Kadın Sağlığı Hemşireliği Dergisi (KASHED) 2022; 8(3):145-156
Journal of Women's Health Nursing (JOWHEN) 2022;8(3):145-156

Araştırma Makalesi/Research Article

Postpartum Depression, Maternal Attachment and Associated Factors

Yeter ÇUVADAR BAŞ[1], Gül ÜNSAL[2]

Postpartum Depresyon, Maternal Bağlanma ve İlişkili Faktörler

ABSTRACT
Purpose: The aim of this study is to investigate the relationship between postpartum depression and maternal attachment and related factors.
Design and Methods: The sample of the study, which was designed as a crosssectional and comparative descriptive type, was composed of 100 women with postpartum depression and 100 healthy women selected by the sampling method used in cases where the number of universe of the World Health Organization is unknown. Descriptive Information Form, Edinburgh Postpartum Depression Scale and Maternal Attachment Scale were used as data collection tools.
Findings: Mothers with postpartum depression were found to have lower maternal attachment levels than healthy mothers.
Discussion: Developing mothers' early awareness of the risk of postpartum depression is important in terms of improving maternal attachment levels.
Key Words: Maternal attachmen,t nursing, postpartum depression

ÖZ
Amaç: Bu çalışmanın amacı, postpartum depresyon (PPD) ile maternal bağlanma arasındaki ilişkiyi ve ilişkili faktörleri araştırmaktır.
Gereç ve Yöntem: Kesitsel ve karşılaştırmalı tanımlayıcı tipte olarak tasarlanan araştırmanın örneklemini Dünya Sağlık Örgütü'nün evren sayısının bilinmediği durumlarda kullanılan örnekleme yöntemiyle seçilen 100 postpartum depresyonlu kadın ve 100 sağlıklı kadın oluşturmuştur. Veri toplama aracı olarak Tanımlayıcı Bilgi Formu, Edinburgh Postpartum Depresyon Ölçeği ve Maternal Bağlanma Ölçeği kullanılmıştır.
Bulgular: Postpartum depresyonlu annelerin, sağlıklı annelere göre maternal bağlanma düzeylerinin daha düşük olduğu bulunmuştur.
Tartışma: Annelerin postpartum depresyon riskine ilişkin erken farkındalıklarının geliştirilmesi, maternal bağlanma düzeylerinin iyileştirmeleri açısından önemlidir.
Anahtar Kelimeler: Hemşirelik, maternal bağlanma, postpartum depresyon

[1]Corresponding author: Öğr. Gör. Gedik Üniversitesi, Meslek Yüksekokulu İstanbul e-mail: yetercuvadar1@outlook.com
ORCID ID 0000-0002-7917-0576
[2] Prof. Dr. Marmara ÜniversitesiSağlık Bilimleri Fakültesi Psikiyatri Hemşireliği Anabilimdalı İstanbul e-mail: gunsal@marmara.edu.tr ORCID ID 0000-0001-8533-2511
Date of receipt: 31.08.2022 **Date of acceptance:**28.11.2022 **Published online:**30.11.2022
Atıf/Citation: Çuvadar Baş, Y.&Ünsal, G. (2022). Postpartum depression, maternal attachment and associated factors. Kadın Sağlığı Hemşireliği Dergisi, 8 (3), 145-156.

GENİŞLETİLMİŞ ÖZET

Giriş: Postpartum Depresyon (PPD), DSM-V'de "Depresyon Bozuklukları" içinde ele alınmış ve majör depresyonun bir alt tipi olarak "Postpartum Başlangıç Belirleyicisi" başlığı altında postpartum 4 hafta içinde epizodun başlaması şeklinde tanımlanmıştır. Postpartum depresyon bebeğe verilen bakım kalitesini düşürmekte, aile ilişkilerini bozmakta, anne ile bebek arasında kurulan ilişkinin olumsuz etkilenmesine neden olmaktadır. Maternal bağlanmayı olumsuz yönde etkileyen postpartum depresyon erken dönem belirtilerinin farkedilmesinde ve önlenmesinde gebelik, doğum ve doğum sonrası dönemde anneyle en çok vakit geçiren meslek grubu olan hemşirelerin rolü önemlidir. Bu çalışma; postpartum depresyonlu anneler ile sağlıklı annelerin maternal bağlanma tarzlarının ve tüm grupların sosyodemografik verilerine göre ölçek puanlarının arasındaki farkın karşılaştırılması amacıyla planlanmıştır.

Metod: Kesitsel ve karşılaştırmalı tanımlayıcı türde tasarlanan araştırmanın örneklemini Dünya Sağlık Örgütü'nün evren sayısı bilinmeyen durumlarda kullanılan örneklem yöntemi ile seçilen 100 postpartum depresyonlu kadın ile 100 sağlıklı kadın oluşturmuştur. Veri toplama aracı olarak Tanımlayıcı Bilgi Formu, Edinburgh Postpartum Depresyon Ölçeği ve Maternal Bağlanma Ölçeği kullanılmıştır. Çalışmada elde edilen bulgular değerlendirilirken, anlamlılık düzeyinin 0,05 olarak belirlendiği tüm istatistiksel analizler, IBM SPSS 23.0 paket programı ile gerçekleştirilmiştir. Grup karşılaştırmalarına ilişkin analizler NonParametrik Testler yardımı ile yapılmıştır. Araştırmanın verileri Man Whitney - U, Kruskal Wallis ile analiz edilmiştir.

