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# The relationship between hope and resilience with promoting maternal attachment to the fetus during pregnancy

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## Abstract:

**INTRODUCTION:** Maternal attachment to the fetus is an emotional bond and the unique relationship of the pregnant woman to the fetus. Attachment is an important predictor of mental health. One of the psychological factors affecting mental health is resilience and hope. The purpose of this study was to determine the relationship between hope and resilience with promoting maternal attachment to the fetus during pregnancy.

**METHODS:** This is a descriptive correlational study performed on 386 pregnant women referred to community health centers in Isfahan-Iran. The research instruments were standard questionnaires of Hope Snyder, Connor and Davidson Resilience, and maternal attachment to the fetus of Cranley. Data were analyzed using descriptive statistics and Pearson's correlation test.

**RESULTS:** The results showed that there is no significant relationship between the overall score of maternal attachment to the fetus and the total score of hope ( $P = 0.73$ ). The overall score of maternal attachment to the fetus was positively and significantly correlated with hope subscales, including thinking ( $P = 0.004$ ) and path ( $P = 0.047$ ). The overall score of maternal attachment to the fetus was positively and significantly correlated with the overall score of resilience ( $P = 0.03$ ). There was a correlation between the dimensions of maternal attachment to the fetus, including interaction with the fetus ( $P = 0.003$ ) and self-sacrifice ( $P = 0.015$ ). Maternal role acceptance ( $P = 0.001$ ) was positively and significantly correlated with hope thinking subscale. Self-sacrifice ( $P = 0.027$ ) and differentiation between self and fetus ( $P = 0.035$ ) were positively and positively correlated with hope path subscales. Self-sacrifice ( $P = 0.03$ ) and attribution to fetus ( $P = 0.001$ ) had a significant positive relationship with resilience.

**CONCLUSION:** The results of this study showed that hope and resiliency are positively and significantly associated with maternal attachment to the fetus during pregnancy. Hope and resiliency are positively and significantly associated with maternal attachment to the fetus, thus increasing the expectation of pregnant mothers to increase their attachment to their fetus. As a result, they are paying more attention to prenatal care, which can guarantee the health of their mothers and their babies.

## Keywords:

Attachment promotion, fetus, hope, mother, pregnancy, resiliency

## Introduction

Maternal-fetal attachment (MFA) is the emotional bond and unique relationship of the pregnant woman to the fetus that begins during pregnancy and

continues after birth.<sup>[1,2]</sup> Attachment to the fetus is defined by Cranley's involvement in activities that do not indicate interaction with the unborn child.<sup>[3]</sup> According to Cranley's theory, attachment occurs in four stages as follows: planning for pregnancy, adapting to pregnancy, accepting the

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pregnancy, feeling fetal movements, recognizing the fetus as a single person, giving birth to a baby, and observing and touching the baby.<sup>[4]</sup>

This attachment is an indication of maternal trauma to the fetus and the degree of adaptation during pregnancy<sup>[1]</sup> and is a good predictor of the mother's relationship with the postpartum infant being transmitted to the infant.<sup>[1,5]</sup> By developing evolutionary behaviors, it protects the mother and fetus and prepares them for birth after birth.<sup>[6,7]</sup>

There are many factors that affect a mother's attachment to the fetus. These include social support, mental status, gestational age, maternal age, number of births, marital status, income, education, and high-risk pregnancy.<sup>[8,9]</sup> Attachment is an important predictor of mental health. One of the psychological factors affecting mental health is resilience and hope. Hope is also a symbol of mental health.<sup>[10]</sup> In various studies, the direct relationship between life expectancy and attachment has been confirmed.<sup>[11]</sup> Hope means being able to believe in feeling better in future. Hope stimulates one's activity to gain new or new experiences and to create new forces in the individual.<sup>[12]</sup> Hope involves purpose, the power of planning and the will to achieve the goal, attention to the obstacles to the goal, and the ability to overcome them.<sup>[11]</sup> Hope is recognized as a cognitive and motivational branch. Hope involves understanding one's intentions and commitment to achieving goals, plans, and strategies for achieving one's goals and expecting goals to be achieved.<sup>[13]</sup> Taheri(2012) study aimed to determine the relationship between attachment style and life expectancy in mothers of educated mentally retarded boys showed that life expectancy was positively associated with secure attachment style in mothers and there was a significant negative relationship with insecure attachment style (avoidant and ambivalent).<sup>[11]</sup>

