

# Relationship among Maternal Perception of Childbirth Experience, Spiritual Health and Maternal-Infant Relationship in the Postpartum Women: A Cross-Sectional Study

## Abstract

**Background:** Birth represents an influential moment in women's lives that can be a powerful or traumatic experience. Therefore, the aim of this study was to assess the relationship among maternal perception of childbirth experience, spiritual health, and maternal-infant relationship in the postpartum women. **Materials and Methods:** This descriptive-analytical study was conducted on 305 postpartum women referred to Health Centers in Karaj. The data were collected using the Perception of Birth Scale (POBS), maternal postnatal relationship scale, and spiritual health questionnaire. **Results:** In this study, the mean (standard deviation (SD) age of the participants was 27.50 (5.56) years. The Spearman's correlation test results showed that there was a significant positive relationship among the maternal perception of childbirth experience, the general maternal-infant relationship ( $r = 0.34, p < 0.001$ ), quality of relationship ( $r = 0.17, p = 0.002$ ), pleasure with interaction ( $r = 0.32, p < 0.001$ ), and absence of hostility ( $r = 0.28, p < 0.001$ ). In addition, a positive relationship was observed among spiritual health and general maternal-infant relationship ( $r = 0.21, p < 0.001$ ), pleasure in interaction ( $r = 0.08, p = 0.164$ ), absence of hostility ( $r = 0.15, p = 0.008$ ), and the maternal perception of childbirth experience ( $r = 0.11, p = 0.039$ ). **Conclusions:** It seems that to promote maternal-infant relationship, health care providers should not only try to promote physical intimacy between mother and infant but also create a positive emotional state for the mother during birth.

**Keywords:** Mother-child relations, parturition, postpartum period, spirituality

## Introduction

The experience of birth is an important event in life.<sup>[1-3]</sup> Establishing relationship between mother and child is a physical-psychological need that provides comfort and protection for the child. Thus, the mother serves as a child's first emotional bond, which will be revealed in all of the child's future social interactions. Therefore, this relationship should be intimate, continuous, and love to provide pleasure and peace for both the mother and the child.<sup>[4,5]</sup> Creating a secure relationship in infancy enables the child to establish close relationships with others, especially with his/her parents at an older age.<sup>[6]</sup> The positive experience of childbirth is an important goal in gynecological and obstetric care in which childbirth is defined as a normal life event, and the results are defined as "a healthy mother and child and satisfaction of individual

needs."<sup>[7]</sup> A positive experience can lead to feelings of perfection, self-worth, and self-confidence.<sup>[8,9]</sup> The experience of birth affects the mother's feelings of relationship to the baby. The positive birth experience can play a significant role in the health and well-being of both children and women and their relationships.<sup>[10]</sup> Women describe birth as a negative experience, leading to passivity, helplessness,<sup>[11]</sup> anger, guilt, frustration, lack of control, and inadequacy.<sup>[12]</sup> Negative or unpleasant experiences can also increase the risk of postpartum depression and post-traumatic stress disorder.<sup>[5,9,13]</sup> A negative experience at birth is the development of fear of childbirth, associated with increased side effects, such as increased incidence of cesarean section, less desire for future pregnancies, and postpartum depression.<sup>[1,13]</sup> Fear of childbirth is highly related to the previous experience of childbirth.<sup>[13]</sup>

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In recent years, the first few minutes after delivery is noticeable as an opportunity to promote maternal-infant relationship, successful breastfeeding, and a positive delivery experience for the mother and her family. The initial interaction between mother and baby, such as seeing, caring for, and feeding the baby, is part of an unknown complex psychological process between them.<sup>[3]</sup> To promote maternal-infant relationship, health care providers should not only try to promote the physical intimacy of mother and infant but also try to create a positive emotional state for the mother at birth. The physical or emotional separation of the mother from the baby around the birthplace is the primary cause of relationship disorders. Some of the conditions leading to this emotional separation are negative birth experiences, unwanted pregnancy, unwanted sex of the baby, traumatic events, illness, constipation, and sleep problems.<sup>[14]</sup>

In the holistic care model, the human is regarded as a biological, social, psychological, and spiritual being, and in the stages of his/her care, all aspects of his/her existence are considered because these dimensions are dynamic and affect each other and altogether form health.<sup>[15]</sup> Recent studies show that having spiritual health affects other aspects of health.<sup>[2]</sup> As the evidence shows, among these dimensions, the spiritual dimension of human beings has received less attention in health care. Spirituality is a universal human phenomenon connecting the whole human being to a superior being and is a factor contributing to the continuation of life and the purposefulness of life.<sup>[15]</sup> To provide better individual support to women during childbirth, health care providers are asked to pay more attention to the psychosocial aspects without neglecting medical services.<sup>[11]</sup> Therefore, the aim of this study was to investigate the relationship among maternal perception of childbirth experience, spiritual health, and maternal-infant relationship in the postpartum women.

