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Research Article

The Relationship Between Postpartum Depression and Maternal Attachment in Primiparous Women

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Abstract

Objective: Postpartum depression (PPD) and maternal attachment are two important concepts of the postpartum period, which significantly affect maternal well-being and mother-child relationship. In this study, we aimed to investigate the relationship between PPD and maternal attachment in primiparous women.

Methods: Our descriptive, cross-sectional and correlational design study was conducted between January-June 2023. The study was completed with 352 participants who volunteered to participate in the study, gave birth in the relevant clinic, had no communication problems, and had no diagnosed psychiatric illness. Data were collected face-to-face by the researchers using the Descriptive Information Form, Maternal Attachment Scale (MAS) and Edinburgh Postnatal Depression Scale (EPDS). Data were analyzed in SPSS-22 program.

Results: The mean age of the primiparous mothers included in the study was 23.82±2.60 years and the mean duration of marriage was 2.01±0.77 years. The mean score of the MAS was 81.92±10.99 and the mean score of the EPDS was 11.3±4.39. There was a significant negative correlation between MAS score and EPDS score.

Conclusion: In our study, it was found that the MAS score was higher and the EPDS scale score was lower in mothers with a university degree or higher, mothers who received adequate support from their husbands after birth, working mothers, mothers whose husbands had a regular job and mothers who breastfed their babies. The results are expected to guide intervention and early intervention programs related to PPD and maternal attachment.

Keywords: primiparous, maternal attachment, postpartum depression, depression

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1 INTRODUCTION

Postpartum depression (PPD) is a mood disorder that occurs following childbirth[1]. It is known that the prevalence of PPD in primiparous mothers is between 10-15%, and this rate increases up to 35% depending on demographic factors[2]. PPD, which is characterized by feelings of sadness, anxiety and fatigue, has a significant negative impact on both mother and baby in the following years[3-5].

Maternal attachment is a concept that refers to the emotional connection between a mother and her child and plays a critical role in the child's development and well-being[6-9]. Understanding the relationship between PPD and maternal attachment and identifying risk factors are important for developing effective interventions.

The psychological importance of maternal attachment is increasing with each passing day[10,11]. Especially for primiparous mothers, the quality of attachment experiences is seen as a permanent and determining factor in the lives of mothers and their children[12]. Maternal attachment is described by John Bowlby's attachment theory, which suggests that children are biologically predisposed to form bonds with others for survival[6]. Bowlby argues that attachment is an innate behavior. Bowlby emphasizes that children's attachment levels are affected by the people who provide care to the child in the first years of their lives. The attachment process between the baby and the mother in the first years of life is the determinant of the attachment status of the person in the following process[6,9,13,14].

Maternal attachment and PPD are two important concepts of the postpartum period and significantly affect maternal well-being and mother-child relationship[15]. Many studies have been conducted on the relationship between maternal attachment and PPD. In a systematic review by McNamara et al. (2019), high levels of depression were reported to be associated with low levels of maternal attachment[16]. In another systematic review by Rollè et al. (2020), it was stated that there is an important relationship between prenatal attachment and perinatal depression[17].

In the literature, there are studies showing that factors such as breastfeeding, education, employment status, support from close/social environment and father also affect maternal attachment[18,19]. Breastfeeding provides physical closeness between mother and baby and encourages skin-to-skin contact, which strengthens the emotional bond and attachment between mother and baby[20]. Especially during the first breastfeeding, oxytocin secretion facilitates milk intake and contributes to feelings of love and attachment towards the infant[21,22]. There is ample evidence that maternal employment status may affect mother-child interaction and maternal attachment[19]. It is emphasized that the effect of mothers' higher education levels on maternal attachment is associated with better psychological well-being and parenting skills[23-25].

It is of great importance to understand the relationship between maternal attachment and PPD, to identify risk factors, and for support programs to be provided to mothers in the postpartum period. It is necessary to explore these relationships in more depth and develop targeted interventions to promote positive maternal attachment and reduce or improve PPD.

