

The Relationship of Attachment Styles with Childbirth Self-efficacy in Nulliparous Pregnant Women: The Mediating Role of Alexithymia

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ARTICLE INFO	ABSTRACT
<p><i>Article type:</i> Original article</p>	<p>Background & aim: The enhancement of childbirth self-efficacy to manage the labor pain can help the nulliparous pregnant women to make informed choice about vaginal delivery. Regarding the relationship of the childbirth self-efficacy with psychological antecedents, the present study aimed to explore the mediating role of alexithymia in the relationship of attachment styles and childbirth self-efficacy among the nulliparous pregnant women.</p> <p>Methods: This descriptive correlational study was conducted on 210 nulliparous pregnant women, living in Shiraz in 2016. The samples were selected from the nulliparous women referring to the public and private health and medical centers through the purposive sampling technique. The data were collected using a researcher-made demographic form, Iranian version of Childbirth Self-Efficacy Inventory, Hazan and Shaver's Adult Attachment Inventory, and Farsi Toronto Alexithymia Scale-20. The data analysis was performed using the descriptive statistics and structural equation modeling through the SPSS version 20 and AMOS version 21, respectively.</p> <p>Results: Our findings indicated that all aspects of attachment styles (i.e., secure, avoidant, and ambivalent) would be able to predict the childbirth self-efficacy in the nulliparous pregnant women. On the other hand, the secure and insecure attachment styles predicted alexithymia among this population. The results of the path analysis demonstrated that alexithymia had a mediating role in the relationship of the attachment styles and the childbirth self-efficacy.</p> <p>Conclusion: Based on the findings of the present study, it can be concluded that the attachment styles and childbirth self-efficacy had an indirect relationship mediating through such variables as alexithymia.</p>
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Introduction

Natural childbirth is a unique experience, which is associated with severe pain and fear as well as both positive and negative emotions. The biological determinist approach was prevalent in the obstetrics and gynecology research until the late twentieth century. However, the biopsychosocial approaches have started to grow since the beginning of the recent century. Therefore, childbirth is a multi-dimensional process with biological, psychological, and social dimensions. This process is considered as a painful, yet enjoyable experience, along with

stress in a woman's life.

In addition to the medical interventions commonly used, childbirth must be also evaluated in terms of the psychological aspects (1). The three important aspects, which need to be managed in this complex phenomenon, include acute pain as well as emotional and physical activities. The pregnant women who have chosen a vaginal childbirth need to have an overall capacity to maintain their physical and mental health so that they can control pain and various emotions while simultaneously

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managing their physical activity to successfully fulfill the childbirth process (2).

Childbirth self-efficacy is a type of self-belief among the women and the judgment of their ability to cope with a labor pain. This construct includes the confidence in the effectiveness of the appropriate behavior in obtaining the desired results (i.e., outcome expectancy), and the confidence a woman feels in her ability to show the appropriate behavior during the childbirth.

The main causes of anxiety in the pregnant women can be interpreted as the fear of childbirth, and also the lack of self-efficacy. In other words, the pregnant women assume that they cannot control the labor pain. Some studies have shown that the severe childbirth anxiety is associated with obstetric complications, such as prolonged labor, instrumental vaginal deliveries, and cesarean sections (3, 4).

If the pregnant women choose the normal childbirth either voluntarily or involuntarily despite having low self-efficacy, they would have increased pain perception as well as decreased preparedness, cooperation, and tolerance during the childbirth process. Furthermore, the severe anxiety caused by the lack of self-efficacy leads to the disruption of hormones in the female's body, and ultimately increases the risk of emergency caesarean section by prolonging the childbirth stages after experiencing the labor pain in the first stage (5).

According to the literature, there are different logical, psychological, and social factors influencing the childbirth self-efficacy. Among the various factors, helplessness feeling, non-supportive sexual partner, negative emotional states, and particularly the lack of psychological security sense have the most negative impacts on the self-efficacy in the pregnant women (6, 7).

On the other hand, according to the attachment theory, having a source of secure attachment under the life-threatening situations, psychological pressure, extreme fear, fatigue, and illness creates comprehensive and powerful psychological safety for people of all ages. It is noteworthy that the individuals with secure attachment have a higher threshold of pain. The psychological secure base that people

gain from their deep childhood bonds provides them with a sense of psychological security and peace of mind (8, 9).

