

## Comparison of mothers with normal pregnancy and surrogate uterine in terms of maternal-fetal attachment and feelings of guilt after relinquishment

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### Abstract

**Background:** Today, there are several methods in medicine to treat the infertility, and surrogate uterine is one of the new methods. The aim of the current study was to compare the Maternal-Fetal Attachment (MFA) and feelings of guilt of women volunteered to be surrogate mothers at the time of relinquishing the child to the biological parents and those of the women with normal pregnancies.

**Methods:** The present case control study was conducted on 30 women volunteered to be surrogate mothers after the birth of infants and relinquishing to the biological parents from October 2015 to January 2016 and 30 women who had normal pregnancy after childbirth using convenience sampling method. Data were collected using a demographic questionnaire, Cranley's Maternal-Fetus Attachment Scale, and Test of Self-Conscious Affect. Data were analyzed using IBM SPSS Statistics for Windows, Version 21.0., running Levene's test and independent t-test. The significant level was considered as  $P < 0.05$ .

**Results:** The mean score of maternal-fetal attachment behaviors in women with gestational surrogacy and with normal pregnancy was  $89.2 \pm 11.35$  and  $95.9 \pm 8.52$ , respectively ( $P = 0.02$ ). The means of guilt in women with gestational surrogacy and with normal pregnancy were  $65.1 \pm 6.64$  and  $63.7 \pm 10.05$ , respectively ( $P = 0.12$ ).

**Conclusion:** Maternal-fetus attachment score in surrogate mothers was less than that in normal mothers. The obtained results showed that there was no significant difference in guilt between surrogate and normal mothers. In other words, surrogate mothers did not feel guiltier than normal ones.

**Keywords:** Guilt; Maternal Behavior; Pregnancy; Surrogate Mothers

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### Introduction

It has been estimated that one in seven couples experience infertility (1). The prevalence of infertility among Iranian couples was reported 8% in a population-

based study (2) and Iran has begun new measures of infertility treatment since 1999 (3). Surrogacy is one of the new techniques

of assisted reproduction technology in which a woman bears a child for another woman (4). Many surrogate mothers face emotional problems after having to relinquish the child such as baby attachment and guilt after relinquishing to biological parents. According to attachment theory, what is generally considered significant is explaining the parent's attachment to the baby, attachment is created in seven phases: plan for pregnancy, adaptation with pregnancy, acceptance of pregnancy, fetal movements, identification of fetus as an individual, preparation for labor, and seeing and touching the infant (6).

Maternal-Fetal Attachment (MFA) means the interaction and bond with unborn child and mother (5). MFA reflects the quality of mother's emotional feelings and behaviors toward her baby; this bonding emerges in behaviors which indicate the mother's attention and care. These behaviors include affectionate, proximity, and caring behaviors (7)

MFA enhances the mother's health behaviors. These behaviors include stopping cigarette smoking and alcohol, appropriate diet, exercise, prenatal care, identification of fetus and attending the childbirth classes and ultimately these behaviors lead to pregnancy satisfaction, the promotion of maternal and neonatal health, and mother responsibility health (8). Attachment is created from the beginning of pregnancy and gradually increases so that it reaches its peak during the 3<sup>rd</sup> trimester and continues after delivery and plays an important role in the successful adaptation of mother to her pregnancy (9). MFA is real and powerful, which starts with pregnancy (10). Foster et al. stated that MFA is a predictor of attitudes, mother's tasks after delivery, infant-mother interactions, and attachment pattern after childbirth (11).

Relinquishing the child to biological couples may be extremely distressing and Iranian citizenship, age between 20 and 35 years, literate enough to complete the

may lead to psychological problems for surrogate mothers. In addition, the risk of post-natal depression and feelings of guilt or anger are created in women who relinquish the child and may endanger their psychological health in the future (12). Birth mothers often experience grief, diminished self-esteem, shame, self-blame, feelings of guilt, anger, sadness, and even secondary infertility after the relinquishment of their infants (13). Postpartum depression and severe psychological feelings of guilt and anger can be seen in these surrogate women at the time of child relinquishment for adoption. The surrogates have suffered from feelings of guilt and anger for two and a half years after relinquishing the child (14).

