



The Relationship of Childbirth Self-Efficacy with Attitudes toward Vaginal Delivery in Nulliparous Women

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Abstract

Introduction: Childbirth is a multidimensional process with physical, social, and psychological dimensions. Considering the increase in the cesarean rate in the country, the present study was conducted to determine the relationship of childbirth self-efficacy with attitudes toward vaginal delivery in nulliparous women.

Methods: This study is a descriptive-correlational study that is done over 323 nulliparous pregnant women attending the health centers in the city of Zahedan in 2021–2022. Sampling was done by multi-stage method (stratified, clustered and convenient). Data were collected by participants' demographic checklist, questionnaires of childbirth self-efficacy questionnaire of Lowe, and attitude towards childbirth questionnaire of Harmen. The data were analyzed using Spearman's correlation coefficient test, linear regression model, and multiple regression in SPSS software version 22. $P < 0.05$ was considered statistically significant.

Results: The results of the Spearman test showed that there is a significant inverse linear relationship between childbirth self-efficacy and attitude toward childbirth ($P=0.015$), and between attitude toward childbirth and expected self-efficacy ($p=0.010$) and expected outcome ($P=0.03$). Also, based on the general linear regression model, attitude towards childbirth is predicted childbirth self-efficacy ($P=0.018$).

Conclusions: The use of appropriate strategies should be considered to increase the belief of pregnant mothers towards the ability to perform vaginal delivery and to increase the positive attitude towards vaginal delivery in prenatal education, which can be an effective step in improving the health of mother and newborn, reducing cases of elective cesarean section, and finally the health of the society.

INTRODUCTION

Childbirth is a multidimensional process with physical, emotional, social, physiological, cultural, and psychological dimensions, and it is considered a critical experience in the life of women [1]. Lack of self-confidence in natural childbirth and lack of adaptation to it is the most important reason for scheduled cesarean delivery [2]. The current rate of cesarean section in Iran is continuously increasing and is higher than the medically justifiable amount, and the steep and inappropriate increase in the rate of the cesarean section indicates a health problem in our country, and the lack of attention to this matter and the effective factors in reducing it have caused the continuation of the problem [3]. The World Health Organization has declared the cesarean rate to be 10 to 15 percent [4], However, the overall rate of cesarean section in Iran is 49% [5].

Compared to vaginal delivery, cesarean section is expensive, and has more complications (such as pulmonary embolism, complications of anesthesia, opening of the uterine incision, reduced fertility, and repeat cesarean section. Due to many postoperative complications, natural delivery is recommended as a common method of delivery [5, 6]. But if the pregnant mother believes that she cannot control the labor situation, she will usually choose a cesarean delivery without medical reasons [2].

Self-efficacy has been proposed as a concept from the concepts of social learning theory, which is a person's belief and expectation about her capacity to influence the desired outcome through individual efforts [7]. Childbirth self-efficacy is defined as an important indicator of women's ability to deal with stressful

situations and perform necessary reactions during childbirth [8]. High childbirth self-efficacy leads to less fear, greater tolerance of pain, choice of natural childbirth, and greater satisfaction with childbirth [9, 10]. Women who request a cesarean delivery despite their physiological ability for vaginal delivery, this request result from their low self-efficacy in natural childbirth [11]. Women with low self-efficacy in childbirth are afraid of harming the baby with their inappropriate behavior during childbirth or of not being able to cope well with the pain of childbirth [12]. Sanchez et al. (2018) in a study in Spain showed that primiparous pregnant women have high self-efficacy [13]. Meanwhile, the results of Shojaei et al.'s study (2020) in Mashhad showed that primiparous pregnant women had moderate self-efficacy [14]. According to various studies, self-efficacy is related to household income, women's education level, social support, depression, childbirth experience, and mothers' perceived competence [15, 16]. Also, the type of thinking of mothers regarding natural childbirth and their attitude toward their ability is related to women's self-efficacy [6].

