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Examining the Attachment Behavior and Anxiety Levels of Mothers Who Have Infants with Infertility Treatment and Mothers Who Have Infants without the Treatment*

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ABSTRACT

Infertility treatment includes medical follow-up, hormone therapy and in vitro fertilization methods, and also it is a process that is bothersome for couples in both economic and emotional terms. Intensive infertility treatment may exacerbate the risk factors and make it difficult to switch to parenting process. Therefore, it is aimed to compare the levels of attachment and anxiety of mothers having infants of with infertility treatment and of mothers having child with spontaneous pregnancy. 103 women who became mothers through infertility treatment and spontaneously pregnancy were included in the study. Personal Information Form which is developed by researchers, Maternal Attachment Inventory and State-Trait Anxiety Inventory have been used in the study. SPSS 20.0 statistical program is used in the analysis of the data. In the study, it was found that mothers who had a baby with infertility treatment (in vitro fertilization treatment) had significantly higher maternal attachment than mothers who had a baby without any treatment ($p<0,05$). In addition, it was also concluded that there were negative and moderate ($r=-0,423$, $p<0,01$) relationships between maternal attachment and trait anxiety of mothers who had a baby with infertility treatment and positive and low ($r=0,320$, $p<0,05$) relationships between maternal attachment and state anxiety mothers who had a baby with spontaneous pregnancy. As the study is cross-sectional and the sample group is small, it constitutes the limitations of the study; large sample and longitudinal studies are needed. As a result, it is thought that women who became pregnant through treatment need professional support during the treatment process and during their pregnancies.

KEYWORDS

Maternal attachment; infertility; anxiety; parenting; pregnancy.

INTRODUCTION

Woman's adaptation to the parenting includes the process of attachment between mother and the infant along with transition to motherhood. While the extensive knowledge gained from the studies carried out for many years on the attachment can explain the development of the infant's attachment to the mother, this knowledge is not sufficient to explain the attachment of the mother to her infant (Muller, 1996). This has led the researchers to examine the attachment of the mother to her infant. According to Bowlby (2013), attachment is an instinctive response that is developing in a dynamic balance between the mother and the infant, which essentially serves to protect the infant from the dangers, with a tendency to maintain intimacy. Maternal attachment is the process of the love bond that the mother has developed for her child as a result of a satisfying and pleasurable interaction with the child (cited by Mercer and Ferketich, 1994; İşler & Görak, 2007; cited by Kavlak and Şirin, 2009). Attachment that begins during pregnancy (Armstrong & Hutti, 1998; Chen et al., 2011; Cranley, 1981; Fisher et al., 2008; Laxton-Kane & Slade, 2002; Muller, 1993) is an emotional bond that develops and involves interaction between the mother and her unborn infant (Cranley, 1981). Mercer (1995) reports that maternal attachment begins during pregnancy will continue with the birth process (Zauderer, 2008). Early in the pregnancy experience, which is seen as a key element of attachment, the expectant mother attaches to the idea of conception and gradually develops loyalty to the child she carries (Muller, 1993). Birth refers to a qualitative change, not the beginning of the relationship between the mother and her infant. Since the mother has physical, kinesthetic and intellectual awareness of the fetus for five months or longer during her pregnancy period. (Cranley, 1981). During this process the mother wants to learn about the foetus, during the maternal attachment process. She enjoys interacting with the foetus and is willing to protect her baby and meet her/his needs, even at the expense of her own life (Condon &Corkindale, 1997).

