



The Relationship of Depression, Anxiety and Stress with Childbirth Self-Efficacy in Nulliparous Pregnant Women

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Abstract

Introduction: Many changes occur during pregnancy that lead to increased depression, anxiety, and distress, and on the other hand, self-efficacy affects all aspects of behavior and emotional activities such as anxiety and stress. Therefore, since the need for further research on prenatal psychological issues is emphasized and no research has been done in this field in our country; this study was aimed to determine the relationship of depression, anxiety, and stress with childbirth self-efficacy in nulliparous pregnant women.

Methods: This study is a descriptive- predictor correlation study that it is done over 323 nulliparous pregnant women referring to health centers in Zahedan city in 2020-2021. Data were collected using Individual questionnaire, Lowe childbirth self-efficacy questionnaire and DASS21 scale. The data was analyzed using Spearman correlation coefficients test, Liner regressions model and Multiple regression in SPSS version 22. A statistical significance was deemed present when the P-value was less than 0.05.

Results: Results of Spearman correlation coefficients test didn't show a significant direct correlation between childbirth self-efficacy with depression, anxiety and stress ($P > 0.05$). According to Liner regressions model, none of the variables of depression, anxiety and stress had a significant level of less than 0.05 and isn't considered as a predictor variable of childbirth self-efficacy ($P > 0.05$).

Conclusions: Since there is no significant relationship between depression, anxiety and stress with childbirth self-efficacy in nulliparous pregnant women, it is suggested that more studies be conducted in this field with in other societies and on nulliparous and multiparous pregnant women.

INTRODUCTION

Pregnancy is a physiological phenomenon and its end, childbirth, is one of the divine gifts for the production of the human race on earth [1]. Positive experiences of natural childbirth cause women to have more self-confidence and self-esteem than the reciprocal group, even up to 20 years after childbirth [2]; but pregnant women sometimes choose a cesarean section [3]. The World Health Organization (WHO) considers the ratio of the cesarean section up to 15% appropriate and acceptable [3]. Meanwhile, the prevalence of cesarean section in Iran is 3-4 times the rate

recommended by the WHO [2]. This growing trend in larger cities is worrying. For example, the rate of cesarean section in Tehran in some private hospitals is estimated at 90%. One of the important factors involved in avoiding vaginal childbirth is childbirth self-efficacy [4]. Self-efficacy in the pregnant mother is her assessment of her ability to cope with stressful situations and perform essential behaviors during times of stress, including childbirth time [1]. Mothers with high self-efficacy experience lower levels of fear and pain and experience greater satisfaction with childbirth. Conversely, mothers

with low self-efficacy consider natural childbirth unattainable and experience high fears during pregnancy [1]. In fact, women who request a cesarean section despite their physiological ability to vaginal childbirth, are due to their low self-efficacy in performing normal childbirth; because the pregnant woman thinks she is unable to control the position of childbirth pain [4].

Bandura believes that self-efficacy affects all aspects of behavior and emotional activities such as anxiety, stress, and thought patterns [5]. Also, many changes occur during pregnancy that lead to increased depression, anxiety, and distress [6].

Depression is the fourth cause of disability in the world and depression during pregnancy is an important and significant issue that affects 12% of mothers [7]. According to a study by Al-Azri et al. (2016) in Oman, the prevalence of depression in pregnant women was 24.3% [8]. Depression during pregnancy can lead to self-neglect, lack of prenatal care, lack of self-care, inadequate nutrition, smoking, drug use, low birth weight, and preterm childbirth [7]. Beyrami et al. (2013) report that pregnant women with depression and high stress have lower performance than non-depressed women [9].

Anxiety is an unpleasant and unknown state that affects a person and is defined as feelings of tension, apprehension, palpitations, headaches, and restlessness [10]. Anxiety rate in Iranian pregnant women has been reported between 15% [6] and is also one of the most common symptoms in pregnant mothers [7]. A study by Baron et al. (2011) found that more than 50% of pregnant women experience some degree of anxiety [11]. In a study by Silva et al. (2017), the results showed 26.8% of pregnant women had high anxiety, being more frequent in the third trimester (42.9%) [12]. Predisposing factors for prenatal anxiety include low literacy, low income, unemployment, lack of social support, marital problems, and lack of spouse support [10]. Anxiety, worry, and other stressful feelings during pregnancy can be harmful to both mother and fetus and can lead to premature birth, low birth weight, high-risk pregnancies, increased nausea, vomiting, fetal growth retardation, and fetal asphyxia and increasing the rate of cesarean section [10].