Incorrect attitudes toward natural childbirth and high levels of anxiety during pregnancy increase the rate of elective cesarean section without medical indications [6]. The results of Haynes et al.'s study (2012) showed that not believing that birth is a natural event increases the probability of choosing cesarean section [17]. Also, Tofighi-Niaki et al (2010) showed that training can reduce the choice of cesarean section in primiparous women through increasing awareness and improving attitude [18]. The results of the study by Nikbakht Moghadam et al. (2020) showed that most of the research units had a negative attitude and more fear toward childbirth and there is a significant inverse correlation between the attitude toward childbirth and childbirth self-efficacy [6]. But this relationship was not reported in the study of Sinaei et al. (2018), and most mothers had a positive attitude toward natural childbirth [19].

Finally, lack of sufficient and specific information about the awareness and attitude of nulliparous pregnant women in our country, and considering awareness, attitude, and self-efficacy precede behavior change [6, 20], examining the level of attitude toward this issue seems to be one of its solutions [21]. On the other hand, there are contradictory findings regarding the relationship between attitude and self-efficacy. Therefore, the present study was conducted to determine the relationship of childbirth self-efficacy with attitudes toward vaginal delivery in nulliparous women in 2021-22 in the health centers of Zahedan city.

METHODS

This study is a descriptive-correlational study that was conducted in 2021-22 on 323 nulliparous pregnant women referring to health centers in Zahedan city. After

the approval of the study by the ethics committee of the university (ethics code: IR.ZAUMS.REC.1399.188), stating the objectives of the study, obtaining a written consent form from eligible pregnant women, and considering the ethical codes, sampling was done.

Sampling was done by multi-stage method (stratified, clustered and convenient). First, the health and treatment centers of the North, South, East, and West regions (all the centers in Zahedan) are considered as a class, and then, the number of centers covered by each of these classes (proportionate to the total number of centers covered by each center) were randomly considered as clusters. From each cluster, according to the covered population (proportionate to the volume), a few health centers were determined for sampling, and the desired sample size was selected from 15 health and treatment centers through convenient sampling. The sample size was calculated based on the results of Rabani Bavojdan's study [22], taking into account the confidence factor of 95% and the test power of 80%, 317 people, and taking into account attrition, 333 people were included in the study.

$$N = ([Z1 - \alpha/2 + Z1 - \beta]/C[r])^2 + 3$$

$$C(r) = \frac{1}{2} \log(1 + r/1 - r)$$

$$C(0.35) = \frac{1}{2} \log(1.35/0.65) = 0.158$$

$$N = ([1.96 + 0.84]/0.158)^2 + 3 = 317.05$$

The criteria for entering the study are: the research unit must be Iranian and a resident of Zahedan and have at least fifth-grade literacy, she had a gestational age of 24 to 36 weeks based on accurate LMP or ultrasound of the first 3 months of pregnancy and singleton pregnancy. The criteria for not entering the study include: speech and hearing disorders that prevent communication with the researcher, studying in the fields of medical sciences, drug addiction, history of previous childbirth, history or currently suffering from another medical disease, history of infertility and abnormal fetus, history or currently suffering from mental problems and the occurrence of unfortunate and stressful events within 6 months before starting the study. Exclusion criteria included: not completing the questionnaires correctly.

The data collection tools included questionnaires of personal and midwifery, Lowe's childbirth self-efficacy, and Harmen's attitude toward childbirth.

The demographic questionnaire included questions about demographic characteristics (such as age, education, occupation, spouse's occupation, income, etc.) and obstetrics (such as history of abortion, prenatal care and number of cares, number of pregnancies, type of pregnancy, childbirth preparation classes, etc.). The validity and reliability of such questionnaires have been confirmed.