## Materials and Methods

This descriptive-analytical study was conducted on 305 postpartum women referred to selected health centers located in the west of Karaj, Iran. Based on the study population, six health centers were randomly selected from the 21 health centers. In each health center, eligible samples were included in the study using a convenience sampling. In each health center, subjects completed the questionnaires after written informed consent was obtained from them. Sampling was performed from August 2019 to January 2020. The study inclusion criteria were the following.

Being Iranian, having literacy, fluency in Persian, passing at least six and at most 12 months since their delivery, being married, having natural childbirth, having single childbirth, having the birth of a healthy and term baby, absence of physical and mental illness in the mother (self-reported), absence of a postpartum depression according to the criteria defined in the integrated health system, no history of drug

and psychiatric and alcohol use, not being pregnant, and no disease in mother and baby after delivery. People who had completed the questionnaire incompletely were excluded from the study. Based on the sample size formula suggested for correlational studies with a significance level of 5%, test power of 80%, and precision of 0.20: the sample size was 305.<sup>[16]</sup>

In this study, the data were collected using a demographic questionnaire, Maternal Postnatal Attachment Scale (MPAS), Perception of Birth Scale (POBS), and spiritual health questionnaire. The demographic questionnaire included items related to age, mother's and spouse's education level, mother's and spouse's occupation, income level, ethnicity, mode of delivery, number of pregnancies, number of deliveries, frequency of pregnancy care, time of first breastfeeding, pregnancy status, duration of breastfeeding, history of infertility, participation in childbirth preparation courses, pregnancy complications, preference for the delivery type, receiving support at home works, receiving support in neonatal care, and interventions during childbirth. The MPAS containing 19 items is used for children under 36 months. This scale has three subscales (quality of relationship, absence of hostility, and pleasure in interaction). A high score indicates a high maternal-infant relationship. The scoring of items on this scale is variable, with some cases being 5-choice, some 4-choice, and some 2-choice. The scores ranged between 19 and 95. The internal consistency coefficient of this scale in the study of Condon and Corkindale (1998) was 0.78,<sup>[17]</sup> and the internal consistency of the subscales of this scale in the study of Zeinali (2011) was 0.69.<sup>[18]</sup>

POBS contains 27 items that are measured using a 5-point Likert scale (1 = not at all, 2 = low, 3 = moderate, 4 = very high, and 5 = excellent). The scores ranged from 27 to 135. This scale was first approved by Marut and Mercer (1979) with Cronbach's alpha of 0.83.<sup>[19]</sup> In the present study, the Persian version of this scale was used. The content and face validity were re-evaluated by 10 experts (including experts in reproductive health and obstetricians), and the necessary corrections were applied in terms of translation validity, translation quality, and cultural adaptations. For the pilot study, the Persian version of POBS was given to 10 mothers, and they were asked to give their opinions about the comprehensibility of the questions. The opinions of the mothers were applied in consultation with the translators and experts in the questionnaire. The item effect method was used to assess the face validity. The Content Validity Ratio (CVR) results indicated that 27 questions were larger than the Lawshe's table (0.49). This indicated that essential questions were used in this tool. The questionnaire was given to the group of experts to calculate the Content Validity Index (CVI) again. The results showed that 27 items which had a CVI score higher than 0.79 were appropriate. To measure reliability, the internal consistency

of the scale was assessed by calculating Cronbach's alpha. Cronbach's alpha obtained in this study was 0.87.

In this study, we used a spiritual health questionnaire developed by Amiri *et al.*<sup>[20]</sup> (2014). This questionnaire contains 48 items, a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) is considered for each item of the questionnaire. The scores were changed in the format of (0 = 1, 25 = 50, 2 = 75, 3 = 4, 100 = 5) so that a higher score indicates higher spiritual health. To measure reliability, the internal consistency of the questionnaire was assessed by calculating Cronbach's alpha. Cronbach's alpha obtained in this study was 0.96.

