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Investigating different dimensions of women's childbirth experiences and its predictors among postnatal women: findings from a cross sectional study

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Abstract

Background and aims Childbirth experience is an event in a woman's life with short- and long-term effects on her physical and mental health. This study aimed to investigate different dimensions of women's childbirth experiences and its predictors.

Methods This cross-sectional study was conducted on 430 postnatal women with vaginal delivery in 2021 in Northern Iran. Data were collected using the Iranian women's childbirth experience questionnaire (IWCEQ) and demographic and pregnancy-related characteristics questionnaire. Principal component analysis using Amos 24 and backward multiple linear regression using SPSS 22 were employed to analyze the data.

Results The mean score of childbirth experiences was 48.48 ± 19.09% out of 100 (95% CI: 46.68–50.28). The Principal Component Analysis revealed that the preparation (β = 0.84), positive perception (β = 0.78), and fear dimensions (β= -0.72) were the most important dimensions of women's childbirth experiences. Moreover, education (B = -7.14, p = 0.001), spouse's education (B = 7.40, p = 0.001), history of previous childbirth (B = 4.88, p = 0.001), obstetric problems of previous childbirth (B = −7.73, p = 0.038), mother's preferred type of delivery (B = 9.34, p = 0.001), the simultaneous delivery of another baby in the delivery room (B = -3.39, p = 0.017), and birth weight (B = -5.79, p = 0.005) explained 40% of the variance of the childbirth experience score.

Conclusion Childbirth experience is a unique experience that influenced by positive and negative issues. More studies to identify related factors to dimensions of childbirth experience may have some insights for developing national and local- level health policies and clinical protocols.

Keywords Experience, Childbirth, Health, Women

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Introduction

Childbirth experience, strengthened by physical, emotional, and social support, is a psychological experience that empowers women [1]. In other words, the childbirth experience is a woman's feelings and personal interpretations of the birth process; for some women, it is an exciting loving event, while for others, it is a stressful, exhausting, unpredictable, and challenging experience. Women who have had an unpleasant childbirth experience reflect on it as a process of sadness, grief, pain, and anger each time they remember [2]. They suffer from complications such as postpartum depression, fear of childbirth, and post-traumatic stress disorder [3]. In addition, childbirth experiences can influence the relationship between the mother, child, spouse, and the family's future planning [4–6]. The negative childbirth experience increases the mother's anxiety and depression after childbirth [7–9], which in turn increases the stress level of parents in accepting the role of mother [9]. On the other hand, a positive childbirth experience is associated with creating a sense of control, strength, satisfaction, and confidence in mothers and affects the health of the mother and the baby and their emotional relationship [10].

Studies have reported that 6.4–44% of women may express negative childbirth experiences [11]. A study in Iran showed that the prevalence of negative childbirth experiences was 37% [12]; however, other studies conducted in Iran have reported that women's childbirth experiences are not optimal [13, 14].

The childbirth experience is multifaceted and is influenced by individual factors, such as fear [15], longer time labor [16], personality traits, expectations, control, history of psychological disorders, previous experiences of childbirth [17], interpersonal factors, including the support of the spouse and the health provider [17, 18], and other factors, such as receiving anesthesia and satisfaction with the delivery environment [18].

Although the exploration of the childbirth experience is not wholly new in literature and some works investigate childbirth experience and its predictors [16–18], these studies did not use the same scale as this study. Therefore, this study designed to explore Iranian women's childbirth experience to increase the novelty and interest in this issue.

Methods

Study design and setting

This cross-sectional study was conducted on women with a vaginal delivery 12 h after their childbirth who were referred to the Maternity Ward of a teaching hospital in Amol, Northern Iran, from May to December 2021. A master's midwifery student collected the data.

Sample size

According to the mean score of childbirth experience of 58.13 ± 10.72 in the previous similar study [4] Alpha (type 1 error) = 0.05, power = 80%, and the attrition probability of 20%, a sample size of 430 individuals was obtained. Consecutive sampling was done among the mothers who had given birth at least 12 h ago. The mother hospitalized in the maternity ward for post-natal care completed the self-reported questionnaires.