Lowe's childbirth self-efficacy questionnaire includes a questionnaire and scale of expectation of the outcome and childbirth self-efficacy designed by Lowe (1993) to measure the mother's belief in her ability to adapt to

childbirth pain [23]. This tool is a 62-item self-report instrument that is scored on a Likert scale from 1 (completely unsure) to 10 (completely certain), and it consists of two phases, the active stage of labor and the second stage of childbirth, and each phase has two parts. In the first phase (active stage of labor): the first part (questions 1-15) measures outcome expectation and the second part (questions 16-30) measures the self-efficacy expectation related to the active stage of labor. In the second phase (second stage of childbirth): the first part (questions 31-46) measures the outcome expectation and the second part (questions 47-62) the self-efficacy expectation related to the second stage of childbirth. By summing the scores of the expected outcome of the active stage of labor and the second stage of childbirth, the total score of the expected outcome is obtained, and by adding the scores of the expected self-efficacy of the active stage of labor and the second stage of childbirth, the total score of the expected self-efficacy is obtained. The total score of childbirth self-efficacy is obtained from the sum of these two (expected outcome and expected self-efficacy). The minimum score in this questionnaire is 62 and the maximum score is 620. A higher score indicates greater self-efficacy in childbirth [24, 25]. So, people were divided into three categories based on their scores: weak (62-247.2), moderate (247.3-433.6), and good (433.7-620).

The validity of the original version of this tool has been confirmed by Lowe (1993) with the validity of content and construct and the reliability of its dimensions through internal consistency reliability of 0.86 to 0.96 [23]. Khorsandi et al. (2008) [24] confirmed the validity and reliability of the Persian version of this questionnaire through content validity and Cronbach's alpha coefficient of 0.84 to 0.94. The reliability of this tool in the present study, after receiving the written consent form and completing the questionnaires by 30 nulliparous pregnant women with research criteria, was obtained with Cronbach's alpha coefficient $\alpha = 0.97$.

The childbirth attitude questionnaire prepared by Harmen (1988) has 14 questions on a 4-point Likert scale from not at all (1) to a lot (4). The minimum score is 14 and the maximum is 56 (6). Based on the scores received, people were divided into three categories: weak (14-27.9), moderate (28-42) and good (42.1-56). The validity of this questionnaire in Iran has been confirmed by Khorsandi et al. (2008) through content and construct validity and its reliability with Cronbach's alpha coefficient of 0.85 [24].

In the present study, after obtaining the consent of 30 nulliparous pregnant women with the inclusion criteria, the questionnaires were provided to them, and the reliability of the scales of attitude toward childbirth and childbirth self-efficacy were confirmed with Cronbach's alpha coefficient of 0.95 and 0.97, respectively. It took about 30 minutes to complete the questionnaires by the research units, and then, if the researcher found

unanswered questions, she completed them through interviews.

The collected data were analyzed using SPSS statistical software (version 22), abundance tables, mean $\pm$ standard deviation, tests of normality of Kolmogorov-Smirnov and Shapiro-Wilk, statistical tests of Kruskal-Wallis, Mann-Whitney, Spearman's correlation coefficient, general and multiple linear regression model at the level of $\alpha \leq 0.05$.

RESULTS

With the withdrawal of 10 people from the research (due to not completing the questionnaires completely), the analysis was finally done on 323 people.

The average age of the subjects was 24.62 ± 5.3 years. Table 1 shows the frequency distribution of other contextual variables. The mean and standard deviation of the total score of attitude toward childbirth and childbirth self-efficacy were 34.37 ± 10.1 and 324.48 ± 107.3 , respectively. Table 2 shows the mean and standard deviation of childbirth self-efficacy components and Table 3 shows the frequency distribution of these two variables (attitude toward childbirth and childbirth self-efficacy).

The results of the Spearman test showed that there is a significant inverse linear relationship between childbirth self-efficacy and attitude toward childbirth ($p=0.015$, $r=-0.13$); this relationship has a weak intensity. Also, there is a significant inverse linear relationship between attitude toward childbirth and expected self-efficacy ($p=0.010$, $r=-0.14$) and expected outcome ($p=0.03$, $r=-0.11$).