Adaptation to parenting also includes the transition process of women to motherhood. According to Barba and Shelder (1995), transition to motherhood is an important developmental life phenomenon for women. Being a mother refers to the transition process from a known reality to a new reality that is unknown (cited in Mercer, 2004). In the first theory developed for Maternal Role Attainment, Rubin (1977, 1984) considers mothers' role-gaining process as a relational process involving tasks such as attachment, role-playing, and competence acquisition (Meighan, 2014). Mercer (1991), a student of Rubin (Meighan, 2014) discussed Theory of Maternal Role Attainment in a broader framework on the basis of role and development theories (Meighan, 2014). According to Mercer, the attainment of maternal role takes place in four stages. The *anticipatory* (*preparation)* stage that begins with pregnancy is the stage where the expectations of the motherhood role are learned, the role-playing acts related to the motherhood are performed, and the social and psychological preparation for the motherhood role is experienced. The *formal (acquaintance)* stage begins with the birth of the

infant. The mother, who is not yet sure about her motherhood, will learn about the role of motherhood by following the advice of her social environment, experts and professionals. During the *informal (adaptation)* stage*,* the mother begins to form her own reactions to the clues that are unique to her infant, which are not conveyed by her social environment and makes her new role suitable to the existing lifestyle. The *personal* (p*ersonal-Internalization)* stage is the final stage of motherhood role attainment. The woman now internalizes the maternal role. In the maternal role, a sense of harmony, confidence, satisfaction, competence is experienced and the role of motherhood is fully acquired (Mercer, 1981; Mercer, 1995; Mercer, 2006; Meighan, 2014).

Today, in many societies more than 1% of all births (McMahon et al., 2003); and in Europe, 36% of all pregnancies have been reported with IVF treatment since the first years when IVF treatment has been applied (Science Daily, 2018). Although there is not an adequate statistical study conducted on the subject of infertility in Turkey, it is observed that infertility rates have been included in some studies. According to the data of the Ministry of Health, infertility affects 15% of couples (Atasü & Şahmay, 2001). In a study conducted by the World Health Organization, the level of infertility in women aged 25-49 years is reported to be 19.1% between the years of 1994 and 2000 (Rustein & Shah, 2004). In the study carried out by Saraç and Koç (2017), it is reported that approximately 1.7 million women experience infertility problem in Turkey.

Since the late 1970s, when the first IVF treatment was implemented, concerns have been raised about the adaptation of the treated couples to parenting (Mahlstedt, 1994, Colpin et al., 1995, Gibson, et al., 2000a). Experience of infertility and some difficulties seen in the treatment process (stress, anxiety, fear, sadness, guilt, shame, helplessness, anger, loss, social exclusion (Applegarth, 2009), social judgment, low self-esteem, etc.) may cause concerns about parenting adaptation of the treated couples. These challenges can lead to unrealistic high expectations for both parents and children in infertile individuals and also can lead to problems related to the marriage and difficulties in adapting to the necessity and stress of parenting after getting used to a childless life (McMahon et al., 2003). Despite the compelling effects of IVF treatment on women's health, it has been observed in the literature that there are few studies conducted on mothers' adaptation to parenting after IVF treatment process (Colpin, 2002; Colpin & Soenen, 2002, Gibson et al., 2000a; Gibson et al. 2000b; Golombok et al., 1995; McMahon et al., 2003). However, not being able to conceive spontaneously is regarded as a stress factor that can lead to psychological distress (Faramarzi et al., 2013) and as a result of this psychological distress mother-infant relationship may be affected (Chen et al., 2011). Since women who become pregnant after being treated with infertility undergo a different process during pregnancy, they are not ready for motherhood because of their extraordinary experiences (Chen et al., 2011). For instance, Bernstein et al. (1994) found that women who were previously infertile had experienced a different transition to parenting than women without infertility problem. It was reported that women who had previously suffered from infertility had higher levels of anxiety

