

ORIGINAL ARTICLE

The Correlation between Spiritual Health and Maternal-Fetal Attachment Behaviors in Pregnant Women Referring to the Health Centers in Qazvin, Iran

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ABSTRACT

Background: Spiritual health and maternal-fetal attachment behaviors are considered as beneficial coping strategies used to adapt to pregnancy. The present study was conducted to determine the correlation between spiritual health and maternal-fetal attachment behaviors in pregnant women referring to health centers in Qazvin.

Methods: The present descriptive correlational study was conducted on 200 pregnant women referring to health centers in Qazvin, in 2015. A multi-stage sampling was carried out and data were collected in a self-report manner, using the Persian version of Spiritual Well-Being scale developed by Paloutzian and Ellison, Persian version of Cranley's maternal-fetal attachment scale, and a demographic and midwifery questionnaire. Data were analyzed in SPSS-20, using Pearson's correlation coefficient and the multivariate linear regression. $P < 0.05$ was considered statistically significant.

Results: The mean scores of attachment and spiritual health were 95.91 ± 8.92 and 104.15 ± 10.59 , respectively. A weak positive correlation was observed between attachment behaviors and spiritual health ($P < 0.001$, $r = 0.40$). Regression analysis showed that spiritual health ($P < 0.001$, $\beta = 0.40$), religious health ($P < 0.001$, $\beta = 0.30$), and existential health ($P < 0.001$, $\beta = 0.43$) could predict the maternal-fetal attachment behaviors.

Conclusion: The results showed that a higher spiritual health was associated with an increase in maternal-fetal attachment behaviors. These results suggest the importance of strengthening spirituality during pregnancy as an effective strategy for increasing the attachment behaviors.

KEYWORDS: Pregnancy, Maternal-fetal, Attachment, Spiritual, Iran

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INTRODUCTION

Pregnancy is one of the most important and stressful-stages of a woman's life that is accompanied by physiological and psychological changes.¹ The development of a relationship with the fetus is a part of maternal adaptation to pregnancy in this period.² The early bond established between the mother and fetus before birth is referred to as maternal-fetal attachment.³ According to Pillitteri attachment behavior that develops gradually from the first trimester of pregnancy, reaches its peak in the third trimester, and continues after delivery is important for adaptation to pregnancy.⁴ Maternal-fetal attachment behaviors with respect to suitable prenatal care, nutrition conditions and tendency to know about the fetus can increase the mother's and infant's health and lead to satisfaction with the pregnancy consequence.^{5, 6} Studies stated that different factors affect the maternal-fetal attachment, such as the cultural, mental, social conditions, individual's past, maternal, fetal and neonatal factors, personality traits, marriage, selection of partner, post-marriage issues, pregnancy, physical and psychological characteristics, fetal appearance, family and social support, and neonatal mood.^{7, 8} Several studies have been conducted on the spirituality, bonding and attachment theory.⁹⁻¹² These studies showed a significant relationship between maternal-fetal attachment and spirituality.⁹ ¹¹ Moreover, some studies have demonstrated conflicting findings about the relationship between spiritual health and maternal-fetal attachment behaviors; Gau (1996), however, concluded that spiritual components did not show a direct effect on prenatal attachment.¹⁰ Spirituality is a multidimensional concept that has accumulative effects on the health, particularly during pregnancy.¹³ A study showed that pregnant Iranian women had a high level of spiritual health.¹⁴ Spiritual health is defined in different ways. One definition is a dynamic state of being which is manifested by the extent to which a person lives in harmony in up to four major domains of spiritual well-being including the relationship with themselves, others, the

environment and with a transcendent one, commonly called God.¹⁵ One can associate spirituality and religion with factors containing lower rates of substance abuse, anxiety, suicide, depression, greater purpose in life, marital satisfaction, well-being, optimism, hope, and higher social support; furthermore, by increasing satisfaction and maintaining a positive effect on health-related or hygienic behaviors, spirituality can affect various physical diseases and the way patients respond to treatment.¹⁶ Although religiosity and spirituality may be related, one can be spiritual without necessarily being religious.¹⁷ In every society, spiritual health is uniquely defined based on the dominant culture of that place; mother's religious and cultural background may have a strong influence on her attitude toward pregnancy.¹⁸ Almost 98 percent of Iranians are Muslim; consequently, religion and spirituality are intertwined with their culture and lifestyle and play an important role in their lives, particularly when they are experiencing such chronic types of tension as pregnancy.¹⁹ With this background in mind and the conflicting results about the relationship of spiritual health with attachment behaviors, the present study was conducted to determine the correlation between spiritual health and maternal-fetal attachment behaviors in pregnant women referring to health centers in Qazvin, Iran, in 2015.