All statistical analyses were performed using SPSS 19.0 software (SPSS Inc., Chicago, IL, USA). Descriptive statistics (including mean, SD, and absolute frequency) and bivariate correlation test were used to investigate the relationship between variables. Spearman's correlation coefficient was used due to no-normal data.

### Ethical considerations

The study protocol was approved by the Ethics Committee of Alborz University of Medical Sciences (IR.ABZUMS.REC.1398.010). Also, prior to the start of the study, all participants signed the written informed consent form and they assured that any personal data shared with us would be guarded with utmost confidentiality.

## Results

In this study, the mean (SD) age of the participants was 27.50 (5.56) years and the minimum and maximum values of the participants in terms of age were 16 and 42 years, respectively. The mean (SD) marriage duration of the participants was 7.65 (4.73) years. According to the results, the income level of 11.80% of the participants was good, 68.40% was moderate, and 19.70% was weak. In terms of ethnic diversity, 8.30% of the participants were Lor, 12% were Kurdish, 59.50% were Turkish, and 20.30% were Persian. Also, 44.70% of the study participants were primigravid. The mean (SD) frequency of breastfeeding in participants was 9.92 (3.80) times per day. The results showed that 70.80% of mothers during the first hour after delivery, 15% between the first 1–4 hours after birth, 7.60% in the first 12–4 hours after delivery, and 6.60% after more than the first 12 hours experienced the baby's breastfeeding after delivery. Other demographic variables are presented in Table 1.

The mean (SD) score of perception of birth in the participants was 90.40 (13.31). There was a significant difference between the mother's perception of birth in terms of income level, time of first breastfeeding after birth, preference for the delivery type, intervention during delivery, type of pregnancy, and parental education level [Table 2]. Also, the score of the mother's perception of birth did not differ significantly in

**Table 1: Demographic characteristics of the participants**

Variable	n (%)	Variable	n (%)
Maternal education level		Spouse's education	
Below high school diploma	123 (40.50)	Below high school diploma	122 (40.40)
High school diploma	124 (40.70)	High school diploma	121 (40.10)
Associate degree/Bachelor	54 (17.80)	Associate degree/Bachelor	52 (17.20)
Bachelor degree or higher	31 (1)	Above Bachelor	7 (2.30)
Number of pregnancy		Mother's job	
1	136 (44.70)	Housewife	284 (93.70)
≤2	168 (55.30)	Employed	19 (6.30)
Spouse's job		Frequency of pregnancy care	
Unemployed	156 (51.40)	0	1 (0.30)
Worker	53 (17.40)	7≥	63 (20.50)
Employed	91 (29.90)	8-10	196 (66.40)
Self-employed	4 (1.30)	11-20	36 (12.80)
History of infertility		History of attending a childbirth preparation class	
Yes	11 (3.60)	Yes	81 (26.70)
No	293 (96.40)	No	222 (73.30)
Complications of pregnancy		Delivery preference	
Yes	9 (3)	Vaginal	272 (89.50)
No	294 (97)	cesarean	32 (10.50)
Support in home works		Support in baby care	
Yes	139 (46.20)	Yes	180 (59.80)
No	162 (53.80)	No	121 (40.20)
Interventions during childbirth		Type of pregnancy	
Yes	30 (10.40)	Wanted	233 (76.50)
No	258 (89.60)	Unwanted	71 (23.50)

**Table 2: Perception of birth in terms of income level, first breastfeeding, preference for delivery, childbirth intervention, type of pregnancy, and paternal education**

Variable	Mean (SD)	Statistical test	df	p
Income level				
Low	88.10 (10.67)	$F=5.00$	2	0.006*
Average	89.99 (13.92)			
High	96.58 (12.14)			
The first time of breastfeeding				
First hour	91.87 (12.85)	$F=5.00$	2	0.006*
Between 1 and 4 hours	89.32 (4.28)			
4 and 12 hours	84.24 (13.55)			
More than the first 12 hours	84.51 (13.45)			
Delivery Preference				
Vaginal	91.59 (13.03)	$t=0.72$	302	0.001**
Cesarean	80.24 (11.34)			
Intervention during childbirth				
Yes	84.31 (14.35)	$t=-2.732$	286	0.007**
No	91.17 (12.83)			
Type of pregnancy				
wanted	91.18 (13.32)	$Z=-1.84$		0.066***
Unwanted	87.81 (13.04)			
paternal education level				
Below high school diploma	88.60 (11.18)	$F=2.70$	3	0.046*
High school diploma	90.88 (15.23)			
Associate degree/Bachelor	91.65 (12.78)			
Above bachelor	101.78 (10.58)			