compared to other women, displayed avoidance behaviors, and were not prepared enough to take newborn babies home. In their study, Hammarberg et al., (2009) found that women who received assisted reproductive therapy had experienced a significant negative effect on their moods from pregnancy to postnatal period compared to women who had spontaneous pregnancy; that breastfeeding rates decreased after three months after delivery; and that infertility and infertility treatment shook the maternal confidence. In a meta-analysis study investigating the psychosocial adaptation of fertile and infertile couples conducted by Guedes and Canavarro (2014), it was determined that infertile couples reported similar psychological distress and marital quality with fertile couples and a higher quality of life than fertile couples with regard to the last three months of pregnancy. After birth, women who were previously infertile had demonstrated less depression rates than others; it was also found that they showed a higher level of anxiety about the survival of the infant. According to Hjelmstedt et al., (2003a), women who have become pregnant with IVF treatment have a lasting and strong fear of losing their babies during pregnancy periods. McMahon et al., (1997) found that women who became pregnant with IVF treatment had higher levels of anxiety about the survival of their babies, having a normal infant, causing damages to their babies during birth and being separated from their babies in the post-natal period compared to women who have spontaneous pregnancy. Women who become pregnant with IVF treatment experience more anxiety about the continuation of pregnancy compared to women who have spontaneous pregnancy. For example, Hjelmstedt et al., (2003b) found that women who became pregnant with in vitro fertilization (n = 57) had more muscle tension, had more anxiety about the termination of their pregnancy and their emotions were less variable compared to women who spontaneously conceived (n = 43).

Pregnancy process and motherhood experience, which is a natural life phenomenon, is a highly desirable experience for an infertile woman. However, the experience of pregnancy and motherhood taking place with IVF treatment may be the beginning of a challenging process for infertile women. Because, pregnancy and maternal experience taking place after in vitro fertilization is a process in which significant biological, psychological and social changes are experienced, but it can also lead to various risk factors for the prospective mother. The most important goal of infertility treatment is to support couples so that they could have a baby. Regardless of the outcome of the treatment process, supporting the physical and mental health of the couples is of great importance for the couples to assume the responsibilities of parenting during pregnancy and postpartum period and to survive this process successfully.

The main purpose of this study is to compare the maternal attachment and anxiety levels of mothers who had a baby with infertility treatment with the maternal attachment and anxiety levels of mothers who had a baby without treatment. In this framework, answers to the following questions will be answered:

1. Is there a significant difference between the maternal attachment levels of mothers who had a baby with infertility treatment and mothers who had a baby without treatment?

2. Is there a significant difference between the state anxiety and trait anxiety levels of mothers who had a baby with infertility treatment and mothers who had a baby without treatment?
3. Are there significant relationships between maternal attachment and state anxiety and trait anxiety levels of mothers who had a baby with infertility treatment?
4. Are there any significant relationships between maternal attachment and state anxiety and trait anxiety levels of mothers who had a baby without treatment?

METHOD

Research Model

This study is causal-comparative research that examines maternal attachment and anxiety levels of mothers who had a baby with IVF treatment and mothers who had a baby without treatment. Causal comparison studies are studies that aim to describe the causes and consequences of differences between groups of people without any intervention on conditions and participants (Büyüköztürk et al., 2017). The independent variable of the study consists of "*maternal attachment*"; while the dependent variable consists of "*state and trait anxiety*".

The Study Group

The study group of the study consists of women who become pregnant with infertility treatment and women who have babies without any treatment. Women becoming pregnant after IVF treatment were reached through groups formed by women working in social media and fighting against the infertility (e.g. IVF CIDER Group). On the other hand, women becoming pregnant without any treatment were reached through the women's groups on the social media (e.g. Women's Colorful World). In these groups, firstly an announcement was made on the study and necessary information related to the study was provided and the link was shared. The study was conducted with 103 women, including 48 women (46.6%) who became pregnant with infertility treatment and 55 women (53.4%) who had spontaneous pregnancy.

Data Collection Tools

In the study, "Personal Information Form", which was developed by the researchers, was used to collect information about children and families, Maternal Attachment Inventory was used to evaluate maternal attachment, and State-Trait Anxiety Inventory was used to assess mothers' state and trait anxiety levels.

Personal Information Form: Personal Information Form involves personal information about mothers and question about infertility treatment process and the infant.

