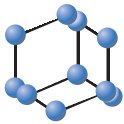


RESEARCH ARTICLE

BENTHAM
SCIENCE

The Impact of First Childbirth Experience on Women's Attitude Towards Having Another Child and Subsequent Vaginal Birth

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Abstract: Background: Some women may consider childbirth an unpleasant event, which can influence their decisions on subsequent pregnancies and type of birth.

Objective: The aim of this study was to determine the proportion of negative childbirth experience and its relationship with women's attitudes towards subsequent pregnancy and vaginal birth.

Methods: The study design was cross-sectional. A cluster sampling was used to recruit 800 primiparous women from health centers in Tabriz, Iran. The Persian version of the Childbirth Experience Questionnaire was used to assess women's childbirth experiences. Univariate and multivariate logistic regression was used to assess the impact of childbirth experiences on women's attitudes towards subsequent pregnancy and vaginal birth.

Results: Thirty-seven percent of women reported a negative childbirth experience. There was a statistically significant relationship between childbirth experience and the attitude of women towards subsequent pregnancy ($p < 0.001$) and vaginal birth ($p < 0.001$). By controlling the effects of potential confounding variables such as socio demographic characteristics, negative childbirth experience was found to be an independent predictive factor for women's reluctance towards subsequent pregnancies [OR= 0.42 (CI 95%: 0.57 to 0.31), $p < 0.001$] and vaginal birth [OR= 0.08 (CI 95%: 0.14 to 0.04); $p < 0.001$].

Conclusion: Negative childbirth experience is associated with a reduced willingness for women to get pregnant again and have vaginal birth. It is recommended that key stakeholders pay attention to strategies to improve childbirth experiences among primiparous women in Iran.

Keywords: Childbirth, birth experience, birth satisfaction, childbearing, cesarean section, reproductive behavior, vaginal birth.

1. INTRODUCTION

There has been a steady increase in Iran's population over the last fifty years; however, the fertility rate decreased substantially from 6.24 in 1975 to 1.72 in 2016. Hence, the fertility rate has fallen short of the replacement rate over the past decade in Iran [1, 2]. According to the United Nations population projections and local estimates, the fertility rate will decline to 0.8 births per woman in Iran by 2030 [3]. As a result of the decreased fertility rate, it is predicted that the elderly population will increase by nearly 24% by 2050. The

decline in the growth of the population can be attributed to other socio-economic factors such as unemployment, job insecurity, increasing child-related expenses, promotion of women's education, advanced marital age, and increasing divorce rates [4].

However, some studies indicate that a negative first childbirth experience is associated with women's loss of interest in having another child [5, 6]. The negative experience of previous childbirth can be a reason for women to postpone or avoid subsequent pregnancies [7]. By postponing subsequent pregnancies, pregnant older women face a higher chance of maternal and neonatal complications [8].

Furthermore, the fear of having another negative childbirth experience can influence a mother's request for a caesarean birth in the future [9, 10]. According to a longitudinal

Received: April 09, 2020
 Revised: August 03, 2020
 Accepted: August 12, 2020

DOI:
 10.2174/1573404816999200930161803



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observational study conducted in Hong Kong, nearly 24% of women ($n=259$) preferred a caesarean birth over a vaginal birth in their second pregnancies. This preference is mainly rooted in the fear of negative experiences during their first vaginal birth [11]. The request for a caesarean section in the subsequent childbirth can increase the negative experiences of childbirth [12]. Although a caesarean section is often a harmless procedure in most countries, as any other surgery it can cause short-term and long-term complications such as delayed mother-infant relationships, childhood complications obstetric fistula, asphyxia and potentially death [13]. The World Health Organization's recommended rate of caesarean birth ranges between 10% and 15% [14]; however, in Iran, the estimated prevalence of caesarean birth is reported to be close to 48% [15].

The childbirth experience is a multidimensional concept affected by different factors [16]. This study was designed to determine the correlations of negative childhood experiences with women's attitudes towards subsequent pregnancies and vaginal birth.

