History of perinatal loss and maternal–fetal attachment behaviors

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A B S T R A C T

Background: Maternal–fetal attachment (MFA) is an important requirement for optimal maternal–infant adaptation. Current studies showed conflicting findings about whether a history of perinatal loss (fetal/neonatal death) affects maternal attachment in pregnancy.
Research question: "Does a history of perinatal loss affect maternal–fetal attachment behaviors?"
Methods: One hundred women with and without a history of PL were recruited using a convenience method of sampling, from prenatal care services affiliated to Shahid Behesti University of Medical Sciences. Data collected by questionnaires from a convenience sample of multiparous women in the 3rd trimester of pregnancy with no surviving children were compared with data from a selected cohort of primigravid women. The two groups of women were matched for health and literacy. The data collected included demographic characteristics and responses to 24 questions in five groups of behaviors on the Persian version of Cranly's Maternal–Fetal Attachment Scale. Data were analyzed by SPSS 13 and using t, ANOVA, Chi square, Pearson correlation and Mann–Whitney tests.
Findings: Finding showed that total score of MFA for women with a history of PL ($68.95 \pm 9.20\%$) is not significantly different from this score for women without such a history ($71.22 \pm 11.75\%$; $p < 0.05$). Women with a history of PL had a significantly lower score for a subgroup of behaviors "differentiation of self from fetus" compared to women without of a history of PL (78.25 vs. 83.21%; $p < 0.05$). But, there were no statistically significant differences between two groups respecting to other subgroups of behaviors between two groups.
Conclusion: In this study, a history of pregnancy loss was found to be associated with disturbances in the group of maternal–fetal attachment behaviors related to "differentiation of self from fetus" in a subsequent pregnancy.

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1. Introduction

Prenatal period is usually considered as a pleasant period of life for women; however, it can be regarded as a stressful circumstance for some women such as those with a history of fetal or neonatal loss.[1] Perinatal loss (PL) is a terrible emotional experience that was followed by a feeling of failure, hopelessness, and losing of self-confidence.[2] Psychological disorders related to PL can be sustained till subsequent pregnancy and it may lead to a resistance to motherhood adaptation process and MFA.[3,4]

MFA was conceptualized by the attachment theory[5] as an effective emotional relationship between mother and her baby[6] that initiate from the prenatal period while the physical development of the fetus and transformation of a woman into a mother are occurring, simultaneously. Transformation of a woman into a mother means woman's recognition of her role, the identity of her developing fetus, and the relationship between herself and her fetus.[7] The development of this relationship is critical because of the correlation between prenatal and postnatal attachment[8–10] and because of optimal attachment in early infancy is an integral component in the future development of a child.[11]

MFA initiated with fetal movement or first observation in sonography. It increases during pregnancy with increasing of fetal movements, and peaks in the 3rd trimester of pregnancy and

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further increases during postnatal period. It plays an important role in a successful maternal adaptation process, beside that it improves maternal health behaviors such as avoiding smoking/alcohol use, using appropriate nutrition, regular attending for prenatal care, and participating in labor preparation classes. MFA can be affected by factors such as relationship between family members, family's support and adaptation to pregnancy, maternal self image, history of high risk pregnancy and unwanted pregnancy.[12]

1.1. Literature review

There are controversial results on relationship between history of PL with MFA behaviors. Some studies reported a decrease in MFA[13,14] while others found no effect.[6,15,16] These studies were conducted among a homogenous group of married and middle income women and their ethnicity was not reported. MFA changes over time and it is affected by psychosocial background,[17] racial and ethnical variations.[18] Therefore, it is essential for clinicians and researchers to fully understand the implications of MFA levels in culturally diverse populations.[18]

Therefore, this study aimed to compare MFA behaviors of women, with and without history of PL and its influencing factors in Iran, a country with a prevalence rate of 2.29% for fetal death.[19]

2. Subjects and methods

One hundred women with and without a history of PL were recruited using a convenience method of sampling, from prenatal care services affiliated to Shahid Behesti University of Medical Sciences. The health centers were selected from north, east and Shemiranat areas of Tehran, Iran. Participants were Iranian, literate pregnant women, in their 3rd trimester of pregnancy, aged between 18 and 40 years, without any surviving child, and with a singleton pregnancy. Participants had no history of known psychological or medical diseases, infertility, addiction, fetal congenital abnormalities. At the beginning, women with a history of PL were found using the clients' written records, and then the similar numbers of primigravidas were selected from the same centers.