Maternal Attachment Inventory: The Maternal Attachment Inventory, which was developed by Muller (1994) and whose validity and reliability study was conducted by Kavlak and Şirin (2009), is a measurement tool that allows evaluating the mother's love and attachment towards her infant. The inventory, which can be applied to mothers with literacy having the youngest one month old and the oldest eight-month-old infant, is a 4-point Likert type and contains a total of 26 items. According to the inventory, a high score indicates that maternal attachment is high.

For the validity and reliability study, the researchers first applied the Turkish version of Maternal Attachment Inventory to 165 mothers who had infants between 30 and 40 days postpartum. The Cronbach's alpha reliability coefficient for internal consistency of the Maternal Attachment Inventory was found as 0.77. In the second stage, in order to examine whether Maternal Attachment Inventory could be used after the postpartum period, a group of 165 mothers (n = 78) was administered at the fourth month after birth and the Cronbach's Alpha reliability coefficient was found as 0.82.

State-Trait Anxiety Inventory: The State-Trait Anxiety Inventory, which was developed by Spielberger et al. (1970) and whose validity and reliability study was conducted by Öner and Le Compte (1983), is a measurement tool that aims at assessing the anxiety level of individuals. The State Anxiety Inventory was designed to determine how an individual feels at a given moment and under certain conditions; while the Trait Anxiety Inventory was designed to determine how an individual feels in general, regardless of the circumstances and conditions of the individual. In total, the State-Trait Anxiety Inventory consists of forty items including State Anxiety Inventory with twenty items and Trait Anxiety Inventory with twenty items. The validity and reliability study of the inventory in Turkey was carried out by Öner in 1983. In their studies, Öner and Le Compte found that reliability of the State Anxiety Inventory was between 0.94 and 0.96; on the other hand, the reliability of the Trait Anxiety Inventory was determined between 0.83 and 0.87.

Statistical Analyses

SPSS 22.00 was used to analyze the data in the study. In order to determine the statistical procedures to be used in the analysis of the data obtained in the study, it was examined whether the data showed normal distribution for the “Maternal Attachment Scale” and “State Anxiety Inventory” and “Trait Anxiety Inventory” measurements of mothers who had a baby with IVF treatment and mothers who had a baby without treatment. Büyüköztürk (2017) recommends using the Shapiro-Wilks test to examine the normality of the scores when the group size is less than 50 and taking the Shapiro-Wilks value as the criterion of normal distribution.

Table: 1.

Shapiro-Wilks and Kolmogorov Smirnov Values Showing Normality Distribution According to Scales

Scales	IVF (n=48)	Spontaneous (n=55)
	Shapiro-Wilk	Kolmogorov Smirnov
Maternal Attachment	0,00*	0,001*
State Anxiety	0,061	0,200
Trait Anxiety	0,524	0,200

IVF: Mothers who have a baby with in vitro fertilization

Spontaneous: Mothers who have a baby with spontaneous pregnancy

Table 1 shows that the Shapiro Wilk values for “State Anxiety” and “Trait Anxiety” of the women who became mothers with IVF treatment and the Kolmogorov Smirnov values of the mothers who had a baby with spontaneous pregnancy were at the $\alpha > .05$ level, but the Shapiro Wilk values and Kolmogorov Smirnov values for the “Maternal Attachment Scale” of both groups were at the $\alpha < .05$ level. Therefore, it can be said that there is no normal distribution for the “Maternal Attachment Scale” values of both groups. Büyüköztürk (2017) states that “if the skewness coefficient is within the limits of +1, -1, it can be interpreted that the scores do not show a significant deviation from the normal distribution”. Accordingly, the homogeneity, skewness and kurtosis values of the scores obtained from the scales of women who became mothers with IVF treatment and women who became mothers with spontaneous pregnancy were calculated. Since these values were not within the limits of +1 and -1 and the group of women who became mothers with IVF treatment was less than 50, it was decided to prefer nonparametric tests in the analyses of both groups.

