



Prevalence of Fear of Childbirth and its Effective Factors in Pregnant Women in Babol, Iran (2019-2020): A Cross-sectional Study

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Abstract

Objectives: Fear of childbirth may be associated with increased anxiety, cesarean section, and delayed delivery. The study aimed to screen for fear of childbirth and the factors affecting it in pregnant women from 2019 to 2020 in Babol, Iran.

Materials and Methods: In this cross-sectional study, a total of 600 pregnant women with gestation age > 20 weeks referred to antenatal care clinics of Ayatollah Rouhani, Shahid Yahya Nejad Hospital, four health centers, and three private offices of obstetricians in Babol, Iran from 2019 to 2020 were surveyed using the Wijma Fear of Childbirth Questionnaire. Considering the cut-off point of 85, women with severe fear of childbirth were identified.

Results: The fear of childbirth prevalence in pregnant women in this study was 29.2% (175/600). Fear of childbirth in women with postgraduate education was 3.27 times higher than in women with undergraduate education ($P < 0.001$). Pregnancy fears were 0.42 times higher in pregnant women with self-employed spouses than in employee spouses ($P < 0.001$). Also, women with a history of infertility were 2.73 times more likely to fear childbirth than women without a history of infertility ($P = 0.01$). Women with a history of psychiatric disorders were 6.86 times more afraid of childbirth than women without a history of psychiatric disorders ($P = 0.02$).

Conclusions: Due to the high prevalence of fear of childbirth in pregnant women in Babol, Iran, the need for particular psychological interventions to reduce the fear of childbirth and identify risk factors is suggested.

Keywords: Natural childbirth, Phobic disorders, Pregnant women, Babol

Introduction

According to recent studies, the cesarean section (CS) rate is increasing globally, which has become one of the world's concerns (1,2). CS has been used to terminate pregnancies for nearly two centuries (3,4). Improving specialist knowledge and facilities have reduced the fatal and debilitating complications, but the mortality rate is still more than seven times that of normal vaginal delivery (5). These complications are increased to about four times more in emergencies than elective CS (6,7). The uncontrolled and unjustifiable prevalence of CS increases the financial burden on the public health system, increasing the per capita share of health care in national production (8-10). Many efforts are being made to reduce the CS rate in countries with a prevalence of CS of 20-30%. This rate varies between 22%, 25%, and 27% in the United States, Brazil, and Chile, respectively, and between 17 and 40% in Latin America (11,12). Factors such as fear of labor pain, fear of labor, attitude to labor, labor experiences, catastrophic pain, and a history of previous CS influence this type of labor method (13-16). Despite the growing

demand for CS, it is more dangerous than normal delivery. Bleeding, wound infection, endometritis, pulmonary embolism, aspiration, atelectasis, and thrombophlebitis, the leading causes of maternal death, are the most critical complications of this type of delivery (17,18).

Childbirth is a multidimensional process with physical, emotional, social, physiological, cultural, and psychological dimensions associated with fear, anxiety, and fear of death and is considered a critical experience in life (19,20). Cesarean delivery in Iran is 3-4 times more than the world standard, and 75% are elective without indication (21). The prevalence of CS has increased in recent years, and many of them are at the mother's request (22) due to fear of normal delivery, pain, losing control, and death (23). Fear of childbirth varies from extreme to rational fear. Most pregnant women, especially primiparous women, experience a rational fear that is naturally controlled during pregnancy and childbirth because they are unfamiliar with the delivery process (24). Irrational fear manifests in daily anxieties, nightmares, and physical symptoms, often leading to maternal requests for elective

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Key Messages

- ▶ According to the results of this study, about 30% of pregnant women have the phobic disorder during childbirth. Factors such as education, employment, a history of infertility, and a history of psychiatric illness have been identified as influential.

CS (25). Severe fear of childbirth is defined as fear before, during, and after childbirth that disrupts normal life and activities and may increase the risk of psychological problems (26-28). Sometimes a strong fear of childbirth leads to avoiding pregnancy and motherhood or denying pregnancy and sometimes causes a miscarriage (29). The prevalence of severe fear of childbirth has been reported in different communities. This prevalence depends on the culture and the study population, but the prevalence was 10% overall. General anxiety is higher in women severely afraid of childbirth (30).