Based on the studies investigating this issue in terms of pain, considering the attachment style can help the psychological evaluation and treatment of the conditions associated with pain. Based on the attachment theory, the stressful situations with severe physical pain (e.g., labor), stress, and anxiety can cause an activated internal working model and attachment system of mother and infants. Therefore, with psychological safety, the individuals would be able to cope with a difficult situation and overcome severe pain.

Accordingly, unlike the insecure attachment styles (i.e., avoidant or anxious/ambivalent), the secure attachment styles can be effective by the creation of a secure base and enhancement of resistance to pain in the childbirth self-efficacy (10, 11). There are many studies revealing the relationship of the attachment styles with alexithymia among the adults (12-14). Alexithymia is caused by obvious defects in the cognitive processing of emotional information. The patients suffering from this disorder have more negative emotions and aversive experience, compared to the normal subjects (15, 16).

Therefore, the negative emotions can affect the self-efficacy beliefs. Such negative emotions can also lead to psychological stress, and ultimately have a negative impact on the efficacy (17). Studies have shown that while alexithymia is influenced by the genetic, environmental, and individual factors, early attachment relationships with caregivers can be a critical determinant for the creation of alexithymia in the patients.

Furthermore, it has been found out that alexithymia, caused by defect and inability in the cognitive processing of emotional information, results in the emergence of problems in the regulation and expression of emotions (14, 18). Therefore, the difficulty in regulating the emotions and negative emotional states is an important factor having a negative relationship with the childbirth self-efficacy (7).

From the social cognitive perspective, the human beliefs are originated from a wide range of factors, such as the interpersonal relationships of the individuals. The evaluation

of the psychological factors involved in the childbirth self-efficacy can lead to a suitable and practical conceptual model. According to the previous studies, the attachment style is effective in labor perception, and thereby in childbirth self-efficacy among the pregnant women.

The pregnancy and childbirth outcome is aligned with the couples' satisfaction. The previous studies have shown that the emotional relationship of a pregnant woman with her husband and her attachment style is one of the factors that can predict the childbirth self-efficacy. Nevertheless, almost no relationship is linear in human sciences. According to the studies conducted in this area, training the emotion regulation and reforming the emotional pattern affect the women's self-efficacy. Moreover, the emotional states and pain perception are associated with each other.

Accordingly, the pain perception mainly relates to more limited emotional awareness (i.e., alexithymia). With this background in mind, this study was performed to design an integrated conceptual model of the attachment styles and examine the childbirth self-efficacy among the nulliparous pregnant women through the mediation of alexithymia.

Materials and Methods

This descriptive correlational study was conducted on the pregnant women visited in the prenatal clinics in Shiraz, Iran, during October 2016-December 2016. After explaining the study objectives to the participants, their informed consent was obtained. Furthermore, they were ensured about the voluntariness of the participation in the study and the possibility to withdraw from the study at any time they wished. Additionally, the participants were assured about the confidentiality of their data and anonymity of their identity. The present study was approved by the Research Ethics Committee of Islamic Azad University, Shiraz Branch, Shiraz, Iran.

In this study, attachment styles, alexithymia, and childbirth self-efficacy were the exogenous, mediator, and endogenous variable, respectively. The samples of the study were selected out of the nulliparous women referring to the public and private health centers through

purposive sampling technique. The acceptable number of samples for structural equation modeling and path analysis was considered 15-30 cases per component (19). Therefore, regarding the factors involved in the conceptual model and path analysis (seven factors),

210 nulliparous pregnant women were selected.

The inclusion criteria were: 1) being married and pregnant (20 weeks of gestation or more), 2) planned pregnancy, 3) nulliparity, and 4) the literacy level of junior high school or higher. On the other hand, the exclusion criteria included any medical reason for cesarean, high-risk pregnancy, and the history of abortion. The data collection was performed using the demographic form, Iranian version of Childbirth Self-Efficacy Inventory (ICBSEI), Hazan and Shaver's Adult Attachment Inventory (AAI), and Farsi Toronto Alexithymia Scale-20 (FTAS), which were filled out by the participants.

Demographic form: In this study, the demographic and medical information was obtained through the administration of semi-structured interviews, followed by the distribution of researcher-made demographic forms. The collected data included the participants' age, marital status, gestational age, education level, low-risk or high-risk pregnancy (according to the diagnosis made by a midwife or a doctor), and the need to cesarean for medical indications.

