

EFFECT OF MOTHERS' PARENTAL BONDING STYLE ON THEIR MATERNAL ATTACHMENT

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ABSTRACT

Purpose: This study was aimed to investigate the relationship between mothers' parental bonding styles and their maternal attachment levels.

Material and Methods: An cross-sectional study was conducted with 216 mothers between July 2020 and January 2021. The data were obtained via social media with online surveys. The data were collected using the Personal Information Form, the Maternal Attachment Inventory (MAI), and the Parental Bonding Instrument (PBI). The independent variables of the study is parental bonding, the dependent variables of the study is maternal attachment. The correlations among MAI and PBI of mother and father forms was analyzed. A simple linear and multiple regression analysis was performed to explore main predictor.

Results: The mean MAI score of the mothers was found to be 96.7 ± 8.8 which indicated a high level of maternal attachment. The mean score from the PBI-mother form was found to be 49.1 ± 14.6 and PBI-father form was 46.1 ± 14.9 which indicated that the mothers had a positive bonding with their parents. A positive, moderate, and significant relationship was revealed between the mean score of the MAI and the mean score of the PBI-mother form ($R=0.594$, $p=0.001$) and also between the mean score of the PBI-father form ($R=0.468$, $p=0.001$). Parental bonding with mother ($\beta=0.481$, $p=0.001$) showed a stronger effect on maternal attachment compared to parental bonding with father ($\beta=0.175$, $p=0.001$). Parental bonding with mother and father together explained 37% of the total variance in maternal attachment. As a result of the simple regression analysis, parental bonding with mother ($\beta=0.593$, $p=0.636$) and father ($\beta=0.483$, $p=0.636$) explained 35% and 23% of the total variance in the MAI, respectively. Parental bonding with mother and parental bonding with father explained 35% and 23% of the total variance found in maternal attachment, respectively.

Conclusion: Mothers' parental bonding showed an effect on their maternal attachment as well. The families and couples should be trained on how positive or negative bonding with their children can affect their life cycles and future lives.

Keywords: Maternal attachment, parental bonding, mother bonding, father bonding

INTRODUCTION

Attachment, one of the basic needs of human beings, is a mutual, compulsory, and continuous process that develops throughout an individual's life (1–4). The attachment theory points out that the internal working model developed by a child is the result of the nature of the attachment established between the mother and infant, which affects their relationships further in

adolescence and adulthood (5). The quality of the bond that develops between parents and children in early childhood affects their emotional, spiritual, social, cognitive, and moral development (6). Therefore, responding to the basic needs of infants on time and being sensitive to their needs such as touching, establishing eye contact, protecting, and showing interest in them are significant in forming the

Table 1. Mothers' characteristics (n = 216)

Descriptive Information of the Women	n	(%)
Age (years) (M±SD 33.9±3.8)		
18-30	42	19.4
31-35	86	39.8
36-40	88	40.7
Education		
Primary school	63	29.2
High school	106	49.1
University	47	21.7
Employment status		
Working	156	72.2
Not working	60	27.8
Family status		
Nuclear family	170	78.7
Extended family	35	16.2
Divorced family	11	5.1
Number of children		
1	95	44.0
2	98	45.4
3 ≥	23	10.6
Status of planned pregnancy		
Yes	174	80.6
No	42	19.4
Birth type		
Vaginal birth	65	30.1
Caesarean birth	151	69.9

basis of parent-infant attachment (2,7). Developing healthy attachment imparts a positive effect on infants' mental and physical development (7,8), academic success (7), mental health (4,9), the frequency of getting ill (7), and developmental behaviors (4,10–12). On the other hand, in cases of no proper attachment, the mental, physical (7,8), social (13), and language (8,14) development of infants may be adversely affected.

Parenting is influenced by the experiences of individuals with their own parents and the type of bonding they have with their parents (15). An individual's bond with their parents may affect their attachment to their babies as well (1,15). An unhealthy bonding with parents causes individuals to feel insecure about their relationships during adolescence and adulthood (16), where they may fail to communicate well with their peers (17), tend to do self-harm (18), show delinquent behavior (19), use the substance (20,21), and suffer from psychiatric disorders (22–24).