2. MATERIALS AND METHODS

2.1. Study Design

The present study was a cross-sectional study conducted on 800 Iranian primiparous women. This study was the first phase of a four-stage mixed method research plan to develop a guideline to improve childbirth experiences of primiparous women in Iran [17].

2.2. Sample Size

Based on the pilot study, 334 participants were selected as the research sample by considering the incidence rate of negative birth experience, 0.05 error level and 95% confidence interval. The sample size was increased to 668 participants to suit the cluster sampling with the design effect of two. Considering a 20% attrition rate, the final sample size is estimated to be 800 participants for this study.

2.3. Sampling

The inclusion criteria were primiparous women older than 18 years with single full-term pregnancy who gave birth between one to four months prior to recruitment. Women with postpartum depression or any history of depression were excluded from the study along with those who had stillbirths or infants with congenital abnormality.

Cluster sampling method was performed in this study. From all urban and suburban health centers of Tabriz (114 centers), 64 centers were randomly selected. In the selected centers, participants were randomly selected from the list of mothers who were at least one month to four months postpartum. The eligibility of the women was assessed by reviewing the electronic files and asking the women during the phone calls. Childbirth Experience Questionnaire 2.0 (CEQ 2.0) was used to measure childbirth experience. Socio-demographic and postnatal data including childbirth experiences were collected by individual interviews. Women answered questions in private without any family members or friends present.

2.4. Scales

The CEQ 2.0 questionnaire consists of 23 questions, 20 of which are scored on a Likert scale (1 to 4) and 3 on a visual scale (0 to 100) [18]. The score of the CEQ is computed by summing over the items as a continuous variable. The CEQ 2.0 is a valid scale for measuring the childbirth experience of Iranian women [19]. In this study, the CEQ score was summarized by Mean (SD). A negative childbirth experience was considered to be less than a standard deviation away from the mean score of the population (mean score ≤ 2.50).

Socio-demographic and postnatal data were collected using a questionnaire that was developed by the research team. The validity of these questionnaires was confirmed by content and face validity. The questionnaire was distributed to ten specialists in midwifery, reproductive health, and obstetrics and gynecology and amendments were made based on their feedback. The postnatal questionnaire included questions such as women's attitude towards subsequent pregnancy and vaginal birth. If a woman reported that she was willing to get pregnant again, she would be asked about the preferred mode of birth.

2.5. Data Analysis

Data were analyzed using SPSS version 21 software. Initially, univariate logistic regression was used to determine the relationship between negative childbirth experience and the attitudes of women towards subsequent pregnancy and vaginal birth. Also, the relationship between socio-demographic characteristics as confounding variables with the attitude of women towards subsequent pregnancy and vaginal birth was assessed using univariate logistic regression test. Finally, variables with $p < 0.2$ were entered into the multivariate logistic model. Significance level less than 0.05 was considered statistically significant.

2.6. Ethical Considerations

This study has been approved by the Ethics Committee of the Tabriz University of Medical Sciences, Tabriz, Iran (Approval number: IR.TBZMED.REC.1396.786). A written informed consent was obtained from the participant during the recruitment process.

3. RESULTS

3.1. Participants' Characteristics

A total of 800 primiparous women were enrolled in Tabriz from May to October 2018. More than half of women (66.3%) were between the ages of 18 and 25 years. The mean (SD) total score of childbirth experience was 2.71 (0.73) out of a range of 1 to 4 achievable. Of the total 800 primiparous women, about 37% of women had a negative experience of childbirth (Table 1).

The results of univariate logistic regression analysis showed that there was a statistically significant relationship between negative experience of childbirth, woman's educa-

Table 1. Socio-demographic characteristics of participants (n= 800 women).