The number of women who volunteered to be surrogate mothers is increasing in Iran. They usually come from the lower social and economic classes (12). They do volunteer because of having financial problems and without full awareness of future problems. Unfortunately, after doing surrogate, their problems enhance especially their psychological difficulties. The present study was conducted to compare MFA and feeling of guilt after relinquishing baby between surrogate and normal mothers.

## Methods

The present case control study was performed between October 2015 to January 2016. Because infertility private centers were located in Tehran and women seeking surrogate uterine were inhabitants of suburbs of Tehran and Karaj, the surrogated mothers of these two cities were selected for the study using convenience sampling. A total of 53 surrogate women referred to the private midwifery centers in Tehran and Karaj were interviewed and 30 agreed to participate in the study.

In addition, 30 volunteer mothers with normal pregnancy were entered as control group. The inclusion criteria were:

questionnaires, lack of physical and mental chronic diseases, and passing a maximum of two years since the last delivery.

Data collection tools included:

a. Demographic questions that included age, education, marital status (single, married, divorced or widowed), number of children, the interval since the last term pregnancy, physical (chronic diseases or disabilities) and mental diseases (having no record of outpatient treatment or hospitalization in psychiatric centers in the past year).

b. Cranley's MFA questionnaire includes 24 items under five behavior domains: mother role taking (4 items), interaction with the fetus (5 items), attributing characteristics to fetus (6 items), differentiation of self from fetus (4 items), and giving of self (5 items) (11). Responses were based on the 5-point Likert scale for each item (5: Definitely yes, 4: Yes, 3: Uncertain, 2: No, and 1: Definitely No), except for item number 22, which is scored reversely (1: Definitely yes, 2: Yes, 3: Uncertain, 4: No, and 5: Definitely No) and the total score ranged from 24 to 120. Cranley MFA Scale was reported by Khoramrudi et al. in Iran. As for the reliability index, Cronbach's alpha was reported to be 0.83 (8).

c. The 13-scenario Test of Self-Conscious Affect (TOSCA) was designed by Tangney et al., with each item having several possible responses. Responses to various scenarios indicate the emotional, cognitive and behavioral traits associated with inclination to shame and guilt (16). The Cronbach's alpha related to guilt subscale was reported 0.74 (17). Cronbach's alpha has been reported 0.85 for the total test (18). Data were analyzed using IBM SPSS Statistics for Windows, Version 21.0., with the significance level set at  $P < 0.05$ . Mothers were given explanations about the confidentiality of information. The questionnaires were completed by the participants after obtaining oral consent.

### Results

In present study, 60 women, 30 surrogate mothers with the mean age of  $27.2 \pm 2.71$  and 30 normal mothers with the mean age of  $27.1 \pm 7.86$ , were selected after childbirth. The demographic information of the study participants is reported in Table 1.

The mean scores of MFA were  $92.1 \pm 11.35$  and  $95.9 \pm 8.52$  in surrogate mothers and in women with normal pregnancy, respectively (Table 2).

Table 1. Demographic characteristics of the study participants.

Variables		Surrogacy (N)	Normal pregnancy (N)
Age group	20-25	8	5
	25-30	19	17
	30-35	3	8
Education	Primary school	17	0
	Secondary school	8	2
	Diploma	4	16
	College	1	12
The number of children	One	19	11
	Two	11	17
	Three or more	0	2
Marital status	Married	22	30
	Single	8	0

Table 2. Comparison of Cranley's maternal-fetus attachment (MFA) total scores in two groups in study

	Mean (SD)	SE	t	P
MFA Normal pregnancy	95.9 (8.52)	1.55	3.31	0.02
Surrogacy	92.1 (11.35)	2.07		

Table 3. Comparison of the Cranley's maternal-fetus attachment (MFA) subscales between two groups