Iranian version of Childbirth Self-Efficacy Inventory: The standardized ICBSEI is used to measure the childbirth self-efficacy (20), which was adopted from the 62 item self-efficacy questionnaire developed by Lowe (1993) (21). This instrument includes 34 items covering two subscales of childbirth self-efficacy expectation and childbirth outcome expectation. Each of these two subscales consists of 17 items rated on a 10-point Likert scale (i.e., strongly uncertain to quite sure and useless to useful for the childbirth self-efficacy expectation and childbirth outcome expectation, respectively).

The minimum and maximum scores of each subscale are 17 and 170, respectively. The total score of this inventory is obtained by summing

up both sections with the minimum and maximum scores of 34 and 340, respectively. The reliability of the English version of this instrument has been confirmed by Lowe (1993) (21), reporting a Cronbach's alpha coefficient of 0.86-0.96. The content validity of its Iranian version was confirmed by Khorsandi et al. (2013) (22).

They also calculated the reliability of this questionnaire, reposting the Cronbach's alpha coefficient (internal consistency) of 0.88-0.92. In the present study, the reliability of the total questionnaire and its two subscales, including the childbirth self-efficacy and childbirth outcome expectations, were calculated, rendering Cronbach's alpha coefficients of 0.83, 0.79, and 0.81, respectively.

Adult Attachment Inventory: The AAI was designed by Besharat (2005) to measure the attachment styles using the Hazan and Shaver Attachment Inventory (1987) (23). The AAI is a 15-item inventory, which evaluates three attachment styles, namely secure, avoidant, and anxiety/ambivalent, on a 5-point Likert scale (very little=1, low=2, moderate=3, high=4, and very high=5). The minimum and maximum scores of the subscales of this instrument are 5 and 25, respectively.

Hazan and Shaver (1987) validated this instrument for the Iranian population and reported a good level of validity. The test-retest reliability of this instrument was calculated in two occasions with an interval of four weeks using a sample of 300 participants. The obtained correlation coefficients were 0.87, 0.83, and 0.84 for secure, avoidant, and ambivalent attachment styles, respectively. All correlation coefficients were significant at P-value of < 0.001.

These coefficients were indicative of the adequate test-retest reliability of the AAI (24). In a study conducted by Besharat and Khajavi, the concurrent validity of this inventory was assessed through a scale of the interpersonal problems on a sample of 300 subjects. In the mentioned study, the results of the Pearson correlation coefficients demonstrated that the interpersonal problem subscales had significant negative and positive correlations with the secure and insecure attachment style scores,

respectively.

They also indicated that the results of the factor analysis confirmed the validity of the AAI by determining three factors, including secure attachment, avoidant attachment, and ambivalent attachment styles (13). The Cronbach's alpha coefficients of the secure, avoidant, and ambivalent attachment style subscales were 0.84, 0.76, and 0.85, respectively.

Farsi Toronto Alexithymia Scale-20: The FTAS-20 is the Farsi version of the Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994) validated for the Iranian population. The FTAS-20 measures three components of alexithymia, including the difficulty in identifying feelings, difficulty in describing feelings, and externally-oriented thinking on a five-point Likert scale (i.e., ranging from strongly disagree=1 to strongly agree=5). The TAS-20 and its Persian version have demonstrated good psychometric properties (25, 26).

The Cronbach's alpha coefficients of the FTAS-20 were 0.85, 0.82, 0.75, and 0.72 for overall alexithymia score and the subscales of the difficulty in identifying feelings, difficulty in describing feelings, and externally-oriented thinking, respectively. The test-retest reliability of this scale was estimated on two occasions with a four-week interval using a sample of 67 participants, rendering correlation coefficients of 0.80-0.87 for the total and subscales scores.

All correlation coefficients were significant at P-value of < .001 (13). In the present study, the Cronbach's alpha coefficients for total alexithymia and its three subscales of the difficulty in identifying feelings, difficulty in describing feelings, and externally oriented thinking were calculated as 0.83, 0.77, 0.73, and 0.71, respectively.

The data analysis was performed using the descriptive statistics and structural equation modeling through the SPSS version 20 and AMOS version 21, respectively.

Results

According to the results, the mean values of Maternal and gestational ages were 26.4 ± 6.23 years and 29.6 ± 9.3 weeks, respectively demographic data of the participants are displayed in Table 1.