Variables	N (%)	Variables	N (%)
Age (Years)	-	Husband's Age (Years)	-
18 to 25	533 (66.3)	18 to 25	192 (24.0)
26-30	179 (22.4)	26-30	352 (44.0)
31 and above	89 (11.0)	31 and above	256 (32.0)
Educational Level	-	Marital Satisfaction	766 (95.8)
Illiterate or elementary	-	Economic Level	-
Guidance or high school	355 (44.4)	Inadequate	171 (21.4)
Diploma	291 (36.4)	Relatively adequate	542 (67.8)
University	154 (19.3)	Adequate	87 (10.9)
Insurance	470 (58.8)	Duration of Marriage (Years)	-
Husband's Education Level	-	5 years or lower	723 (90.4)
Illiterate or elementary	-	6 years or more	77 (9.6)
Guidance or high school	356 (44.5)	Occupation	-
Diploma	294 (36.8)	Housewife	754 (94.3)
University	150 (18.7)	Employed	46 (5.7)
Husband's Occupation	-	First Source of Support	-
Unemployed	45 (5.7)	Husband	470 (58.8)
Worker	294 (36.8)	Mother or father	176 (22.0)
Employee	65 (8.2)	Relative	116 (14.5)
Self-employed	396 (49.5)	Sister or brother	24 (3.0)
Negative Childbirth Experience	296 (37.0)	Nobody	14 (1.8)

Table 2. Relationship between experience of childbirth and attitude towards subsequent pregnancy and vaginal birth (n= 800 women).

Variables	OR (95% CI)*	P-Value**
Attitude Towards Subsequent Pregnancy		
Positive experience of childbirth	1	-
Negative experience of childbirth	0.43 (0.32 to 0.58)	<0.001
Attitude Towards Subsequent Vaginal Birth		
Positive experience of childbirth	1	-
Negative experience of childbirth	0.12 (0.07 to 0.19)	<0.001

*Odds Ratio (95% Confidence Interval) **Univariate logistic regression.

tion and her spouse's education with an attitude towards subsequent pregnancy ($p < 0.05$) (Tables 2, and 3).

3.2. Predictors of Subsequent Vaginal Birth and Childbearing

The results of univariate logistic regression analysis showed that there was a statistically significant relationship

between negative experience of childbirth and unwillingness to have a subsequent vaginal birth ($p < 0.05$) (Tables 2 and 4).

Results of multivariate logistic regression analysis showed that having secondary or high school education [Odds Ratio= 0.60; 95% Confidence Interval= 0.39 to 0.93; $p = 0.023$], long-term marriage (six years and above) [OR= 0.60; 95% CI= 0.36 to 0.98; $p = 0.045$], and having negative

Table 3. Relationship between socio-demographic factors with attitude towards subsequent pregnancy and vaginal birth (n= 800 women).