Bulgular: Bu çalışmanın sonucunda; postpartum depresyon tanılı anneler ile sağlıklı annelerin bağlanma tarzlarının farklı olduğu, sağlıklı annelerin bağlanma düzeylerinin postpartum depresyon tanılı annelere göre daha yüksek olduğu gösterilmiştir. Postpartum depresyon tanılı grup ile sağlıklı grup karşılaştırıldığında; demografik verilerden yaş bulgusuna göre PPD tanısının en düşük 31-36, en yüksek ise 18-23 yaş aralığında olduğu gösterilmiştir. Eğitim seviyesi arttıkça PPD oranının düştüğü, gelir düzeyi düştükçe PPD oranının yükseldiği sonucuna ulaşılmıştır. Kendisi ve eşi kamu sektöründe çalışan kadınlarda PPD görülme oranı düşükken, kendisi ve eşi özel sektörde çalışan kadınlarda PPD görülme oranı yüksektir. Kendi işinde çalışan kadınlarda ise PPD görülmemiştir. Evlilik süresine bakıldığında; yeni evli kadınlarda PPD oranının en yüksek olduğu, en düşük oranın ise 5-10 yıl süre aralığında evliliği olan kadınlarda olduğu görülmüştür.

Sonuç: Annelerde postpartum depresyon düzeyi arttıkça maternal bağlanma düzeyinin azaldığı görülmüştür. Çalışmada elde edilen bulguların postpartum depresyon yaşama riski açısından annelerin erken dönemde fark edilmesi ve maternal bağlanma düzeylerinin iyileştirilmesi konusunda hemşireler için yol gösterici olacağı düşünülmektedir.

INTRODUCTION

Mental disorders seen in prenatal and postnatal period are not defined as a separate clinical entity in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) and is grouped under three headings as postpartum or baby blues, postpartum depression and postpartum psychosis. Postpartum Depression (PPD) is covered in "Depressive Disorders" in DSM-V and described as the onset of an episode within 4 weeks postpartum as a subtype of major depression under the heading "Postpartum Onset Specifier". It usually occurs within 12 weeks after birth (Sadock & Sadock, 2016). PPD is a debilitative but treatable mental disorder, representing the most common complication of childbirth (Solomon et al., 2016). It can cause other important problems for both the women and their families and may negatively affect mother-infant relationship and self-care skills (Letourneau et al., 2014). Postpartum depression reduces the quality of care given to the baby, disrupts family relations, and impairs the relationship between the mother and baby (Sunay et al., 2021). The resulting poor attachment is believed to be generalized to the following life periods of the baby and be integrated in his/her life (Solomon et al., 2016). The nurse has a crucial role in recognizing and preventing the early symptoms of postpartum depression, which adversely affects maternal attachment.

Postpartum Depression

Postpartum period starts with the separation of the placenta from the mother and covers the time of up to 8 weeks (Çankaya et al., 2017). Mental disorders seen in the postpartum period are divided into three categories as blues, depression and psychosis. The most common of these disorders is depression. Postpartum Depression (PPD) was defined as the onset of an episode within 4 weeks postpartum under the title of "Postpartum Onset Specifier" as a subtype of major depression, which is covered under "Depressive Disorders" in the DSM-V (Sadock & Sadock, 2016).

Postpartum period is a process where all systems following delivery return to their pre-pregnancy state. Physiological and anatomical changes as well as some psychological changes occur in this process. Women who fail to adapt to these changes experience different levels of psychological disorders (Çankaya et al., 2017). About 70% of new mothers have mild depressive symptoms, termed 'baby blues', which are

most pronounced between 2 and 5 days after birth and typically include crying, sadness, mood lability, irritability and anxiety and does not involve psychotic symptoms. Typically, these symptoms begin to subside spontaneously within 2 weeks, but some cases progress to PPD (Solomon et al., 2016).

The incidence of postpartum depression varies according to the society in which the research is conducted, the structure of the society, cultural characteristics and the type of research (Pawluski et al., 2017). PPD rate differs between 3.5 and 63.3%, depending on the method of research used in the study and the structure of the society (Ay et al., 2018). Studies show that the postpartum period is a high-risk time for mental health problems when compared to other times in women's lives (Pawluski et al., 2017).

Maternal Attachment

Attachment is the resonance between the child and the person who cares for the child and is manifested when the infant seeks someone and clings to that someone as soon as he/she is born. The attached person is usually the mother (Sadock & Sadock, 2016; Kesebir et al., 2017). Maternal attachment is a mutual process between the mother and baby that starts prenatally and continues postnatally (Höbek Akarsu et al., 2017)The most important persons in an individual's life are the mother and father. Therefore, studies indicate that a good bond with parents acts as a determinant in youth and adult mental health (Kesebir et al., 2017.)

The Relationship between Postpartum Depression and Maternal Attachment

It has been established by many studies that postpartum depression has negative consequences on the infant's emotional, behavioural and cognitive development and attachment style (Hergüner et al., 2014). Since it is the process in which the mother's love bond towards the baby is shaped from the satisfactory and adequate interaction between the mother and her baby, maternal attachment plays a major role in reducing and minimizing the symptoms of postpartum depression (Karakulak Aydemir et al., 2016).

DESIGN AND METHODS

This was a comparative descriptive study and was converted from a thesis to a research paper. The population of the study consisted of women, aged between 18-49 years, who gave birth in a Training and Research Hospital in Istanbul, applied to the Gynaecology Outpatient Clinic and to the Psychiatry Outpatient Clinic with postpartum depression symptoms and had this diagnosis in the postpartum 4-8 weeks. The size of the population was uncertain. Healthy mothers and mothers with a diagnosis of postpartum depression who visited the hospital at the 6th postpartum week for follow-up and accepted to participate in the study and met the inclusion criteria formed the sample of the study. When selecting the sample, the sample calculation formula is used if the number of individuals in the population is not known. In studies conducted in different regions of Turkey, the prevalence of postpartum depression was found to be between 10-20%. The minimum sample size was calculated as 195 when the prevalence was 15%, the margin of deviation was 5%, the confidence level was 95% and the margin of error was 5%. The final sample size was determined as 200, considering the possible problems during the data collection and evaluation stages. The study was carried out with 100 mothers with diagnosed postpartum depression in the case group and 100 healthy mothers in the control group. The mothers who applied to the psychiatry department of the hospital and were diagnosed with postpartum depression and met the inclusion criteria were included in the case group of 100 women. Healthy mothers who applied to the gynaecology and obstetrics clinic of the same hospital and met the inclusion criteria were included in the control group of 100 women.