Table 1. Demographic characteristics of the participants

Variables	Number (%)
Age range	
Under 20 years	3 (1.4)
20-35 years	202 (96.2)
Over 35 years	5 (2.4)
Gestational age	
20-26 weeks	65 (31)
27-36 weeks	98 (47.6)
37-40 weeks	47 (22.4)
Educational status	
Under diploma	12 (5.7)
Diploma	124 (59.1)
Bachelor's degree or above	74 (35.2)
Occupation	
Housewife	117 (55.7)
Employed	93 (44.3)

The mean, standard deviation, and correlation coefficients of the attachment styles, alexithymia and its dimensions, as well as self-efficacy are provided in Table 2. The Pearson correlation matrix was calculated between the variables before testing the structural model. According to Table 2, all correlation coefficients were significant at the p-value of < 0.01 or < 0.05. The results of the correlational analysis demonstrated a high correlation between alexithymia and its dimensions. Due to the brevity and economy of the structural equation model, only the alexithymia's total

score was given in the assumed model.

In order to examine the direct and indirect relationships of the attachment dimensions with the childbirth self-efficacy and investigate the mediating role of alexithymia, a theoretical model was designed based on the literature review and the general theories. The results of the proposed model are demonstrated in Figure 1.

As indicated in Figure 1, all paths were significant. Table 3 presents the direct path coefficients, standard error, critical portion, and significant levels in the proposed model.

As Table 3 shows, the regression standardized weights of the whole paths were significant ($P=0.01$), confirming the hypothesis of the presence of simple relationships between the variables. According to the results, the beta coefficient of the secure attachment path to alexithymia was -0.53 ($P=0.001$). However, this value was 0.44 for the avoidant attachment path to alexithymia ($P=0.001$).

Furthermore, the ambivalent attachment path to alexithymia had the beta coefficient of 0.68 , while for the alexithymia path to self-efficacy, this value was -0.48 ($P=0.001$). The secure and avoidant attachment paths to childbirth self-efficacy had the beta coefficients of 0.21 and 0.19 , respectively ($P=0.001$). Finally, the

Table 2. Mean, standard deviation, and correlation coefficients of the research variables

Variables	Mean	Standard deviation	1	2	3	4	5	6	7	8
Safe attachment style	17.42	2.37	—							
Avoidant attachment style	19.89	2.41	0.4**	—						
Anxious/ambivalent attachment style	17.69	2.15	0.4**	0.42**	—					
Alexithymia	55.19	10.16	0.55**	0.3**	0.48**	—				
Difficulty identifying feelings	22.72	3.48	0.38**	0.3*	0.52**	0.7**	—			
Difficulty describing feelings	16.69	2.08	0.44**	0.51**	0.37*	0.73**	0.6**	—		
Externally-oriented thinking	24.11	4.86	0.33*	-0.39**	-0.38*	0.7**	0.7**	0.6**	—	
Childbirth Self-efficacy	228.85	24.65	0.34**	-0.36**	-0.37**	0.46**	0.3**	0.5**	0.3**	—

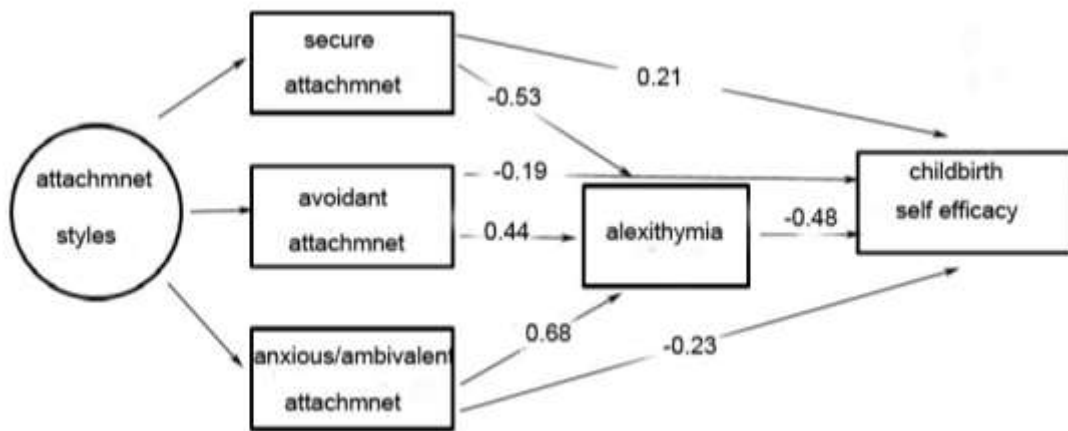


Figure 1. Structural model of research variables based on standardized coefficients

ambivalent attachment path to self-efficacy had a beta coefficient of -0.23 (P=0.001). The combinations of the fitting indices

were used to examine the proposed model (Table 4).

