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Prevalence and Factors Related to Postpartum Depression among Mothers with Preterm Birth: A Cross-Sectional Study

Ömer Faruk UYGUR,[1] Bilge Burçak ANNAGÜR,[2] Ali ANNAGÜR[3]

[1]M.D., Dr. Ersin Arslan Training and Research Hospital, Department of Psychiatry, Gaziantep, Turkey

[2]Assoc. Prof., Freelance Researcher and Psychiatrist, Antalya, Turkey

[3]Assoc. Prof., Freelance Researcher and Neonatologist, Antalya, Turkey

Corresponding Author: Ömer Faruk UYGUR, Dr. Ersin Arslan Training and Research Hospital, Gaziantep, Turkey.

Phone: +90 342 2210700
Fax: +90 342 2210142
E-mail: drofuygur@hotmail.com

Ömer Faruk UYGUR ORCID No: https://orcid.org/0000-0003-2376-5113

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ABSTRACT

Objective: We aimed to determine the prevalence of postpartum depression among preterm birth mothers and investigate factors related to postpartum depression.

Methods: The cross-sectional study was carried out in a tertiary hospital. The mothers who had preterm birth were interviewed via Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (SCID-I). Sociodemographic data form, Edinburgh Postpartum Depression Scale (EPDS), Multidimensional Perceived Social Support Scale (MPSSS), and Spielberger State-Trait Anxiety Inventory (STAI) were applied to the whole study group. The study group was divided into two groups according to SCID-I with postpartum depression and non-postpartum depression. The two groups were compared to find the factors associated with postpartum depression. Finally, binary logistic regression analysis was performed for postpartum depression risk factor analysis.

Results: We found that 20.8% (n=25) of all subjects met postpartum depressive disorder criteria. History of peripartum or any time depression, history of psychiatric disorders in the family, health problems in the pregnancy period, and unplanned pregnancy were significantly more frequent in the postpartum depression group. EPDS and STAI scores were significantly higher and MPSSS scores were significantly low in the postpartum depression group. There was a negative significant correlation between EPDS scores and MPSS scores. The characteristics found significantly in the postpartum depression group were found to be risk factors for postpartum depression in the regression analysis.

Conclusions: Unplanned pregnancy, health problems in the pregnancy period, and patient or family depression history may play an important role in postpartum depression among preterm birth mothers.

Keywords: Postpartum depression, preterm birth, prevalence, risk factors

ÖZ

Erken Doğum Yapan Annelerde Doğum Sonrası Depresyon Yaygınlığı ve İlişkili Faktörler: Kesitsel Bir Çalışma

Amaç: Erken doğum yapan anneler arasında doğum sonrası depresyonun yaygınlığını belirlemeyi ve doğum sonrası depresyonla ilgili faktörleri araştırmayı amaçladık.

Yöntem: Üçüncü basamak bir hastanede kesitsel bir çalışma yapıldı. Erken doğum yapan annelerle Ruhsal Bozuklukların Tanısal ve İstatistiksel El Kitabı, Dördüncü Baskı'ya (DSM-IV) göre Eksen I bozuklukları için yapısal klinik görüşme (SCID-I) aracılığıyla görüşüldü. Tüm çalışma grubuna sosyodemografik veri formu, Edinburgh Doğum Sonrası Depresyon Ölçeği (EDSDÖ), Çok Boyutlu Algılanan Sosyal Destek Ölçeği (ÇBASDÖ) ve Spielberger Durum-Sürekli Kaygı Envanteri (SDSKE) uygulandı. SCID-I' e göre çalışma grubu, doğum sonrası depresyonu olan ve doğum sonrası depresyonu olmayan olmak üzere iki gruba ayrıldı. Postpartum depresyon ile ilişkili faktörleri bulmak için iki grup arasında karşılaştırılma yapıldı. Son olarak doğum sonrası depresyon risk faktörü analizi için binary lojistik regresyon analizi yapıldı.