Based on the research conducted so far, the parent-infant/child attachment is deeply stated to affect every period of an individual's life. Thus, it is important to evaluate the effect of parent-infant bonding in adults to determine how these individuals may reflect those effects on their children since parents with healthy bonding, especially with their own mothers, tend to develop healthy relationships with their babies. Determining the effect of the bond that mothers have with their own parents, a key point of parental bonding, on the bonds that they develop with their babies has an important place in raising healthy societies and in creating necessary intervention programs on the subject. Hence, this study was conducted to evaluate the relationships between mothers' parental bonding styles and their maternal attachment levels. The study addresses the following research questions:

1. What are the parental bonding styles of mothers?
2. What is the maternal attachment level of mothers?
3. Is there a relationship between the parental bonding styles of mothers and their level of maternal attachment?
4. Does the parental bonding styles of mothers affect their maternal attachment?

MATERIAL AND METHODS

Study Design

The research was designed as an online cross-sectional study.

Settings

An online survey was used for data collection between July 2020 and January 2021. The data were collected from the "mother-infant group", which is a very popular social media group in Turkey. This group consists of an average of 35000 mothers. The sample size of the study was calculated within a two-point deviation, 5% error margin, and 90% power using the mean Maternal Attachment Inventory (MAI) score (94.3±9.2) (25) and the G*Power 3.1.3 program (26). The power analysis determined the number of women to be included in the sample of the research as 216. The inclusion criteria of the study were as follows: full-term delivery, single gestation, having a 1–4 month-old baby, and being over 18 years old. The exclusion criteria included any complications in the perinatal period, either for the mother or the baby.

Data collection was performed in an online environment. The non-probability convenient sampling technique was used to recruit the

Table 2. Distribution of scores for Maternal Attachment Inventory and Parental Bonding Instrument (n = 216)

Scales and domain items	Mean \pm SD	Min-Max
Maternal Attachment Inventory	96.7 \pm 8.8	64-104
Parental Bonding Instrument		
Mother form		
Overprotection	13.5 \pm 4.7	3-21
Care	35.6 \pm 11.7	8-52
Total	49.1 \pm 14.6	12-72
Father form		
Overprotection	13.0 \pm 4.4	2-20
Care	33.1 \pm 12.3	3-53
Total	46.1 \pm 14.9	5-70

participants. The data collection tools were made available through Google Forms and distributed via social media. The participants initially saw the informed consent form and were then directed to the link providing information about the study. Those who consented to participate in the study filled the forms of the data collection tools, which took them about 10–15 min.

Data Collection Tools

The Personal Information Form, the Maternal Attachment Inventory (MAI), and the Parental Bonding Instrument (PBI) were used as the data collection tools in our study.

Personal Information Form

The Personal Information Form was prepared by the researchers based on the relevant literature (2,6,18,27,28), which included a total of 19 questions. The questions aimed to reveal the age, educational status, and working status of mothers, along with the number of children they have, the family structure, whether their last pregnancy was planned or not, and the type of delivery.

Maternal Attachment Inventory (MAI)

The MAI was developed by Müller (29) to measure the maternal attachment levels, while the validity and reliability study in the Turkish version was conducted by Kavlak and Şirin (27). The inventory consisted of 26 items rated on a four-point Likert scale. The total score of the scale was calculated by adding up the points obtained from the items in the inventory, which varied between 26 and 104. A higher score indicated a higher level of maternal attachment. The Cronbach's alpha of the original inventory was 0.82 (27), while the Cronbach's alpha in this study was found to be 0.92.

Parental Bonding Instrument (PBI)

The PBI instrument was developed by Parker et al. (30) to retrospectively evaluate the attitudes and behaviors perceived by individuals from their parents in the first 16 years of their life. This instrument was adapted to the Turkish language by Kapçı and Küçüker (31). The instrument included mother and father forms containing the same 25 items rated on a four-point Likert scale. The total score was calculated by adding up the points obtained from each item. The instrument included the following two sub-dimensions: "Care" consisting of 18 items and "Overprotection" consisting of 7 items. The total score obtained from the single form of the scale varied between 0 and 75, while the total score obtained from the overprotection and care sub-dimensions varied between 0 and 21 and 0 and 54, respectively. The increase in the total score indicated positive bonding. The high scores for the care dimension indicated acceptance, caring, and warm parental attitudes, while the increase in the score in the overprotection sub-dimension indicated a non-protective (less protective) parental attitude. The Cronbach's alpha values from the mother and father forms in the original scale were found to be 0.87 and 0.89, respectively (31), while in our study, the Cronbach's alpha values for the mother and father forms were determined as 0.88 and 0.86, respectively.