Based on all these grounds: The aim of this study was to investigate the relationship between PPD and maternal attachment in primiparous women.

Hypotheses of the study:

H_1^1: Socio-demographic characteristics of mothers have an effect on Maternal Attachment Scale (MAS) score.

H_1^2: Socio-demographic characteristics of mothers have an effect on Edinburgh Postnatal Depression Scale (EPDS) score.

2 MATERIALS AND METHODS

2.1 Study Design and Participants

Our descriptive, cross-sectional and correlational design study was conducted between January-June 2023.

The population of the study consisted of all women admitted to a private obstetrics and gynecology clinic in the European Region of Istanbul between January and June 2023.

The study sample included 355 primiparous mothers who agreed to participate in the study. The study was completed with 352 participants who volunteered to participate in the study, gave birth in the relevant clinic, did not have a problem preventing communication, and did not have a diagnosed psychiatric disease.

The sample size was calculated using the population unknown sampling formula. In the calculation, the known mean score of the MAS was 96.53±9.25[26], confidence interval 95%, power 80%, effect size d=0.05*0.15=0.0075. As a result of the calculation, it was decided to include at least 198 mothers in the sample.

2.2 Instruments

The data of the study were collected with "Descriptive Information Form", "Maternal Attachment Scale (MAS)" and "Edinburgh Postnatal Depression Scale (EPDS)".

2.2.1 Descriptive Information Form

The form created by the researchers includes 20 closed and open-ended questions aimed at assessing demographic information such as age, education, economic status and postpartum support systems of the participants.

2.2.2 MAS

The scale was developed by Müller to measure maternal affection and attachment[27], and its Turkish version was tested for validity and reliability by Kavlak and Şirin[28]. Since the maternal feelings and behaviors indicating affection scale is a self-administered scale, it is a scale that can be applied to women who can read, write and understand what they read. It is a 4-point Likert-type scale with 26 items, each item ranging from "always" to "never". Each item contains direct statements and is calculated as always =4, often =3, sometimes =2 and never =1. An overall score is obtained from the sum of all items. A high score indicates a high level of maternal attachment. The lowest score to be obtained on the scale varies between 26 and the highest score varies between 104. A high score on the scale indicates a high level of maternal attachment. The Cronbach's alpha value of the scale is 0.82 and was calculated as 0.93 in our study.

2.2.3 EPDS

The scale was developed by Cox and Holden in 1987[29]. The EPDS is a 4-point Likert self-report scale consisting of 10 items. The responses consisting of four options are scored between 0-3 and the lowest score that can be obtained from the scale is 0 and the highest score is 30. The Turkish validity and reliability of the scale was conducted by Engindeniz et al.[30] and the cut-off score for diagnosis for screening was calculated as 12/13. In the reliability study, the Cronbach's alpha coefficient of the scale was reported as 0.79. In our study, Cronbach's alpha value was found to be 0.80.

2.3 Data Collection

The data were collected face-to-face by the researchers between 08:00 and 17:00 every weekday between 08:00 and 17:00 from the mothers who came to the clinic where the study was conducted within the first 40 days after birth and volunteered to participate in the study. The interviews lasted approximately 5-10 minutes.

2.4 Data Analysis

Data were analyzed in SPSS 22 program. Descriptive statistical analyses (mean, standard deviation, median, minimum and maximum values, percentages, etc.) were used to analyze the data. The conformity of the data to normal distribution was analyzed by Kolmogorov-Smirnov test (When $P<0.05$, it was accepted that the data did not conform to normal distribution). Mann Whitney U test was used to compare two independent variables that did not conform to normal distribution, Kruskall Wallis H test was used to compare more than two independent variables and Spearman Correlation Analysis was used to evaluate the relationship between scale scores. Significance was accepted as $P<0.05$ in all analyses.