FINDINGS

Firstly, in this section the demographic findings related to the study group of the study and the relationship of the residence variable with maternal attachment and state / trait anxiety were given. Secondly, the relationships between becoming pregnant with and without infertility treatment and maternal attachment levels, the relationships between state anxiety and trait anxiety and the relationships between maternal attachment and state / trait anxiety were discussed.

Table 2.

Demographic characteristics of women participating in the study

Age	**Number**	**%**	**Infant's Monthly Age**	**Number**	**%**
20--24	5	4.9	0–1 month	11	10.7
25-29	27	26.2	2-3 months	12	11.7
30-34	48	46.6	4-6 months	38	36.9
35-39	19	18.4	7-8 months	42	40.8
40 and above	4	3.9			
Total	103	100.0	Total	103	100.0
Degree of Education	**Number**	**%**	**Resident of**	**Number**	**%**
Primary Education	15	14.6	Rural	5	4.9
High School	11	10.7	City	26	25.2
Associate /Bachelor	54	52.4	Metropolis	72	69.9
Master's Degree	23	22.3			
Total	103	100.0	Total	103	100.0
Infertility	**Number**	**%**	**Employment Status**	**Number**	**%**
Yes	48	46.6	Yes	62	60.2
No	55	53.4	No	41	39.8
Total	103	100.0	Total	103	100.0

When the demographic characteristics of the women who participated in the study were examined; it was determined that of 4.9% of them were 20-24 ages old, 26.2% of them were 25-29 ages old, 46.6% of them were 30-34 ages old, 18.4% of them were 35-39 ages old and 3.9% of them were 40 years old and above. It was found that 14.6% of women had primary education, 10.7% had high school education, 52.4% had associate degree / bachelor's degree and 22.3% had master's degree. 46.6% of the women reported that they were working and 53.4% of them reported that did not work. It was found that 10.7% of the women lived in rural areas, 25.2% of them lived in the city and 69.9% of them lived in the metropolitan areas. It was determined that 46.6% of women had in vitro fertilization treatment and 53.4% had spontaneous pregnancy.

While the relationships between “Maternal Attachment”, “State Anxiety” and “Trait Anxiety” levels of the mothers participating in the study were examined by Mann Whitney U test, the relationships between maternal attachment and anxiety levels of mothers who had babies with IVF treatment and the relationships between maternal attachment and anxiety levels of mothers who had babies without treatment were examined by Spearman Correlation analysis.

The results of the Mann Whitney U test conducted to determine whether the scores of mothers who had a baby with IVF treatment and mothers who had a baby without treatment from “Maternal Attachment”, “State Anxiety” and “Trait Anxiety” measurements differ significantly between the groups are given in Table 3.

Table 3.

Mann Whitney U Test related to maternal attachment, state anxiety and trait anxiety scores of mothers who had a baby with IVF treatment and mothers who had a baby with spontaneous pregnancy

Variables	Grups	n	Mean Rank	Sum of Ranks	U	p
Maternal Attachment	IVF	48	58,23	2795,00	1021,000	0,046*
	Spontaneous	55	46,56	2561,00		
State Anxiety	IVF	48	48,67	2336,00	1160,000	0,289
	Spontaneous	55	54,91	3020,00		
Trait Anxiety	IVF	48	56,28	2701,50	1114,500	0,174
	Spontaneous	55	48,26	2654,50		

*p<0.05**

Table 3 shows that there is a significant difference (U=1021,000 p<.05) between the maternal attachment of mothers who had a baby with IVF treatment and mothers who had a baby with spontaneous pregnancy. It was determined that the mean maternal attachment score of the mothers who had a baby with IVF treatment was significantly higher than the mothers

who had a baby with spontaneous pregnancy, in other words, the maternal attachment levels of the mothers who had a baby with IVF treatment were significantly higher than the mothers who had a baby with spontaneous pregnancy. There was no significant difference between the state anxiety scores and trait anxiety scores of the groups (p>.05).

Table 1.