MATERIALS AND METHODS

The present descriptive correlational study was conducted on 200 pregnant women referring to health centers delivering first-level services in Qazvin, Iran, in 2015. In accordance with a previous study²⁰ and based on the formula for descriptive-correlational studies, a sample size of 200 was calculated.

$$n \geq \left[\frac{(Z_{1-\alpha/2} + Z_{1-\beta})}{0.5 \times \ln[(1+r)/(1-r)]} \right]^2 + 3$$

$$r = 0.20$$

$$\alpha = 0.05 \Rightarrow Z_{1-\alpha/2} = 1.96$$

$$\beta = 0.20 \Rightarrow Z_{1-\beta} = 0.84$$

The study inclusion criteria consisted of

absence of any illness or mental problems illness or mental problems, at least primary school education, being pregnant, age 18 to 35 years, gestational age of 28-42 weeks, planned pregnancy (by both father and mother), at least one ultrasound during pregnancy (to assess fetal health), and a single healthy fetus. The exclusion criteria consisted of failure to answer all the items of the questionnaire, and lack of willingness to continue participation in the study. To perform the multistage sampling, first we performed stratified sampling and Qazvin was divided into three municipal districts; then, in proportion to the population covered in each district, 29% of the sample was allocated to the first district, 46% to the second, and 25% to the third. In the second stage, cluster sampling was performed and each health center was taken as one cluster. Two clusters were randomly selected from district one, three from district two and one from district three. The samples were distributed according to the number of people referring to the centers. In the third stage, sampling was conducted continuously over three months, from December to February, except for holidays, and according to the sample size allocated to each center.

Data were collected using a demographic and obstetric questionnaire, Persian version of Spiritual Well-Being Scale developed by Paloutzian and Ellison, and Persian version of Cranley's Maternal-Fetal Attachment Scale.²¹²² The personal-demographic questionnaire had three parts, including personal details (age, education, mother's and spouse's occupation and family income); pregnancy details (gestational age, gravidity and parity and history of miscarriage, stillbirth and infertility); and history of chronic diseases (diabetes, hypertension, internal diseases and surgery).

The Spiritual Well-Being Scale was developed by Paloutzian and Ellison in 1982 and contains 20 items, including ten items that assess religious health and ten assessing existential health. The total score of spiritual health is the sum of these two sections, ranging from 20 to 120 and higher scores

representing greater spiritual health; the answers to the items are scored based on a six-point Likert scale from 1 to 6 and in the negative questions it is reverse.²³ Paloutzian and Ellison approved the validity through face validity and reliability of this questionnaire through test-retest reliability and Cronbach's alpha method. Test-retest reliability coefficients was reported 0.96 (Religious health), 0.86 (Existential health), and 0.93 (Total score) and Cronbach's alpha coefficients were 0.91 (Religious health), 0.91 (Existential health), and 0.93 (Total score). The results showed acceptable validity and reliability.²³ Ellison states that this test has a good face and content validity and a strong negative correlation with the Spiritual Well-Being Scale to the UCLA (University of California, Los Angeles). Loneliness Scale indicated a reasonable measure of construct validity.²⁴ Also, Soleimani et al. (2017) stated the reliability and validity of the Persian version of spiritual health scale through Cronbach's alpha method and construct reliability and face, content, and construct validity; the Cronbach's alpha and construct reliability were above 0.7. The construct validity of the scale was determined using exploratory factor analysis (results showed 2-factors, 20-item, $X^2(114)=330.22$, $P<0.05$, RMSEA (90 % C.I.) =0.08) and the face and content validity (CVR and I-CVI values were greater than 0.49 and 0.79) of this scale showed a good validity.²¹ In the present study, the reliability of this scale was confirmed with a Cronbach's alpha of $\alpha=0.85$ and also with a test-retest coefficient of $r=0.78$; people's spiritual health was divided into low (20-40 points), moderate (41-99) and high (100-120), based on this score.

The Cranley's Maternal-Fetal Attachment Scale contained 24 items in five subgroups, including interaction with fetus (four items), differentiation of self from fetus (five items), role-taking (six items) attributing characteristics to the fetus (four items) and giving of self (five items); the responses to the questions consisted of 5 option Likert scale from 1 to 5. The minimum to maximum scores

were 24-120, respectively.²⁵ Total scores of attachment behavior and its subscales were calculated and presented as three categories, including low (24-56 points), moderate (57-88), and high (89-120) attachment. This scale was first used by Cranley in 1981 that confirmed the questionnaire with internal reliability (Cronbach's alpha of 0.85) and content validity. Intercorrelations were performed among the subscales and the total scale to examine construct validity and all subscales were positively associated with the total scale ($r=0.61$ to 0.83).²⁵ It was translated into Persian for the first time by Khoramroudi and its validity and reliability were confirmed using the content validity and test-retest ($r=0.83$) methods.²² The present study calculated the scale's Cronbach's alpha to be 0.88 and the validity of this scale was also confirmed using the qualitative face validity.