Inclusion and exclusion criteria

The literate women with Iranian nationality, singleton pregnancy, and a normal vaginal delivery who gave birth to a live baby and were willing to participate in the study were included in the research project. The participants with any instrumental delivery and dystocia were excluded.

Measurements

Demographic and pregnancy-related characteristics form

This form consists of information about the participant's and their spouse's age, education, occupation, psychological disorders, the number of pregnancies, number of living children, number of lost pregnancies, history of previous delivery, and obstetric problems at an earlier delivery. Furthermore, it involved information about their preferred mode of delivery, simultaneous delivery of another baby in the delivery room, hospitalization of the baby in the intensive care unit, and the baby's birth weight. Information about the labor process and medical interventions were collected from hospital records. The validity of this form was assessed by experts (reproductive health specialist, psychologist, midwife, and gynecologist).

Iranian women's childbirth experience questionnaire (IWCBEQ)

This questionnaire was designed by Hosseini Tabaqdehi et al. in a sequential exploratory study to evaluate the childbirth experiences of Iranian women after a vaginal delivery [19] In the first stage of this questionnaire, a qualitative study with a content analysis approach was used to explain the concept and dimensions of women's childbirth experience. Then, in the second stage, a quantitative study with an inductive-deductive approach was designed and its psychometric properties were evaluated. Finally, a 52-item tool was designed with 7 dimensions:

1. **Professional support** dimension with 15 items for instance, "The midwife had a friendly treat with me," and "The midwife encouraged me to adapt to childbirth and continue the process."
2. **Preparation dimension** with 7 items such as "I thought that I had the ability and power of natural

childbirth," and "I was very hopping during the labor and birth."

3. **Positive perception dimension** with 10 items such as "After giving birth, I felt light and comfortable," and "I had the feeling of independence and self-sufficiency with childbirth."
4. **Baby dimension** with 5 items like "Immediately after childbirth, I heard the cry of my baby," and "I kept my baby for the first time as I wanted."
5. **Family support dimension** with 5 items such as "My husband's support during the labor was helpful," and "During my pregnancy, my family encouraged me to have a natural birth."
6. **Control dimension** with 7 items like "I could participate in decision-making of labor and childbirth," and "When I was talking to my midwife, I was able to tolerate labor pain."
7. **Fear dimension** with 3 items such as "I was worried and anxious during labor and childbirth," and "I was afraid of being hurt and dying."

Each item has a score ranging from 1 (strongly disagree) to 5 (strongly agree). Each person's scores ranged from 0 to 100 and higher score indicates more positive childbirth experiences. Cronbach's alpha for each dimension ranged between 0.62 and 0.90, and it was 0.91 for the whole instrument, showing acceptable internal consistency of the questionnaire [19].

Table 1 Socio-demographic characteristics of the participants ($N=430$)

Variables		No	%
Education	≤ High school	269	62.6
	> High school	161	37.4
Spouse's education	≤ High school	266	61.4
	> High school	164	38.6
Occupation	Employed	198	46.0
	Unemployed	232	54.0
Number of pregnancies	1	246	57.2
	2	139	32.3
	≥ 3	45	10.5
Number of alive children	1	278	64.7
	2	137	31.9
	≥ 3	15	3.4
lost pregnancies	No	369	85.8
	Yes	61	14.2
History of previous birth	No	277	64.4
	Yes	153	35.6
Obstetrical problems in the previous delivery	No	415	96.5
	Yes	15	3.5
Induction of labor by Oxytocin	No	321	74.7
	Yes	109	25.3
Use of analgesics (Hyoscine, Pethidine) during labor	No	283	65.8
	Hyoscine	134	31.2
	Pethidine	13	3.0
Presence of a trained Doula during labor	No	291	67.7
	Yes	139	32.3
Attending in maternity education classes during pregnancy	No	308	69.8
	Yes	22	5.1
	Sometimes	108	25.1
Mother's preferred mode of delivery	Vaginal delivery	292	67.9
	Cesarean section	138	32.1
Simultaneous delivery of another baby in the delivery room	No	294	68.4
	Yes	136	31.6
Hospitalization of the baby in the intensive care unit	No	382	88.8
	Yes	48	11.2