Ethical Consideration

Before the research, approval was obtained from Ankara University Ethics Committee (decision date: 09.07.2020, decision number: 56786525 and 056.04.04/47831). Moreover, permission was obtained even from the administrators of the social media group, where the study was based. Ethical standards were considered at all stages of the study. Participation in the research was voluntary with an

Table 3. Relationship between Maternal Attachment Inventory and Parental Bonding Instrument

Scales and sub-dimensions	Maternal Attachment Inventory	
	R	p
Parental Bonding Instrument		
Mother form		
Mother overprotection	0.594	0.001
Mother care	0.502	0.001
Total	0.594	0.001
Father Form		
Father overprotection	0.564	0.001
Father Care	0.386	0.001
Total	0.468	0.001

online informed consent form being obtained from the participants.

Data Analysis

Data analysis was performed using the SPSS version 20.0 (Chicago, IL, USA). Before the parametric tests, normality and linearity were tested. Descriptive statistics were used to explain the sample and scores obtained from the scales. The independent variables of the study is parental bonding and its sub-dimensions, the dependent variables of the study is maternal attachment. The other variables of the study are the descriptive characteristics of the mothers, such as age, education, employment status, family status, number of children etc. Pearson’s correlation coefficients were used to examine the correlations among MAI and PBI-mother and PBI-father forms. Based on correlations simple linear regression analysis (with “enter” method) was used to determine the relationship size regarding the PBI-mother and PBI-father that were thought to affect the MAI score. MAI was introduced as the dependent variable and PBI-mother and PBI-father as independent variables. Simple linear regression analysis was used to determine the sub-dimensions scores of the PBI-mother and PBI-father that significantly predicted the MAI score. Variables with a p-value of <0.05 in simple linear regression analysis were included in the multi-model as candidate variables. Enter method was used in multiple linear regression analysis. Autocorrelation of the independent variables was examined using the Durbin-Watson test. Tolerance and variance inflation factor (VIF) values were used to assess the multicollinearity of the regression models. Statistical significance was defined as $p < 0.05$.

RESULTS

Table 1 shows the descriptive characteristics of the mothers involved in the study. The mean age of the mothers was 33.9 ± 3.8 , where 40.7% were in the age group of 36–40 years while 49.1% were high school graduates, 72.2% of the mothers mentioned that they worked, 78.7% stated that they had a nuclear family structure, and 44% had only one child. Also, 80.6% of the mothers stated that their last pregnancy was planned, while 69.9% gave birth via a cesarean section.

Table 2 shows the mean scores from the MAI and PBI of the mothers. The mean MAI score of the mothers was found to be 96.7 ± 8.8 , which indicated a high level of maternal attachment. Upon examining the mean scores of the PBI, the mean score from the PBI-mother form was found to be 49.1 ± 14.6 , while the mean scores from the Overprotection-mother and Care-mother sub-dimensions were found to be 13.5 ± 4.7 and 35.6 ± 11.7 , respectively. The mean score of the PBI-father form was 46.1 ± 14.9 , while the mean scores of the Overprotection-father and the Care-father sub-dimensions were 13.0 ± 4.4 and 33.1 ± 12.3 , respectively. These findings indicated that the mothers had a positive bonding with their parents. Table 3 shows the relationship between the mean scores of mothers’ MAI and PBI forms. A positive, moderate, and significant relationship was revealed between the mean score of the MAI and the mean score of the PBI-mother form ($R=0.594, p=0.001$) and also between the mean scores of the Overprotection-mother ($R=0.594, p=0.001$) and Care-mother ($R=0.502, p=0.001$) sub-dimensions. Furthermore, a positive, moderate, and significant relationship was found between the mean score of the MAI and the