This research was carried out after obtaining the permission and letter of introduction from Qazvin University of Medical Sciences along with a code of ethical compliance (No. 116.636) from Ethics Committee of Shahid Beheshti University of Medical Sciences.

The participants were briefed on the study objectives, confidentiality of the data and the right to withdraw from the study at any stage. After submitting their verbal consent, the participants completed the questionnaires in a self-report manner in a private setting under the guidance of the questioner.

The normality of the data distribution was first confirmed by the Kolmogorov–Smirnov

test ($P>0.05$), and the correlation between the data was determined using parametric tests such as Pearson's correlation coefficient and the multivariate linear regression. Data were analyzed in SPSS-20 at the significance level of $P<0.05$.

RESULTS

All the participants completed the three questionnaires entirely. The women's mean age was 27.45 ± 4.63 years and their mean gestational age was 33.09 ± 3.76 weeks. Among the participants, 48 participants (24%) were younger than age 23; in 91 participants (45.5%) the gestational age varied from 32 weeks and one day to 37 weeks and six days. Also, 84 participants (42%) had a high school diploma and 84 (42%) were experiencing their second pregnancy.

139 participants (69.5%) had high and 61 participants (30.5%) had moderate spiritual health. Also, 131 participants (65.5%) had high and 69 participants (34.5%) had moderate attachment behaviors. Table 1 presents the mean scores of each of the two variables and their subscales.

Pearson's correlation test results showed a weak, positive and significant correlation between spiritual health and maternal-fetal attachment behaviors ($P<0.001$, $r=0.40$, CI 95%: 0.28-0.56). Table 2 shows the correlation between spiritual health and maternal-fetal attachment behaviors and their subscales.

According to the regression statistic

Table 1: Attachment behavior and spiritual health in pregnant women

Variable		Mean±SD	Range of scores achieved	Range of available scores to earn
Attachment behavior	Interaction with fetus	17.41±2.02	9-20	4-20
	Differentiation of self from fetus	20.21±2.38	13-25	5-25
	Role-taking	24.66±2.71	17-30	6-30
	Attributing characteristics to fetus	15.51±2.52	9-20	4-20
	Giving of self	18.13±2.79	10-25	5-25
	Total score	95.91±8.92	69-120	24-120
Spiritual health	Religious health	51.92±5.65	28-60	10-60
	Existential health	57.32±6.36	32-60	10-60
	Total score	104.15±10.59	61-120	20-120

Table 2: The correlation between spiritual health and maternal-fetal attachment behaviors during pregnancy

Variable	Religious health		Existential health		Total SH ^a	
	r	P value*	r	P value*	r	P value*
Interaction with fetus	0.37	<0.001	0.54	<0.001	0.49	<0.001
Differentiation of self from fetus	0.23	0.00	0.32	<0.001	0.30	<0.001
Role-taking	0.34	<0.001	0.42	<0.001	0.41	<0.001
Attributing characteristics to fetus	0.12	0.07	0.19	0.00	0.17	0.01
Giving of self	0.05	0.45	0.13	0.05	0.10	0.15
Total AB ^b	0.30	<0.001	0.43	<0.001	0.40	<0.001

^aSpiritual Health; ^bAttachment Behaviors; *Pearson correlation test

Table 3: The linear regression prediction of maternal-fetal attachment behaviors based on spiritual health and subscales in pregnant women

Independent variables	B standardized	Std. Error	t-Value	P value*	95% Confidence Interval for B		R ²	Adjusted R ²
Religious health	0.30	0.10	4.52	<0.001	0.27	0.69	0.19	0.18
Existential health	0.43	0.08	6.82	<0.001	0.43	0.78		
Total SH ^a	0.40	0.05	6.13	<0.001	0.22	0.44		

^aSpiritual Health; *Linear Regression

results, spiritual health and its subscales were able to predict the maternal-fetal attachment behaviors significantly ($P < 0.05$), and each unit of increase in the score of religious health, existential health and total score of spiritual health increased attachment behaviors by 0.30, 0.43 and 0.40. The Beta value showed the relative importance of the independent variable in predicting the dependent variable, and accordingly, the 'Existential Health' score had the greatest effect on the increase in attachment behaviors. According to Adjusted R² (0.18), the amount of explanation of attachment behavior by spiritual health dimensions in this study has been reported 18% (Table 3).