Data were collected for 9 months and were in the hospital 5 days a week. The eligibility of the women who applied to the specified outpatient clinics and clinics was first evaluated.

Following the order of the subject number, the researcher introduced herself to the patients who met the inclusion criteria and gave information about the study. An informed consent form was signed by the women who agreed to participate in the study after the information was given. Case/control group assignments were made according to the inventory results.

Shapiro Wilks test was used to test the normality of the data. Mann-Whitney U and Kruskal Wallis tests were used for group comparisons of quantitative type variables that did not fit normal distribution. If there was a difference in the comparisons of more than two groups, the group(s) creating the difference were determined by Dunn's test with Bonferroni correction for multiple comparisons. The relationship between two qualitative types of variables was examined using the Person chi-square test and Fisher's exact test (if the ratio of the expected value being than 5 in cells was at least 20%). As descriptive statistics, mean and standard deviation, median and minimum - maximum values were given for quantitative variables, while numbers and percentages were given for qualitative variables. All statistical analyzes were performed with the IBM SPSS 23.0 software package with a significance level of 0.05. Analyzes of group comparisons were made with the help of non-parametric tests. The data of the study were analysed by Man Whitney - U, Kruskal Wallis. Level of significance was set at $p<0.05$.

$$n = \frac{(1{,}96 \times 1{,}96) \cdot (0{,}15 \times 0.85)}{(0{,}05 \times 0{,}05)} = 195$$

Power analysis and sample size calculation are based on the same foundations. Accordingly, using the Program G Power 3.1.9.2 program, the sample size was taken as 100 individuals for both groups, according to the t test;

Input Parameters

Effect size d: 0.5

α err prob: 0.05

Power (1-β err prob): 0.94

Allocation ratio N2/N1: 1

1. Output Parameters

2. Noncentrality parameter δ: 3.5355339

3. Critical t: 1.9720175

4. Df: 198

5. Sample size group 1: 100

6. Sample size group 2: 100

7. Total sample size: 200

Data Collection Tools

Two scales and a descriptive information form were used to collect the data in this study.

Descriptive Information Form

The Descriptive Information Form, prepared by the researchers in line with the literature (Chzzy et al., 2020; Gümüş Babacan, 2012), was the part of the study that was applied in the first meeting with the participants. It includes 12 questions on descriptive information such as the individual's age, education, marital status, place of residence, employment, and social security. The Descriptive Information Form was filled in by the researcher by means of interview technique, measurement and observation.

Edinburgh Postpartum Depression Scale (EPDS)

It was developed by Cox and Holden (1987) to determine the risk of postpartum depression, to measure the extent and severity of existing depression and any changes that may occur. It is a Likert-type self-evaluation scale. Turkish validity and reliability were determined by Engindeniz et al. (1996). The internal consistency coefficient of the scale was 0.79, the split-half reliability was 0.80, the cut-off point was 12/13, the sensitivity was 0.84, the specificity was 0.88, the positive predictive value was 0.69, and the negative predictive value was 0.94. It consists of 10 questions in total. Responses consisting of four options are scored between 0-3, and the score that can be obtained from the scale is between 0-30. In the evaluation, the 1st, 2nd and 4th questions are scored as 0-3, while the 3rd, 5th, 6th, 7th, 8th, 9th and 10th questions are reversely scored as 3-0. Women who score 13 points or more on the scale are considered as the risk group (Keser Özcan et al., 2018). In this study, the Cronbach alpha value was found to be 0.975.

Maternal Attachment Inventory (MAI)

It was developed in 1994 by Mary E. Muller, who studied maternal adaptation and maternal attachment, to evaluate maternal love and attachment. The validity and reliability of the scale questions were tested by a group of 12 people consisting of linguists, theorists, specialist nurses working in the field of obstetrics and gynaecology and paediatrics, and postpartum mothers. The scale is self-administered and requires literacy and no loss of consciousness. The responses to the scale items vary between "always" and "never" scored as follows: Always (a): 4 points, Often (b): 3 points, Sometimes (c): 2 points, Never (d): 1 point. Higher scores indicate stronger maternal attachment. It is a 4-point Likert type scale with 26 items. The score that can be obtained from the scale varies between 26 and 104. Turkish validity and reliability were tested by Kavlak and Şirin (2009). The reliability coefficient of the Maternal Attachment Inventory was found to be 0.85 Cronbach alpha (Bilgin & Alpar, 2018; Oruç& Kukulu, 2021). The Cronbach alpha in this study was 0.995.

RESULTS

Table 1. Comparison of The Case And Control Groups' MAI and EPDS Scale Scores

		Case and Control Groups			
		Healthy n=100	**Patient n=100**	**x^2**	**p**
MAI score	Mean±SD	97.1±6	37.9±9.8	Z=-12.237	<0.001
	Med(Min-Max)	96.5(80-104)	37(26-60)		
EPDS score	Mean±SD	2.7±2.6	22.6±3.4	Z=-12.257	<0.001
	Med(Min-Max)	2.5(0-10)	23(14-29)		

Med: Median, SD: standard deviation, Min: smallest value, Max: largest value. Z: Z test statistic

Since the groups did not show normal distribution, the comparison was made with the nonparametric test Mann Whitney Test, which demonstrated a statistical difference between the two groups (p<0.001). Maternal attachment of mothers with PPD was found to be lower than healthy mothers (Table 1).