\*One-way ANOVA; \*\*t-test; \*\*\* Mann-Whitney

**Table 3: Mean score of maternal-infant relationship**

Variable	Minimum	Maximum	Mean (SD)
Maternal-infant relationship	50.40	95	81.66 (6.84)
Domains of maternal-infant relationship			
Quality of relationship	27.60	45	40.84 (3.17)
Pleasure with interaction	10.20	25	22.77 (2.37)
Absence of hostility	5	25	18.04 (3.55)

terms of the number of pregnancies, frequency of pregnancy care, participation in prenatal class, maternal education level, and other demographic characteristics listed in Table 1 ( $p < 0.05$ ). Table 3 shows maternal-infant relationship scores in three areas of quality of relationship, pleasure with interaction, and absence of hostility.

The Chi-square test results showed that the score of maternal-infant relationship ( $p = 0.191$ ), quality of relationship domain ( $p = 0.738$ ), and hostility domain ( $p = 0.231$ ) did not differ significantly in terms of the number of pregnancies, and only the score of pleasure with interaction domain was significantly higher in primigravid women based on Mann-Whitney test results ( $z = 2.02$ ,  $p = 0.043$ ). Moreover, the results of the Kruskal-Wallis test showed that the scores of maternal-infant relationship ( $p = 0.026$ ) and pleasure with interaction domain ( $p = 0.016$ ) were significantly different

in terms of the paternal education level. Thus, the scores of maternal-infant relationship and pleasure with the interaction domain were significantly higher in fathers who had higher education. Besides, the Mann-Whitney test results demonstrated that the maternal-infant relationship score was significantly different in terms of pregnancy type and delivery preference [Table 4]. The results of Spearman's correlation test revealed that there was a significant positive relationship among the perception of birth and the general maternal-infant relationship ( $r = 0.34$ ,  $p < 0.001$ ), quality of relationship domain ( $r = 0.17$ ,  $p = 0.002$ ), pleasure with interaction domain ( $r = 0.32$ ,  $p < 0.001$ ), and hostility domain ( $r = 0.28$ ,  $p < 0.001$ ). Thus, increasing the score of perception of birth was associated with increasing the overall score of maternal-infant relationship and the scores obtained from the domains of quality, pleasure with interaction, and absence of hostility. Also, the results of Spearman's correlation test showed that there was a significant positive relationship among spiritual health and general maternal-infant relationship ( $r = 0.21$ ,  $p < 0.001$ ), pleasure with interaction domain ( $r = 0.08$ ,  $p = 0.164$ ), absence of hostility domain ( $r = 0.15$ ,  $p = 0.008$ ), and the perception of birth ( $r = 0.11$ ,  $p = 0.039$ ). Thus, increasing the score of spiritual health was associated with increasing the overall score of maternal-infant relationship and scores of the domains of quality of relationship, absence of hostility, and a higher perception of birth.

**Table 4: Mean rank differences of maternal-infant relationship according to type of pregnancy and delivery preference among participants**

	Variable		Mean (SD)	Rank mean	Z	p*
Maternal-infant relationship	Type of pregnancy	Wanted	82.14 (6.46)	158.45	2.14	0.032
		Unwanted	80.08 (7.78)	132.97		
Quality of relationship		Wanted	40.93 (2.95)	153.55	0.38	0.706
		Unwanted	40.52 (2.55)	149.06		
Absence of hostility		Wanted	18.25 (3.32)	158.19	-2.05	0.041
		Unwanted	17.35 (4.16)	133.83		
Pleasure with interaction		Wanted	22.95 (2.29)	159.65	-2.63	0.008
		Unwanted	22.20 (2.55)	129.05		
Maternal-infant relationship	Delivery preference	Vaginal	81.97 (6.89)	157.25	-2.75	0.006
		Cesarean	79.08 (5.81)	112.14		
Quality of relationship		Vaginal	40.85 (3.23)	41799.00	-0.68	0.497
		Cesarean	40.77 (2.66)	4561.00		
Absence of hostility		Vaginal	18.22 (3.54)	156.94	-2.57	0.010
		Cesarean	16.50 (3.25)	114.78		
Pleasure with interaction		Vaginal	22.89 (2.36)	157.67	-3.06	0.002
		Cesarean	21.81 (108.59)	2.30		