Data Analysis

To describe the numerical and categorical variables, the researchers used the mean, standard deviation, frequency, and percentage. Principal component analysis was implemented to determine the most important dimensions of IWCBEQ. A simple linear regression was performed to determine the associated factors with women's childbirth experiences (Unadjusted B coefficient). Then, all variables with a significance level below 0.2 in the previous step, were entered into the backward multiple linear regression model (Adjusted B coefficient). This model begins with several variables and then removes one variable to test its importance relative to overall results. This approach is helpful because it reduces the number of variables and results in better fitness of the model. SPSS 22 were employed to analyze the data with the significance level=0.05 in all tests.

Results

From the 477 distributed questionnaires, finally data of 430 women were analyzed (Response rate=90.1%). The mean ages of women and their spouses were 27.40±5.29 and 32.27±4.92 years. In addition, the women's mean marriage age and duration were 21.21±3.18 and 6.17±4.53 years. Among the women participating in this study, 358 (83.3%) didn't suffer from psychological disorders. Table 1 illustrates other characteristics of the participants.

As the numbers of questions in each dimension were different, for comparability purposes, the score of each dimension was presented out of 100. The mean score of women's childbirth experiences was 48.48±19.09% (95% CI: 46.68–50.28). As showed in Table 2, the principal component analysis revealed that preparation (β=0.84), positive perception (β=0.78), and fear dimensions (β= -0.72) were the most important dimensions of IWCBEQ. A non-considerable correlation coefficient was observed in dimensions such as family support (β=0.10),

Table 2 Mean and standard deviation of Iranian women's childbirth experiences and its dimensions' rank based on principal component analysis ($N=430$)

Dimensions	Mean ± SD (based on 0-100 score)	factor loading
Fear	57.86 ± 8.11	-0.72
Professional support	51.88 ± 21.79	0.23
Preparation	48.30 ± 19.01	0.84
Control	47.63 ± 17.68	0.13
Baby	38.96 ± 19.43	0.11
Positive perception	37.96 ± 17.10	0.78
Family support	36.23 ± 18.48	0.10
Total	48.48 ± 19.09	-

baby (β=0.11), control (β=0.13), and professional support (β=0.23). Based on the Backward linear regression model, it's indicated that factors such as education (B = -7.14, p=0.001), spouse's education (B=7.40, p=0.001), history of previous childbirth (B=4.88, p=0.001), obstetric problems of previous childbirth (B=−7.73, p=0.038), mother's preferred type of delivery (B=9.34, p=0.001), the simultaneous delivery of another baby in the delivery room (B = -3.39, p=0.017), and birth weight (B = -5.79, p=0.005) explained 40% of the variance of the childbirth experiences score among postnatal women (Table 3).The predictors of each dimension of childbirth experience scale is provided based on backward stepwise regression model in Table 4.

Discussion

The childbirth experience is a highly personal issue, and women's views vary on which factors constitutes their experiences. Identifying these factors provide a basis for culturally-sensitive interventions. To the best of our knowledge, this study for the first time examined different dimensions of the childbirth experiences of postnatal women with vaginal delivery. According to the results, the childbirth experiences scores of women were 48.48 ± 19.0% which indicated about half of the total score was attained.

The highest scores were related to preparation, positive perception, and fear dimensions, respectively. Preparation includes mental and physical preparation. Mental preparation is created with knowledge of childbirth and labor, familiarity with the childbirth environment, and planned pregnancy. Physical preparation is created by participating in childbirth preparation classes and learning techniques such as relaxation [10]. These preparations form realistic expectations in women. When expectations are met, it plays an influential role in the positive perception of childbirth [20]. The existing literature shows that women's perception of childbirth experiences varies in different societies, confirming that perception of the childbirth experience is highly personalized, and women's views vary regarding what constitutes a positive and satisfying experience [21, 22]. Supporting women during labor and birth, caring for them with minimal interventions, and their preparation for childbirth and its complications have an effective role in the positive perception of childbirth experiences [23].