Table 4. Effect of mothers' parental bonding style on their maternal attachment

Maternal Attachment*		Unstandardized coefficients		β	t	p	Collinearity Statistics	
		B	SE				Tolerance	VIF***
Parental Bonding**	Constant	76.273	1.712		44.555	0.001	0.434	2.302
	Mother overprotection	0.565	0.146	0.304	3.875	0.001	0.594	1.684
	Mother Care	0.175	0.050	0.233	3.472	0.001	0.421	2.375
	Father overprotection	0.450	0.160	0.225	2.818	0.005	0.611	1.637
	Father Care	0.022	0.047	0.031	0.474	0.636		
	R ² = 0.43, R = 0.66 F = 40.821, p = 0.001; Durbin-Watson = 1.523							
	Constant	81.810	1.461		55.990	0.001	1.000	1.000
	Mother Form	0.355	0.033	0.593	10.777	0.001		
	R ² = 0.35; R = 0.66 F=116.150; p=00.001 Durbin-Watson = 1.420							
	Constant	83.315	1.661		50.171	0.001	1.000	1.000
	Father Form	0.284	0.035	0.483	8.075	0.001		
	R ² = 0.23, R = 0.48 F = 65.203, p = 0.001; Durbin-Watson = 1.560							
	Constant	77.818	1.769		44.001	0.001		
	Mother Form	0.288	0.042	0.481	6.791	0.001	0.590	1.695
	Father Form	0.103	0.042	0.175	2.476	0.014	0.590	1.695
R ² = 0.37, R = 0.608 F = 62.533, p = 0.001; Durbin-Watson = 1.589								

* Dependent variable
 ** Independent variable
 *** Variance inflation factor

mean score of the PBI-father form (R=0.468, p=0.001) and also between the mean scores of the Overprotection-father (R=0.564, p=0.001) and Care-father (R=0.386, p=0.001) sub-dimensions. These findings indicated that as the positive bonding of the mothers with their parents increased, their maternal attachment levels also increased.

Table 4 displays the results of the regression analysis. In the test for autocorrelation errors to ensure that the conditions for regression analysis were met, the Durbin-Watson statistic was 1.420-1.589. In the test for multicollinearity tolerance was 0.421–1.000, which is higher than 0.1, and the variance inflation factor was 1.000–2.375, which is lower than the reference level 10. Thus, these regression diagnostics indicate that the analysis met the required statistical assumptions, i.e., there was no autocorrelation or multicollinearity. The multiple regression analysis revealed that the Overprotection-mother sub-dimension showed the strongest effect on maternal attachment ($\beta=0.304$, $p=0.001$), followed by the Care-mother ($\beta=0.223$, $p=0.001$) and Overprotection-father ($\beta=0.225$, $p=0.005$) sub-

dimensions. These variables explain 43% of the variance in the MAI. The Care-father sub-dimension was found to have no statistically significant effect on maternal attachment ($\beta=0.031$, $p=0.636$). The PBI-mother form ($\beta=0.481$, $p=0.001$) showed a stronger effect on maternal attachment compared to the PBI-father form ($\beta=0.175$, $p=0.001$). These two variables together explained 37% of the total variance in MAI. As a result of the simple regression analysis, the PBI-mother form ($\beta=0.593$, $p=0.636$) and the PBI-father form ($\beta=0.483$, $p=0.636$) explained 35% and 23% of the total variance in the MAI, respectively.

DISCUSSION

The attachment issue is significant since it deeply affects the whole life of an individual (2,15). In particular, the experiences of individuals with their parents during childhood affect their personal, psychological, and social development during adulthood (1). In this context, the first relationship that develops with the mother or the primary caregiver during childhood acts as a template, permanently shaping the individual's abilities to cope with their

future relationships (15). Only a few studies in the literature have evaluated the relationship between mothers' styles of bonding with their own parents and their maternal attachment levels (1). Thus, we carried out this study to evaluate the relationship between the mothers' bonding styles with their parents and then their own maternal attachment. The relationship between both the variables was tested, and the findings revealed that they shared a significant relationship.

In our study, mothers' bonding styles with their parents were investigated, and it was found that the mothers showed high bonding rates with both their mothers and fathers, developing a positive bonding with their parents. It was also determined that the mothers' scores in both the Overprotection-mother and the Care-mother sub-dimensions were higher than the scores in the same sub-dimensions of fathers. These findings showed that the mothers found their own mothers to be more accepting, caring, and warm while their fathers as being more protective. Similar findings were reported in the study of Özeren et al. (28), where the researchers found that the participants showed a positive bonding with both their mothers and fathers. The mothers stated that their mothers had a more positive and warmer attitude than their fathers. Da Rosa et al. (1) found that the mothers who perceived the level of care they received from their mothers as high had higher maternal attachment levels. The fact that mothers spend more time with their children than fathers may cause mothers to be defined as more caring and overprotective by their children. Additionally, it is believed that the characterization of mothers as primary caregivers due to the cultural structure may also affect this situation.