The general linear regression model showed that the variable of attitude toward childbirth in this model has a significant level of less than 0.05 and is considered a predictive variable of childbirth self-efficacy ($p=0.018$, $R=0.132$, $F=5.696$, $df=1$); So that it predicts 1.7% of the variance of childbirth self-efficacy. However, due to the weak correlation and the obtained prediction percentage, the prediction is not very accurate. The equation of the prediction line of childbirth self-efficacy based on the variable of attitude toward childbirth was as follows, based on that, it is possible to obtain the childbirth self-efficacy score of each person by knowing their attitude toward childbirth score:

$$(\text{Attitude toward childbirth score} \times -1.398) + 372.529 = \text{Childbirth self-efficacy score}$$

To control influencing variables, background variables and attitude toward childbirth as independent variables and childbirth self-efficacy as a dependent variable were entered into the general linear regression model. Examining the simultaneous effect of intervening variables on the relationship between the attitude toward childbirth and childbirth self-efficacy using multiple regression test showed that, except for the variable of occupation (homemaker) which was excluded from the regression model, other variables in

total had no significant multiple correlations with childbirth self-efficacy ($R=0.206$, $p=0.254$, $F=1.248$, $df=11$); But only the presence of healthy people in the family had a separate significant relationship with childbirth self-efficacy ($P=0.032$) (Table 4).

In examining the average score of childbirth self-efficacy according to the levels of attitude toward childbirth, the average score of childbirth self-efficacy in people with

weak attitude was 177.63, the moderate attitude was 159.91, and good attitude was 148.04, and this difference was not significant based on the Kruskal Wallis statistical test ($P=0.142$, $\chi^2=3.9$, $df=2$). Also, the average score of childbirth self-efficacy based on the levels of demographic variables had no statistically significant difference (Table 5).

Table 1. Frequency distribution of nulliparous pregnant women according to fertility and obstetric characteristics

Variable	Number (%)
Age (Years)	
<20	79(24.5)
20-24	98(30.3)
24.1-34	129(39.9)
≥34.1	17(5.3)
Level of Education	
Elementary	26(8.0)
Middle school	20(6.2)
High school	111(34.4)
University	166(51.4)
Job	
Housewife	261(80.8)
Employed	49(15.2)
Student	13(4.0)
Socio-economic class*	
First class	11(3.4)
Second class	25(7.7)
Third class	265(82.0)
Fourth class	16(5.0)
Fifth class	6(1.9)
Type of pregnancy	
Wanted	300(92.9)
Unwanted	23(7.1)
History of abortion	
Yes	48(14.9)
No	275(85.1)
Pre-pregnancy care	
Yes	128(39.6)
No	195(60.4)
Participating in childbirth preparation classes	
Yes	7(2.2)
No	316(97.8)
The presence of people educated in medical sciences in the family	
Yes	90(27.9)
No	233(72.1)
Total	323(100.0)

*The classification of the research units is based on the type of job of their spouses, which shows the first class as the lowest and the fifth class as the highest socio-economic class.

Table 2. Mean and standard deviation of scores of childbirth self-efficacy components in nulliparous pregnant women

Childbirth Self-Efficacy	Mean ± SD
The outcome expectation of the active phase	81.20±27.0
The outcome expectation of the second stage of labor	81.20±29.6
The total expected outcome	162.40±55.4
The self-efficacy expectation of the active phase	79.90±26.6
The self-efficacy expectation of the second stage of labor	82.18±28.8
The total expected self-efficacy	162.08±54.2

Table 3. Frequency distribution of nulliparous pregnant women according to the levels of attitude towards childbirth and childbirth self-efficacy

Variable	Number (%)
Attitude to childbirth	
Weak	83(25.7)
Moderate	173(53.6)
Good	67(20.7)
Childbirth self-efficacy	
Weak	68(21.1)
Moderate	209(64.7)
Good	46(14.2)