Table 3. Parameters of the direct relationships between the variables in the structural model

Pathways	Parameters				
	Standard estimate (β)	Substandard estimate (B)	Standard error (SE)	Critical ratio (CR)	P-value
Safe attachment to alexithymia	-0.53	-1.07	0.07	-13.68	0.001
Avoidant attachment to alexithymia	0.44	1.27	0.07	8.68	0.001
Anxious attachment to alexithymia	0.68	2.02	0.04	25.31	0.001
Alexithymia to childbirth self-efficacy	-0.48	-1.27	0.07	-19.31	0.001
Safe attachment to childbirth self-efficacy	0.21	1.88	0.07	14.31	0.001
Avoidant attachment to childbirth self-efficacy	-0.19	-1.11	0.07	-3.73	0.001
Anxious attachment to childbirth self-efficacy	-0.23	-0.76	0.04	-7.42	0.001

According to Table 4, the values of the Fitting indices indicated the suitable fitting of the proposed model with the data. After reviewing and approving the direct paths between the research variables, the results pertaining to

indirect paths (intermediate) were investigated. The indirect relationships of the variables evaluated by performing a bootstrapped test using the macro of Preacher and Hayes (2008) (27).

Table 4. Fitting indices of the proposed model

Model fitting indices	χ^2	Df	χ^2/df	GFI	AGFI	NFI	CFI	IFI	TLI	RMSEA
Proposed model	5.16	4	1.29	0.99	0.93	0.96	0.99	0.99	0.99	0.06

For all indirect hypotheses, confidence intervals were 95, and the bootstrap re-sampling was 5,000. Table 5 indicates the mediating test of indirect relationships using the bootstrapping method of Preacher and Hayes. As indicated in Table 5, the data had an indirect effect on the original samples and the boot means,

while the average of estimate had an indirect effect on the bootstrap samples. Furthermore, the bias demonstrated the difference between boot and data. The standard error represented the standard deviation of indirect effects of estimates on the bootstrap samples. According to Table 5, given that in the

relationships of the attachment styles with childbirth self-efficacy through the mediation of alexithymia, zero is out of the lower and upper limit of the confidence intervals, alexithymia was concluded to have an intermediary role in this relationship.

Additionally, according to Figure 2, 34% of the variance in the childbirth self-efficacy was predicted by the final model, including the exogenous variables (attachment style) and mediator variable (alexithymia).

Table 5. Indirect relationship mandatory test for the entire sample using the bootstrapping method

Path	Data	Boot	Bias	Standard error	Confidence level 95%		P-value
					Lower limit	Upper limit	
Secure attachment styles on childbirth self-efficacy through alexithymia	0.2110	0.2127	0.0017	0.0445	0.1054	0.3309	0.001
Avoidant attachment styles on childbirth self-efficacy through alexithymia	0.2348	-0.2323	-0.0025	0.0404	-0.1571	-0.3158	0.001
Anxious attachment styles on childbirth self-efficacy through alexithymia	0.2630	-0.2631	-0.0001	0.0195	-0.1230	-0.2008	0.001