Bulgular: Tüm örneklemin %20,8›inin (n=25) doğum sonrası major depresif bozukluk kriterlerini karşıladığını saptadık. Peripartum veya herhangi bir zaman depresyon öyküsü, ailede psikiyatrik bozukluk öyküsü, planlanmamış gebelik ve gebelik sırasındaki sağlık problemleri doğum sonrası depresyon grubunda anlamlı olarak daha fazlaydı. Doğum sonrası depresyon grubunda EDSDÖ ve SDSKE puanları anlamlı olarak daha yüksekti, ÇBASDÖ puanları ise anlamlı olarak daha düşüktü. EDSDÖ puanları ile ÇBASDÖ puanları arasında negatif yönde anlamlı bir korelasyon vardı. Doğum sonrası depresyon grubunda anlamlı olarak saptanan özellikler regresyon analizinde doğum sonrası depresyon için birer risk faktörü olarak bulundu.

Sonuç: Erken doğum yapan annelerde planlanmamış gebelik, gebelik sırasındaki sağlık problemleri ve bireydeki veya ailedeki depresyon öyküsü doğum sonrası depresyonda önemli bir rol oynayabilir.

Anahtar Sözcükler: Postpartum depresyon, erken doğum, yaygınlık, risk faktörleri

INTRODUCTION

Postpartum depression (PPD) is part of the spectrum of mood disorders that affect women in the postpartum period.[1] The etiology of PPD has multiple factors and mechanisms that include biological and psychological aspects.[2] Its estimated prevalence is between 10 and 15 percent and it has many negative effects on mother and baby.[3] The social and occupational functionality of women with PPD may decrease and they may not pay attention to the baby or even harm themselves. On the other hand, PPD can lead to unfavorable outcomes for the baby such as regression of the growth curve and cognitive impairment.[4-6]

Preterm birth (PTB) is defined by the World Health Organization as childbirth before the 37th week of gestation is complete.[7] PTB is one of the most frequent obstetric complications in the peripartum period. Rates of PTB worldwide are 11.1%, ranging from 5% in some European countries to 18% in several African countries. It is considered a major public health problem, as it is the leading cause of neonatal deaths worldwide.[8] Mothers who give birth prematurely may experience more stress, financial difficulties, and relationship difficulties than mothers who give birth at term.[9] Serious psychiatric disorders such as depression or post-traumatic stress disorder may occur among PTB mothers.[10,11] While the prevalence of PPD varies between 6% and 12% in mothers who give birth at term, postpartum depressive symptoms in mothers with preterm birth can be seen as high as 30% to 40% and the risk of PPD is 1.6 times higher in these mothers compared to mothers who give birth at term.[9]

Studies about risk factors related to PPD symptoms in mothers of premature babies in the literature are quite limited. In the studies, giving birth for the first time, low social support, low self-esteem, and sleep problems in the baby were determined as risk factors for depression levels in mothers with premature babies.[9] The risk factors associated with PPD symptoms in the mothers of infants treated in newborn intensive care, many of which are premature babies are as follows: mother's history of psychiatric illness, anxious traits, distance to the newborn intensive care from where she lives, education level, perceived social support level, health status of the baby, neonatal intensive care stay time, duration of ventilator connection, sounds and lights in neonatal intensive care, the physical appearance of the newborn, and the behavior of health workers.[11,12] In all of these studies, only self-report scales were used and factors related to PPD level were determined without clinic interview for PPD.

To the best of our knowledge, there are no studies based on Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (SCID-I)[13,14] about the prevalence of PPD among preterm birth mothers. In the present study, we aimed to determine the prevalence of PPD using SCID-I among preterm birth mothers. Another objective of the study was to investigate factors related to PPD.

MATERIALS AND METHODS

Subjects

The study was conducted with women who had preterm birth at the Selçuk University Hospital Obstetric Clinic. Data were collected from January 2015 to April 2015 for the study. Ethical approval was obtained from Selcuk University Medical Faculty's Ethics Committee in Konya, Turkey. The objectives and procedures of the study were explained, and a written informed consent form was obtained from the participants under the Declaration of Helsinki.

Inclusion criteria were as follows: 1) women aged 18–45 years old; 2) giving birth before completing their 37th gestational week; 3) within 1 month after birth; 4) read and write Turkish. The study sample included 167 consecutive women who were admitted to the Obstetric Inpatient Clinic of a University hospital because they were in labor. Twenty women refused to participate in the study. Twenty-seven of the remaining women were excluded from the study due to the following exclusion criteria: 1) schizophrenia or related psychotic disorders; and 2) maternal age of <18 years. Initially, 167 mothers were screened in the obstetric clinic. Finally, 120 consecutive patients were included in the study.