DISCUSSION

The present study was conducted to determine the relationship between spiritual health and maternal-fetal attachment behaviors in pregnant women referring to health centers in Qazvin, Iran, in 2015. The results showed that the higher spiritual health was associated with an increase in maternal-fetal attachment behaviors. This finding is in the same line with the results which showed a significant relationship between maternal-fetal attachment and spirituality.^{9, 11} However, it disagrees with the studies which

showed that spiritual components did not show a direct effect on prenatal attachment.¹⁰ The difference between these results can be attributed to personal, social, cultural and care-related differences between the two countries as well as the different inclusion criteria used. For instance, participants in the present study were recruited from low-risk pregnant women; however, the participants in Gau's study did not have such conditions and were selected from high-risk and low-risk pregnant women. Gau's study shows that high-risk pregnant women may have different demands in spiritual well-being and maternal-fetal attachment as compared to low-risk pregnant women.¹⁰ Spirituality, as a part of attachment behavior, is activated and becomes especially relevant when an individual is confronted with a stressful situation.¹² Pregnancy is one of the most important and stressful periods in a woman's life and in Iran, as an Islamic society; it is considered as a gift from God and mothers believe that they have been qualified enough to have a baby.²⁶ In fact, they honor it and, in order to thank this gift, they try to follow a less stressful lifestyle and provide a sin-free environment for the growth and development of the unborn child.^{1, 27} Marriage, childbearing and child-rearing are considered pivotal periods in the life of Muslim women and Muslim girls are raised in preparation for their

future role as mother and wife.¹⁸

In this study, the regression results showed that the existential health had the highest impact on the general spiritual and religious health with regards to prediction of maternal-fetal attachment behaviors. Spiritual health is the culmination of a person's spiritual experience in light of religious and existential health. Religious health serves one in connecting with our Creator and existential health draws one beyond one's self toward the environment and other individuals and helps in adapting in the society.²⁸ On the other hand, the formation of maternal-fetal behaviors is one of the most important strategies for the mother to adapt to changes in the course of pregnancy.² Therefore, it appears that the impact of existential health, as a predictor of maternal-fetal behaviors, is justifiable. In explaining the acquired results, it is worth noting that spirituality can come to aid individuals to interpret life events in a different light and create a stronger sense of control which contributes to improvement of maternal-fetal attachment. During the stressful course of pregnancy and delivery, health care providers should be sensitive to the spirituality of the women and integrate this element in providing maternal care.²⁹ Midwives' empathy and spiritual care can play a significant role in creating positive mothering experiences and providing a solid foundation for confident mothering; in contrast, lack of spiritual care was associated with more enduring consequences, birth trauma, and difficulty bonding with their babies.³⁰

According to the results, the majority of the participating women had high to moderate maternal-fetal attachment. This finding can be explained by the positive adaptation to the changes during pregnancy and the effect of attachment on the infant's mental health in the years following birth. This finding is consistent with the results which showed that most pregnant women had a high maternal-fetal attachment.³¹

The present study showed that the majority of the subjects had high to moderate spiritual

health, which agrees with the results showing that more than half of the pregnant women had high spiritual health and the rest had moderate levels; one study reported a moderate to high mean score of spirituality.^{14, 32} Pregnancy is an opportunity for broadening thoughts or renewing feelings about spiritual matters that help protect the future mother from the negative outcomes of the changes in this period and create meaning and purpose in pregnancy.³³ This study has some strengths and limitations; one of the strengths of this study was that the result of this study can be used in the health system for paying attention to the spirituality and attachment behaviors of women during pregnancy. One of the limitations of the present study is that it failed to take account of participants' different religions; all samples were Muslim, so the findings of the study cannot be generalized to other religions and sampling has been conducted in Qazvin city and cannot be extended to other provinces. Given that spiritual health is defined uniquely in each society based on the dominant culture, further studies are recommended to be conducted on spiritual health and its relationship with attachment behaviors in different societies and cultures.

CONCLUSION

The results showed that higher spiritual health was associated with an increase in maternal-fetal attachment behaviors. These results suggest the importance of strengthening spirituality during pregnancy, as an effective strategy for increasing attachment behaviors; since the infant's health is closely related to the mother's mental health, promotion of mother's mental health can be effective in protecting public health. Paying more attention to maternal-fetal attachment behaviors (such as talking to fetus, naming baby early, reading a poem or song for the fetus) and spirituality in routine pregnancy care, health care providers can take steps to improve the mother's mental health and infant's health during postnatal years.

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