Resilience, as mentioned, is one of the psychological factors and along with hope can affect attachment. Resilience studies the positive aspects of personality development and attachment to the understanding of psychological trauma.<sup>[14]</sup> Successfully coping with stressors and difficult situations is called resilience.<sup>[15]</sup> Resilience is not merely a passive resistance to threatening conditions or conditions, but a resilient, active, and constructive participant in one's own peripheral environment. Resilience is the ability of the individual to maintain a psycho-psychological and spiritual balance against the risky and self-destructive conditions associated with positive emotional, emotional, and cognitive consequences.<sup>[16]</sup>

Although resiliency may be widespread, the likelihood of everyone being equally resilient and the environmental

factors that reinforce or weaken stress tolerance are equally distributed among people. Human beings differ in terms of internal capacity, flexibility, and tolerance.<sup>[17]</sup>

Resilience is a dynamic process that produces a positive adaptation to important life events.<sup>[14]</sup> Akbari *et al.* in their study concluded that secure attachment style predicts resilience in individuals and those who have this style are more resilient. In contrast, people with avoidant insecure attachment style have less resiliency and having an insecure attachment style has no effect on resiliency.<sup>[18]</sup> Mental health is one of the key issues in the lives of all human beings and plays a key role in the well-being, well-being, longevity, and prosperity of our core abilities and peaceful communication. Unfortunately, one of the psychological problems in today's society is the issue of stress and stressors that endanger mental health. Stress is an emotional state that puts stress on a person and can cause serious harm if these emotions are not properly controlled.<sup>[19]</sup> Studies show that those who successfully manage negative emotions when confronted with problems can cope well with stressors and difficult situations, resilience and hope being the determinants of individuals' responses to stressful events.<sup>[20-22]</sup>

Pregnancy is a major stress that can manifest or aggravate disruptive tendencies.<sup>[23]</sup> Pregnant mother's mental state during pregnancy has a great impact on fetal health. Psychiatric disorders in the mother prevent her from fully caring for her baby, fetus, or infant and have adverse consequences. Although many studies have been conducted to investigate the relationship between psychological factors of hope and resilience with attachment, there is a gap in the study that examines these factors in pregnancy. The aim of this study was to determine the relationship between hope and resilience with the promotion of maternal attachment to the fetus during pregnancy.

## Methods

The present study is a cross-sectional correlation study performed on pregnant women referred to community health centers in Isfahan (Navab, Motahari, Amir Hamzeh) in 2017.

The sample size was 386 using the formula:  $z^2 \times p(p-1)/\alpha^2$  and with  $Z = 96.9$ ,  $P = 0.5$ ,  $\alpha = 0.05$ .

This study was conducted with the permission of the Ethics Committee of Isfahan University of Medical Sciences. Inclusion criteria included: written consent to participate in the study, Iranian and Muslim, literacy, gestational age over 28 weeks, pregnancy wishes, permanent marriage, single pregnancy, and score <40 of beck depression inventory. Exclusion criteria included:

history of or suffering from mental illness (mental illness diagnosed by a psychiatrist) and mood such as anxiety and the use of psychotropic drugs self-reported by research units; stressful during pregnancy, medical illness (thyroid disease, diabetes, hypertension, cardiovascular disease, kidney disease, nervous disease, etc.), high-risk pregnancy (hypertension), preterm labor, rupture of the pouch, placenta Previa, etc.).

