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Comparison of Postpartum Depression Between High-Risk and Low-Risk Pregnancies

Yüksek Riskli ve Düşük Riskli Gebelerin Postpatrum Depresyon Açısından Karşılaştırılması

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ABSTRACT

Aim: Postpartum depression represents a major public health concern and is a leading cause of maternal morbidity in the perinatal period. Women with high-risk pregnancies may be particularly vulnerable due to increased physiological stress and psychological burden. This study aimed to compare the prevalence and severity of postpartum depressive symptoms between women with high-risk and low-risk pregnancies using the Edinburgh Postnatal Depression Scale (EPDS).

Materials and Method: This retrospective, observational, and comparative study included 1,955 postpartum women who delivered at Ankara Etlik City Hospital between July and December 2024. Of these, 873 women had high-risk pregnancies and 1,082 had low-risk pregnancies. High-risk pregnancy was defined by the presence of obstetric or maternal systemic complications. EPDS screening was routinely performed between postpartum days 10 and 14, with a score of ≥13 indicating increased risk for postpartum depression. Demographic, obstetric, and EPDS data were analyzed and compared between groups.

Results: Women with high-risk pregnancies had significantly higher mean EPDS scores compared with those with low-risk pregnancies (12.30 ± 4.88 vs. 7.36 ± 3.69, p<0.001). The proportion of women at increased risk for postpartum depression (EPDS ≥13) was markedly higher in the high-risk group than in the low-risk group (48.7% vs. 8.3%, p<0.001). No significant differences in EPDS scores were observed among specific high-risk obstetric subgroups.

Conclusion: High-risk pregnancies are associated with a substantially increased prevalence of postpartum depressive symptoms, independent of specific obstetric diagnoses. These findings highlight the importance of routine postpartum depression screening and targeted mental health follow-up in women with high-risk pregnancies.

Keywords: Postpartum depression, high-risk pregnancy, edinburgh postnatal depression scale, maternal mental health, perinatal outcomes

ÖZ

Amaç: Doğum sonrası depresyon, perinatal dönemde önemli bir halk sağlığı sorunu olup maternal morbiditenin önde gelen nedenlerinden biridir. Yüksek riskli gebeliği olan kadınlar, artmış fizyolojik stres ve psikolojik yük nedeniyle özellikle kırılgan bir grup oluşturabilir. Bu çalışma, Edinburgh Doğum Sonrası Depyon Ölçeği (EPDS) kullanılarak yüksek riskli ve düşük riskli gebeliklere sahip kadınlar arasında doğum sonrası depresif semptomların sıklığını ve şiddetini karşılaştırmayı amaçlamıştır.

Gereçler ve Yöntem: Bu retrospektif, gözlemsel ve karşılaştırmalı çalışmaya, Temmuz–Aralık 2024 tarihleri arasında Ankara Etlik Şehir Hastanesi'nde doğum yapan toplam 1.955 lohusa dâhil edilmiştir. Çalışma grubunun 873'ü yüksek riskli, 1.082'si düşük riskli gebelikten oluşmaktadır. Yüksek riskli gebelik; obstetrik veya maternal sistemik komplikasyonların varlığı olarak tanımlanmıştır. EPDS taraması, doğum sonrası 10–14. günler arasında rutin olarak uygulanmış ve ≥13 puan doğum sonrası depresyon açısından artmış risk olarak kabul edilmiştir. Demografik, obstetrik ve EPDS verileri gruplar arasında karşılaştırılmıştır.

Bulgular: Yüksek riskli gebeliği olan kadınların ortalama EPDS puanları, düşük riskli gebeliği olanlara kıyasla anlamlı derecede daha yüksek bulunmuştur (12,30 ± 4,88'e karşı 7,36 ± 3,69; p<0,001). Doğum sonrası depresyon açısından yüksek risk taşıyan kadınların oranı (EPDS ≥13), yüksek riskli gebelik grubunda düşük riskli gruba göre belirgin olarak daha fazladır (%48,7'ye karşı %8,3; p<0,001). Yüksek riskli gebelik alt grupları arasında EPDS puanları açısından anlamlı bir fark saptanmamıştır.