Table 2. Comparison of the Delivery Details of the Case and Control Groups

	Case and Control Groups		
	Healthy n %	**Patient n %**	**x2/p**
Was Pregnancy Planned?			
Yes	98(76.6%)	30(23.4%)	100.347 /<0.001
No	2(2.8%)	70(97.2%)	
Mode of Delivery			
Caesarean Section	20(24.7%)	61(75.3%)	34.879 /<0.001
Vaginal Delivery	80(67.2%)	39(32.8%)	

* χ^2 = Pearson chi-square test statistics.

In the case and control groups, 23.4% of the mothers who had a planned pregnancy had an EPDS score above 13, and 97.2% of the mothers who did not have a planned pregnancy had a mean EPDS score below 13. In the analysis, a significant difference was found between the two groups in terms of planned pregnancy (p<0.001). While the risk was lower than expected in the mothers who conceived on a planned basis, the risk was higher than expected in the mothers whose pregnancies were not planned.

A significant difference was also found between the two groups when the delivery mode of mothers diagnosed with postpartum depression and healthy mothers were compared (p<0.001). The risk of postpartum depression was higher in those who gave birth by caesarean section than those who gave vaginal birth (Table 2).

Table 3. Comparison of the Findings Regarding the Frequency of Breastfeeding in the Case and Control Groups

Groups	How Often Is the Baby Breastfed? n (%)				x2/p
	Does not breastfeed	When the baby wants to suck	Every 2-3 hours	Every time the baby cries	
Healthy	3(3.0%)	8(8.0%)	45(45.0%)	44(44%)	147.250 /<0.001
Case	56(56.0%)	40(40.0%)	4(4.0%)	0	

* χ^2 = Pearson chi-square test statistics.

A significant difference was found between the breastfeeding rates of mothers diagnosed with postpartum depression and the healthy group (p<0.001). There was a significant difference between all groups with the advanced analysis method performed to determine the group that caused the difference. The biggest difference arises from mothers who do not breastfeed their babies. More than 56% of mothers with depression risk in our sample did not breastfeed their babies. Also, the group that caused the biggest difference was the mothers who breastfeed their babies every time they cried. While a high percentage of the healthy mothers breastfed every time their babies cried (44%), mothers with depression risk did not breastfeed each time their baby cried (Table 3).

Table 4. Comparison of MAI and EPDS Scores of All Groups by Age

		Age				
		18-23	24-30	31-36	37-42	x2/p
MAI	Mean±SD	38.7±13.7	79.6±28.1	89.9±20.4	57.7±28.5	70.814/ <0.001
	Med(Min-Max)	37(26-95)	93(26-104)	95(29-104)	48(26-104)	
EPDS	Mean±SD	23±4.2	8.6±9.5	4.9±7.5	16.9±9.8	
	Med(Min-Max)	22(9-28)	4(0-28)	2(0-24)	22(3-29)	78.508/ <0.001

*Med: Median, ss: standard deviation, Min: smallest value, Max: Largest value,

χ^2 = Pearson chi-square test statistics.

The mothers differed significantly by age in their MAI total scores (p<0.001). A significant difference was found with the multiple comparison analysis in pairwise comparisons of all groups between the ages of 18-23 and 37-42. The mean MAI total scores of those aged 18-23 were significantly lower than the other groups. Those in the 37-42 age range had significantly higher scores than those in the 18-23 age range, but significantly lower than the other groups.

The mothers differed significantly by age also in their EPDS scores (p<0.001). The multiple comparisons showed no difference between the 31-36 age group and the 24-30 age group in EPDS scores, while the mean EPDS scores of the mothers in these two groups were significantly lower than those in the 37-42 and 18-23 age range (Table 4).

Table 5. The Relationship Between Income Levels of All Groups and MAI and EPDS Scores

		Income Levels				
		0/2000	**2001/ 4000**	**4001/ 6000**	**6001 and above**	**x2/p**
MAI	Mean±SD	38.3±14.7	64.9±29.9	88.5±21.1	89.8±21.8	74.132/<0.001
	Med(Min-Max)	36(26-95)	53(26-104)	94(32-104)	96.5(28-104)	
EPDS	Mean±SD	22.6±4.2	13.8±10	5.6±6.7	4.3±8.6	80.183/<0.001
	Med(Min-Max)	23(9-29)	18(0-28)	3(0-24)	5(0-26)	

*Med: Median, SS: standard deviation, Min: smallest value, Max: Largest value, χ^2 = Pearson chi-square test statistics.

A significant difference was found between the mothers' income levels in terms of MAI total scores (p<0.001). In the multi-comparison analysis, no difference was found between 4000-6000 and 6001 and above income groups, while a significant difference was found between 0-2000 income groups and all groups (p<0.001). Mean MAI total scores of mothers with an income level of 0-2000 were significantly lower than mothers with other income levels.

When the income levels of the mothers were compared in terms of EPDS scores, there was a difference between the groups (p<0.001). In the multiple comparison, there was no difference between the mothers with 4001-6000 income levels and those with 6001 income and above in terms of EPDS scores, while the EPDS scores of the mothers with 0-2000 income levels were significantly higher in comparison with all groups (Table 5).