Stress is defined as a mental or emotional disturbance that occurs in response to external detrimental factors and also, the stimulus or situation that creates it [13] which is the most obvious sign in the behaviors and clinical signs of pregnant women and causes consequences for the fetus such as low birth weight, preterm childbirth, delayed walking and speech, sleep and excitement disorders, and movement disorders [14]. Based on a study by Azh et al. (2019) most pregnant women have a moderate level of stress [15].

According to a study by Craig et al. (2019) in Australia, self-efficacy was strongly connected to

low depressive mood, and vice versa [16]. In the study of Khalid and Dawood (2020) in Pakistan, the results showed the negative relationship between self-efficacy with depression, anxiety and stress [17]. According to the study of Khoshnevisan et al. (2011) in Tehran, there is an inverse correlation between self-efficacy, depression, anxiety, and stress [18]. The results of another study by Bazaz et al. (2018) in Yazd showed that self-efficacy and postpartum depression are inversely related to each other [19].

Finally, according to some researchers, paying attention to the usefulness of natural vaginal childbirth alone is not enough and the individual's belief in the ability to give birth should also be targeted [2]. Also, the prevalence of depression, anxiety, and stress are high during pregnancy [20], and nulliparous pregnant women experience severe stress and anxiety when faced with new responsibilities, such as childcare [21]. Therefore, given that the need for further research on prenatal psychological issues is emphasized [10]; but, studies during pregnancy are limited [22] and no research has been done in this field in our country; this study aimed to determine the relationship of depression, anxiety, and stress with childbirth self-efficacy in nulliparous pregnant women in health centers of Zahedan in 2020-2021.

METHODS

This study is a descriptive, predictive correlational study that was conducted from 22 September 2020 to 28 April 2021, on 323 nulliparous pregnant women referring to health-care centers in Zahedan. After getting approval from the Ethics Committee (IR.ZAUMS.REC.1399.188) of the University, expressing the objectives of the study, obtaining informed consent from eligible nulliparous pregnant women, and considering the ethical codes, the sampling was conducted. First, health centers of the north, south, west, and east were considered as one class (all centers of the city of Zahedan), and then from the list of existing centers in any of these classes (proportional to the total number of centers covered by each class), some centers were randomly selected as a cluster. From each cluster, 1-5 health centers were selected for sampling using the draw method according to the population (in proportion to the size), and the desired sample size was selected through convenient sampling from health centers.

The sample size was estimated 317 individuals based on the study results of Rabani Bavojdan [23], and by the formula for comparing sample size for a relation and considering the confidence level of 95% and test power of 80% and then by considering the loss of samples, 333 individuals were enrolled.

$$N = ((Z_{1-\alpha/2} + Z_{1-\beta}) / C(r))^2 + 3$$

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

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

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

Inclusion criteria were as follows: the individuals must be Iranian and the resident of the city of Zahedan who has completed at least elementary education and has not studied medical sciences, they have not given birth yet and have no history of infertility and no history of the abnormal fetus, they had singleton pregnancy and gestational age was 24 to 36 weeks based on accurate and reliable LMP or first-trimester ultrasound, stressful events did not occur during the 6 months before entering the study, the individuals were not suffering from speech and hearing disorders that impede the communication with the researcher, they were not addicted to drugs, had no history or being involved with other medical conditions or psychological problems and they had cell phones. Exclusion criteria included: the patient was unwilling to continue participating in the study and did not complete the questionnaires.

Data collection tools included demographic information and Lowe childbirth self-efficacy questionnaires, Depression, anxiety and stress scale (DASS21).

The childbirth self-efficacy questionnaire of Lowe was a 62-item self-report instrument that is rated in the Likert scale from 1 (completely uncertain) to 10 (completely certain). It consists of two phases, the first active stage and the second stage of childbirth and each phase has two parts. The first phase is related to the active phase of labor that the first part consists of 15 questions and measures the expectation of outcome related to the active phase of labor. The second part also contains 15 questions that measure the expectation of self-efficacy of this active phase. The second phase is related to the second stage of childbirth, which consists of two parts: The first part measures the expectation of outcome and is from questions 31 to 46 and the second part considers self-efficacy related to the second phase of childbirth and includes questions 47 to 62. By summing the expected outcome scores of the active phase (first stage of labor) and the second stage of childbirth, will be obtained the total score of the expected outcome and by summing the expected self-efficacy scores of the active phase (first stage of labor) and the second stage of childbirth, will be obtained the total score of expected self-efficacy. The total score of childbirth self-efficacy is 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 childbirth self-efficacy [1, 24]. So that, based on the received scores, individuals were divided into three categories: low (62-247.2), moderate (247.3-433.6), and good (433.7-620).