Sonuç: Yüksek riskli gebelikler, spesifik obstetrik tanılardan bağımsız olarak doğum sonrası depresif semptomların anlamlı derecede daha yüksek görülmesi ile ilişkilidir. Bu bulgular, yüksek riskli gebeliği olan kadınlarda doğum sonrası depresyonun erken tanısı ve uygun ruh sağlığı takibi için rutin taramanın önemini vurgulamaktadır.

Anahtar Kelimeler: Doğum sonrası depresyon, yüksek riskli gebelik, edinburgh doğum sonrası depresyon ölçeği, anne ruh sağlığı, perinatal sonuçlar

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INTRODUCTION

Postpartum depression is recognized globally as one of the most significant causes of perinatal maternal morbidity. Depressive disorders emerging during pregnancy and the postpartum period not only impair the psychological well-being of the mother but also influence maternal–infant bonding, infant development, family functioning, and overall quality of life. Therefore, identifying postpartum depression early and determining related risk factors is critical for both clinicians and public health. As noted in previous literature, depression is common in pregnant and postpartum women and is associated with adverse outcomes for the mother, the developing child, the mother–infant relationship, and intimate partner relationships (1,2).

The reported prevalence of depression during pregnancy varies substantially, with rates ranging from 6–29% in the third trimester depending on diagnostic criteria. The observed prevalence of depression during the third trimester of pregnancy varies among studies, ranging from 6.3% to 29% according to diagnostic criteria (3,4). In the postpartum period, prevalence may rise even further; studies using the Edinburgh Postnatal Depression Scale (EPDS) have reported rates as high as 9.8–37.9% (5,6). This wide range is believed to reflect cultural differences, screening tools, and variability in cut-off scores. While elevated depressive symptoms may be expected among women with high-risk pregnancies, research specifically targeting this population remains limited. Notably, only one study on women with high-risk pregnancies showed a prevalence of depression of 15% (7). This highlights the need for further research focused on high-risk obstetric groups.

The Edinburgh Postnatal Depression Scale, developed by Cox et al., is the most widely used screening tool for postpartum depression, and the 10-item EPDS is the most used depression screening instrument in perinatal care (8). The EPDS is advantageous due to its applicability during both prenatal and postnatal periods, established cross-cultural validity, and ease of administration. However, optimal cut-off thresholds remain debated. Studies frequently reference either ≥10 or ≥13 as clinically relevant screening thresholds, and cut-off values of 10 or higher and 13 or higher are most often used to identify women who might have depression (8-12). For this reason, examining EPDS score distribution across different pregnancy risk groups is essential to improve screening accuracy and clinical decision-making.

High-risk pregnancies include conditions such as preeclampsia, gestational diabetes, placental abnormalities, multiple gestation, threatened preterm labor, and intrauterine growth restriction—each capable of increasing physiological stress and psychological vulnerability. These factors may predispose affected women to postpartum depression. Compared with low-risk pregnancies, high-risk women may demonstrate greater emotional burden and thus higher EPDS scores; however, direct comparative findings are insufficient and require clarification. Existing literature points toward increased psychiatric susceptibility in high-risk obstetric groups, yet data specifically evaluating postpartum depression outcomes remain scarce.

The aim of this study is to compare the prevalence of postpartum depression among high-risk and low-risk pregnancies and to evaluate the impact of high-risk obstetric conditions on EPDS scores. The findings are expected to contribute valuable insight toward risk-based maternal mental health screening models and support more individualized postpartum follow-up strategies.