Table 4. The results of multiple regression of influencing variables on childbirth self-efficacy

Variable	β	P-Value	Exp. β
Attitude to childbirth	-1.513	0.012	-0.143
The presence of people educated in medical sciences in the family	30.748	0.032	
Type of pregnancy	10.091	0.672	0.129
Pre-pregnancy care	8.459	0.513	0.024
Socio-economic class	4.756	0.659	0.039
Job(student)	2.155	0.945	0.026
Age	0.848	0.525	0.004
Participating in childbirth preparation classes	-0.657	0.987	0.042
Education	-0.965	0.903	-0.001
History of abortion	-13.650	0.429	-0.008
Job(employed)	-24.918	0.181	-0.045

*Multiple Linear Regression, $P < 0.05$ **Table 5.** Mean comparison of childbirth self-efficacy according to demographic and obstetric variables of nulliparous pregnant women

Variable	X^2	Test result	P-value [*]
		df	
Age	1.2	3	0.733
Education level	2.7	3	0.434
Job	0.1	2	0.937
Socio-economic class	8.4	4	0.076
	Z		P-value ^{**}
Type of pregnancy	-0.4		0.627
History of abortion	-0.1		0.913
Pre-pregnancy care	-1.4		0.145
The presence of people educated in medical sciences in the family	-1.9		0.055
Participating in childbirth preparation class	-0.2		0.809

*Kruskal-Wallis test, **Mann-Whitney test

DISCUSSION

The results of the present study showed that the mean and standard deviation of childbirth self-efficacy score in nulliparous pregnant women was 324.48 ± 107.3 , and most of the research units, 209 people (64.7 percent), had moderate childbirth self-efficacy. In this regard, in the study of Ghazaie et al. (2016) which was conducted using Lowe's childbirth self-efficacy questionnaire on 39 pregnant women with a gestational age greater than 4 weeks in Nowshahr, the results showed that the mean and standard deviation of the childbirth self-efficacy score was 289.00 ± 43.53 and it was at a moderate level [12]. Also, the results of Mahmoudjanlou et al.'s study (2018) using Lowe's childbirth self-efficacy questionnaire on 25 primiparous pregnant women in Mashhad showed that the mean and standard deviation of the childbirth self-efficacy score was 362.75 ± 99.82 [26]. People with low self-efficacy may imagine that events are more difficult than they are, which increases stress, depression, and how to find the easiest way to solve problems. While people with high self-efficacy remove obstacles by improving self-management skills and perseverance and are more able to stand up to problems and master things. Therefore, the understanding of self-efficacy can maintain health-promoting behaviors [27], which also affects the mental health of the mother and the baby [28].

In the present study, most of the research units, 173 people (53.6%) had a moderate attitude toward childbirth, and the mean and standard deviation of their attitude toward childbirth score was 34.37 ± 10.1 . Many

people are afraid of a subject like childbirth; Therefore, this same negative emotional reaction may cause them to have a negative attitude toward that subject [29]. While, the results of the study by Nikbakht Moghadam et al. (2020) on 265 primigravida mothers in Shahryar, showed that the average score of mothers' attitudes toward childbirth was 35.61 ± 6.84 from the range of scores 14-56 and the majority of research units had a negative attitude toward childbirth [6]. On the other hand, in a prospective cohort study conducted by Sinaei et al. (2018) on 305 primiparous women with a gestational age greater than 32 weeks and using a questionnaire of attitude toward the choice of delivery method (score range is 68-204 and a higher score indicates a more positive attitude) in Ahvaz, the results showed that the majority of primiparous women, 159 people (52.1%) had a positive attitude toward natural childbirth [19]. The average score of the attitude toward the choice of delivery method was not mentioned in this study. This difference can be due to the use of different questionnaires to measure these factors, and cultural, social, economic, and ethnic differences [6].