Table 6. The Relationship Between Planned/Unplanned Pregnancy and MAI and EPDS Scores of All Groups

	Was the Pregnancy Planned?		
	Yes	**No**	**Z/p**
MAI Mean±SD	83.7±25.6	38.7±12.8	-9.234<0.001
Med(Min-Max)	95(26-104)	37.5(26-89)	
EPDS Mean±SD	6.9±8.1	22.9±4.7	-9.854/<0.001
Med(Min-Max)	3(0-26)	23.5(2-29)	

*Med: Median, SS: standard deviation, Min: smallest value, Max: Largest value, Mann-Whitney U, Z: Z test statistics

A significant difference was found between the mothers in terms of total scores of MAIs and whether their pregnancies were planned or not (p<0.001). In the pairwise comparison analysis, the total MDI scores of the mothers who had a planned pregnancy were higher than those whose pregnancies were not planned.

A significant difference was found between the mothers in the comparison based on whether their pregnancies were planned or not (p<0.001). In the pairwise comparison analysis, the total EPDS scores of the mothers who had a planned pregnancy were lower than those who did not have a planned pregnancy (Table 6).

Table 7. The Relationship Between Delivery Mode and MAI and EPDS Scores of All Groups

	Delivery Mode		Z/p
	Caesarean	**Vaginal**	
MAI			
Mean±SD	52.7±28.3	77.6±28.1	-4.919/<0.001
Med(Min-Max)	46(26-104)	93(26-104)	
EPDS			
Mean±SD	17.9±9.3	9.1±9.6	-5.587/<0.001
Med(Min-Max)	22(0-29)	4(0-27)	

*Med: Median, SS: standard deviation, Min: smallest value, Max: Largest value, Mann-Whitney U, Z: Z test statistics.

The mothers differed significantly by mode of delivery in terms of total points of MAI (p<0.001). In the pairwise comparison analysis, the total MDI scores of the mothers who gave vaginal birth were significantly higher than the mothers who gave birth by caesarean section.

In terms of EPDS scores, a significant difference was found between the mothers in the comparison with the mode of delivery (p<0.001). In the pairwise comparison analysis, mothers who gave birth by caesarean section had higher EPDS total scores than mothers who had vaginal delivery (Table 7).

Table 8. The Relationship Between the Time to Hold the Baby of All Groups and the MAI and EPDS Scores

		Time to Hold the Baby				
		Immediately	**2-6 hours**	**6-24 hours**	**> 24 hours**	**x2/p**
MAI	Mean±SD	89.6±21.2	77.8±25.5	42.9±16.6	34.8±8.7	103.007/<0.001
	Med(Min-Max)	95(26-104)	93(39-104)	40(26-96)	31(26-56)	
EPDS	Mean±SD	4.9±7.1	9.7±8.6	21.3±4	23.7±3.8	111.045/<0.001
	Med(Min-Max)	3(0-27)	4(0-23)	21(8-26)	24(15-29)	

*Med: Median, SS: standard deviation, Min: smallest value, Max: Largest value, χ^2 = Pearson chi-square test statistics.

A significant difference was found between the mothers in terms of the total scores of MAIs when they were compared according to the time to hold their babies (p<0.001). There was no difference in the multiple comparison analysis between the mothers who held their babies after 6-24 hours and those who held their babies after more than 24 hours (p>0.005), but a significant difference was found between them and all other groups (p<0.001). Mean MAI total scores of mothers who held their babies immediately were significantly higher than those of other mothers.

In terms of EPDS scores, there was a difference between the groups in the comparison between the times to hold their babies (p<0.001). The multiple comparison analysis did not yield a difference in terms of EPDS scores between mothers who held their babies immediately and those who held after 2-6 hours (p>0.005), while mothers who held their baby after for more than 24 hours had significantly higher EPDS scores than these two groups (Table 8).

Table 9. The Relationship Between Breastfeeding Frequency of all Groups and MAI and EPDS Scores

		Frequency of Breastfeeding				
		Does not breastfeed	**When the baby wants to suck**	**Every 2-3 hours**	**Every time the baby cries**	**x2/p**
MAI	Mean±SD	37.7±15.4	49.5±22	92.1±12.5	99.7±4.7	135.838/<0.001
	Med(Min-Max)	33(26-96)	44(26-96)	93(54-104)	102(90-104)	
EPDS	Mean±SD	22.6±5.2	18.1±8.06	4.3±5.4	2.6±3.2	122.066/<0.001
	Med(Min-Max)	24(2-29)	21(0-27)	3(0-23)	1(0-10)	

*Med: Median, SS: standard deviation, Min: smallest value, Max: Largest value,

χ^2 = Pearson chi-square test statistics.

A significant difference was found in the comparison by the mothers' breastfeeding frequency in terms of total MAI scores (p<0.001). In the multiple comparison analysis, there was no difference between mothers who did not breastfeed and mothers who breastfed their babies when the baby wants to suck, but there was a significant difference between all other groups (p<0.001). The total MDI scores of mothers who breastfed every time their babies cried were significantly higher than those of other mothers.

There was a difference between the groups in EPDS scores in the comparison with mothers' breastfeeding frequency (p<0.001). In the multiple comparison analysis, no difference was found between mothers who breastfeed every time their babies cried and mothers who breastfeed every 2-3 hours in terms of EPDS scores, while a difference was found between all other groups. Mean EPDS scores of mothers who did not breastfeed their babies were significantly higher than all other groups (Table 9).

DISCUSSION

This study evaluated maternal attachment styles of mothers with postpartum depression and healthy mothers and, in line with the results obtained, aimed to elucidate the importance of recognizing mental problems and the significance of maternal attachment in the early postpartum period.