According to official studies and reports, factors such as fear of labor pains, intolerance of labor pains, misunderstandings in labor and its impact on maternal and fetal health, doctor's advice, misbehavior of health personnel, and fear of side effects of vaginal anatomy and its impact on marital relations has increased the rate of CS in Iran (31). Given that finding factors affecting the fear can be a way to reduce cesarean delivery and also many Maternal fear factors are not known and considering some evidence, postpartum fear factors may include postpartum complications such as pelvic prolapse, changes in the appearance of sexual and asexual organs (32).

In this study, we aimed to answer the following two questions: What is the level of fear of childbirth in pregnant women in Babol, Iran? And what are the factors affecting it?

Materials and Methods

Study Design, Participants, and Setting

In this cross-sectional-analytical study, 600 pregnant women aged >20 weeks of gestation were referred to the antenatal care clinics of Ayatollah Rouhani, Shahid Yahya Nejad Hospital, four health centers, and three private offices of obstetricians in Babol, Iran, from 2019 to 2020 were enrolled. Our inclusion criteria were gestational age > 20 weeks, having at least an elementary level of literacy (5 years), and willingness to participate in the study. All women with CS indications such as placenta Previa, abnormal presentation, etc., and women with a history of previous CS were excluded.

Regarding the data collection method, it should be noted that in the first stage, all the questionnaires were qualified by the participants in relation to the risk of pregnancy, so pregnant women were asked to give three questionnaires: fear of childbirth, body image, concern about Complete pelvic floor injury. The second phase began with the cooperation of 600 pregnant women,

identifying people with severe Phobic Disorders during childbirth. First, the Maternity Fear Questionnaire was scored, and individuals with a score above 85 were defined as labor phobias. During a face-to-face interview, the issue of fear of childbirth was specifically addressed. Patients with Phobic disorders were randomly divided into two groups: routine pregnancy care and routine pregnancy care with the advice of a gynecologist. Randomization based on computer software was randomly simple, and the first group received routine pregnancy care. The second group, in addition to routine pregnancy care, was visited by a specialist for 4 one-hour sessions and expressed their phobic disorders of a normal delivery. They asked their questions. The resident also answered their questions on all women's issues, with particular emphasis on pelvic floor injuries and poor postnatal body images. Pregnant women completed the questionnaire again at the end of the fourth session. If the fear of childbirth persists, the person was referred to a psychologist/psychiatrist.

Five questionnaires were used in this study, including (i) Pregnancy risk Questionnaire, (ii) Pregnancy History Questionnaire, (iii) Wijma Questionnaire, (iv) Body Image Questionnaire, and (v) Pelvic Injury Questionnaire. The Pregnancy Risk Questionnaire (PPRQ) includes 13 questions and the Pregnancy History Questionnaire about the history of infertility or medical problems in previous pregnancies, medications, etc. The Pelvic Injury Questionnaire also included two questions related to the pregnant woman's concern about pelvic floor injuries after a normal vaginal delivery. The Wijma Delivery Expectancy / Experience Questionnaire was designed by Wijma and Zar in 1998. It measures fears and expectations related to prenatal care. The scores of the Wijma questionnaire were minimum zero and maximum 165, and 85 was chosen as the cut-off point. Wijma and co-workers estimated the reliability of the questionnaire by halving and Alpha-Cronbach 0.89 and 0.93, respectively (32). In Iran, this questionnaire was standardized in 2015 by Abedi and colleagues and had good validity and reliability (33). Relevant descriptions for each questionnaire were provided in Table 1.

Data Sources/Measurement

All questionnaires were completed by eligible participants and residents, including information on pregnant women and risk assessment of pregnancy. The pregnant woman was asked to complete a special fear of childbirth questionnaire. The independent variables of this study are obstetrician counseling, pregnancy risk, body mass index, concern about body image, and pelvic floor injuries, and the dependent variables are fear of childbirth, age, and parity.

