and midwifery problems during the current pregnancy (except for the history of infertility). The exclusion criterion was returning incomplete questionnaires.

Sampling was performed cluster sampling method. In this way, out of 35 health centers, 6 centers were randomly selected, then 179 primigravid women were enrolled in the study according to the volume of referring to each center.

### Data collection

Data were collected using demographic information, specifications of the current pregnancy, midwifery history, history of infertility treatment, awareness (20 questions), attitude (20 questions) questionnaires, and Harman's childbirth attitudes questionnaire (CAQ) [19] were administered. Awareness refers to the sum of scores on questions dealing with awareness of the mode of delivery preference. Correct responses were scored 1 and incorrect responses and "I don't know" were scored 0. The score of awareness was converted into the percentage. Accordingly, the scores 0–33.33% indicate poor awareness, 33.34–66.66% moderate awareness, and 66.67–100% good awareness. The 20 questions on attitudes were scored on a Likert scale (from totally agree to totally disagree), receiving scores of 4–0, respectively (negative questions were reverse-scored). Based on their scores, the participants were divided into positive attitude (66.67–100%), no attitude (33.34–66.66%), and negative attitude (scores 0–33.33) groups. The content validity of the awareness and attitude questionnaires was examined. After a review of scientific resources on the factors related to the mode of delivery preference, these questionnaires were developed in consultation with the supervisors. After applying the modifications proposed by 12 experts (midwifery, nursing, obstetricians, health education specialists), the final format was approved and administered. The internal consistency of these questionnaires was examined; 20 nulliparous women filled out the questionnaires, and Cronbach's alpha of 0.85 and 0.83 was obtained, respectively.

Data on fear of childbirth were collected via Harman's childbirth attitudes questionnaire (CAQ) [19], the reliability of which was confirmed (Cronbach's alpha = 0.84) by Lowe et al., and Tanglak-mankhong et al., [20,21]. This 14-item questionnaire is scored on a four-point Likert scale (not at all, very low, moderate, high), and the scores range from 14 to 56. Higher scores indicate worse fear and the cut-off score of 28 shows the fear of childbirth [22,23]. Khorsandi et al., [18] validated and analyzed the psychometrics of the CAQ in Iran and confirmed its reliability with the Cronbach's alpha of 0.75. Its internal consistency was approved by Cronbach's alpha of 0.80. Questionnaires were completed by the primigravid women.

### Statistical analysis

The relationship between qualitative variables and the preferred mode of delivery was examined by the Chi-squared test. The data were analyzed in SPSS 16 at the significance level of 0.05.

## Results

The mean age of the participants was  $29.56 \pm 6.26$  years, ranging from 15 to 42 years. Most of the participants had an average economic status ( $n = 104, 58.1\%$ ) and only 1 participant (0.6%) had an excellent economic condition. Most of the participants ( $n = 142, 79.3\%$ ) were residing in urban areas. Most of the participants were of Lor ethnicity ( $n = 158, 88.3\%$ ) and only 3 (1.7%) were of Turk or Kurd ethnicities. Most of the participants had academic education ( $n = 80, 44.7\%$ ) and only 1 (0.6%) had a seminary education. Most of them were homemakers ( $n = 125, 69.8\%$ ) and only 10 (5.6%) were students. Table 1 lists the demographic characteristics of the participants.

Most women ( $n = 130, 72.6\%$ ) had not participated in preparation for pregnancy courses, while 49 women (27.4%) had taken such courses. Most women ( $n = 158, 88.3\%$ ) obtained information about the process of childbirth from resources such as books, magazines, and the Internet, while 21 women (11.7%) had not used any sources for gaining awareness about this process. The most frequently used resource for gaining awareness was the Internet ( $n = 49, 27.4\%$ ) and the least frequent one was their husbands, magazines, newspapers ( $n = 4, 2.2\%$ ).

**Table 1**  
Frequency distribution of participants in terms of demographic characteristics.

Personal information		Number	Percentage
Mother's education level	Illiterate	5	2.8
	Elementary school	15	8.4
	Junior high school	29	16.2
	High school	49	27.4
	University degree	80	44.7
	Seminary education	1	0.6
Mother's occupation	Homemaker	125	69.8
	Employed	44	24.6
	Student	10	5.6
Husband's education level	Illiterate	3	1.7
	Elementary school	18	10.1
	Junior high school	19	10.6
	High school	37	20.7
	University degree	98	54.7
	Seminary education	4	2.2
Husband's occupation	Unemployed	7	3.9
	Worker	57	31.8
	Self-employed	36	20.1
	Employed	50	27.9
	Retired	4	2.2
	Other	25	14
Family's socioeconomic status	Poor	40	22.3
	Moderate	104	58.1
	Good	35	19.6
Place of residence	Urban area	142	79.3
	Rural area	37	20.7

**Table 2**  
Level of awareness, attitudes, and fear of childbirth among the participants.

Variable		Frequency	Percentage
Fear	Yes	128	71.5
	No	51	28.5
Awareness	Poor	39	21.8
	Moderate	103	57.5
	Good	37	20.7
Attitude	Negative	128	71.5
	Neutral	40	22.3
	Positive	11	6.1

Most of the women (n = 101, 56.4%) preferred natural childbirth, while 78 women (43.6%) preferred C-section.

The majority of women (n = 128, 71.5%) were afraid of natural childbirth. Most of them (n = 103, 57.5%) had moderate awareness. Most of the women (n = 128, 71.5%) had moderate awareness, 40 (22.3%) had good awareness, and 11 (6.1%) had poor awareness of the process of natural childbirth (Table 2).