Procedures

After the sociodemographic data form was applied and obstetrical and baby features were recorded in the obstetric inpatient clinic, the participants were evaluated by a psychiatrist (O.F.U.) with at least 4 years of experience in psychiatric disorders and diagnostic instruments. Psychiatric interviews were conducted within one month following delivery. The interviews lasted approximately 1 h. Postpartum depression and other psychiatric disorders in the participants were diagnosed using the SCID-I.[13] All participants filled out the Edinburgh Postpartum Depression Scale (EPDS), Multidimensional Perceived Social Support Scale (MPSSS), and State-Trait Anxiety Scale (STAI) and were evaluated by the same psychiatrist.

Measures

Sociodemographic Data Form:

It is a semi-structured form to collect information about the sociodemographic characteristics of the subjects included in the study. It consisted of thirty-three questions and two parts. The first part consisted of questions such as age, level of education, economic status, and occupation. The second part asked about pregnancy and delivery features such as mode of delivery, planned or unplanned pregnancy, and participant's and their family's history of psychiatric disorders.

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I):

SCID-I is a widely-used semi-structured interview for the diagnosis of selected axis I disorders. Postpartum depressive disorder and depressive disorder at any time were measured with the Turkish version of the SCID-I. The validity and reliability of the SCID-I were shown in a Turkish population.[14]

Edinburgh Postpartum Depression Scale (EPDS):

EPDS is a self-assessment scale with a total of 10 questions developed to determine the risk of depression in the postpartum period, to measure the level of depression, and change in severity.[15] The scale was adapted to Turkish by Engindeniz et al. Scores range from 0 to 30 with higher scores indicating the severity of depression. The cut-off score for the scale was reported as 12/13.[16]

Multidimensional Perceived Social Support Scale (MPSSS):

MPSSS was developed by Zimet et al. in 1988.[17] It evaluates the sufficiency of social support gained from three different sources. The scale contains 12 items and three subscales consisting of supports provided by family, a special person (significant other), and friends. Each item on the scale ranges from 1 (definitely yes) to 7 (definitely no); the total score can range from 12 to 84. A high score suggests high social support.[17] The MPSSS was translated to Turkish by Eker et al.[18]

Spielberger State-Trait Anxiety Inventory (STAI):

STAI 1 and 2 are each composed of 20 items rating anxiety symptoms on a scale from 0 to 4 points. STAI 1 presents the degree of state anxiety and evaluates the anxiety degree which changes depending on specific circumstances. STAI 2 indicates trait anxiety and shows the anxiety degree due to the tendency of each individual, regardless of any specific situation. Higher scores indicate higher anxiety. The Turkish version of the STAI has been validated and is reliable in Turkish populations.[19]

Statistical analysis

Data were analyzed with SPSS version 15 statistical software. Variables are presented as mean ± standard deviation (S.D) or frequency. Categorical variables in the study groups were compared using the chi-square ($\chi 2$) test and Fisher's exact test. For comparisons of continuous variables, the t-test was used. All significant levels were 2-tailed and set at the level of 0.05.

RESULTS

Sociodemographic Characteristics

The mean age of mothers was 26.74±5.68 years (min:18; max:44), the mothers were mostly unemployed (n=101, 84.1%), had moderate economic status (n=62, 51.6%), and were primary school graduates (n=79, 65.8%). The mean of the birth week was 32.45 ± 2.86 and the mean number of pregnancies was 2.31 ±1.25.

Current and Lifetime Psychiatric Disorders

According to SCID-I, 44.2% (n=53) of all participants met the criteria for any psychiatric disorder in a lifetime. Among all patients, the lifetime frequency of any mood disorder, anxiety disorder, somatoform disorders, and eating disorder was 37.5%, 12.5%, 4.2%, and 2.5%, respectively.

A total of 35 (29.2%) subjects in all the subjects met the criteria of at least one current psychiatric disorder, according to SCID-I. Among all patients, the current frequency of any mood disorder, anxiety disorder, somatoform disorders, and eating disorders was 22.5%, 10.8%, 2.5%, and 0.8%, respectively. Psychiatric disorders for the study group are shown in detail in Table 1.