The DASS 21 scale has been introduced by Lovibond and Lovibond (1995) in the form of 21 questions that measures depression (questions 21, 17, 16, 13, 10, 5 and 3), anxiety (questions 20, 19, 15, 9, 7, 4 and 2) and stress

(questions 18, 14, 12, 11, 8, 6 and 1). Scores for each phrase are graded on a 4-point Likert scale from none to very high (score 0 to 3). Thus, the range of depression, anxiety and stress scores is from 0 to 21. So, 5-6, 4-5, 8-9 scores are for depression, anxiety and moderate stress, the scores of 7-10, 6-7 and 10-12 are for depression, anxiety and moderate stress, the scores of 11-13, 8-9, 13-16 are for depression, anxiety and severe stress and score equal to 14 or greater, score equal to 10 or greater and the score equal to 17 or greater are depression, anxiety, and extreme stress, respectively.

The childbirth self-efficacy questionnaire of Lowe and the DASS 21 scale are valid tools. In Iran, by Khorsandi et al. (2008), the validity of the Persian version of childbirth self-efficacy has been confirmed through content and structure validity [24]. Also, by Mollahadi (2010) and Mahmoudi (2010) was determined DASS 21 validity [25, 26]. In our study, the reliability of the childbirth self-efficacy questionnaire and DASS 21 scale were confirmed with Cronbach's alpha coefficient of 0.97 and 0.95, respectively. Also, were confirmed with alpha coefficient for subscale of depression $\alpha = 0.88$, for anxiety $\alpha = 0.92$ and for stress $\alpha = 0.90$.

At the beginning of the study, after obtaining informed consent, it took individuals about 30 minutes to complete the questionnaires. Finally, if the researcher was seeing unanswered questions, she was completing them by asking the research units. The researcher also provided a telephone number to the research units to contact if they had any questions about the research.

The collected data were analyzed using SPSS Statistical Software version 22 and using Spearman's correlation coefficient tests and multiple and general linear regression. In all tests, a p-value less than 0.05 was considered significant.

RESULTS

Ten individuals were excluded from the study (due to incomplete completion of questionnaires). Resultantly, the final analysis was performed on 323 individuals.

The average age of individuals was 24.62 ± 5.3 years and the average gestational age of women was 30.01 ± 1.4 weeks. In addition, 265 individuals (82%) were from average socioeconomic status, 166 ones (51.4%) had college education, and 261 nulliparous pregnant women (80.8%) were homemakers. Three hundred participants (92.9%) had wanted pregnancies, 275 ones (85.1%) didn't have a history of abortion, 195 individuals (60.4%) did not perform pre-pregnancy care, and 316 ones (97.8%) did not attend childbirth preparation classes. Two hundred and thirty-three participants (72.1%) did not have educated people in medical sciences in their families.

Mean and standard deviation of depression, anxiety and stress were 4.29 ± 4.4 , 3.19 ± 4.0 and 4.45 ± 4.5 , respectively. Also, mean and standard deviation of expected outcome, expected self-efficacy and total score

of childbirth self-efficacy was 162.4 ± 55.4 , 162.08 ± 54.2 and 324.48 ± 107.3 . Tables 1 and 2 shows the frequency distribution of nulliparous pregnant women by severity of depression, anxiety, and stress and levels of childbirth self-efficacy, respectively.

Spearman test results showed that there was not a significant linear relationship between childbirth self-efficacy and depression, anxiety and stress [Table 3].

Finally, depression, anxiety and stress were separately considered as independent variables, and the childbirth self-efficacy was the dependent variable in the general linear regression model and the results showed that none of the variables of depression, anxiety and stress in

this model didn't have the significance level of <0.05 , and it wasn't considered as a predictor variable of childbirth self-efficacy [Table 4].

Examining the simultaneous effects of intervening variables on the relationship between depression, anxiety and stress and childbirth self-efficacy using multiple regression test showed that among the studied variables except for the occupation variable (homemaker) that was removed from the regression model, other variables in total didn't have significant multiple correlation with childbirth self-efficacy ($r = 0.177$, $P = 0.762$, $F = 0.713$, $df = 14$) [Table 5].