Data were collected using a questionnaire that included questions on demographic- and fertility-related characteristics of the participants (20 questions) and the Persian version of Cranly's MFA Scale. The MFA scale (1981)[7] included 24 questions that were divided to 5 subgroups: (1) role-taking, (2) differentiation of self from fetus, (3) interaction with fetus, (4) attribution of characteristics to fetus, and (5) giving of self. The responses to the questions consisted of 5 options likert scale including never, seldom, sometimes, often and always, which were scored from 1 to 5, respectively. Minimum to maximum scores were 24–120. Total score for MFA and for the subgroups of behaviors were calculated and presented as percentage. The questionnaires were completed by women in their 3rd trimester of pregnancy.

Content validity of the questionnaires was assessed and confirmed by 15 midwives, obstetrician and psychologists. Reliability of the scale was confirmed by Chronbach's alpha 0.83 and test–retest reliability coefficient of 0.90. The Persian version of this scale was previously used by Khoramroudi,[20] Abbasi et al.[21] and Taavoni et al.[14] They calculated Chronbach's alpha 0.83–0.85 for the questionnaire.

After checking for normality using the one-sample Kolmogorov–Smirnoff test, data were analyzed using Student's *t* test. The categorical variables are expressed as percentages. Pearson's χ^2 test and Mann–Whitney test were used to compare categorical variables between two study groups. Data analysis was performed using the SPSS 15.0 PC package (SPSS Inc., Chicago, IL). Statistical significance was set at $p < 0.05$. Approval of the Ethical Committee of the Shahid Beheshti University of Medical Science was obtained for the study. All participants were explained about the aims and process of the study and confidentiality of the information. An informed written consent was taken from each participant of the study.

3. Findings

One hundred women in two groups of 50 participated in the study. The demographic and fertility characteristics of the study groups are compared in Table 1.

The majority of participants was high-school educated, housewife and had moderate economic status. There was a statistically significant difference between the age and gestational age of women with PL in comparison to control group (Table 1).

Table 2 shows the fertility characteristics of women with a history of PL.

Table 1
Demographic characteristic of participants in two groups of pregnant women with and without a history of perinatal loss.

Characteristics	Groups		Test
	Primigravida without a history of PL Mean ± SD	Pregnant women with a history of PL Mean ± SD	
Gestational age (week)	34.60 ± 3.9	32.7 ± 3.76	T = 2.48 P = 0.015
Age (year)	24.89 ± 4.22	27.26 ± 4.7	T = −2.68 P = 0.09
Age of husband (year)	29.22 ± 4.57	30.62 ± 5.4	T = −1.30 NS
Characteristics	Groups		Test
	Primigravida N (%)	Women with a history of FND N (%)	
Educational status			
Primary school	4 (8)	3 (6)	Chi square
Middle school	6 (12)	5 (10)	NS
High school	27 (54)	29 (58)	
Academic education	13 (26)	13 (26)	
Education status of husband			
Primary school	2 (4)	6 (12)	Chi square
Middle school	14 (28)	7 (14)	NS
High school	22 (44)	27 (54)	
Academic education	12 (24)	10 (20)	
Occupation			
House-holder	41 (82)	42 (84)	Chi square
Officer	4 (8)	7 (14)	NS
Worker	1 (2)	1 (2)	
Student	4 (8)	7 (14)	
Occupation of husband			
Unemployed	1 (2)	2 (4)	Chi square
Officer	11 (22)	15 (30)	NS
Worker	38 (76)	33 (66)	
Student	0 (0)	0 (0)	
Income			
Less than 300$	11 (22)	10 (20)	Chi square
300–500$	24 (48)	28 (56)	NS
More than 500$	15 (30)	12 (24)	
Accommodation			
Personal	10 (20)	18 (36)	Chi square
Rental	33 (66)	24 (48)	NS
Official	0 (0)	0 (0)	
Share with her or husband's family	7 (14)	8 (16)	