In the present study, the researcher first referred to community health centers. After explaining the aims and method of research to pregnant women, she encouraged them to participate in the study. Pregnant mothers were included in the study if they would like to participate in the study and complete written consent to participate in the study and to meet the inclusion criteria by available sampling method until the final sample size. They were then asked to complete a questionnaire.

Questionnaires used included Beck depression inventory, Snyder Hope Questionnaire, Connor and Davidson Resilience Scale, and maternal attachment to the fetus of Cranley.

In the study of Mohebbs-Dehnavi *et al.*, It is mentioned that The Beck Depression Inventory contains 21 items. Some expressions include four and some five sections, which are scored as zero, one, two, three, and four. The total score is interpreted as 0–9 without depression, 10–14 borderline depression, 15–20 mild depression, 21–30 moderate depression, 30–40 severe depression, and 41–63 very severe depression. People with depression score <40 were included in the study and those with score of 40 and above were not included.<sup>[24]</sup> This questionnaire is a valid and reliable tool. In the study of Mohebbs Dehnavi *et al.* It is stated that In 1996, Beck *et al.* obtained a 1-week test validity coefficient of 0.93. The validity and reliability of the Beck Depression Inventory have been confirmed by several studies in Iran.<sup>[24]</sup> According to the study of Mohebbs Dehnavi *et al.*, this study is valid and reliable.<sup>[24]</sup> In this study, face and content validity of this questionnaire was confirmed by 10 nursing and midwifery faculty members. The reliability of this questionnaire was confirmed by test–retest method within a week interval at 0.85.

The Snyder Hope Questionnaire (1991) is a 12-item scale. The questionnaire is rated on an 8-point Likert scale from completely disagree = 1 to strongly agree = 8. The questionnaire has two subscales, including a subscale of thinking and directions. This questionnaire also has deviant questions. The thinking subscale consists of four questions (2, 9, 10, 12) and the path subscale contains four questions (1, 4, 7, 8, 4) and deviant questions (3, 5, 6, 11). Scoring questions 1, 5, 7, and 11 are deviated to increase test accuracy and are eliminated. The overall score is calculated from the sum of the scores obtained from the

questions. The overall score is between 8 and 64. 8 is the lowest score and 64 is the highest score and in each range, the scope is 4–32. The validity and reliability of this questionnaire were confirmed in a study by Kamari and Shekhaleslami. In this study, face and content validity of the questionnaire was confirmed by 10 faculty members of Nursing and Midwifery Faculty. Reliability of this questionnaire was confirmed by test–retest method within a week interval at 0.79.

The MFA questionnaire was developed by Cranley in 1981, containing 24 items, which are scored on a Likert scale from one to five. The validity of Cranley's MFA scale was confirmed by content validity and its reliability by Cronbach's formula of 0.83 in the co-operative study.<sup>[22]</sup>

The Connors and Davidson (2003) Davidson and Connor Scale Resilience Questionnaire, consisting of 25 questions, is scored on a Likert scale from 0 to 4. The score ranges from 0 to 100. The higher the score, the greater the resilience of the respondent, and vice versa. The cutoff point for this questionnaire is 50 points. A score >50 indicates resilience. By increasing the score to 50, the same resilience intensity will be higher, and vice versa. Moezeni *et al.* 2014 confirmed the validity and reliability of this questionnaire.<sup>[23]</sup>

After completing the questionnaires, data were coded and entered into the SPSS software version 22 (IBM, SPSS Inc., Chicago, Illinois, USA) and analyzed using descriptive and inferential statistics (Pearson correlation test).

## Results

Data analysis was performed on 386 pregnant women. Results showed that the mean age of the study participants was  $26.62 \pm 6.15$  years and the mean age of their spouses was  $32.25 \pm 6.67$  years. The level of education of most participants was diploma (177 = 45.85%). Most of the participants had a moderate level of income (330 = 85.49%). Most of the participants were home makers (283 persons = 73.31%).