2.5 Ethical Dimension of the Research

Before starting the study, ethics committee permission was obtained from the Clinical Research Ethics Committee of the University (date 30.12.2022 / E-12483425-299-25709). Permission for use was obtained from the authors of the scales used in the study via e-mail. All participants were informed about the purpose of the study, that participation was voluntary, that their personal information would remain confidential, and that they could withdraw from the study if they wished. Participants were asked to read the informed consent text and if they agreed to participate, they were asked to sign the "I agree to participate in the study" section on the form before starting the survey. The study was conducted in accordance with the Declaration of Helsinki.

3 RESULTS

The mean age of primiparous mothers was 23.82±2.60 (min: 20 max: 31) years and the mean duration of marriage was 2.01±0.77 (min: 1 max: 4) years. It was determined that the family type of 100% of the mothers was nuclear family and the socio demographic characteristics of the mothers are given in Table 1.

It was determined that 100% of the mothers included in the study had no pregnancy loss, 40.9% had a son and 59.1% had a daughter. It was determined that 100% of the primiparous mothers had a planned pregnancy and 54% of them fed their babies with breast milk and infant formula. The characteristics of primiparous mothers regarding pregnancy, infant and postpartum period are given in Table 2.

The mean score of the MAS was 81.92±10.99 and the mean score of the EPDS was 11.3±4.39 in primiparous mothers. The minimum-maximum scores that can be obtained from the scales are 26-104 for the MAS and 0-30 for the EPDS. Table 3 shows the mean scores obtained from the MAS and EPDS and the minimum maximum scores obtained by the mothers participating in the study (Table 3).

When the scale scores of primiparous mothers were evaluated according to various characteristics, it was found that the total score of the MAS was higher and the total score of the EPDS was lower ($P=0.00$) in mothers with university or higher education. It was determined that the total score of the MAS was higher and the total score of the EPDS was lower ($P=0.00$) in our working mothers. Mothers whose spouses were civil servants had significantly higher total scores on the MAS and significantly lower total scores on the EPDS compared to the others ($P=0.00$). It was determined that the total score of the MAS was statistically significantly higher and the total score of the EPDS was significantly lower in mothers who breastfed their babies ($P=0.00$). It was deter-

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Table 1. Socio Demographic Characteristics of Primiparous Mothers

Characteristics	Min-Max	Mean±SD	Med
Age(years)	20-31	23.82±2.60	23
Duration of marriage(years)	1-4	2.01±0.77	2
		n	%
Mother's education status			
Primary and High School		233	66.2
University and above		119	33.8
Mother's employment status			
Working		130	36.9
Not working		222	63.1
Spouse's education status			
Primary and High School		204	58.0
University and above		148	42.0
Spouse's occupation			
Worker		194	55.1
Officer		87	24.7
Self-employment and private sector		71	20.2
Income status			
Middle-income		142	40.3
Poor economic situation		210	59.7
Total		352	100

Notes: Since more than one answer was given to the question, "*n*" was folded.

Table 3. Distribution of Mean Scores on the MAS and EPDS (*n*=352)

Scales	Min-Max	Mean±SD	Med
MAS	59-100	81.92±10.99	85
EPDS	3-21	11.3±4.39	12

mined that the mothers who received support from their spouses at the postpartum period and found the support sufficient (P=0.00) had statistically higher scores on the MAS compared to the others. Mothers who received support from their immediate environment in the postpartum period and found the support sufficient had statistically lower scores on the MAS compared to the others (Table 4).

Table 5 shows the relationship between the mean total scores of the MAS and the EPDS. Accordingly, it was found that there was a significant negative correlation between the MAS and the EPDS (Table 5).

4 DISCUSSION

The findings of the study were discussed in terms of the relationship between maternal attachment and PPD and the effect of education level, mother's employment status, support from father and other relatives and breastfeeding on these factors.