\* Mann-Whitney

## Discussion

This study aimed to investigate the relationship among maternal-infant relationship with the perception of childbirth and the spiritual health in postpartum women. The results showed that the participants were in a good state in terms of maternal-infant relationship. In this study, the mother's perception of the childbirth experience was moderate. The participants also had good spiritual health. There was a significant relationship among maternal-infant relationship, perception of birth, and spiritual health.

Positive perception of birth, including satisfaction with this experience and care, was related to increasing maternal age, multi-parity, higher income level, higher education level, prenatal education level, wanted pregnancy, short duration of labor, vaginal birth, reduced labor interventions, increased self-confidence and self-esteem, reduced anxiety and stress in the mother, and the absence of separation of the mother from the child.<sup>[21,22]</sup> In the present study, women whose husbands had a higher education level reported greater satisfaction with the birth experience, highlighting the importance of the role of spouses' knowledge and attitude in women's birth experience.

Complications of labor play a role in the fear of childbirth; however, the fear of childbirth is more related to the experience of the previous birth experience. Parity affects the content of fear. Nulliparous women are often afraid of the unknown pain and loss of control. In the present study, no significant difference was observed between delivery experience and parity. Studies show that the experience of childbirth affects maternal-infant relationship. Experiences of maternal delivery, such as preterm labor, cesarean section, traumatic delivery, or perceived injury, have a greater potential to affect the maternal-infant relationship

due to consequences, such as physical separation and maternal emotional and psychological distress.<sup>[1,23,24]</sup>

Breastfeeding in the first hours after childbirth is one of the best ways to strengthen the bond between the mother and baby. One of the reasons for the role of breastfeeding in relationship establishment can be described by the behavioral theory of relationship. This theory suggests that an relationship is formed between the baby and the caregiver who provides food and comfort. Early breastfeeding can also release more oxytocin, which helps the relationship process.<sup>[25]</sup>

The physical or emotional separation of the mother from the baby around birth is considered the primary cause of relationship disorders. Premature birth, cesarean section, and traumatic birth due to reduced maternal exposure to oxytocin during the birth process can disrupt the mother-child relationship. Some conditions leading to this emotional separation are unwanted pregnancy, unwanted sex of the baby, traumatic events around the birth, illness, constipation, and sleep problems.<sup>[14]</sup>

Brubaker (2019) reported that the sooner mothers see their infants and care for and feed them after delivery, the more positive their delivery experiences will be.<sup>[3]</sup> Moreover, Kutty *et al.*<sup>[26]</sup> (2020) showed that starting breastfeeding in the first hour after delivery compared to starting breastfeeding more than one hour after delivery could improve maternal-infant relationship, which was consistent with our study.

People with stronger spirituality experience more positive emotions, such as humor and self-confidence and less negative emotions like hostility and sadness. Spirituality not only affects people's moods and mental health but also

improves their physical condition.<sup>[27]</sup> Higher spiritual health is associated with increased relationship behavior of mother and fetus, indicating the importance of strengthening spirituality during pregnancy as an effective strategy to increase relationship behavior.<sup>[28]</sup>

This is the first study that simultaneously examined the perception of Iranian mothers about the experience of childbirth and relationship between them and their infants. Given that only mothers who were referred to health centers were studied, it is therefore recommended that a similar study be performed on mothers who were referred to private centers and clinics.

## Conclusion

It is very valuable to provide conditions that can make the experience of childbirth pleasant for mothers. The results of the present study showed that mothers who had a pleasant experience of childbirth reported better relationship to their babies. Emphasizing the importance of paying attention to the mother's spiritual health during childbirth, creating a pleasant experience of maternal delivery, and expressing its significant effects on the relationship between mother and infant after childbirth for midwives and gynecologists can be an effective step in accepting women's maternal role and infant health.

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## Conflicts of interest

Nothing to declare.

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