Women's fear of childbirth as a complex and multifaceted problem is related to worries about themselves and their newborn's health. It is more frequent in women with no family support, such as husband's support [19, 24], and those with mood disorders including anxiety, stress, and depression [3], and women with previous negative childbirth experiences [3, 8] .Fear of childbirth leads to longer intervals between pregnancies, excessive

Table 3 Backward linear regression of predictors of Iranian women's childbirth experiences

Variables		Unadjusted B coefficient	Std. Error	Adjusted B coefficient	Std. Error
Birth weight		-5.69**	2.21	-5.79**	2.03
Education	> High school	Ref.	-	Ref.	-
	≤ High school	-7.24	2.46	-7.14**	2.24
Spouse's education	> High school	Ref.	-	Ref.	-
	≤ High school	5.92	2.42	7.40**	2.22
History of the previous delivery	Yes	Ref.	-	Ref.	-
	No	6.09***	1.49	4.88***	1.44
Obstetrical problems in the previous delivery	No	Ref.	-	Ref.	-
	Yes	-9.88**	3.93	-7.73*	3.73
Mother's preferred mode of delivery	Vaginal delivery	Ref.	-	Ref.	-
	Cesarean section	9.85***	1.48	9.34***	1.42
Simultaneous delivery of another baby in the delivery room	No	Ref.	-	Ref.	-
	Yes	-4.32**	1.55	-3.39*	1.42

B: unstandardized estimated coefficient

*$P<0.05$, **$P<0.01$, ***$P<0.00$

Adjusted $R^2=0.40$

Table 4 Backward linear regression of predictors of Iranian women's childbirth experiences' dimensions

Variables		Fear	Professional support	Preparation	Control	Baby	Positive perception	Family support
Birth weight			-3.40 (1.34)*	-1.04 (0.40)**	-	-1.33 (0.61)*	-	-1.04 (0.49)*
Education	> High school	-	Ref.	-	Ref.	-	-	-
	≤ High school	-	-3.68 (1.39)***	-	-1.34 (0.52)*	-	-	-
Spouse's education	> High school	-	Ref.	-	-	Ref.	-	-
	≤ High school	-	2. 78 (1.37)*	-	-	0. 90 (0.39)*	-	-
History of the previous delivery	Yes	-	-	-	-	-	Ref.	-
	No	-	-	-	-	-	3.43 (0.32)**	-
Obstetrical problems in the previous delivery	No	-	-	-	-	-	-	-
	Yes	-	-	-	-	-	-	-
Mother's preferred mode of delivery	Vaginal delivery	Ref.	-	Ref.	-	-	Ref.	Ref.
	Cesarean section	2.04 (0.15) ***	-	6.77 (0.28) ***	-	-	5.88 (1.34)*	0.83 (0.32) *
Simultaneous delivery of another baby in the delivery room	No	-	Ref.	-	-	-	Ref.	Ref.
	Yes	-	-3.41 (0.86)***	-	-	-	-0.78 (0.31)*	-0.76 (0.32)*

Measures are presented as *B*: unstandardized estimated coefficient (Std. Error)

*$P<0.05$, **$P<0.01$, ***$P<0.00$

†- As there is no significant relationship between the some variables in above table (P-Value > 0.05), their cells are blank

use of epidural analgesia, increased rates of emergency cesarean Sect. [3] and mental health disorders [8]. Studies have shown that perceived stress and fear during pregnancy and childbirth lead to a negative birth experience [8, 25]. On the other hand, the negative experience of childbirth is associated with higher levels of parental stress [9] through increased depressive symptoms during pregnancy and after delivery, as well as postpartum anxiety symptoms [8, 9]. The results of a study on primiparous women showed that childbirth preparation classes play a significant role in childbirth experiences by increasing awareness and self-control and reducing fear [26]. In another study it showed an association between childbirth experiences and psychosocial well-being. In this way, it showed promoting positive childbirth experiences maybe useful targets for relieving psychological distress level among pregnant women [27].

The findings of this study are consistent with that of Al Ahmar et al. (2014) who showed women with a higher education level were more satisfied with the childbirth experience. This may be because they were more prepared for childbirth by reading books, attending classes, or planning for birth [21]. Regardless of the previous study [24] it found that mothers whose husbands had lower education had a more positive childbirth experience. Perhaps men with higher education and general scientific information regarding childbirth and its process failed to understand that each person has their own needs and desires, leading to less positive childbirth experiences. In this regard, the service provider should inform the husbands to understand their wives correctly and know what techniques they can use when facing pain and events. This helps them play an influential role in making their wives feel happy during childbirth.