There was a significant negative relationship between maternal attachment and PPD. PPD is shown as one of the important causes of unorganized attachment and low maternal attachment[31,32]. High PPD affects the decrease in

Table 2. Characteristics of Primiparous Mothers Regarding Pregnancy, Infant and Postpartum Period

Characteristics	Min-Max	Mean±SS	Med
Weight during prgrancy	11-16	13.61±1.75	14
Baby's Birth Weight	2,750-3,900	3,264±318.6	3,200
Baby's Birth Length	49-53	50.34±1.20	50
		n	%
Gender of the baby			
Male		144	40.9
Female		208	59.1
Baby's Feeding Pattern			
Breast milk		162	46.0
Breast milk and formula		190	54.0
Mother's experience in the field of baby care			
Yes Available		4	1.1
No Not available		348	98.9
Support Status of Spouse at Postpartum period			
Yes Available		192	54.5
No Not available		160	45.5
Evaluation about Support Status of Spouse at the Postpartum Period			
Yes, sufficient		120	34.1
No insufficient		232	65.9
Support Status of the Immediate Family at the Postpartum Period			
Yes Available		293	83.2
No Not available		59	16.8
Evaluation about Support of the Immediate Family Adequate at the Postpartum Period			
Yes, sufficient		131	37.2
No insufficient		221	62.8
Total		352	100
**Important Life Events in Your Life			
Being a Mother		275	40.1
Death of a Relative		333	48.6
Getting a job		77	11.2

Notes: **Multiple response.

the level of maternal attachment and insecure attachment. Studies have also reported that low maternal attachment and insecure attachment is a factor that increases maternal depression[17,33-35].

In this study, it was determined that mothers with university and higher education had higher maternal attachment scores and lower PPD scores. This result is similar to the study in which maternal attachment strengthened and PPD decreased with increasing education level[36]. In the study, it was determined that the total maternal attachment score of working mothers was higher and depression scores were lower than non-working mothers. We encounter similar and different findings in different studies regarding this finding of our study. Haná\

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Table 4. Comparison of MAS and EPDS scores according to Some Characteristics of the Participants (*n*=352)

Characteristics		MAS	EPDS
Education status			
Primary and high school		145.9	197.3
University and above		236.2	135.6
Statistical test	Z	-7.8	-5.3
	P	*P*=0.00	*P*=0.00
Employment status			
Working		230.7	140.2
Not working		144.7	197.7
Statistical test	Z	-7.6	-5.1
	P	*P*=0.00	*P*=0.00
Spouse's occupation			
Worker		144.5	196.7
Officer		226.4	90.9
Self-employment and private sector		202.6	226.0
Statistical test	KW-X2	2	2
	P	*P*=0.00	*P*=0.00
Baby's feeding pattern			
Breast milk		243.9	115.7
Breast milk and Formula		118.9	228.3
Statistical test	Z	-11.5	-10.3
	P	*P*=0.00	*P*=0.00
Support status of spouse at postpartum period			
Yes available		220.4	134.3
No not available		123.7	227.0
Statistical test	Z	-8.8	-8.5
	P	*P*=0.00	*P*=0.00
Evaluation about support status of spouse at the postpartum period			
Sufficient		249.9	109.7
Partially sufficient/Insufficient		138.4	211.0
Statistical test	Z	-9.7	-8.8
	P	*P*=0.00	*P*=0.00
Status of support from the immediate environment at the postpartum period			
Yes available		175.3	172.0
No not available		182.4	198.4
Statistical test	Z	-0.4	-1.8
	P	*P*=0.625	*P*=0.069
Evaluation about support of the immediate family adequate at the postpartum period			
Sufficient		131.9	221.8
Partially sufficient/Insufficient		202.9	149.6
İstatiksel test	Z	-6.3	-6.4
	P	*P*=0.00	*P*=0.00

Notes: Data were analyzed with Mann-Whitney U and Kruskal-Wallis H tests.

vcková & Navrátilová found that the relationship between working mothers and their children deteriorated less than non-working mothers and that non-working mothers had higher anxiety scores than working mothers[37]. Similarly, Aghapour & Mohammadi found that non-working mothers had higher depression scores compared to working mothers[38]. Adhikari found that working mothers had higher levels of depression and anxiety[39]. Satbhai found no significant difference between working and non-working mothers in terms of psychological health[40].