Among the women preferring natural childbirth, most of them (n = 62, 61.4%) had moderate awareness about this mode of delivery. Among the women preferring C-section, most of the women (n = 41, 52.6%) had moderate awareness about this mode of delivery. There was a significant relationship between awareness of the mode of delivery and mode of delivery preference (p = 0.005) (Table 3).

Among the women preferring natural childbirth, most of them (n = 62, 61.4%) had a negative attitude towards this mode of delivery.

**Table 3**  
Relationship between awareness and mode of delivery preference.

Variable		Awareness			Total	P Value
		Good	moderate	Poor		
<b>Mode of delivery</b>	<b>Natural childbirth</b>	Frequency	25	62	14	0.005
		Percentage	24.8	61.4	13.9	
	<b>C-section</b>	Frequency	12	41	25	
		Percentage	15.4	52.6	32.1	
	<b>Total</b>	Frequency	37	103	39	
		Percentage	20.7	57.5	21.8	

Among the women preferring C-section, most of the women (n = 66, 84.6%) had a negative attitude about this mode of delivery. There was a significant relationship between attitude towards the mode of delivery and mode of delivery preference (p < 0.001) (Table 4).

Among the women preferring natural childbirth, most of them (n = 61, 60.4%) were afraid of this mode of delivery. Among the women preferring C-section, most of them (n = 67, 85.9%) were afraid of this mode of delivery. There was a significant relationship between fear of the mode of delivery and mode of delivery preference (p = <0.001) (Table 5).

## Discussion

The present study investigated the relationship between awareness, attitude, fear of childbirth, and mode of delivery preference in primigravid women referring healthcare centers. In total, 101 women (56.4%) chose natural birth, while 78 women (43.6%) chose C-section. The choice of C-section was 58.6% in the study by Darvishi et al. [24] and 31.25% in the study by Sharifirad et al. [59]. In this work, the most frequently cited reasons for choosing C-section were fear of childbirth and poor awareness. Sharifirad et al. also reported the fear of childbirth pain as a reason explaining the low popularity of this mode of delivery [14]. Gomez et al. reported a major reason for preferring C-section as mothers' fear of the conditions of natural birth [13]. According to some researchers, the major reason for preferring C-section is the doctors' decision and their environmental conditions, not the patients' pregnancy-related conditions. The culture of some communities and the patients' and their families' insistence shaped the doctor's decision, thereby increasing the rate of C-section [8].

Here, 21.8% of the mothers had poor awareness, 57.5% moderate awareness, and 20.7% good awareness of the mode of delivery preference. In the study by Farajzadegan et al., 10.8% of the women had low awareness, 55.6% good awareness, and 33.5% appropriate awareness of the modes of delivery [25]. Based on the results of the current study, the rate of low awareness of C-section was higher than that of natural childbirth. This finding can highlight the education of pregnant women and promoting their awareness about natural childbirth and C-section. Educational classes during pregnancy can be held in healthcare centers, and safe childbirth through drug or non-drug pain alleviation approaches can be promoted to modify pregnant women's attitude. It has been shown that having negative attitude towards natural childbirth increases fear of childbirth, which demonstrates the significance of creating positive attitude in pregnant women towards natural childbirth. Behavior-oriented programming can be used to evaluate promoting behaviors to reduce the fear of childbirth in pregnant women. A construct in this theory is the attitude towards behaviors which is the principal determinant of behavioral intention, denoting the overall feeling of liking or disliking a certain behavior. The better one's attitude towards a behavior, the more likely he/she is to intend to do it [26,27]. To create positive attitude towards natural childbirth and reduce fear of childbirth, comprehensive programs can be designed and such a training can be included in routine pregnancy care. Via enhancing

**Table 4**  
Relationship between attitude and mode of delivery preference.

Variable	Attitude			Total	P Value	
	Positive	Neutral	Negative			
<b>Mode of delivery</b>	<b>Natural childbirth</b>	Frequency	10	29	62	< 0.001
		Percentage	9.9	28.7	61.4	
	<b>C-section</b>	Frequency	1	11	66	
		Percentage	1.3	14.1	84.6	
	<b>Total</b>	Frequency	11	40	128	
		Percentage	6.1	22.3	71.5	

**Table 5**  
Relationship between fear and mode of delivery preference.

Variable		Fear		Total	P Value	
		Yes	No			
<b>Mode of delivery</b>	<b>Natural childbirth</b>	Frequency	61	40	101	0.001
		Percentage	60.4	39.6	100	
	<b>C-section</b>	Frequency	67	11	78	
		Percentage	85.9	14.1	100	
	<b>Total</b>	Frequency	128	51	179	
		Percentage	71.5	28.5	100	

pregnant women's attitude and awareness of natural childbirth, their intention for choosing natural childbirth in the absence of indications for C-section can be enhanced. The rate of C-section can be effectively reduced by providing environmental supports through counseling and training to husbands and mothers of pregnant women.

## Conclusion

The nulliparous pregnant women had moderate awareness of C-section and natural childbirth. Concerning the positive relationship between awareness of and attitude towards natural birth, increasing women's awareness scores will increase their attitude score. Moreover, the majority of women were afraid of natural childbirth. Fear of childbirth in nulliparous women is affected by individual factors and, remarkably, by society and the environment. Therefore, fear of childbirth and its related factors during pregnancy merit further attention.

The only limitation was that the study was conducted based on questionnaires with closed-ended questions and it seems that qualitative studies or open-ended questions can more deeply examine factors associated with fear of childbirth. Therefore, due to cultural factors affecting the fear of childbirth, qualitative research is recommended in this regard.

## Conflict of interest

The authors declare no conflict of interest.

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