The mean score of maternal attachment to the fetus was  $104.08 \pm 6.06$ , hope was  $53.07 \pm 2.59$  and resilience was  $93.05 \pm 2.67$ . Among the attachment dimensions, the highest score was related to the dimension of fetal interaction with mean  $25.11 \pm 4.16$  and the lowest score was attributed to fetal characteristics with mean  $15.99 \pm 1.16$  [Table 1].

The results of Pearson's correlation test showed that there was no significant relationship between the overall score of maternal attachment to the fetus and

the total score of hope ( $P = 0.73$ ). There was a significant positive relationship between maternal attachment to the fetus with subscales such as hope ( $P = 0.004$ ) and path ( $P = 0.047$ ). Furthermore, the overall score of maternal attachment to the fetus was positively and significantly correlated with the overall resilience score ( $P = 0.03$ ) [Table 2].

Furthermore, the results of Pearson correlation test showed a positive and significant relationship between the dimensions of MFA, including interaction with the fetus ( $P = 0.003$ ), self-sacrifice ( $P = 0.015$ ), and maternal role acceptance ( $P = 0.001$ ), with the thinking subscale of hope questionnaire.

Self-sacrifice ( $P = 0.027$ ) and differentiation between self and fetus ( $P = 0.035$ ) had positive and significant relationship with the path subscale of the Hope Questionnaire. Self-sacrifice ( $P = 0.03$ ) and attribution to fetus ( $P = 0.001$ ) had a significant positive relationship with resilience [Table 3].

## Discussion

This study aimed to determine the relationship between hope and resilience with maternal attachment to the fetus during pregnancy.

The results of the present study showed that among attachment dimensions the highest score was related to the dimension of fetal interaction and the lowest score was related to attribution to the fetus. One of the possible reasons for gaining a higher score in the field of fetal interaction may be related to behaviors such as talking to the fetus, reading poetry, and stories to her. This is if the fetus, as an independent being, has the ability to think and hear. For reasons of lower scores in attribution to the fetus, it may be related to the mother's fear of harm to the fetus or, in some cases, her shame, and embarrassment of behaviors.

While the attachment score in the study of Kordi *et al.* (2016) in Mashhad was lower than the present study.<sup>[25]</sup> Cohen *et al.* (2010) study also reported lower maternal attachment score.<sup>[26]</sup> The Parsa *et al.* (2015) study in Hamadan reported an MFA score at 110-32 weeks gestation on 110 pregnant women lower than the present study.<sup>[27]</sup> The Akbarzadeh *et al.* (2011) study in Shiraz reported an attachment score lower in 84 pregnant mothers than in the present study.<sup>[18]</sup> In all four studies, attachment scores were lower than the present study. The reason for this difference can be mentioned in the type of questionnaire used, the number of sample size, and the culture of the subjects. None of the four studies reported attachment dimension scores.

**Table 1: Frequency distribution of overall score and maternal attachment dimensions, hope and resilience during pregnancy**

Variables	Mean±SD	Minimum	Maximum
Overall attachment score	104.08±6.06	91	143
Dimensions of attachment			
Interact with the fetus	22.72±1.46	12	25
Sacrifice	22.52±1.41	18	25
Differentiation between yourself and the fetus	25.11±4.16	18	75
Attribution to the fetus	15.99±1.16	13	18
Accepting the maternal role	17.73±1.21	14	20
Overall hope score	53.17±2.59	47	67
Dimensions of hope			
Thinking	28.63±2.26	24	32
Route	24.53±1.31	23	43
Resilience	93.05±2.67	86	100

SD=Standard deviation

**Table 2: Investigation of the relationship between maternal overall attachment score to pregnancy and hope and resilience during pregnancy**

Hope and resilience variables	Maternal attachment to the fetus	
	P	Correlation coefficient
Hope	0.73	0.017
Dimensions of hope		
Thinking	0.004	0.148
Routes	0.047	0.101
Resilience	0.03	0.110

The overall hope score in the present study was high. The reason for the high score in this study may be the expectation of the mother to see, touch, and kiss her child. The same expectation for future can increase the expectation of pregnant mothers.