Table 1. Frequency Distribution of Nulliparous Pregnant Women based on Depression, Anxiety and Stress Intensity

Depression, Anxiety and Stress Intensity	Depression Number (Percentage)	Anxiety Number (Percentage)	Stress Number (Percentage)
No symptoms	189 (58.5)	215 (66.6)	249 (77.1)
Mild	34 (10.5)	24 (7.4)	29 (9.0)
Moderate	68 (21.0)	33 (10.2)	22 (6.8)
Sever	16 (5.0)	23 (7.1)	19 (5.9)
Very sever	16 (5.0)	28 (8.7)	4 (1.2)
Total	323 (100.0)	323 (100.0)	323 (100.0)

Table 2. Frequency Distribution of Nulliparous Pregnant Women based on Childbirth Self-Efficacy Levels

Childbirth Self-Efficacy Levels	Number (Percentage)
Low	68 (21.1)
Moderate	209 (64.7)
Good	46 (14.2)

Table 3. Spearman Correlation Coefficients between Childbirth Self-Efficacy and Depression, Anxiety and Stress

Variable	Test Result	
	r	P
Depression	-0.02	0.613
Anxiety	-0.04	0.448
Stress	-0.01	0.817

Table 4. Linear Regression Test Results about the Relationship between Depression, Anxiety and Stress and Childbirth Self-Efficacy

Variable	β	df	R	F	Test result (P)
Depression	-1.731	1	0.071	1.624	0.204
Anxiety	-0.690	1	0.026	0.217	0.642
Stress	-0.911	1	0.038	0.474	0.492

Table 5. The Results of Multiple Correlation Test on the Effect of Background Variables on the Relationship between Depression, Anxiety, Stress and Childbirth Self-Efficacy in Nulliparous Pregnant Women

Variable	β	p	Exp. β
Existence of educated people in medical sciences in the family	26.266	0.072	0.110
Perform pre-pregnancy care	11.077	0.396	0.051
Socioeconomic status	5.514	0.616	0.030
Gestational age	4.466	0.303	0.059
Type of pregnancy	3.145	0.897	0.008
Stress	2.228	0.529	0.094
Age	0.594	0.664	0.030
Occupation (student)	0.278	0.993	0.001
Anxiety	-0.544	0.833	-0.021
Education	-0.958	0.905	-0.008
Depression	-3.253	0.267	-0.133
Participate in childbirth preparation classes	-10.110	0.810	-0.014
History of abortion	-12.823	0.465	-0.043
Job (Employed)	-23.366	0.215	-0.078

DISCUSSION

The results of the present study showed that 58.5% of nulliparous pregnant women were without depression, 66.6% without anxiety, and 77.1% without stress.

These results may be since 85.1% of the research units did not have a history of abortion and 92.9% of them had wanted pregnancy; because these cases can be effective factors in reducing depression [19]. In this regard, the results of the study of Zareipour et al. (2017) on 350 pregnant women in Urmia using the DASS21 questionnaire, showed that the prevalence of depression, anxiety, and stress in the subjects were 31.7%, 32.5%, and 49.1%, respectively and 68.3% of them had no depression, 67.5% had no anxiety and 50.9% had no stress [6]. However, according to the study of Al-Azri et al. (2016) in Oman using the Edinburgh self-test questionnaire, the prevalence of depression in pregnant women over 32 weeks was 24.3%. Also, this study showed that depression during pregnancy is associated with an unwanted pregnancy [8]. In a study by Joshi et al. (2019) in Nepal using the Edinburgh questionnaire, 18% of pregnant women were depressed. In this study, unwanted pregnancy and history of abortion were among the factors affecting depression [27]. Also, the results of the study by Bisetegn et al. (2016) in northwestern Ethiopia using the Edinburgh questionnaire showed that 11.8% of pregnant women had depression. Also, in this study, unwanted pregnancy and history of abortion were identified as factors affecting depression during pregnancy [28].

In a study conducted by Mangoli et al. (2003) on 400 pregnant women in the city of Babak using the SCL-90-R questionnaire, the prevalence of anxiety was 42.8% [29].

A study by Schetter et al. (2012) in the United States showed that 78% of pregnant women were exposed to low to moderate stress and 6% were exposed to high stress [30]. Meanwhile, the study of Bahadoran et al. (2006) in Isfahan showed that 19.27% of pregnant women are in the moderate stress group and 25.58% of pregnant women are in the high-stress group [31]. One of the reasons for the difference between the results of the present study and the mentioned studies is the difference in the studied populations and the method of measurement. Thus, in the present study, the DASS21 scale was used; but, in the mentioned studies, other questionnaires were used to measure depression, anxiety, and stress. Also, the present study was performed on nulliparous pregnant women; however, these studies were performed on all pregnant women and not just nulliparous women.

On the other hand, as mentioned in studies [8, 27, 28], unwanted pregnancy and history of abortion are also effective in the development of depression.