Table 1. Current and Lifetime Psychiatric Diagnoses of the Study Group

Diagnoses	Current n (%)	Lifetime n (%)
Any psychiatric disorders	35 (29.2)	53 (44.2)
Mood disorders	27 (22.5)	45 (37.5)
Major depression	25 (20.8)	31 (25.8)
Bipolar disorder	1 (0.8)	1 (0.8)
Dysthymia	1 (0.8)	1 (0.8)
Cyclotymia	0 (0)	0 (0)
Anxiety disorders	13 (10.8)	15 (12.5)
Generalized anxiety disorder	6 (5)	6 (5)
Social phobia	3 (2.5)	3 (2.5)
Panic disorder	0 (0)	0 (0)
Obsessive compulsive disorder	6 (5)	7 (5.8)
Posttraumatic stress disorder	0 (0)	1 (0.8)
Somatoform disorders	3 (2.5)	5 (4.2)
Somatization disorder	0 (0)	0 (0)
Hypochondriasis	0 (0)	0 (0)
Conversion disorder	3 (2.5)	5 (4.2)
Substance use disorders	0 (0)	0 (0)
Alcohol use disorder	0 (0)	0 (0)
Eating disorders	1 (0.8)	3 (2.5)

When the current diagnosis of mood disorder was examined in detail according to SCID-I, 20.8% (n=25) of all participants met the criteria for PPD.

Factors Associated with Postpartum Depression with Comparison of Two Groups

A total of 120 mothers were divided into two groups according to the postpartum depression group (PPD group, n=25) and the non-postpartum depression group (non-PPD group, n=95).

Table 2. Comparisons of Sociodemographic Characteristics Between Groups of PPD and non-PPD

Sociodemographic Characteristics	PPD	Non-PPD	p
Age, mean ± SD, years[a]	27.16 ± 6.83	26.63 ± 5.38	0.681
Education, n (%)[b]			
Elementary	16 (64)	63 (66.3)	
High School	6 (24)	21 (22.1)	
University	3 (12)	11 (11.6)	
Employment status, n (%)[c]			0.595
Employed	4 (16)	15 (15.8)	
Unemployed	21 (84)	80 (84.2)	
Economic status, n (%)[b]			0.995
Low economic	8 (32)	30 (31.6)	
Medium economic	13 (52)	49 (51.6)	
Good economic	4 (16)	16 (16.8)	
Type of family, n (%)[b]			0.359
Small family	18 (72)	59 (62.1)	
Big family	7 (28)	36 (37.9)	

[a] t test, [b] x^2 Test , [c] Fisher Exact Test, n:Number of people, SD:Standart deviation, PPD:Postpartum depression

Table 3. Comparisons of Pregnancy Period and Delivery Characteristics Between Groups of PPD and non-PPD

Characteristcs	PPD	Non-PPD	p
Pregnancy number, mean, SD, numbers[a]	2.20 ± 1.19	2.34 ± 1.27	0.604
Week of birth, mean, SD, weeks[a]	32.00 ± 3.35	32.57 ± 2.72	0.370
Primiparite, n (%)[b]			0.625
Yes	10 (40)	33 (34.7)	
No	15 (60)	62 (65.3)	
Delivery Type, n (%)[b]			0.312
Normal birth	7 (28)	37 (38.9)	
Cesarean	18 (72)	58 (61.1)	
Dead / low birth history, n (%)[b]			0.051
Yes	3 (12)	30 (31.6)	
No	22 (88)	65 (68.4)	
Preterm birth history, n (%)[b]			0.382
Yes	4 (16)	23 (24.2)	
No	21 (84)	72 (75.8)	
Unplanned pregnancy, n (%)[b]			0.045
Yes	13 (52)	29 (30.5)	
No	12 (48)	66 (69.5)	
Regular medical control during pregnancy, n (%)[c]			1
Yes	23 (92)	87 (91.6)	
No	2 (8)	8 (8.4)	
Health problems in pregnancy, n (%)[b]			0.003
Yes	12 (48)	18 (18.9)	
No	13 (52)	77 (91.6)	
Violence during pregnancy, n (%)[c]			0.110
Yes	2 (8)	1 (1.1)	
No	23 (92)	94 (98.9)	
Nutrition of baby, n (%)[b]			0.819
Only breast milk	11 (44)	48 (50.5)	
Breast milk and formula	12 (48)	39 (41.1)	
Only formula	2 (8)	8 (8.4)	