Sample Size

The number of samples according to the prevalence of 12% for fear of childbirth and 4% error at 95% confidence

Table 1. Specifications of Research Questionnaires

Questionnaire	No. of Questions	Description
Pregnancy risk	13	Includes questions about the age and weight of the pregnant woman, the blood incompatibility of the mother and fetus, the number of previous pregnancies, the presence of high blood pressure in pregnancy, etc.
Pregnancy History	11	Questions related to the history of hospitalization, disorders, abortion, infertility, any medical problems in previous pregnancies, previous medications, etc.
Wijma	33	Questions related to loneliness, depression, self-esteem, etc. (0 = never, 5 = very high).
Body Image	19	Questions about the physical characteristics of pregnancy and the level of satisfaction were scored in the range of 1 = never to 5 = always.
Pelvic Injury	2	In case of a concern, the rate in pregnant (range of 1 to 10)

level and 80% power, 588 samples were determined, and it was decided to study 600 women in the first phase. A total of 600 eligible women who were over 20 weeks pregnant were invited to study.

Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences software (SPSS, version 22.0 for Windows; SPSS Inc., Chicago, IL). Chi-square test, Student's *t* test, paired *t* test, and logistic regression were used. A *P* value less than 0.05 was considered significant.

Results

A total of 600 pregnant women with a gestational age of more than 20 weeks were included in this study. The mean age of participants was 30.09 ± 6.09 years (minimum age of 14 and maximum age of 49 years). Of the participants, 175 (29.2%) had a fear of childbirth, and 425 (70.8%) did not mention any fear of childbirth (Table 2).

Overall, 382 participants (63.7%) had a history of pregnancy at risk, and 218 (36.3%) did not report any pregnancy risk. The most common risk of pregnancy in 143 participants (23.8%) was a history of problems in a previous pregnancy. The next risk factor was the age under 18 or over 35 years reported in 53 participants (8.8%) (Table 3).

The results showed that the age of pregnant women with phobic disorder of childbirth was significantly lower than those without the phobic disorder (28.81 vs. 30.63,

respectively; $P=0.001$). Gestational age in pregnant women with fear of childbirth was higher than in women without fear (29.66 vs. 28.77, respectively), which was reported to be a significant difference ($P=0.04$). The number of pregnancies in women without phobic disorder was significantly higher than pregnant women with the phobic disorder (2.46 vs. 2.23, respectively; $P=0.008$). There was a significant difference in the anxiety score in pregnant women with the phobic disorder than those without it (97.07 vs. 78.15, respectively; $P<0.001$). A significant difference was reported between the two groups in the self-efficacy score (39.80 vs. 35.49, $P<0.001$). Also, the mean score of loneliness, fear, anxiety for the child, and worry about losing control was higher in the pregnant women with phobic disorder of childbirth than without it ($P<0.001$) (Table 4).

About 45.1% of women with phobic disorder had a diploma, and 33.2 had an academic degree. There was a significant relationship between women's education level and the phobic disorder during childbirth ($P<0.001$). Also, the history of abortion was significantly associated with fear of childbirth ($P<0.001$). About 85.7% of women whose husbands were self-employed had the phobic disorder of childbirth, and there was a significant relationship between the husband's job and fear of childbirth in pregnant women ($P<0.001$). Also, history of infertility, previous illness, psychiatric disorders, and substance use were significantly associated with fear of childbirth (Table 5).

Table 2. Demographics and Obstetrics Characteristics of the Study Participants

Characteristics	Mean	Standard Deviation	Middle	Min	Max
Age (y)	30.09	6.09	30	14	49
Spouse age (y)	33.69	5.78	34	18	85
Gestational age (wk)	29.03	4.84	29	21	37
Gravida	2.39	0.99	2	1	8
Number of deliveries	0.85	0.83	1	0	5
Number of abortions	0.54	0.06	0	0	3
Weight (kg)	78.67	13.97	78	43	123
Height (cm)	161.87	5.51	162	141	176
Body mass index (kg/m ²)	29.99	4.99	29.68	17.14	48.65
Fear of childbirth score	83.67	10.6	82	57	134

The multivariate logistic regression analysis found that women with a diploma level are 1.93 times more phobic disorder of childbirth than women with high school educational levels ($P=0.01$). This rate is 3.27 times higher in women with an academic education than in women with diploma levels ($P<0.001$). The chance of fear of childbirth in pregnant women whose husbands were employees was 0.42 times lower than in those who have self-employed ($P<0.001$). Women with a history of infertility and psychiatric illness were 2.73 and 6.86 times more likely to fear childbirth than women without a history of infertility ($P=0.01, P=0.02$, respectively) (Table 6).