The results of the present study about the level of childbirth self-efficacy showed that 209 ones (64.7%) of nulliparous pregnant women had moderate childbirth self-efficacy and the mean and standard deviation of childbirth self-efficacy was 324.48 ± 107.3 . Childbirth self-efficacy score is important because based on studies, increasing childbirth self-efficacy is effective to choose the vaginal childbirth method [4, 32]. In this regard, Ghazaei et al. (2016) conducted a study on 39 nulliparous pregnant women in Nowshahr using the Lowe childbirth self-efficacy questionnaire, the results showed that the mean and standard deviation of childbirth self-efficacy was 289.00 ± 43.53 and was moderate [2]. Also, in the study by Mahmoud Janlou et al. (2018) on 25 nulliparous pregnant women in Mashhad using the Lowe childbirth self-efficacy questionnaire, the results showed that the mean and standard deviation of childbirth self-efficacy score was 362.75 ± 99.82 [4]. People with low self-efficacy may think that events are harder than they really are, that this, in turn, increases stress, depression, and how to find the easiest way to solve problems. While people with high self-efficacy overcome obstacles by improving self-management skills and perseverance and they stand up to problems and have more control over things. Therefore, understanding self-efficacy can help maintain health-promoting behaviors [33] that affect the mental health of mother and infant [14].

In the present study, no significant relationship was found between depression, anxiety, and stress with childbirth self-efficacy. However, according to the study of Khoshnevisan and et al. (2011) on 376 middle school girls and boys in Tehran using the general self-efficacy questionnaire of Schwarzer and DASS21 scale, there was an inverse correlation between self-efficacy, depression, anxiety, and stress [18]. Also, the study results of Craig et al. (2019) on 88 adults in Australia showed that self-efficacy was strongly connected to low depressive mood, and vice versa [16]. A study by Khalid and Dawood (2020) in Pakistan on 158 infertile women using infertility self-efficacy scale and depression, anxiety and stress scale showed that self-efficacy has a negative relationship with with depression, anxiety and stress [17]. On the other hand, the study results of Bazaz et al. (2018) on 200 nulliparous pregnant women using the Edinburgh postpartum depression questionnaire and Scherer self-efficacy questionnaire, showed that self-efficacy and postpartum depression are inversely related [19]. In

other words, when women's self-efficacy is high, they do not suffer from depression in stressful situations, which is probably due to providing appropriate role models, increasing positive interpretations, and providing information support [19]. This difference in results can be due to differences in the research community and data collection tools. Other causes of differences in the present study with the study of Craig et al. (2019) and Khalid and Dawood (2020) are cultural, psychological, and social differences that can affect the results of different studies and leads to a lack of relationship between psychological factors and childbirth self-efficacy in this study. In addition, the present study has specifically addressed the childbirth self-efficacy.

On the other hand, in the present study, 316 ones (97.8%) did not participate in childbirth preparation classes and most nulliparous pregnant women had moderate childbirth self-efficacy. Self-efficacy is the most important prerequisite for predicting behavior in stressful situations [1] that childbirth is the most stressful mental event for most women [34]. In order to enhance self-efficacy, increasing the knowledge and awareness of pregnant mothers about labor, childbirth and coping styles with childbirth pain are essential [35]. One of the most effective ways to increase this ability is to participate in childbirth preparation classes [1]. As in the study of Alipour et al. (2017) and Khosravi et al. (2017), childbirth preparation classes were effective in improving the self-efficacy score of women in vaginal childbirth [1, 36]. Therefore, due to the different cultural and social contexts of different regions that affect people's beliefs, abilities, and self-efficacy; childbirth preparation classes can increase people's self-efficacy, self-confidence, attitude and behavior change and reduced anxiety and pain during labor and childbirth and women will be avoid unnecessary cesarean sections [35, 37].

One of the limitations of this study was a large number of questionnaires questions, how to respond was clearly explained to the patients, and responses were monitored. Also, non-random sampling is another limitation of the present study. One of the strengths of the present study was the study population that they were only nulliparous pregnant

women and in this respect, they had the same conditions.

It is recommended that future studies focus on the relationship between depression, anxiety and stress with childbirth self-efficacy in other communities and on nulliparous and multiparous pregnant women.

CONCLUSION

According to the results of this study, nulliparous pregnant women experienced lower self-efficacy and less depression, anxiety, and stress. This finding shows the need to enhance self-efficacy in nulliparous pregnant women, which can be done by educating pregnant women about having more childbirth self-efficacy and lead to avoid an unnecessary cesarean section.

CONFLICTS OF INTEREST

There are no conflicts of interest.

ETHICAL CANSIDERATION

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.

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AUTHORS' CONTRIBUTIONS

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

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