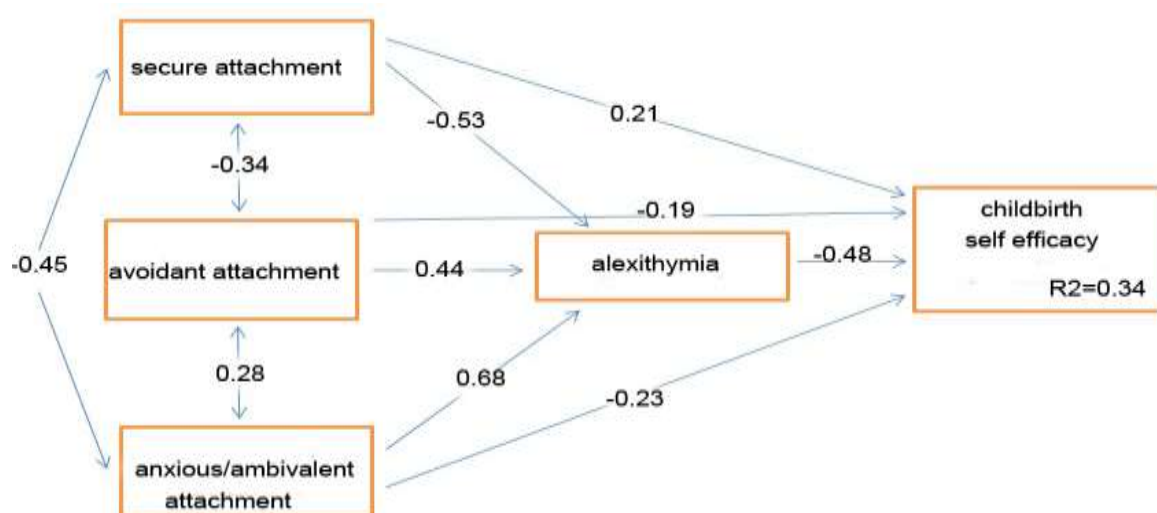


Figure 2. Final version of the model indicating the effects of attachment styles on the childbirth self-efficacy through the mediation of alexithymia

Discussion

As the findings of the present study indicated, alexithymia played a mediating role in the relationship of the attachment styles with childbirth self-efficacy. In other words, an attachment style was effective through affecting the level of alexithymia and childbirth self-efficacy beliefs of the nulliparous pregnant women. To the extent of the researchers’ knowledge, no study has precisely evaluated these variables in a model yet.

However, our results were in line with the findings of a study conducted by Gilanifar et al. and Le et al., revealing that the pregnant women with difficulty in describing feelings (i.e., features of alexithymia) were likely to show a broad range of psychopathology (28, 29). The findings of the present study were also in line with the results revealing the relationship between attachment styles and childbirth self-efficacy (10, 30).

To explain these findings, it can be said that

the relationship between the childbirth self-efficacy and attachment styles, especially secure attachment style depends upon the fact that attachment patterns influence the cognitive appraisal of pain, self-evaluation, and support. These appraisals respond to coping strategies, emotions, and seeking of support. These appraisals and their responses affect the experience of pain and increase the pain self-efficacy (31, 32).

As a result, the individual obtain the ability of cognitive processing and visualization of the security-enhancing attachment figures in a difficult situation and without his physical presence, he/she can interact with the environment through the appropriate expression of feelings (14). Our findings are consistent with those reported by Besharat et al. and Montebanocci et al. about the attachment styles and alexithymia (13, 33).

The people can use their points to secure attachment style and increase self-efficacy beliefs in this area that are successful in cognitive processing and describing emotions and the abstract visualization. On the other hand, when the individuals with insecure attachment style are unable to recognize and describe emotions, and consequently cope with the stressful situations, they cannot face with the complex process of childbirth. Accordingly, it can be concluded that the attachment styles affect the childbirth self-efficacy with the mediation of alexithymia.

In this study, we demonstrated the mediating role of alexithymia in the relationship of the attachment styles and childbirth self-efficacy by evaluating the direct effects of attachment styles on childbirth self-efficacy and also on alexithymia. Based on these findings, the attachment styles with the mediation of alexithymia could predict 34% of the variance of the childbirth self-efficacy in the nulliparous pregnant women.

The internal relationship between the research variables made it possible to recognize some psychological factors playing a decisive role in the self-efficacy among the nulliparous pregnant women. The identification of these factors helps enrich and extend the theoretical base explaining childbirth self-efficacy. The findings of the present study signified the

importance of the attachment damage among the female adolescents.

We demonstrated that the attachment styles were effective in the prediction of childbirth efficacy. In addition, alexithymia as a leading cause of disability in cognitive processing and regulation of emotions can be considered as a factor increasing the inability to deal with a stressful situation and causing a sharp decline in childbirth self-efficacy among the pregnant women. That is why the psychological intervention design (according to the study variables) and teaching emotion regulation in the pregnant women, especially those who have no prior experience, can promote the childbirth self-efficacy.

Despite the usefulness of the findings of this study, it should be noted that the measurement tools were of self-report type, which require careful interpretation, especially in case of alexithymia variable due to the inability of the people inflicted with this disorder in describing their feelings. Furthermore, regarding the lack of the possibility of performing random sampling, the employment of purposive sampling made the findings difficult to generalize.

Conclusion

As the findings of the present study indicated, the attachment styles had a predictive role in the childbirth self-efficacy through increasing or decreasing the alexithymia in the nulliparous pregnant women. Regarding the complexity of the relationship between the psychological constructs, further studies are recommended to evaluate other psychological aspects and variables affecting childbirth self-efficacy to render findings applicable for therapeutic interventions. In addition, it is suggested to evaluate the effectiveness of the psychological interventions on the improvement of the childbirth self-efficacy and reduction of childbirth fear in future studies.

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Conflicts of Interest

The authors declare no conflicts of interest.

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