MATERIAL AND METHODS

This study was designed as a retrospective, observational, and comparative analysis using archived clinical records from the Obstetrics and Gynecology Clinic of Ankara Etlik City Hospital and was initiated following approval by the Ethics Committee of Ankara Etlik City Hospital (approval number: BADEK 2025-598). The study population consisted of puerperal patients who delivered at the institution between July 1 and December 31, 2024, including women followed either in the High-Risk Pregnancy Unit or in the routine delivery ward without major gestational complications. High-risk pregnancies were defined according to the presence of conditions such as preeclampsia, gestational diabetes, placental abnormalities, premature prelabor rupture of membranes, intrauterine growth restriction, multiple gestation, threatened preterm labor, or comorbid maternal systemic diseases, including hypertension, obesity, diabetes, or thyroid disorders, whereas the low-risk group comprised individuals without any of these conditions.

During the study period, a total of 1,082 women without any obstetric risk factors delivered in the routine delivery ward. In addition, 873 high-risk pregnancies were followed in the High-Risk Pregnancy Unit and delivered in the Perinatology Clinic, including 105 cases of intrauterine growth restriction, 103 cases of gestational diabetes, 100 cases of placental abnormalities, 106 cases with threatened preterm labor, 120 cases with maternal systemic diseases, 123 cases of premature prelabor rupture of membranes, 117 cases of preeclampsia, and 99 cases of multiple gestation. All 873 high-risk patients met the inclusion criteria and were included in the final analysis.

In our center, all women who deliver at the institution are routinely invited to attend a postpartum outpatient follow-up visit during the early postpartum period. As part of standard clinical practice, the Edinburgh Postnatal Depression Scale (EPDS) is systematically administered at this visit, which is typically scheduled between postpartum days 10 and 14. Patients who score at or above the established risk threshold are promptly referred for psychiatric consultation to ensure early identification and appropriate management of postpartum depressive symptoms.

Data were collected retrospectively through the Hospital Information Management System and patient medical records, with all personal identifiers removed to ensure complete anonymization and confidentiality. Recorded variables included maternal age, gravida, parity, number of abortions, gestational age at delivery, mode of delivery, accompanying clinical diagnoses, and EPDS scores. The EPDS is a 10-item self-report instrument validated in Turkish by Engindeniz et al., with a score of 13 or higher considered indicative of an increased risk for postpartum depression (13) (Table 1). Given the retrospective design and the primary aim of group comparison, multivariable modeling was not performed.

Patients with a history of psychiatric illness, those requiring postpartum intensive care, individuals with incomplete or inaccessible postpartum data, unverifiable clinical diagnoses, non-attendance at postpartum follow-up, or missing Edinburgh Postnatal Depression Scale data despite follow-up attendance, as well as mothers younger than 18 years or older than 45 years, were excluded from the study.

Table 1. Edinburgh Postnatal Depression Scale (EPDS)

Item No.	Question (Assessed Over the Last 7 Days)	Response Options	Scoring Direction
1	I have been able to laugh and see the funny side of things.	4-point Likert scale	0–1–2–3
2	I have looked forward with enjoyment to things.	4-point Likert scale	0–1–2–3
3	I have blamed myself unnecessarily when things went wrong.	4-point Likert scale	3–2–1–0
4	I have been anxious or worried for no good reason.	4-point Likert scale	0–1–2–3
5	I have felt scared or panicky for no very good reason.	4-point Likert scale	3–2–1–0
6	Things have been getting on top of me.	4-point Likert scale	3–2–1–0
7	I have been so unhappy that I have had difficulty sleeping.	4-point Likert scale	3–2–1–0
8	I have felt sad or miserable.	4-point Likert scale	3–2–1–0
9	I have been so unhappy that I have been crying.	4-point Likert scale	3–2–1–0
10	The thought of harming myself has occurred to me.	4-point Likert scale	3–2–1–0
Scoring and Interpretation			
Parameter		Description	
Scale type		Self-report questionnaire	
Number of items		10	
Score range		0–30	
Scoring		Each item scored from 0 to 3	
Reverse scoring		Items 3, 5, 6, 7, 8, 9, and 10	
Cut-off value		≥13	
Interpretation		Scores ≥13 indicate increased risk of postpartum depression	