Variables	Attitude Towards Subsequent Pregnancy	P-Value*	Attitude Towards Subsequent Vaginal Birth	P-Value*
	Odds Ratio (95% Confidence Interval)		Odds Ratio (95% Confidence Interval)	
Age (Years)				
18 to 25 (Ref)	1	-	1	-
26-30	1.06 (0.75 to 1.49)	0.734	0.84 (0.50 to 1.41)	0.520
31 and above	0.78 (0.49 to 1.22)	0.278	0.54 (0.27 to 1.06)	0.076
Husband's Age (Years)				
18 to 25 (Ref)	1	-	1	-
26-30	1.42 (0.99 to 2.02)	0.052	1.08 (0.62 to 1.88)	0.760
31 and above	1.09 (0.75 to 1.58)	0.643	0.97 (0.53 to 1.75)	0.923
Occupation				
Employed	1	-	1	-
Housewife	1.34 (0.44 to 4.05)	0.594	5.55 (1.00 to 30.73)	0.050
Husband's Occupation				
Employee	1	-	1	-
Unemployed	0.66 (0.30 to 1.44)	0.308	2.59 (0.74 to 0.07)	0.136
Worker	0.62 (0.36 to 1.09)	0.098	1.37 (0.65 to 2.86)	0.402
Self-employed	0.66 (0.38 to 1.14)	0.143	1.43 (0.70 to 2.93)	0.321
Educational Level				
Illiterate or elementary	0.91 (0.53 to 1.55)	0.731	2.20 (0.97 to 4.95)	0.057
Guidance or high school	0.61 (0.41 to 0.92)	0.018	1.52 (0.85 to 2.71)	0.155
Diploma	0.80 (0.53 to 0.19)	0.271	1.67 (0.96 to 2.93)	0.069
University	1	-	1	-
Husband's Education Level				
Illiterate or elementary	0.66 (0.39 to 1.11)	0.122	2.02 (0.83 to 4.89)	0.117
Guidance or high school	0.60 (0.40 to 0.91)	0.016	1.78 (0.94 to 3.35)	0.073
Diploma	0.80 (0.54 to 1.20)	0.293	0.77 (0.44 to 1.34)	0.360
University	1	-	1	-
Duration of Marriage (Years)				
5 years or lower	1	-	1	-
6 years or more	0.66 (0.41 to 1.06)	0.085	1.47 (0.62 to 3.47)	0.380
Marital Satisfaction				
Yes	1	-	1	-
No	0.59 (0.29 to 1.19)	0.145	0.65 (0.21 to 2.00)	0.460
First Source of Support				
Husband	1	-	1	-
Mother or father	0.82 (0.58 to 1.16)	0.273	0.78 (0.46 to 1.33)	0.372
Relative	0.76 (0.50 to 1.14)	0.187	1.11 (0.57 to 2.16)	0.741
Sister or brother	0.93 (0.40 to 2.11)	0.863	0.80 (0.23 to 2.68)	0.718
Nobody	0.43 (0.14 to 1.32)	0.143	1.42 (0.15 to 12.94)	-
Insurance				
Yes	1	-	1	-
No	0.85 (0.64 to 1.13)	0.277	1.35 (0.86 to 2.10)	0.186
Economic Level				
Inadequate	0.84 (0.53 to 1.34)	0.486	0.75 (0.36 to 1.54)	0.442
Relatively adequate	0.63 (0.37 to 1.07)	0.088	0.59 (0.26 to 1.33)	0.207
Adequate	1	-	1	-

*Univariate logistic regression.

Table 4. Predictors of the attitude towards subsequent pregnancy and vaginal birth (n= 800 women).

Variables	Attitude Towards Subsequent Pregnancy		Variables	Attitude Towards Subsequent Vaginal Birth	
	OR (95% CI)	P		OR (95% CI)	P
Childbirth Experience (Ref: Positive Experience)	1		Childbirth Experience (Ref: Positive Experience)	1	
Negative childbirth Experience	0.42 (0.31 to 0.57)	<0.001	Negative childbirth Experience	0.08 (0.04 to 0.14)	<0.001
Husband's Age (Ref: 18 to 25 years)	1		Husband's Education Level (Ref: University)	1	
26 to 30	1.38 (0.96 to 2.00)	0.081	Illiterate or elementary	3.04 (1.09 to 8.52)	0.034
31 and above	1.02 (0.67 to 1.53)	0.921	Guidance or high school	2.64 (1.25 to 5.60)	0.011
Education Level (Ref: University)	1		Diploma	0.68 (0.36 to 1.31)	0.257
Illiterate or elementary	0.91 (0.52 to 1.59)	0.753	Insurance (Ref: Yes)		
Guidance or high school	0.60 (0.39 to 0.93)	0.023	No	1.73 (1.01 to 2.96)	0.045
Diploma	0.82 (0.54 to 1.25)	0.372	Duration of Marriage (Ref: 5 Years or Lower)	1	
-	-	-	6 years or more	0.60 (0.36 to 0.98)	0.045

childbirth experience [OR= 0.42; 95% CI= 0.31 to 0.57; $p < 0.001$] were the predictors for being reluctant to get pregnant again (Table 4). Results of multivariate logistic regression analysis also showed that being illiterate or having elementary education [OR= 3.04; 95% CI= 1.09 to 8.52; $p = 0.034$], having secondary or high school education [OR= 2.64; 95% CI= 1.25 to 5.60; $p = 0.011$], having no insurance [OR= 1.73; 95% CI= 1.01 to 2.96; $p = 0.045$] were the predictors of unwillingness towards vaginal birth. Negative experience of childbirth [OR= 0.08; 95% CI= 0.04 to 0.14; $p < 0.001$] was the strongest predictor for being reluctant for subsequent vaginal birth (Table 4).