This study revealed that women who preferred cesarean section had a more pleasant experience with vaginal delivery. The results of a study on 291 primiparous women showed that the negative experience in women with cesarean section is more than in women with vaginal delivery, which was not in line with the results of our study [28]. One reason can be the fear of vaginal delivery, caused by the lack of awareness and a negative attitude towards childbirth. Therefore, it is suggested that healthcare providers do the necessary follow-up regarding women's participation in childbirth preparation classes, get information about the women's attitudes and awareness of childbirth and its process, and create a proper mindset for women by referring them to reliable scientific sources.

Comparison of the findings with those of other studies confirms that women who gave birth simultaneously with another woman in the delivery room had a lower score on their childbirth experiences. The delivery room becomes crowded when another child is born, making it difficult for the mother to have control over her delivery. Similar to the study results, Askari et al. have found that a hectic delivery room increases anxiety, improper control of delivery, and an unpleasant perception of childbirth [29].

The results of the present study indicated that those who gave birth to babies with higher birth weights had a lower childbirth experience score. This finding might be explained that the labor of a baby with a higher birth weight is more prolonged, and longer delivery increases the use of labor inductions that increases negative childbirth experiences in women [30] Based on the present study, mothers who experienced their first childbirth indicated a higher childbirth experience score. It may be due to a lack of experience and not knowing what to expect, so they discovered that giving birth isn't as hard as anticipated. On the other hand, women with multiple pregnancies, particularly those who had previously experienced traumatic childbirth, had negative childbirth experiences [5].

Like McKelvin et al. [17], this study found that if a woman had obstetric difficulties in her previous childbirth; it could result in traumatic births in the future. Hence, they had a lower childbirth experience score.

Limitations

The results must be interpreted in the light of some limitations. First, as it is a cross-sectional study, it is impossible to determine the cause-and-effect relationships between the variables due to temporality bias. Self-reporting is another limitation that should be considered when interpreting the results. Thirdly, as we assembled the information 12 h after childbirth in a hospital environment, the presence of healthcare providers may have influenced their responses. In other words, they might not have truthfully answered if they feared that the staff would not provide high-quality services. However, the researcher tried to reduce its effect by assuring them of the confidentiality of the information. Another limitation is that the results of this study can only be generalized to Iranian women who gave birth in public hospitals. Thus, it is suggested that further studies choose their samples from private centers. Finally, some predictors, such as psychological factors and socioeconomic class, were not addressed because of the many questions in this study and the mother's fatigue. Future research can consider this issue with more measures. The results presented in this way would also be worthwhile to present the reader with the differences in the childbirth experience dimensions in the variables included in the regression analysis.

Conclusion

Childbirth experience is a unique experience that influenced by positive and negative issues. These multidimensional, negative and positive feelings can coexist, and therefore highlighted the importance of a comprehensive approach to care in labor. The results of this study showed that various factors affect childbirth experiences, so healthcare providers must take steps to improve the health of women. As a positive childbirth experience is a right of a woman to experience, the findings may be helpful in designing culturally-sensitive interventions that focus on individualized care to meet the individual needs and expectations of mothers during childbirth.

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Author contributions
Z.S, S.H and M.H.T contributed to the design of the study. Z.S, M.H.T and R.N contributed to the implementation and analysis plan. S.H contributed to data collection. Z. S, F.H and M.H.T have written the first draft of this manuscript. All authors read and approved the final manuscript.

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Data availability
The dataset used in the present study is available from the corresponding author upon reasonable request.

Declarations

Ethical approval and consent to participate
All the procedures performed in this study that involved human subjects were in full compliance with the ethical standards of the institutional and national research committee and the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The Ethics Committee of the Mazandaran University of Medical Sciences, Sari, Iran, has approved this study (Approval ID: IR.MAZUMS.REC.1400.03). Written informed consent was obtained from all participants.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Conflict of interest
The authors declare no conflict of interest.

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