Izadi Tameh *et al.*'s study reported hope scores in 200 nursing students lower than the present study.<sup>[10]</sup> The Kamari and Shekhaleslami study reported a lower score of hope in 220 Shiraz University students than in the present study.<sup>[13]</sup> The study by Mirbagher-Ajorpaz *et al.* reported a lower hope score in 300 hemolysis patients than in the present study.<sup>[28]</sup> Hope scores were lower in all studies than in the present study. Given the fact that, this study was performed on pregnant mothers, the above-mentioned difference is justified.

The overall resilience score in the present study was very close to the highest resilience level. Pregnant mothers try to reduce stress and anxiety throughout their pregnancy to keep their fetuses healthy and to compensate for negative emotions with positive emotions and to avoid events that cause them mental and physical problems. This makes them more resilient. The 2011 Mozafari *et al.*'s study reported resilience scores in 299 male and female students near the present study.<sup>[29]</sup> The study by Saadat *et al.* (2015) reported a lower resilience score



**Table 3: Investigation of the relationship between maternal attachment to fetus and hope and resilience during pregnancy**

Aspects of maternal attachment to the fetus	Hope and resilience							
	Total score		Hope		Route		Resilience	
	P	Correlation coefficient	P	Correlation coefficient	P	Correlation coefficient	P	Correlation coefficient
Interact with the fetus	0.047	0.037	0.003	0.151	0.11	0.08	0.64	0.023
Sacrifice	0.79	0.014	0.015	0.124	0.027	0.113	0.03	0.110
Differentiation between yourself and the fetus	0.53	0.032	0.13	0.07	0.035	0.107	0.06	0.093
Attribution to the fetus	0.81	0.012	0.21	0.063	0.35	0.047	0.001	0.29
Accepting the mother role	0.13	0.077	0.001	0.192	0.20	0.064	0.17	0.069

in 285 male students than in the present study.<sup>[14]</sup> The results of the present study showed that there is no significant relationship between the overall score of maternal attachment to the fetus and the total score of hope, but there is a positive and significant relationship with hope subscales including thinking and path. The results also showed that there is a positive and significant relationship between fetal engagement and self-sacrifice and acceptance of maternal role with hope thinking subscale, self-sacrifice, and differentiation between self and fetus with hope path subscale. Although the overall score was not correlated with maternal attachment to the infant, their domains had a significant positive relationship. As hope scores increase, attachment dimensions increase and the mother becomes more effective with the fetus and a stronger relationship between mother and fetus will be formed. In fact, a series of positive emotions, such as hope, during pregnancy provides better growth in emotional areas of the brain and increases serotonin levels and the release of pleasure hormones in the mother's body and ultimately in the fetus. Starting a mother-to-child interaction before birth can be the start of a secure relationship in their future attachment. As a result, increasing the expectation score during pregnancy reduces physical and psychological preparation and decreases the level of maternal anxiety during pregnancy. These concerns are often about the process of childbirth, their physical and child health, and the acceptance of maternal responsibility.<sup>[21,30-37]</sup> Hope has a mediating role in the relationship between attachment and mental health.<sup>[25]</sup> Hope promotes psychological well-being and a sense of worth, and helps social relationships increase health.<sup>[29]</sup> Caesar Cusky concluded that there was a significant correlation between positive hope and low and low hope and negative emotions.<sup>[30]</sup>