Outcomes

The results of this study indicated that about one-third of

the participants are afraid of natural childbirth. Factors such as education, occupation, history of infertility, and psychiatric illness have contributed to the fear of childbirth. Infertility history and intervention and control groups also significantly change the body image score. None of the variables of fear, pelvic floor injury, and body image in the intervention group after the consultation were significantly different from the control group. Special psychological interventions are needed to reduce the fear of childbirth.

Discussion

Fear of natural childbirth is a common problem in pregnant women that often leads to CS. It is necessary to research the predictors of childbirth fear due to the complications of CS

Table 3. Frequency of pregnancy at risk in the study participants (n=600)

Pregnancy at risk	Number	Percent
No risk of pregnancy	218	36.3
History of previous pregnancy problems	143	23.8
Age < 18 or > 35 years	53	8.8
Chronic diseases	42	7
Age < 18 or > 35 years + history of problems in previous pregnancies	40	6.7
History of previous pregnancy problems + underlying disease	26	4.3
Age < 18 or > 35 years + Having five or more pregnancies+ history of problems in previous pregnancies	18	3
Rh blood incompatibility	13	2.2
Having five or more pregnancies+ history of problems in previous pregnancies	12	2
Age < 18 or > 35 years + chronic diseases	9	1.5
Age < 18 or >35 years + history of problems in previous pregnancies + chronic illness	8	1.3
Having five or more pregnancies+ history of problems in previous pregnancies + underlying disease	4	0.8
Age < 18 or > 35 years + Having five or more pregnancies+ history of problems in previous pregnancies + chronic illness	3	0.5
Age < 18 or > 35 years + weight < 45 kg and height < 150 cm	3	0.5
Weight < 45 kg and height < 150 cm	3	0.5
Age < 18 or > 35 years + Having five or more pregnancies	2	0.3
Weight < 45 kg and height < 150 cm+ underlying diseases	2	0.3
Having five or more pregnancies	1	0.2

Table 4. Comparison of Quantitative Variables in Pregnant Women With and Without Fear of Childbirth

Variables	Fear of Childbirth		P Value ^a
	No (n=425)	Yes (n=175)	
Age (y)	30.62 ± 5.92	28.81 ± 6.32	0.001
Gestational age (wk)	28.77 ± 4.78	29.66 ± 4.92	0.04
Number of live children	0.82 ± 0.84	0.89 ± 0.77	0.34
Gravida	2.46 ± 0.99	2.23 ± 0.98	0.008
Number of deliveries	0.83 ± 0.85	0.91 ± 0.76	0.31
Spouse age (y)	33.97 ± 5.49	33.2 ± 6.39	0.06
Weight (kg)	78.39 ± 14.2	79.34 ± 13.16	0.45
Height (cm)	161.76 ± 5.59	162.14 ± 5.34	0.44
Body mass index (kg/m ²)	29.92 ± 5.09	30.16 ± 4.72	0.59
Concern score	78.15 ± 5.05	97.09 ± 8.34	< 0.001
Self-efficacy score	39.8 ± 8.06	35.49 ± 9.16	< 0.001
Lack of prediction score	16.65 ± 3.32	16.85 ± 3.6	0.51
Loneliness score	4.21 ± 0.78	16.35 ± 8.96	< 0.001
Fear score	6.4 ± 3.01	12.24 ± 4.17	< 0.001
Concern score for the childbirth	1.22 ± 0.71	4.24 ± 2.99	< 0.001
Concern score for loss of control	5.93 ± 1.95	8.17 ± 2.57	< 0.001

Data are expressed as mean ± SD.

^a t test.