4. DISCUSSION

The finding of this study demonstrated that 37% of primiparous Iranian women had negative childbirth experiences. The negative childbirth experience decreased the likelihood of women's willingness to have another child by 58% and increased their caesarian birth preference by 92%. The results of this study are consistent with other studies [5, 20-21]. For example, Gottvall and Waldenström conducted a study on primiparous women in Sweden and indicated that women who had positive experiences of childbirth were 76% more likely to become pregnant again compared with women with negative experiences [5]. In another Swedish study (n=3283), women who were afraid of natural birth and had a negative childbirth experience were 5.4 times more likely to prefer a caesarean birth in their subsequent pregnancy [20]. Ryding *et al.* in an international study among six countries, reported that negative experience of childbirth increased the likelihood of women's willingness to have a caesarean birth by 3.48 times in the subsequent pregnancy [21].

In contrast, Carlander *et al.* conducted a study on 452 primiparous women in Sweden and reported that subsequent

reproduction did not significantly correlate with negative childbirth experience and mode of delivery [22]. The discrepancy of the findings could be related to the method of evaluation of childbirth experience in that study. Carlander *et al.* considered shoulder dystocia, perineal trauma and postpartum bleeding as negative childbirth experiences [22]. However, childbirth experience is a complex and subjective concept based on women's self-judgment [16]. Presence of childbirth complications cannot represent negative childbirth experiences for women. For example, in a study, women regardless of their birth complications, described their childbirth experiences positive when they felt supported by their care providers [23]. Women in the study by Carlander *et al.* were consulted after birth if they had negative childbirth experiences [22]. The consultation sessions could have helped women debrief and express less fear about having another child. Interventional studies that provide antenatal education and postnatal consultation support can enhance women's confidence and improve their positive experiences during postnatal period [24].

One of the strengths of this study was that the childbirth experience was evaluated in both urban and regional areas which allows generalizability of the findings. Another strength is the use of a standard and psychometric instrument that could result in an accurate evaluation of the childbirth experience.

CONCLUSION

In conclusion, the present study showed that a negative childbirth experience was an independent predictor for women's unwillingness to have another child and have vaginal birth again. It is recommended that managers and key stakeholders pay more attention to strategies to improve primiparous women's childbirth experiences. By creating a

positive birth experience, women can feel safer to plan their next pregnancy with less risk for a selective caesarian birth. Further studies are required to explore the correlation of childbirth experience with actual rate of any subsequent pregnancies and vaginal birth.

RATIONALE OF THE STUDY

The childbirth experience is a multidimensional concept affected by different factors. Therefore, it is important to perceive the negative experiences of childbirth and its consequent effects on women's lives.

LIMITATION

Attitudes of mothers at one month after birth may not be the same as those who had given birth four months prior to the study.

SIGNIFICANCE OF THE STUDY

The study provides information for the care providers to improve the birth experience for Iranian women for better childbirth choices.

ABBREVIATION

CEQ 2.0 = Childbirth Experience Questionnaire 2.0

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study has been approved by the Ethics Committee of the Tabriz University of Medical Sciences, Tabriz, Iran (approval number: IR.TBZMED.REC.1396.786).

HUMAN AND ANIMAL RIGHTS

No animals were used. The reported results on women are in accordance with Helsinki Declaration of 1975, as revised in 2013 (<http://ethics.iit.edu/ecodes/node/3931>).

CONSENT FOR PUBLICATION

Written and informed consent was obtained from all participants.

AVAILABILITY OF DATA AND MATERIALS

The data would be available from the corresponding author (M.M) upon reasonable request.

FUNDING

This study is funded by Tabriz University of Medical Sciences, Iran (Grant number: 30360).

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

ACKNOWLEDGEMENTS

We are grateful for the collaboration between Tabriz University of Medical Sciences for financing this research health centers, hospitals, and all women participating in this research.

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