[a] t test, [b] x2 Test, [c] Fisher Exact Test, n:Number of people, SD: Standart deviation, PPD:Postpartum depression

Sociodemographic data analyses between the PPD group and non-PPD group revealed no significant differences. The number of pregnancies, birth week, primiparity, regular medical checks during pregnancy, breastfeeding, violence during pregnancy, type of delivery, still/low birth, and preterm birth history were not statistically significant differences between the two groups. Of the PPD group, 52% had an unplanned pregnancy, while 30.5% of the non-PPD group had an unplanned pregnancies. The PPD group had statistically significantly more unplanned pregnancy (p=0.045). Health problems as hypertension, hypothyroidism, hyperemesis gravidarum during pregnancy were more common in the PPD group. Tables 2 and 3 illustrate the demographic and obstetric characteristics of both subsamples. Of the PPD group, 56% met depression criteria during the last pregnancy period, and only 1% of the non-PPD group met depression criteria during the current pregnancy according to SCID-I. In the PPD group, statistically significant depression was found more

Table 4. Comparisons of Psychiatric History Characteristics Between Groups of PPD and non-PPD

Characteristcs	PPD	Non-PPD	p
History of depression during last pregnancy period, n (%)[a]			<0.001
Yes	14 (56)	1 (1.1)	
No	11 (44)	94 (98.9)	
History of postpartum depression, n (%)[a]			0.006
Yes	7 (28)	6 (6.3)	
No	18 (72)	89 (93.7)	
History of depression except for peripartum depression, n (%)[a]			0.020
Yes	11 (44)	20 (21.1)	
No	14 (56)	75 (78.9)	
History of psychiatric disorders in the family, n (%)[a]			0.008
Yes	8 (32)	9 (9.5)	
No	17 (68)	86 (90.5)	

[a] Fisher Exact Test, n:Number of people, PPD:Postpartum depression

during the last pregnancy (p< 0.001).

The history of PPD was significantly frequent in the PPD group compared to the non-PPD group (28% versus 6.3%, p=0.006). Although 32% of the PPD group had history of psychiatric disorders in the family, the family of 9.5% of the non-PPD group had a history of psychiatric disorders. The PPD group had a statistically significant higher history of psychiatric disorders in the family (p=0.08). Psychiatric history characteristics of both groups are shown in Table 4.

Comparison of Scores of the Scales

EPDS score of 12/13 and above may indicate postpartum depression. The higher the EPDS score may be a clue of severe depression. The mean score of EPDS in the PPD group was high than the non-PPD group (17.08 vs 6.45 respectively). The depression scores in the PPD group exceed the threshold in the EPDS scoring and indicate more severe depression levels. High MPSSS scores indicate that social support is well. MPSSS mean scores in the PPD group were statistically significantly lower than the non-PPD group (64.32 vs 74.6 respectively) that is, social support is less in the postpartum depression group. Higher scores of STAI-1 and 2 show high anxiety. There were higher levels of anxiety in the PPD group. The mean score of STAI-1 and 2 in the PPD group was high than the non-PPD group

Table 5. Comparisons of Depression, Anxiety and Social Support Scales Between Groups of PPD and non-PPD

Mean scores of scales	PPD	Non-PPD	p
EPDS score ± SD[a]	17.08 ± 3.27	6.45 ± 4.16	<0.001
MSPSS score ± SD[a]	64.32 ± 16.21	74.6 ± 11.47	0.002
STAI-1 score ± SD[a]	50.80 ± 11.32	36.06 ± 9.57	<0.001
STAI-2 score ± SD[a]	52.28 ± 9.50	41.48 ± 9.04	<0.001

[a] t test, SD:Standart deviation, PPD:Postpartum depression

Table 6. Correlation between EPDS and MPSSS Scores in the Study Group

	EPDS	MPSSS	p
EPDS $_{\text{Spearman's rho}}$*	1	-0.704	<0.001**
MPSSS $_{\text{Spearman's rho}}$*	-0.704	1	<0.001**

EPDS:Edinburgh Postpartum Depression Scale, MSPSS:Multidimensional Perceived Social Support Scale

* Spearman was applied because the data did not show normal distribution

**Correlation is significant at the 0.01 level (2-tailed)

(50.18/52.28 vs 36.06/41.48 respectively) (Table 5).