	Groups	Mean (SD)	t	P
MFA scales Interaction with the fetus	Normal pregnancy	3.8 (1.2)	1.2	0.12
	Surrogacy	4.1 (2.3)		
Attributing characteristics to fetus	Normal pregnancy	3.3 (1.8)	0.76	0.11
	Surrogacy	4 (2.2)		
Giving of self	Normal pregnancy	3.7 (2.1)	0.56	0.21
	Surrogacy	3.9 (2.9)		
Differentiation of self from fetus	Normal pregnancy	3.7 (1.6)	0.8	0.31
	Surrogacy	4.2 (2.01)		
Mother role taking	Normal pregnancy	3.6 (1.8)	0.36	0.51
	Surrogacy	3.8 (2.8)		

Table 4. Comparison of the guilt scores between two groups

Variable	Mean (SD)	SE	t	P	
Guilt	Normal pregnancy	63.7 (10.05)	1.83	1.47	0.12
	Surrogacy	65 (6.64)	1.21		

The means of subscales, based on five behavior domains of MFA, were as follows: the lowest and the highest means were related to attributing characteristics to fetus 3.3 and interaction with the fetus 3.8 in surrogate mothers, respectively. The lowest and the highest means were associated with mother role taking 3.8 and differentiation of self from fetus 4.2 in mothers with normal pregnancy, respectively (Table 3). As seen in Table 3, the scores of mothers with normal pregnancy were higher than those of surrogate mothers in all subscales of MFA but the differences were not significant ( $P>0.05$ ).

Mean scores of guilt in surrogated women and women with normal pregnancy were  $65\pm 6.64$  and  $63.7\pm 10.05$ , respectively (Table 4).

### Discussion

Mean Score of total MFA was higher in mothers with normal pregnancy. Few studies were performed on the surrogate uterine in Iran, and these studies are conducted often in the field of medicine and law, and so far no psychological research has been reported. Some of these studies are in agreement with our findings. Mehran et al. concluded that the mean of MFA was more in primigravid women than in women with no surviving fetus or child (9). In another study, the results showed that MFA was not statistically different in women who had a history of fetal loss compared with the women without this experience (19). Sadeghi et al. stated that there was a positive and significant relationship between the mean of MFA in mothers with the history of fetal death and social support and MFA (5).

Our finding is similar to those of Condon et al. and Fisher et al. which suggested that MFA was lower in surrogated mothers and they suffered from lower grief after relinquishment (7). Tieu et al. stated that self-decision should be considered in the surrogate mothers. They tend to ignore the bond between themselves and the infants, so it is easier for them to relinquish the child to the biological parents (20). The previous studies usually showed that most surrogate mothers know that they are only the carrier for the fetus, thus they might have lower quality bond with the fetus as compared with the biological mothers (21).

In our study mothers with normal pregnancy had lower guilt scores in compare with other group. The high risk of postpartum depression and guilt or anger were also observed in surrogate women since they get pregnant because of financial problems and without full awareness of future problems (14). Condon et al. explained that sometimes this unpleasant feeling exists in them from the time of relinquishment up to the next pregnancy and surrogate mothers feel guilty (22). Kelly et al. illustrated that birth mothers often experience grief, diminished self-esteem, and shame, self-blame and even secondary infertility after the relinquishment of their infants. Jadva et al. concluded that 32%, 3%, and 65% of surrogate mothers had severe, moderate, and no difficulties, respectively, after relinquishing the child to biological parents (23). Vodo et al. reported that surrogates suffered from feelings of guilt and anger for two and a half years after relinquishing the baby. Surrogate mothers experience many difficulties and problems including postpartum depression and feelings of guilt at the time of relinquishing the child (14). However, for some surrogates, happiness is mixed with sadness during relinquishment (24).

In sum, the research findings indicated that attention to psychological and mental health issues in these women before and after pregnancy is essential. Hence, they

seek to resolve their financial problems; as a result, those women may have mental health issues and, thus, professionals and clinicians should pay more attention to the feeling of guilt and attachment problems in surrogate mothers.

According to the results obtained in the present study, many of the woman who intend to sign up to be a surrogate uterine are not aware of the future problems, such as guilt after relinquishing. Our findings suggest that surrogate women need detailed psychological counseling to have the least damage caused by relinquishing the child to biological parents. In this regard, it is also necessary that infertility centers ask for help from clinical psychologist

#### *Conflict of interest*

Authors declare no conflict of interests

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