The analysis by age as a sociodemographic variable in our study showed that the highest rate of postpartum depression belonged to those who gave birth in the 18-23 age range, while the lowest was observed in the 31-36 age range. In our study; mothers who graduated from primary school had the highest postpartum depression rate, while mothers who were university graduates had the lowest. The effect of the age variable can be seen in different results in the literature. In a randomized controlled study showing similar results with our study, the risk of PPD in young mothers was found to be 4 times higher than in older mothers (Ludwick, 2017). A study investigating whether demographic data such as race, age, and economic status were associated with prenatal and postnatal depressive symptoms concluded that age was a determinant of PPD (Ponting et al., 2020). In another study, it was reported that adolescent mothers suffer from postpartum depression more than adult mothers, and that the presence of depression reduces their parenting practices, mothers give less maternal warmth and sensitivity, conditioned responsiveness, and less verbal responsiveness to their babies (Çınaklı & Aslantaş, 2021). In a study investigating the effect of postpartum depression on maternal attachment, there was no statistically significant difference between the age groups and educational level of the mothers (Çankaya et al., 2017; Kokanalı et al., 2018). Different study findings can be explained by the different age groups in the sample. According to the results of many studies, it is thought that a high level of education contributes to the increase in the effectiveness of women on their own lives and to cope with the problems that occur after childbirth more effectively (Kolukırık et al., 2018; Çoban et al., 2020; Pekcan & Yılmaz, 2021). The World Health Organization (WHO) considers the age range of 10-19 as adolescence. Adolescent pregnancy is a risk factor for mental illnesses (Mason, 2011). In our study, 59 women were between the ages of 18-23. 32 of these women are 19 years or younger. Adolescent pregnancy status may be associated with a high postpartum level in women in this age group. Not being ready for motherhood, being too young to gain autonomy and not sufficiently consolidate individual identity may be related to the results.

As a result of the meta-analysis evaluations, 13 significant risk factors for postpartum-onset depression were identified in the literature. These; prenatal depression, self-esteem, childcare stress, prenatal (prenatal) anxiety, life stresses, social support, marital status, history of depression diagnosis, newborn temperament, maternal sadness, marital relationship, unwanted/unexpected pregnancy, and socio-economic status (Beck, 2001). The comparison made on the basis of the participants' perception of their economic status in the present study demonstrated a significant difference in the income level between mothers diagnosed with postpartum depression and those in the healthy group ($p<0.001$). The rate of PPD was higher in mothers who perceived their economic status as poor and was lower in those considering economic status good. A study examining the effect of postpartum depression on breastfeeding has reported that economic status influenced the EPDS score (Aksoy et al., 2016). Decreased maternal or paternal income is significantly associated with higher scores on the EPDS. This result is in line with the literature, which found that low socioeconomic status significantly increases the risk of postpartum depression (Guintivano et al. ; Spinola et al., 2020). Although it is normal during the life periods of women such as pregnancy and childbirth, it is a risk factor for mental illnesses and the fact that there are economic problems in this period when the woman is experiencing hormonal changes makes women more vulnerable.

In the statistical analysis, a significant difference was found between the two groups in terms of planned pregnancy. While the frequency of depression was lower than expected in the mothers who conceived on a planned basis, the frequency of depression was higher than expected in the mothers whose pregnancies were not planned. According to several studies conducted in Turkey, reasons such as unplanned pregnancy and the woman's unwillingness to have a baby increase the risk of PPD (Vatansever, 2017; Ay et al., 2018; Sunay et al., 2021). Currently, unintended pregnancies are accepted as a risk factor for the development of mental illness in the woman's life period. On the other hand, in some studies are stated that unplanned pregnancy does not affect postpartum depression, but factors such as cesarean section cause postpartum depression (Şenol Kaya & Pekyiğit, 2021). However, in this study, the number of women who had a planned pregnancy was approximately 3 times that of those who had an unintended pregnancy. We think that the number of women experiencing unwanted pregnancy is not sufficient in terms of evaluating the relationship with planned pregnancy.

We found a significant difference between the two groups when we compared the delivery mode of mothers with a diagnosis of postpartum depression and healthy mothers. The incidence of postpartum depression was found to be higher in those who had a caesarean delivery compared to those who had a vaginal delivery. In the pairwise comparison analysis, the total MDI scores of the mothers who gave vaginal birth were found to be significantly higher compared to the mothers who gave birth by caesarean section. In the literature, there are studies with results that establish the mode of delivery as a risk factor for PPD, as well as those which exclude it as a risk factor. In a systematic review of 39 Turkish articles, it was found that mode of delivery affected PPD in 10 studies, it did not affect PPD in 12 studies, and it was not specified in 17 studies (Ay et al., 2018; Pekcan & Yılmaz, 2021).

We found a significant difference in the time to hold the baby between the mothers diagnosed with postpartum depression and those in the healthy group. While mothers in the healthy group immediately held their babies (78%), mothers diagnosed with depression did so after more than 24 hours (46.6%). The time to hold their baby after birth for mothers with a low MDI score was higher than that of mothers with a high MRS score. There is not enough research in the literature on this subject, but a study conducted to investigate the Turkish reliability and validity of the postpartum parenting scale reported that the first hours postpartum was a more sensitive period and the separation of the mother and the baby during this period may adversely affect the development of the baby and the attachment of the mother (Taner & Çalışır, 2021). In three master's theses, the factors affecting skin-to-skin contact, postpartum depression and maternal attachment were examined. According to the results of the study, it was reported that skin-to-skin contact did not affect maternal attachment and postpartum depression had a negative effect on maternal attachment (Işık, 2019; Kılan, 2019; Türemen, 2019).

Maternal attachment differs significantly according to the results obtained with the breastfeeding variable. Mothers who breastfeed their babies had lower EPDS scores and higher maternal attachment mean scores. The total MAI scores of mothers who breastfead every time their baby cried were found to be significantly higher compared to other mothers. The results of the previous studies suggest that mothers with PPD tended to their babies for a shorter time during breastfeeding and had a more negative attitude towards it (Selük, 2019). In one study, women with high EPDS average scores breastfeeding self-efficacy scores were found to be low, and it was stated that the mother's not breastfeeding her baby, keeping breastfeeding short and having a negative attitude towards breastfeeding increased the incidence of postpartum depressive symptoms (Başer, 2018; Pekcan & Yılmaz, 2021). Similarly, a study examining the relationship between maternal attachment and perceived social support in

PPD concluded that the maternal attachment levels of mothers whose babies were breastfed were higher than mothers whose babies did not receive breast milk (Dayan, 2019).