Statistical Analysis

Statistical analyses were conducted using SPSS for Windows (IBM Corp., Armonk, NY, USA). The distribution of continuous variables was assessed using the Shapiro–Wilk test. Normally distributed continuous data are presented as mean ± standard deviation, whereas categorical variables are expressed as frequencies and percentages. Comparisons between low-risk and high-risk pregnancy groups were performed using the independent samples t-test for continuous variables and the chi-square test for categorical variables. For comparisons among multiple high-risk obstetric subgroups, one-way analysis of variance (ANOVA) was applied for continuous variables, while categorical variables were analyzed using the chi-square test. All statistical tests were two-tailed, and a p value < 0.05 was considered statistically significant.

RESULTS

A total of 1,955 postpartum women were included in the final analysis, comprising 1,082 women with low-risk pregnancies and 873 women classified as having high-risk pregnancies. Baseline maternal demographic characteristics, obstetric history, delivery outcomes, and Edinburgh Postnatal Depression Scale (EPDS) scores were systematically compared between the two groups. Maternal age was significantly higher in the high-risk pregnancy group compared with the low-risk group (29.04±4.85 vs. 28.01±4.91 years, $p<0.001$). In contrast, no statistically significant differences were observed with respect to gravida, parity, or the number of previous abortions between the two groups ($p>0.05$ for all). Mode of delivery differed substantially between groups, with cesarean section being markedly more frequent among women with high-risk pregnancies, whereas vaginal delivery predominated in the low-risk group ($p<0.001$). Consistent with this finding, gestational age at delivery was significantly lower in the high-risk group compared with the low-risk group (33.60 ± 3.10 vs. 38.82 ± 1.18 weeks, $p<0.001$), reflecting the increased burden of obstetric complications in this population (Table 2).

Assessment of postpartum depressive symptoms demonstrated a clear association between pregnancy risk status and EPDS

Table 2. Maternal and Obstetric Characteristics of Low-Risk and High-Risk Pregnancies

Variable	Low-Risk (n=1082)	High-Risk (n=873)	p value
Maternal age (years)	28.01 ± 4.91	29.04 ± 4.85	<0.001
Gravida (≤2 / ≥3)	346 / 736	280 / 593	0.454
Parity (≤2 / ≥3)	746 / 336	513 / 360	0.542
Abortions (≤2 / ≥3)	713 / 369	700 / 173	0.394
Mode of delivery (NSD / CS)	833 / 249	182 / 691	<0.001
Gestational age (weeks)	38.82 ± 1.18	33.60 ± 3.10	<0.001

Table 3. EPDS Scores According to Pregnancy Risk Status

Parameter	Low-Risk	High-Risk	p value
EPDS score (mean ± SD)	7.36 ± 3.69	12.30 ± 4.88	<0.001
EPDS risk category (Low / High)	992 / 90	448 / 425	<0.001

EPDS: Edinburgh Postnatal Depression Scale

outcomes. Women with high-risk pregnancies had significantly higher mean EPDS scores than those with low-risk pregnancies (12.30 ± 4.88 vs. 7.36 ± 3.69, p<0.001). Moreover, the proportion of women meeting the threshold for increased risk of postpartum depression (EPDS ≥ 13) was substantially greater in the high-risk group compared with the low-risk group (48.7% vs. 8.3%, p<0.001), indicating a markedly elevated psychological burden among women experiencing obstetric complications (Table 3).