Table 5. Comparison of Sociodemographic Characteristics in Pregnant Women With and Without Fear of Childbirth

Variables	Fear of Childbirth			P Value ^a
	No (n=425)	Yes (n=175)	Total	
Education level				
High school	237 (55.8)	38 (21.7)	275 (45.8)	< 0.001
Diploma	130 (30.6)	79 (45.1)	209 (34.8)	
College	58 (13.6)	58 (33.2)	116 (19.3)	
Job				
Housewife	332 (78.1)	153 (87.4)	485 (80.8)	< 0.008
Employed	92 (21.9)	22 (12.56)	115 (19.2)	
History of abortion				
No	196 (46.1)	131 (74.9)	327 (54.5)	< 0.001
Yes	239 (53.9)	44 (25.1)	273 (45.5)	
Husband's education level				
High school	161 (37.9)	50 (28.6)	211 (35.2)	0.09
Diploma	165 (38.8)	78 (44.6)	243 (40.5)	
College	99 (23.3)	47 (26.9)	146 (24.3)	
Husband's job				
Self-employed	239 (61.4)	150 (85.7)	390 (65)	< 0.001
Employee	169 (39.9)	23 (13.1)	192 (32)	
Unemployed	16 (3.8)	2 (1.1)	18 (3)	
History of infertility				
No	407 (95.8)	155 (88.96)	562 (93.7)	< 0.001
Yes	18 (4.2)	20 (11.4)	38 (6.3)	
Medical problem in a previous pregnancy				
No	392 (92.2)	166 (94.9)	558 (93)	0.25
Yes	33 (7.8)	9 (5.1)	42 (7)	
Previous illness				
No	369 (6.88)	139 (79.4)	508 (84.7)	0.02
Yes	56 (13.2)	36 (20.6)	92 (15.3)	
History of hospitalization				
No	386 (90.8)	162 (92.6)	548 (91.3)	0.48
Yes	39 (9.2)	13 (7.4)	52 (8.7)	
History of substance abuse				
No	422 (99.3)	173 (89.9)	595 (99.2)	0.59
Yes	3 (0.7)	2 (1.1)	5 (0.8)	
History of psychiatric disorders				
No	422 (99.3)	170 (97.1)	592 (98.7)	0.03
Yes	3 (0.7)	5 (2.9)	8 (1.3)	
Medication history taking				
No	365 (85.9)	129 (73.7)	494 (82.3)	< 0.001
Yes	60 (14.1)	46 (26.3)	106 (17.7)	

Data are expressed as mean \pm SD.

^a t test.

for mother and baby. Therefore, this study examined the fear of childbirth and concerns about pelvic floor injuries, physical changes, and risk factors. According to the present study results, the frequency of fear of childbirth in pregnant women in Babol was 29.2%. Evidence shows that the fear of childbirth has increased among Iranian women, and now more women are requesting CS compared to a few years ago (33). Yosefvand and colleagues, in their study, reported severe fear of childbirth in 9.6% of women (34). Fear of childbirth was lower in their study than in the present study, which may be due to differences in available facilities and educational and medical systems in the two countries. Fear of childbirth includes fear of labor pain, perineal injury during normal vaginal

delivery, or fear of emergency CS (35,36). Waldenström et al reported that approximately 5 to 25 percent of pregnant women were afraid of childbirth (37). In another study by Mortazavi and others, 25.7% of pregnant women were afraid of childbirth. Their results showed a relatively high prevalence of fear of childbirth in pregnant women in Iran. They emphasized that interventions should be performed according to psychological variables in high-risk women. The low frequency of fear of childbirth in these two studies than the present study can be due to differences in sample size. In Mortazavi and Agah's study, the prevalence of high fear of childbirth was 36.7%, and severe fear was 5.3% (38,39). O'Connell and colleagues found that 45% of pregnant women surveyed were afraid

Table 6. Multivariate Logistic Regression Analysis to Investigate the Factors Affecting Fear of Childbirth in Pregnant Women (n=600)