In this regard, the following studies can be mentioned. Taheri study aimed to determine the relationship between attachment style and life expectancy in mothers with educated mentally retarded boys, results showed that secure attachment style in mothers with mentally retarded sons with life expectancy has a positive and meaningful relationship. In fact, the more secure

a mother's attachment style is, the greater her life expectancy and the insecure (avoidant and ambivalent) attachment style in mothers of mentally retarded boys has a significant negative relationship with their life expectancy.<sup>[11]</sup> A study by Valikhani *et al.* aimed to predict specific areas of students' hopefulness within their attachment styles showed that secure attachment style was positively and positively associated with hope, whereas avoidant attachment style was not positively and positively correlated.<sup>[30]</sup> A Kamari and Shekhaleslami study conducted on 220 individuals to determine the mediating role of optimism in the relationship between people's attachment styles with their happiness and life expectancy, results showed that ambivalent attachment style had a negative and significant relationship with life expectancy, and avoidant attachment style had no significant relationship with life expectancy.<sup>[13]</sup>

A study by Izadi Tameh *et al.* aimed to determine the relationship between attachment styles with self-esteem and hope in nursing students, results showed that there is a positive correlation between secure attachment style with hope and negative relationship between avoidant and ambivalent attachment styles with hope.<sup>[10]</sup> All studies on attachment dimensions with hope had a significant relationship between hope and attachment styles, and the present study was the only study on maternal attachment to fetus. The results also showed that the overall score of maternal attachment to the fetus was positively and significantly correlated with the overall score of resiliency. There is also a positive and significant relationship between self-sacrifice and attribution to the fetus with resilience. As maternal attachment score increases, the maternal attachment score increases. In fact, a pregnant mother who has a solution for dealing with positive and negative situations can prevent the detrimental effects of the situation on her emotions and thus put the fetus's health at the forefront and thus have a stronger relationship with her child. Pregnancy is a major stress that can manifest or aggravate disruptive tendencies.<sup>[38]</sup> Hormonal changes affect the psychological state of women, and this period is stressful for them.<sup>[1]</sup> Resilience reduces negative emotions and

increases mental health, leads to hope and life satisfaction and is considered a source of resistance to stress and elimination of psychological effects on individuals.<sup>[38]</sup> People with high resilience in dealing with emotional events tend to show positive emotions. The root of child protection and care is rooted in early human attachment experiences. These experiences lead to hormonal changes in humans, and hence, they have long-term effects.<sup>[39]</sup> Attachment-based preventive interventions can provide resilience.<sup>[38,39]</sup>

Mozafari *et al.*'s study of 299 male and female students aimed at determining the mediating role of resilience in the relationship between attachment dimensions and mental health showed that resilience had a significant relationship between attachment dimensions and mental health.<sup>[29]</sup> Alborzi *et al.* study of 204 students aimed at determining the relationship between attachment styles and resilience: mediated role of emotional intelligence, the results showed a significant positive relationship between secure attachment style and resilience and there is a significant negative relationship between avoidant and ambivalent attachment style with resilience.<sup>[35]</sup>

Overall, considering the importance of life expectancy and resilience in mental health and effective coping with pregnant mothers (reassessment, problem solving, avoidance of stressful life events, seeking social support),<sup>[36,37]</sup> and the importance of personality stability and how mothers relate to their own fetus,<sup>[38]</sup> can be summarized from the results of this study to inform families (especially mothers), counselors, and educators about the importance of attachment as one of the contributing factors in increasing hope for life and resilience.

This study was one of the few studies to investigate the relationship between two important factors in mental health during pregnancy, namely, hope and resilience and attachment of the mother to the fetus with high sample size. Furthermore, the mental status of pregnant mothers, lack of time, the busyness of the environment and having a companion may have been effective in answering the questionnaire questions that were out of the researcher's control.

## Conclusion

The results of this study showed that there is a positive and significant relationship between hope and resilience with maternal attachment to fetus. As a result, increased expectation and resiliency of pregnant mothers can increase their attachment to the fetus. As a result, caregivers' attention to the emotional and psychological issues of pregnant mothers and their concerns may lead to appropriate interventions in this area. And to do

well by increasing mothers' attachment to the fetus by increasing the hope and resilience of prenatal care and subsequent postpartum care.

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## Conflicts of interest

There are no conflicts of interest.

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