In our study, maternal attachment of mothers with PPD was found to be statistically lower than healthy mothers. Most of the studies have concluded that mothers with higher EPDS scores had lower MAI scores (Çankaya et al., 2017). In a study examining the distribution of maternal attachment score averages according to the PPD status of mothers, a statistically significant relationship was found between mothers' mean maternal attachment scores and PPD experiences (Kara & Cetinkaya, 2020). Stereotypes that ignore the mother as a subject and expectations about feminine roles lead to not allowing the mother's feelings of love, anxiety, compassion, as well as anger and frustration. The patriarchal mentality that defines motherhood, in which these expectations are included, is the women who experience motherhood. This mentality and roles pave the way for mental illnesses for women. Women whose friends and social circle are limited by having a baby may feel as if they have lost their independence and become more 'traditional women'. This may cause the mother to feel anger towards her baby. As a result, it may cause the deterioration of the relationship with the baby.

THE ROLE OF NURSES

In this study, it was concluded that age, whether the pregnancy was planned, income level, and mode of delivery affected the EPDS score, and breastfeeding and holding the baby affected the MAI score, and there was a relationship between PPD and maternal attachment. As a result of this study, the mothers diagnosed with postpartum depression and healthy mothers were shown to have different attachment styles, and the attachment levels of healthy mothers were higher than mothers diagnosed with postpartum depression.

It is very important that all healthcare professionals interact with a woman with PPD during her treatment. If communication is maintained, women and health professionals can decide on the treatment protocol together, and the healing process can be followed optimally (Yıldırım & Büyükkayacı, 2018). In the postpartum period, the responsibility of the nurse should focus on ensuring the physical health of the woman and facilitating the transition of the woman to the role of motherhood (Koçak and Duman, 2016). Studies emphasize that the contributions of nurses in the field of women's mental health are in three main areas: to identify the emotional changes experienced by women during the period of depression, to evaluate their attachment to the baby after birth, and to manage dysphoria symptoms.

In the light of the findings obtained;

- Women who are followed-up after birth should be evaluated not only physically but also psychologically,
- Nurses should also be included in prepartum care in order to identify expectant mothers with risk factors for PPD,
- Support and counselling should be provided for the mothers to help them adapt to baby care.

Ethics Committee Approval: Ethics committee approval was obtained from the Marmara University Institute Of Health Sciences Ethics Commitee (20.06.2019, protocol no: 54155).

Peer-review: External referee evaluation

Author Contributions:

Idea/Concept:Y.Ç.B.,G.Ü.;Design:Y.Ç.B.,G.Ü.;Supervision /Counsulting: G.Ü.;Data Collection and/or Processing: Y.Ç.B.;Analysis and/or Interpretation: Y.Ç.B.;Literature Review: Y.Ç.B.; Writing: Y.Ç.B.,G.Ü.;Critical Review: G.Ü.;Funding: Y.Ç.B.

Conflict of interest: Researchers have not declared any conflict of interest.

Financial Disclosure: No financial support has been received for this research.

REFERENCES

Aksoy, E. et al. (2016). The effect of postpartum depression on breastfeeding. Gumushane University Journal of Health Sciences, 5(3), 90-96.

Ay, F., Tektaş, E., Mak, A., Aktay, N. (2018). Postpartum depression and affecting factors: 2000-2017 Research Results. J Psychiatric Nurs., 9(3), 147-152. DOI: 10.14744/phd.2018.31549

Başer, D.A. (2018). Evaluation of the relationship between postpartum depression and breastfeeding. Ankara Medical Journal, (3), 276-85, DOI: 10.17098/amj.461652

Bilgin, Z., Alpar Ecevit, Ş. (2018). Women's perception of maternal attachment and their views on motherhood. Journal of Health Sciences and Professions, 5(1), 6-15. DOI: 10.17681/hsp.296664.

Chyzzy, B. et al. (2020). Adolescent mothers' perceptions of a mobile phone-based peer support intervention. Canadian Journal of Nursing Research, 0(0), 1-10. https://doi.org/10.1177/0844562120904591

Çankaya, S. et al. (2017). The effect of postpartum depression on maternal attachment. ACU Health Science Journal, 4, 232-240.

Çınaklı, Ş. & Arslantaş, H. (2021). Childhood trauma, postpartum depression and maternal attachment in an adolescent and non-adolescent mothers.

Cukurova Medical Journal, 46(2), 789-800. Beck, C. T. (2001). Predictors of postpartum depression: an update. Nurs Res, 50 (5), 275-85.

Çoban, A. et al. (2020). Do birth characteristics predict postpartum depression and maternal attachment? Life Sciences (NWSALS), 15(3), 32-40, DOI: 10.12739/NWSA.2020.15.3.4B0034.

Guintivano, J., Manuck, T., Meltzer-Brody, S. (2018). Predictors of postpartum depression: a comprehensive review of the last decade of evidence. Clin Obstetr Gynecol., 61, 591–603. doi: 10.1097/GRF.0000000000000368.

Gümüş Babacan, A. et al. (2012). Prevalence of postpartum depression and associated variables.New Symposium Journal. 50(3), 145-154.

Herguner, S. et al. (2014). Association of delivery type with postpartum depression, perceived social support and maternal attachment. The Journal of Psychiatry and Neurological Sciences, 27, 15-20. DOI: 10.5350/DAJPN2014270102

Höbek Akarsu, R., Tuncay, B., Yüzer Alsaç, S. (2017). Evidence-based practices in mother-infant attachment. Gumushane University Journal of Health Sciences, 6(4), 275-279.