Maternal attachment is a special relationship that develops between mother and baby over time (1,15). A secure attachment is significant for both mother's and infant's health (2). Our study revealed that the mean score obtained from the Maternal Attachment Inventory was 96.7 ± 8.8 , indicating a high maternal attachment level. In another study by Oskovi-Kaplan et al. (32), the mean maternal attachment score was found to be 100.4 ± 5.0 , while in the study of Özdemir and Başkaya (33), the score obtained from the MAI was 98.1 ± 6.0 , indicating high maternal attachment levels in both studies. Considering the health effects of mother-infant attachment, these findings are found to be highly positive.

Many factors affect the successful continuation of the attachment process (1,2,7). The relationship status between the parents and their family has an important place among these factors (34,35). Our study revealed a significant relationship between the bonding styles of mothers with the bonding styles of their own mothers and fathers and also with their maternal attachment levels. Literature states that the prominent mother figure is the main mediator who transmits the intergenerational quality of the mother-infant bond (34,35). In this context, we believe that the results of our study may contribute to the literature.

The results of the analysis revealed that the overprotective behavior of the mothers and fathers of the participants, along with the care and controlling behaviors of the mothers showed a positive effect on the participants' own maternal attachment. However, the effect of the care and control behaviors of the fathers of the participants on maternal attachment to their babies was statistically not significant. As a result, although the bonding of mothers with both parents affected their maternal attachment to their babies, the effect of bonding with the mother on maternal attachment was considered highly valuable. In the literature, separate studies are available on parental bonding (19,21,23,28) and maternal attachment (2,32,33). Both variables are stated to have significant effects on children and adults (19,21,23,28,32,33). Thus, the bond people develop with their parents may affect their lives and even maternal attachment to their own babies, and if this bond is not maintained in a healthy way, the attachment could be adversely affected.

This study has some limitations. Firstly, since it is a cross-sectional study, it is difficult to investigate the causal relationships in a cross-sectional design than in a longitudinal design. Thus, we recommend a longitudinal design in future studies for a better assessment of the mothers' level of bonding with their parents and its effect on their maternal attachment level. Secondly, some unmeasured variables may directly affect mothers' attachment levels (social support, parity, etc.), which can affect the results of the study. This study has some limitations. The main limitations of the study are the use of the nonprobability sampling method, gathering data from the social media group, the characteristics of the study sample group (high education status and high percentage of employment status) that do not reflect the general population, and sizing the sample based

on the average alone. In addition, since it is a cross-sectional study, it is difficult to investigate the causal relationships in a cross-sectional design than in a longitudinal design. Thus, we recommend a longitudinal design in future studies for a better assessment of the mothers' level of bonding with their parents and its effect on their maternal attachment level. Finally, some unmeasured variables may directly affect mothers' attachment levels, such as low socioeconomics, social support, parity, etc., which can influence the results of the study.

CONCLUSION

This study showed that mothers have high levels of maternal attachment, which is desirable. It is a fact that mothers who are positively attached to their babies will have a positive relationship with them, contributing positively to their development. Furthermore, our study showed that positive bonding with parents increased maternal attachment. The bond with the parents along with the mother's attachment and relationship with her child affects the child's later years. Bonding with parents is passed on from generation to generation, pointing at an important outcome in terms of public health. We suggest that families and couples should be trained on how positive or negative bonding with their children can affect their life cycles and future lives. Also, effective intervention studies should be carried out on the subject.

This study revealed that among parents, bonding with the mother rather than the father influences an increased maternal attachment. The bonding between the mother and the baby/child might be stronger than the bonding with the father due to the mothers' primary role in care since they spend more time with the child than the father. Also, the relationship is established between the mother and the baby since the pregnancy period. Based on this result, we recommend that fathers should become more actively involved in child care, spending more time with their children, establishing positive communication with them. It is further recommended to conduct more quantitative and qualitative research to determine the effect of a mother's bonding with her parents on her own maternal attachment. Also, effective intervention programs need to be implemented.

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Author contribution: The contribution of both authors was equal in designing the study, reviewing the literature, being prepared for the ethics committee, collecting, analyzing and reporting the data.

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