Further subgroup analyses were performed within the high-risk pregnancy cohort to evaluate whether specific obstetric conditions were associated with differential demographic characteristics, delivery patterns, or depressive symptom severity. When stratified by underlying diagnosis, including intrauterine growth restriction, gestational diabetes mellitus, placental anomalies, threatened preterm labor, maternal systemic diseases, premature prelabor rupture of membranes, preeclampsia, and multiple gestation, no statistically significant differences were observed among subgroups in terms of maternal age, gravida, parity, or abortion history (p>0.05 for all comparisons). Cesarean delivery rates remained consistently high across all high-risk subgroups and were significantly more common than vaginal delivery regardless of the specific obstetric diagnosis (p < 0.001) (Table 4).

Analysis of EPDS scores and gestational age across high-risk pregnancy subgroups revealed no statistically significant differences in mean EPDS scores among the various diagnostic categories (p=0.695). Similarly, although gestational age at delivery showed numerical variation between subgroups, this difference did not reach statistical significance (p=0.059). These findings suggest that while high-risk pregnancies are associated with an increased prevalence of postpartum depressive symptoms, the severity of these symptoms does not appear to be driven by a specific obstetric condition but rather reflects a generalized vulnerability associated with high-risk pregnancy status (Table 5).

Table 4. Obstetric Characteristics Across High-Risk Pregnancy Subgroups

Subgroup	Maternal age (years)	Mode of delivery (NSD / CS)
IUGR	28.37 ± 4.49	26 / 79
GDM	29.32 ± 4.77	26 / 77
Placental anomaly	29.31 ± 5.12	0 / 100
Threatened preterm labor	29.27 ± 4.50	26 / 80
Maternal systemic disease	28.51 ± 5.22	32 / 88
PPROM	29.19 ± 5.04	39 / 84
Preeclampsia	28.28 ± 5.20	33 / 84
Multiple gestation	29.33 ± 4.48	0 / 99

IUGR: intrauterine growth restriction, GDM: gestational diabetes, PPROM: premature prolabor rupture of membranes

Table 5. EPDS Scores and Gestational Age in High-Risk Pregnancy Subgroups

Subgroup	EPDS score (mean ± SD)	Gestational age (weeks)
IUGR	12.30 ± 5.36	33.60 ± 3.23
GDM	13.10 ± 5.06	34.10 ± 3.21
Placental anomaly	12.30 ± 4.81	34.20 ± 2.89
Threatened preterm labor	12.70 ± 4.49	32.30 ± 2.60
Maternal systemic disease	11.90 ± 4.64	33.90 ± 2.99
PPROM	12.20 ± 4.51	32.00 ± 2.44
Preeclampsia	12.10 ± 4.88	34.40 ± 3.08
Multiple gestation	12.00 ± 5.43	34.90 ± 3.24

IUGR: intrauterine growth restriction, GDM: gestational diabetes, PPROM: premature prolabor rupture of membranes

DISCUSSION

In this study, high-risk pregnancies were associated with significantly higher EPDS scores and a substantially increased risk of postpartum depression compared with low-risk pregnancies. The severity of depressive symptoms did not differ across specific high-risk obstetric conditions, indicating that the observed psychological vulnerability reflects the overall high-risk pregnancy context rather than individual diagnoses. These findings highlight the need for systematic mental health screening and targeted postpartum care in women with high-risk pregnancies.

As healthcare professionals, prioritizing organic and obstetric factors during antenatal follow-up and postpartum care may lead to the under recognition of maternal psychological and emotional conditions, including postpartum mood disturbances and depressive disorders. This lack of clinical awareness is particularly critical in women with high-risk pregnancies, who face substantial psychological vulnerability due to the cumulative burden of prolonged medical challenges during pregnancy, heightened stress at delivery, and emotional fragility in the postpartum period. In this context, the prevalence of depressive symptoms can be evaluated using the Edinburgh Postnatal Depression Scale (EPDS) in conjunction with demographic and pregnancy-related variables, and the sensitivity, specificity, and cost-effectiveness of the EPDS for both antenatal and postnatal depression screening have been confirmed in a systematic review by Chorwe-Sungani and Chipps (14). Accordingly, the EPDS represents a practical and feasible screening tool, particularly in resource-limited settings.