In the present study, there was a significant inverse linear relationship between the attitude toward childbirth and childbirth self-efficacy and its dimensions in nulliparous pregnant women, and the attitude toward childbirth was considered a predictive variable of childbirth self-efficacy. On the other hand, the research units obtained moderate scores of attitudes toward childbirth and childbirth self-efficacy. These moderate scores are worth considering. Because having high self-efficacy is very important for nulliparous mothers. Mothers who

have more self-efficacy during childbirth and in the early stages after it will have the ability to increase their parenting skills and improve their mental health up to the first year after the birth of the baby [30]. Regarding the importance of attitude, Zografos writes that knowledge alone is not enough to change behavior; In addition to providing information to increase knowledge, it is necessary to change the attitude [31]. While, in the study by Nikbakht Moghadam et al. (2020) which was conducted to determine the relationship between childbirth self-efficacy and attitude toward childbirth with pregnancy anxiety in primigravida women referring to selected health centers in Shahryar city on 265 primigravida mothers and using from questionnaires of Lowe's childbirth self-efficacy and Harmen's childbirth attitude, the results showed that there is a significant and inverse correlation only between attitude toward childbirth and expected self-efficacy ($p < 0.001$ and $r = -0.26$); But there was no statistically significant correlation between the attitude toward childbirth and the expected outcome ($p = 0.54$ and $r = 0.03$) [6]. Also, in the study of Huang et al. (2022), which was conducted with the aim of determining the relationship between fear of childbirth and childbirth self-efficacy during labor on 378 pregnant women and using the questionnaire of attitude towards childbirth and childbirth self-efficacy, the attitude towards childbirth and each of its dimensions had a negative and significant correlation with childbirth self-efficacy ($p < 0.01$) [32]. On the other hand, in the study of Goudarzi et al. (2012), which was done to determine the relationship between knowledge, attitude, and performance with self-efficacy in 200 patients with type 2 diabetes in Karaj and using the knowledge, attitude, and performance questionnaire (KAP) and SE self-efficacy questionnaire, the attitude had a positive and significant correlation with self-efficacy ($p < 0.05$ and $r = 0.16$), which was a sign of the positive effect of attitude on self-efficacy [33]. The difference between the present study and the aforementioned studies is due to the difference in the research community, measurement tools, and cultural differences that can affect the results of different studies.

One of the limitations of this study was the large number of questionnaire questions that the number of questions, and how to answer them were clearly explained to the patient. Adequate and unhurried time was considered for answering. After completing the questionnaires, the questionnaires were checked to ensure that research units have answered them correctly. Also, non-random sampling is another limitation of the present study. On the other hand, the present research was conducted only in government health-treatment centers, and considering that people with high socio-economic levels

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refer more to private centers and obstetricians and gynecologists, this issue can affect the results of the research.

CONCLUSION

One of the strengths of the present study was that the studied population was only nulliparous pregnant women, and in this respect, they had the same conditions. It is suggested that societies with different cultures and multipara pregnant women should be studied in future researches.

In the end, according to the results of the present study, the need to maintain and improve the mental health of pregnant mothers is evident. Therefore, the use of suitable strategies to increase the belief of pregnant mothers regarding the ability to give natural childbirth should be considered in prenatal education. Appropriate educational interventions based on increasing self-efficacy, increasing awareness, and positive attitude toward natural childbirth can reduce the number of elective cesarean sections, and it will be an effective step for the health of society.

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ETHICAL CONSIDERATION

This proposal has been approved by the ethics committee and written consent has been obtained from all research units. Also, the authors affirm their observance of ethical rules when processing the results of the studies. The ethics code is IR.ZAUMS.REC.1399.188

AUTHORS' CONTRIBUTIONS

Conceptualization: BHM. Data curation: BHM. Formal analysis: BHM. Funding acquisition: Zahedan University of Medical Sciences. Methodology: BHM. Project administration: BHM. Writing-original draft: BHM. Writing-review and editing: BHM.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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