The correlation between EPDS and MPSSS was evaluated. Since the data were not normally distributed, spearman analysis was used. As a result of the analysis, a significant negative strong correlation was found between postpartum depression scores and social support scores (spearman rho: -0.704, p<0.001). This finding suggests that social support may be a protective factor for postpartum depression

Table 7. Risk Factors of Postpartum Depression

Risk factors	Odds ratio*	p*
Education $_{\text{elementary}}$	0.903 (0.360; 2.268)	0.828
Economic status $_{\text{low economic}}$	1.020 (0.396; 2.624)	0.968
Primiparous	1.253 (0.507; 3.095)	0.626
C-section	1.5 (0.570; 3.947)	0.411
Dead /low birth history	0.295 (0.082; 1.064)	0.062
Preterm birth history	0.596 (0.185; 1.917)	0.385
Unplanned pregnancy	2.466 (1.004; 6.052)	0.049
Health problems in pregnancy	3.949 (1.546; 10.083)	0.004
Violence during pregnancy	8.174 (0.710; 94.097)	0.092
No breastfeeding	0.831 (0.168; 4.115)	0.820
History of depression during last pregnancy period	5.769 (1.733; 19.097)	0.004
History of postpartum depression	0.173 (0.052; 0.577)	0.004
History of depression except for peripartum depression	2.769 (1.096; 6.993)	0.031
History of psychiatric disorders in the family	1.503 (1.519; 13.310)	0.007

*Binary logistic regression was applied

(Table 6).

Risk Factors for Postpartum Depression

We used binary logistic analysis to identify following significant the risk factors for postpartum depression: Unplanned pregnancy (OR=2.466 (1.004;6.052), p=0.049) health problems in the pregnancy period (OR=3.949 (1.546;10.083), p=0.004), history of depression during last pregnancy period (OR=5.769 (1.733;19.097), p=0.004),

history of postpartum depression (OR=0.173 (0.052; 0577), p=0.004), history of depression except for peripartum depression (OR=2.769 (1.096;6.993) p=0.031), and history of psychiatric disorders in the family (OR=1.503 (1.519;13.310), p=0.007) (Table 7).

DISCUSSION

We found the prevalence of postpartum depression to be 20.8 percent in 120 mothers who gave birth prematurely in our based SCID-I study. This rate is higher than the rate of postpartum depression in mothers who gave birth at term. As a result, premature delivery can be accepted a risk factor for postpartum depression. The other main results of our study are peripartum or any time depression history, history of psychiatric disorders in the family, health problems in pregnancy period, and unplanned pregnancy were significantly more frequent in the PPD group. Depression and anxiety scores measured using EPDS and STAI were significantly higher and social support scores measured using MPSSS were significantly low in the PPD group. There was a negative correlation between EPDS and MPSSS. Good social support seemed to be protective for postpartum depression. Finally, we found the following significant risk factors for postpartum depression:Unplanned pregnancy, health problems in pregnancy period, history of depression during last pregnancy period, history of postpartum depression, history of depression except for peripartum depression, and history of psychiatric disorders in the family.

There are many method differences in the studies about PPD in the literature. The inclusion of participants in the studies at different times, inclusion of participants with different risks, and the fact that most studies are based on self-rated scales can be counted among these differences. On the other hand, many studies used the same assessment tool, EPDS, to measure PPD, but cut-off scores vary from 9 to 13 score among the studies.[20-22] All of these make it difficult for us to compare our study and other studies about PPD.

To the best of our knowledge, the current study is the first PPD prevalence study among mothers with preterm birth using the SCID-I. The factors related to PPD are more realistic due to determining PPD by clinical interview. In other studies that determined the prevalence of PPD using SCID-I, the prevalence rates vary. The rate of PPD in the general population was determined to be 11.7% for the first three months in a study involving 386 mothers in Portugal.[23] In a study involving 505 mothers in the U.S., the depression rate was found to be 14.9% in the 3rd and 5th months after birth.[24] In a study conducted in our country, 6.3% of depression was found in the 6th week after birth.[25] In our study, we found 20.8% PPD in mothers who gave birth preterm. This rate is higher than PPD rates in the general population. This high rate shows that mothers who have preterm labor are in a risky group for PPD.