Spearman Correlation test results related to maternal attachment, state anxiety and trait anxiety levels of mothers who had a baby with IVF treatment and mothers who had a baby without treatment

Variables	IVF		Spontaneous	
	Maternal Attachment	p	Maternal Attachment	p
State Anxiety	-.023	.877	.320	.017*
Trait Anxiety	-.423	.003**	-.250	.065

*** p <0.01; * p<0.05*

Table 4 shows that there are significant relationships between maternal attachment, state anxiety and trait anxiety levels of mothers. A negative, moderate and significant relationship was found between maternal attachment levels and trait anxiety levels of mothers who had a baby with IVF treatment (r=-0.423, p<0.01). According to this finding, it can be said that as the maternal attachment levels of mothers who had a baby with IVF treatment increased, their trait anxiety levels decreased. A positive, low and significant relationship was found between maternal attachment levels and state anxiety levels of mothers who had a baby with spontaneous pregnancy (r=0.320, p<0.05). According to this finding, it can be said that as the maternal attachment levels of mothers who had a baby with spontaneous pregnancy increased, their state anxiety levels also increased.

DISCUSSION

The aim of this study is to determine the maternal attachment and state-trait anxiety levels of mothers who had babies through in vitro fertilization treatment and those who had babies naturally. The findings of this study revealed that mothers who had babies with IVF treatment differed from mothers who had babies without treatment in terms of sensitivity towards their babies and thus developing secure attachment relationships for their babies. The first result of the study was that there was a significant difference between having a baby without treatment and having a baby with in vitro fertilization treatment in the maternal attachment of the mothers who participated in the study. This result shows that mothers who had babies with IVF treatment developed higher levels of attachment behavior to their babies than mothers who had babies with spontaneous pregnancy.

There are few studies on the attachment of mothers who had a baby with IVF treatment and mothers who had a baby with spontaneous pregnancy. Different from the findings of the

study, Gibson et al. (2000a) conducted a study involving a total of 126 women who became mother with IVF treatment (n = 65) and who had spontaneous pregnancy (n = 61) and they found that there was no significant difference in terms of attachment relationship between women becoming pregnant with IVF treatment and women having spontaneous pregnancy. In a study conducted by Stanton and Golombok (1993) examining the anxiety levels, attitude towards pregnancy and attachment to the babies of women who became pregnant with IVF treatment (n = 15), women who became pregnant without the treatment and women whose pregnancies still continued (n = 20); they found that there was no significant difference between the maternal attachment levels of women. Also, no significant relationship was found between assisted reproductive pregnancy and maternal attachment in the study conducted by Mutlu et al. (2015). Since these studies addressed maternal attachment during pregnancy, they may have found that there was no difference. According to the results of our study, the maternal attachment levels of mothers who had a baby with in vitro fertilization treatment were significantly higher than those of mothers who had a baby with spontaneous pregnancy. As a matter of fact, Saadat (2017) found that there was no difference in the prenatal attachment levels of women who conceived with IVF treatment compared to women who conceived naturally, however, the attachment level of women who conceived with IVF treatment increased as the gestational week increased. In women who conceive with IVF treatment, the pregnancy process usually involves a very risky process. Since the expectant mother may be in danger of losing the baby at any time, attachment levels may be low in the early stages of the process, while the attachment level may increase as the process progresses. In the postpartum period, the mother has now taken her baby in her arms, has mostly overcome the difficult periods and she is relaxed. In addition, since they often longed to be a mother for many years, their maternal attachment levels may be higher than mothers who had a baby naturally. All these factors explain the findings of our study.