Table 5. The Relationship Between MAS and EPDS (*n*=352)

	r	*P*
MAS	-0.580	0.00
EPDS		

Notes: Correlation is significant at the 0.05 level.

It was determined that mothers whose husbands were civil servants had higher maternal attachment levels and lower PPD scores than mothers whose husbands were workers and employed in the private sector. This finding is in parallel with the finding obtained from our study that the maternal attachment levels of mothers who received support from their spouses and who found the support they received sufficient were higher than the others. Public service is a field of work that requires more order. The hours of staying at home are more apparent when compared to other professions. This situation supports the idea that fathers spend more time at home and support the mother more after delivery. In our study, it was found that the maternal attachment scores of mothers who received postpartum support from the immediate environment other than the father and who found the support they received sufficient were statistically lower than the others. This suggests that different care styles negatively affect attachment. In a study conducted by Seven & Alabay to examine the interactions of mothers and their children living in different family types in the context of maternal sensitivity, it was concluded that the sensitivity of mothers living in extended families was low. The care styles of different caregivers reduce the child's ability to predict and forecast[41].

It was determined that the total maternal attachment score of mothers who breastfed their babies was statistically significantly higher and the total PPD score was significantly lower than the others. Many studies support this finding of our study. These results show that breast milk has a positive effect on emotional health on mother and baby, supports maternal attachment and child attachment to the mother, and at the same time reduces the risk of mothers experiencing PPD[34,42-44]. The method of delivery of breast milk to the infant is also a factor that affects maternal attachment, infant attachment and depression. Some studies have shown that direct breastfeeding may increase maternal sensitivity more than bottle feding[20]. Qualitative dimensions of breastfeeding behavior also have a significant impact on attachment. Saljughi et al stated that breastfeeding through role playing improves mother-infant attachment behaviors[45]. Tsabanaki et al stated that during breastfeeding, mother-infant mutual eye gaze, touching behaviors, mutual exchange of emotions, the quality of facial expressions and duration of breastfeeding affect

mother-infant interaction and attachment[46]. Tomlinson et al emphasized that interactive breastfeeding behaviors increase maternal sensitivity, but interactive feeding also affects maternal sensitivity outside of breastfeeding[47].

5 CONCLUSION

According to the results of our study, PPD of mothers has a significant negative relationship with maternal attachment. In addition, it was found that maternal attachment was higher and PPD was lower in mothers with a university degree or higher, mothers who received sufficient support from their spouses in the postpartum period, working mothers, mothers whose spouses had a regular job, and mothers who breastfed their babies. All findings of our study support each other.

In our study, it is clearly seen that paternal support has an effect on maternal attachment. More support and intervention programs should be created for married couples regarding support from their spouses before pregnancy.

It is thought that it is important for health professionals to guide couples about the breastfeeding period, which has a critical importance in human life, to increase breastfeeding and mother-infant interaction, and to implement intervention and training programs.

In this study, mother-infant attachment and mothers' depression states were examined, but infants' behaviors in this situation were not examined. In the light of the findings obtained, longitudinal studies can also be conducted on the behaviors observed in infants in the future in response to mothers' depression and maternal attachment.

In this study, maternal attachment and depression states of mothers were examined, but attachment styles of mothers were not examined. In other studies, the effects of mothers' attachment styles on maternal attachment and depression may be examined.

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Conflicts of Interest

The authors declared no conflict of interest.

Ethical Statement

The study obtained the ethical permission from the Clinical Research Ethics Committee of the University (date 30.12.2022 / E-12483425-299-25709).

Author Contribution

Öz T, Seven ZD, İrevül G, were in charge of study conception and design, analysis and interpretation of results and drafting manuscript preparation. Öz T were in charge of data collection. All authors approved the final version of the manuscript.

Abbreviation List

EPDS, Edinburgh Postnatal Depression Scale
MAS, Maternal Attachment Scale
PPD, Postpartum depression

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