The participants in our study were divided into two groups of PPD and non-PPD and by comparing these two groups, attempts were made to determine factors that might be associated with PPD. First of all, if we look at the relationship between PPD with socio-demographic features; the results of studies investigating the relationship between socio-demographic characteristics with PPD in literature are contradictory.[1] For example, some studies found that the age of early maternity may be a risk for PPD, and the others found the opposite or no correlation.[26-28] Studies showing that socio-demographic characteristics such as low education level, low-income level, and unemployment also have different relationships with PPD are available.[29-33]

In meta-analyses about PPD-related factors, depression during pregnancy was found to be moderately or strongly related to PPD.[34,35] Therefore, PPD was named peripartum depression in DSM-5. In our study, 56% of the PPD group had depression during the last pregnancy. This data is compatible with the peripartum depression stated in DSM-5 and it justifies the definition in DSM-5.[36]

Many authors argue that postpartum depression is a different entity of depression. For example, the history of PPD was identified as a risk factor for PPD in many studies. Research has shown that a mother who experiences PPD has an approximately 50% increased risk of experiencing PPD again.[35] Due to this high risk, it is argued that some mothers with a history of PPD should start postpartum depression treatment. In our study, which supports the above data, PPD history was significantly higher in the PPD group than in the non-PPD group.

A history of depression at any time except the peripartum period is also considered a risk for PPD. It was found that those who experienced major depressive disorder were had five times higher risk in terms of increased postpartum depressive symptoms.[2] In our study, the history of depression at any time except the peripartum period was significantly higher in the PPD group. Therefore, we can conclude that depression at any time apart from during peripartum poses a risk of depression in the postpartum period. The data proved that pregnancy and the postpartum period can be important periods for disease prevention-based interventions. Unplanned pregnancies can cause more stress, frustration, and ambient feelings. There may be unexpected disruption in the education of the mother, in her career, or in other living areas. These factors may cause the mother to experience more depressive symptoms during pregnancy or the postpartum period.[34,37] Unplanned pregnancy and health problems during pregnancy were found to be risk factors for PPD in many studies.[31,38] In our study, unplanned pregnancy and health problems during pregnancy were significantly higher among those with PPD. As a result, planning of pregnancy and follow-up and treatment of diseases during the pregnancy period can be a very important step to prevent postpartum depression.

Many studies are found in the literature that investigate the relationship between delivery type with PPD. Some of them found that there was a relationship between cesarean delivery with PPD, while others did not find such a correlation.[38-40] In our study, we did not find a relationship between the mode of delivery with PPD. At this point, the fact that our research was carried out in a tertiary hospital with high cesarean rates may have caused the lack of meaningful relationships.

Non-breastfeeding, early cessation of breastfeeding, difficulties in breastfeeding, and negative attitudes towards breastfeeding were associated with a higher prevalence of PPD in some studies.[41,42] It was also shown in some studies that postpartum depressive symptoms or PPD can lead to shorter breastfeeding time.[43] In a study, no relation was found between depressive symptoms with breastfeeding period during the first 48 hours to the sixth week.[44] There are also studies showing that breastfeeding is not associated with PPD.[45,46] In our study, we did not find a relationship between PPD with breastfeeding. The fact that our study covers the first 1 month after birth creates a limitation in this regard. Studies investigating the results of the first 3 or 6 months will provide more accurate data on this subject.

As a result of the scales that we applied to the participants, we found that there was a positive relationship between postpartum depression with EPDS and STAI and a negative relationship with MPSSS. It is a predictable result that women with depression had higher depression and anxiety on the scales we used.

Limitations

Our study has several limitations. First, the study was performed in a tertiary hospital and it has a relatively small number of subjects.

Second, all participants had different gestational ages including extremely preterm, very preterm, and late preterm, and these times have different risks. Therefore, our results may not be generalized to all preterm birth mothers. These results should be confirmed by prospective studies with more participants. Despite some limitations, this is the first study to determine the prevalence of PPD based on SCID-I among mothers with preterm birth.

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Ethics approval: This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of Selcuk University Medical Faculty Ethics Committee in Konya, Turkey (2014/292).

Informed consent: The objectives and procedures of the study were explained to all participants, and written informed consent forms were obtained under the Declaration of Helsinki.

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