Previous literature indicates that complications such as gestational diabetes, preeclampsia, fetal growth restriction, and threatened preterm labor impose additional physiological and psychological stress in high-risk pregnancies (15,16,17), thereby increasing the risk of mood disorders; in line with this evidence, our study further demonstrates that this risk is significantly higher in high-risk pregnancies compared with normal pregnancies.

Women experiencing high-risk pregnancies are disproportionately vulnerable to postpartum depression, as heightened physiological burden and cumulative psychosocial stressors substantially increase their susceptibility to affective disturbances (18). Consistent with this vulnerability, previous studies have shown that maternal psychological factors—particularly anxiety and depression following high-risk pregnancies—significantly influence breastfeeding duration and exclusivity, underscoring the importance of early mental health screening and support within perinatal care (19).

Numerous factors predisposing women to postpartum depression have been described in the literature, many of which are not directly related to pregnancy itself, including socioeconomic disadvantage, unemployment, limited educational attainment, unplanned or unwanted pregnancies, substance use history, inadequate social or partner support, prior mental illness, childhood trauma, exposure to intimate partner violence, previous pregnancy complications, and recent adverse life events (20-27). In contrast, the primary aim of the present study was to examine the contribution of pregnancy-specific conditions to postpartum depression risk. Our findings indicate that women who experience high-risk pregnancies are at a significantly increased risk for postpartum depressive symptoms, independent of established psychosocial or psychiatric predispositions. These results suggest that obstetric complications alone may constitute a meaningful predisposing factor for postpartum depression, even in the absence of prior vulnerability, underscoring the need for closer psychological monitoring and systematic depression screening in obstetrically high-risk populations during the perinatal and postpartum periods.

In a study of 400 postpartum women screened using the Beck Depression Inventory (BDI), Zadeh et al. reported a higher prevalence of postpartum depression and anxiety among women with high-risk pregnancies compared with those with normal pregnancies, with anxiety symptoms being more prominent (28). In contrast, the present study employed the Edinburgh Postnatal Depression Scale (EPDS) for the assessment of depressive symptoms. Notably, the EPDS-T has been shown to demonstrate satisfactory sensitivity and specificity and superior validity compared with the BDI-II for detecting major depressive disorder during pregnancy (29). Despite the use of different screening instruments, both studies yielded consistent findings, indicating that high-risk pregnancy status is associated with an increased risk of postpartum depressive symptoms.

This study is strengthened by its large sample size, inclusion of clearly defined high-risk and low-risk pregnancy groups, and use of the Edinburgh Postnatal Depression Scale (EPDS), a validated and clinically practical screening tool routinely applied in postpartum care, which enhances real-world applicability. Subgroup analyses across different high-risk obstetric conditions further add depth to the findings. However, the retrospective, single-center design limits causal inference and generalizability. The reliance on a self-report screening instrument rather than structured psychiatric interviews precludes definitive diagnostic conclusions. Additionally, unmeasured psychosocial confounders and the absence of longitudinal follow-up may have influenced the results. Despite these limitations, the study provides robust evidence that high-risk pregnancy status itself represents a meaningful vulnerability factor for postpartum depressive symptoms, supporting the need for targeted mental health screening in obstetrically high-risk populations.

CONCLUSION

High-risk pregnancies are associated with a significantly increased prevalence of postpartum depressive symptoms compared with low-risk pregnancies, independent of specific obstetric diagnoses. These findings suggest that high-risk pregnancy status itself represents an important clinical indicator of postpartum psychological vulnerability. Routine screening for postpartum depression using validated tools such as the Edinburgh Postnatal Depression Scale should therefore be prioritized in obstetrically high-risk populations to enable early identification and timely mental health intervention.

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