Işık, S. (2019). The effect of paternal depression on father-infant attachment in early infancy. (Master Thesis). İzmir Katip Celebi University/Health Sciences Institute, İzmir

Karakulak Aydemir, H., Alparslan, Ö. (2016). Adaptation of the mother-baby attachment scale to turkish society: The Case of Aydın. Journal Of Comtempopary Medicine, 6(3), 188-199.

Kara, M. & Cetinkaya, S. (2020). Investigation on the attachment status of the fathers introduced to their babies for the first time after birth. Early Child Development and Care, 192(7), 1056-1068. DOI: 10.1080/03004430.2020.1837789

Kesebir, S. et al. (2011). Attachment and psychopathology. Current Approaches in Psychiatry-Current Approaches in Psychiatry, (2), 321-342.

Keser Özcan, N. et al. (2018). Prenatal and postnatal attachment among turkish mothers diagnosed with a mental health disorder. Issues in Mental Health Nursing, 39(9), 795-801.DOI:10.1080/01612840.2018.1455773 İzmir.

Kılan, S. (2019). Father-infant attachment and affecting factors; Manisa Example. (Master Thesis). Manisa Celal Bayar University/Health Sciences Institute, Manisa.İzmir.

Koçak, D.Y. & Büyükkayacı Duman, N. (2016). Postpartum depression and nursing approach. Journal of Psychiatry, Neurology, Behavioral Sciences, 3(9), 9.

Kokanalı, D. et al. (2018). Effect of cesarean section on postpartum depression and maternal attachment. Journal of Contemporary Medicine, 0(0),148- 152. DOI: 10.16899/gopctd.366181

Kolukırık, Ü., Şimşek, H., & Ergör, A. (2018). Factors associated with depressive symptoms in mothers in the postpartum period: A population-based cross-sectional study, Dokuz Eylul University Journal of Medicine, 33(1),1-8 DOI:10.5505/deutfd.2019.30092

Letourneau, N., Secco, L., Colpitts, J., Aldous, S., Stewart, M., Dennis, C.L. (2014). Quasi-experimental evaluation of a telephone-based peer support intervention for maternal depression. Journal Of Advanced Nursing, 71, 1587-1599.

Ludwick, S.D. (2017). Postpartum depression: implementing an evidence-based social support network in north carolina. University of Kansas, USA.

Mason, E. (2011). Guidelines for preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries. Geneva, World Health Organization, 1-8. Access Address: http://apps.who.int/iris/bitstream/handle/10665/44691/9789241502214_eng.pdf;jsessionid=064E71DA615E467682C4D2BBD1188A11?sequence=1 (20.02.2022)

Oruç, M., Kukulu, K. (2021). The relationship between maternal function and maternal attachment of women during the postpartum period. Journal of Reproductive and Infant Psychology, 1-11. https://doi.org/10.1080/02646838.2021.1962824

Pawluski, J.L., Lonstein, J.L., Fleming, A.S. (2017). The Neurobiology of Postpartum Anxiety and Depression. Trends in Neurosciences, 40(2), 106-120.

Pekcan, N. & Yılmaz, E. (2021). Determination of the Risk of Postpartum Depression in Women who Received And Did Not Receive Education in Childbirth Preparation Classes. Fenerbahce University Journal of Health Sciences, 1(3), 226-240.

Ponting, C., Chavira, D. A., Ramos, I., Christensen, W., Guardino, C., & Dunkel Schetter, C. (2020). Postpartum depressive symptoms in low-income Latinas: Cultural and contextual contributors. Cultural Diversity and Ethnic Minority Psychology, 26(4), 544–556. https://doi.org/10.1037/cdp0000325

Sadock, B.J. &Sadock, V.A. (2016). Kaplan&Sadock Psychiatry. Translation Editor: Bozkurt A. Eleventh Edition, Güneş Medical Bookstore, Istanbul, 939-940.

Spinola, O. et al. (2020). Effects of COVID-19 epidemic lockdown on postpartum depressive symptoms in a sample of Italian mothers. Front Psychiatry, 11(589916), 1-10. DOI: 10.3389/fpsyt.2020.589916

Solomon, C.G., Stewart, D.E., Vigod, S. (2016). Postpartum Depression. The New England Journal of Medicine, 2016, 375(22).

Sunay, Z. , Karataş Okyay, E. , Gökbulut, N. & Uçar, T. (2021). The Relationship between Postpartum Depression and Personality Traits. Journal of İnönü University Vocational School of Health Services, 9(1), 219-229 . DOI: 10.33715/inonusaglik.813014

Şenol Kaya, D. & Pekyiğit, A. (2021). The Effect of Postpartum Stress on Breastfeeding Self-Efficacy. The Journal of Gynecology - Obstetrics and Neonatology, 18(4), 1062-1069.

Taner, S. & Çalışır, H. (2021). The Effect of Unplanned Pregnancies on Maternal Behavior in the Early Postpartum Period. Adnan Menderes University Faculty of Health Sciences Journal, 5(1), 37-50. DOI: 10.46237/amusbfd.707683

Vatansever, Z., Özkol, H. (2017). The Effect of Adult Attachment Styles on Postpartum Depression and Anxiety and the Moderator Role of Social Support in This Relationship. IU Institute of Social Sciences, Department of Clinical Psychology, Master Thesis, Istanbul.

Yıldırım, F. & Büyükkayacı Duman, N. (2018). Approaches to Postpartum Emotional Problems With Evidence Based Information. Hitit University Journal of Social Sciences Institute, 11(1), 755- 763.