Variables	Matching Odds Ratio	95% Confidence Interval	P Value
Age	0.94	0.1-89	0.058
Gestational age (wk)	1.02	0.1-98.07	0.27
Education level			
High school	1	0	0.001
Diploma	1.93	1.3-14.27	0.01
College	3.27	1.6-74.15	0.001
Job	0.67	0.1-37.21	0.18
Gravidity	0.96	0.1-73.26	0.8
Husband's job			
Self-employed	1	0	0.009
Employee	0.42	0-22.79	0.007
Unemployed	0.25	0.1-50.27	0.09
Husband's age	0.98	0.1-93.04	0.68
Husband's education level			
High school	1	0	0.38
Diploma	1.39	0.2-84.29	0.19
College	1.43	0.2-75.74	0.27
History of infertility	2.73	1.6-32.04	0.01
Psychiatric illness	1.99	0.4-83.77	0.12
History of psychiatric disorders	6.86	1.35-32.5	0.02
Medication history taking	1.48	0.2-87.51	0.13
Pregnancy at risk	0.93	0.2-87.51	0.12
Concerns about pelvic floor injury	0.33	0	0.99
Concerns about body image	0.9	0	0.99

of childbirth. The most common documented fears are lack of self-confidence during childbirth, fear or stress during childbirth, fear of labor pain, and fear of CS (40).

In the study of Johnson et al, 55.8% of women were afraid of childbirth. They stated that one of the reasons for the increase of CS worldwide is the fear of childbirth (41). The frequency of fear in the above study is much higher than in the present study, which shows a different attitude toward natural childbirth in each region and fear of it according to awareness, education, and treatment facilities. The reasons for fear of childbirth are the mother's personality and psychological characteristics, intolerance of pain, observing or hearing the experiences, and worrying about undesirable physical complications (42). The frequency and reasons for fear of childbirth are different in different societies and cultures. Recognizing these factors can effectively plan and provide services during pregnancy and assist midwifery staff in improving services to the pregnant mother (43). Since fear negatively affects women's emotional health during pregnancy and increases the likelihood of childbirth becoming a bad experience (44), this study also examined the factors affecting fear of childbirth in pregnant women.

Our data analysis identified university education, independence from the spouse, previous illness, history of abortion, infertility, psychiatric disorders, and medication taking in pregnant women as the risk factors for fear of childbirth. However, multivariate analysis and the study of the coverage effect of these variables on each other showed only university education, history of infertility, and history

of psychiatric disorders as the risk factors for fear of childbirth in these women. On the other hand, having an employee spouse s the fear of childbirth in pregnant women and can be considered a preventive factor. Rondung and colleagues reported that depression in pregnant women increased the risk of fear of childbirth by 11.2 times (15). In the present study, the level of women's information was not examined. However, other factors such as university education and a history of infertility were also identified as the risk factors. Reducing the fear of natural childbirth and planning a comprehensive training program is needed. The program includes routine pregnancy care training. In addition, due to the large sample population and the volume of questions, the possibility of pregnant women participating in all stages was difficult, which was one of the limitations of this study.

Conclusions

The results showed that the fear of childbirth was high in pregnant women. In women with risk factors for phobic disorders of childbirth, such as having an academic education, the self-employed spouse, a history of infertility, and psychiatric illness, it is necessary to design a comprehensive training program to reduce the fear of natural childbirth and include it in their routine pregnancy care.

Also, due to the high sample size and number of questions, the possibility of participation of pregnant women in all study stages was difficult, which is one of our study limitations. According to the results of the

present study, it is suggested that to reduce the demand for cesarean sections; more research should be done to identify the causes of fear of childbirth in pregnant women and provide them with the necessary counseling services.

Authors' Contribution

ZB, SHB, and MF designed the study and conducted the research. ZB, SHB, BK, SKH, and MF monitored, evaluated, and analyzed the result of the study. Further, SHB, and MF reviewed the article. All authors approved the final manuscript and took responsibility for the integrity of the data.

Conflict of Interests

Authors declare that they have no conflict of interests.

Ethical Issues

After obtaining permission from the Research Ethics Committee of Babol University of Medical Sciences, Babol, Iran (Code: IR.MUBABOL.HRI.REC.1398.139). All participants signed a written informed consent before enrolling in the study. Also, the necessary explanations and objectives of the project were explained to the participants before starting the work. They were reassured that the information would remain confidential in a way that maintains their satisfaction and human dignity. All pregnant women who voluntarily entered the study were given the right to withdraw and were assured that they would receive full routine pregnancy care if they withdrew.

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