Maternal attachment scores of the mothers who delivered by caesarean section were determined to be significantly lower than the mothers who delivered normally in the study conducted by Hergüner et al. (2014) examining the attachment of mothers who delivered normally and mothers who had caesarean section. In a study, for which a four-session relaxation training program, each lasting ninety minutes, was applied to women who became pregnant with IVF treatment and who were at the 32-35 weeks of gestation, Toosi et al. (2017) determined that relaxation training was effective in reducing anxiety and increasing maternal-fetal attachment of pregnant women with IVF. Another result of the study was that there was no significant difference between the state anxiety and trait anxiety levels of mothers who had a baby with IVF treatment and spontaneous pregnancy. Similar to this finding, Stanton and Golombok (1993) also found that there was no significant difference between state and trait anxiety levels of women who conceived with in vitro fertilization treatment and women who conceived naturally. Smilarly, McMahon et al., (1997) examined anxiety and attachment qualities during pregnancy of women who became pregnant with IVF treatment (n = 70) and

who became pregnant without any medical treatment (n = 63) and they determined that there was no significant difference between the groups in terms of state and trait anxiety. In the study conducted by Pellerone and Micciche (2014), it was concluded that there was no relationship between maternal-fetal attachment and anxiety levels of women becoming pregnant with IVF treatment (n = 43) and women becoming pregnant without the treatment (n = 48). Thiering et al. (1993) compared the state-trait anxiety levels of women who received IVF treatment more than once (n = 217) and women who received IVF treatment for the first time (n = 113) were compared in their study conducted with 330 women. While there was no significant difference between state-trait anxiety levels of the two groups, it was determined that women who had received IVF treatment more than once had higher symptoms of depression compared to women received IVF treatment for the first time.

The presence of a negative and moderately significant relationship between maternal attachment and trait anxiety levels of mothers who had a baby with IVF treatment constitutes another finding of the study. In other words, it can be said that as the maternal attachment of mothers who had a baby with IVF treatment increases, their trait anxiety levels decrease. In the literature, there is no study directly examining the relationship between maternal attachment and anxiety by group. Stanton and Golombok (1993) examined women's anxiety levels for both groups in their study with women who conceived with in vitro fertilization treatment and women who conceived naturally.

They found that there was no statistically significant difference between women's state or trait anxiety and maternal-fetal attachment. In a study examining the maternal attachment levels of mothers with premature babies, it was found that the maternal attachment scores of mothers whose premature babies were younger than 33 gestational weeks and mothers whose premature babies were hospitalized in intensive care for a long time, fed with orogastric tube and received respiratory support were lower than others (Koçyiğit, 2018). According to the result obtained in our study, as the maternal attachment of mothers who have a baby with in vitro fertilization treatment increases, their trait anxiety decreases. In attachment, which is a human emotion, it can be said that increasing the mother's sense of attachment to her baby is good for her anxiety and leads to a decrease in anxiety. Finally, it was found that there was a positive and low-level significant relationship between maternal attachment and state anxiety levels of mothers who had a baby with spontaneous pregnancy. The small sample size and the cross-sectional nature of the study are the most important limitations. The results of our study showed that mothers who had babies with infertility treatment differed from mothers who had babies with spontaneous pregnancy in their attachment to their babies. In this study, it was also concluded that there were relationships between attachment and trait anxiety of mothers who had babies with infertility treatment and between attachment and state anxiety of mothers who had babies with spontaneous pregnancy. As a result of working with a small sample, which is one of the limitations of our study, significant results may have been reached randomly. There is a need to support these results by conducting studies with larger samples in future studies.

One of the strengths of our study is that it was conducted with mothers whose babies were between one and eight months old and who had babies with infertility treatment. It is especially difficult to reach women who have become mothers through infertility treatment. The results obtained in our study are important for the literature since they are significant results obtained in a sample that is difficult to reach. Further studies using large sampling, longitudinal and interview charts are needed in order to examine the effects of IVF treatment on maternal behavior, mother-infant attachment and mother-infant interaction. Considering the infertility problem and the compelling effects of infertility treatment and the risks involved, it is believed that infertile women need professional support during the treatment process and during their pregnancy in ensuring the success of treatment in infertile women, the continuation of pregnancy and the secure attachment of the newborn to the mother.

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