Perinatal Depression: An Evidence-Based Review of Psychological, Social, and Clinical Approaches to Maternal Mental Health

Abdullah Hassan Abdullah Alafifi[1], Mohammed Jassim Alhussin[2], Sultan Abdulrahman M. Alshalawi[3], Fahad Abdulhadi Alotaibi[4], Zayed Ruddah Zayed Almalki[5], Musab Mohammed Qasim Kabsh[6], Abdullrahman Khalil Ibrahim Alquait[7], Bassam Mohammed Awdadh Al-Qadi[8], Raed Ali Abdulaziz Sahli[9], Meshal Essa Alhassani[10], Abdullah Maseer Mashan Almutairi[11], Abdulaziz Hamad M. Almutawa[12], Sultan Eid Al-Abdali[13]

[1]Ministry of National Guard, Al Ahsa, Saudi Arabia
[2]Al Ahsa, Ministry of National Guard, Saudi Arabia
[3]Al Ahsa, Ministry of National Guard, Saudi Arabia
[4]Al Ahsa, Ministry of National Guard, Saudi Arabia
[5]Prince Mohammed bin Saud Brigade, Riyadh, Ministry of National Guard, Saudi Arabia
[6]Al Madinah Al Munawarah, Ministry of National Guard, Saudi Arabia
[7]Ministry of National Guard, Riyadh, Saudi Arabia
[8]Ministry of National Guard, Riyadh, Saudi Arabia
[9]Ministry of National Guard, Riyadh, Saudi Arabia
[10]Riyadh, Ministry of National Guard, Saudi Arabia
[11]Riyadh, Ministry of National Guard, Saudi Arabia
[12]Riyadh, Ministry of National Guard, Saudi Arabia
[13]Ministry of National Guard, Eastern Province, Al Ahsa, Saudi Arabia

Abstract

Background: Perinatal depression is one of the most common mental health disorders affecting individuals during pregnancy and the first year after childbirth. It is associated with significant adverse consequences for maternal well-being, infant development, family functioning, and overall public health. Despite the availability of effective screening and treatment strategies, many cases remain unrecognized and untreated.

Aim: This review aimed to examine the epidemiology, etiology, pathophysiology, clinical manifestations, evaluation, and evidence-based management of perinatal depression, with emphasis on psychological, social, and clinical approaches to maternal mental health.

Methods: A comprehensive narrative review of current literature and clinical guidelines was conducted. The review synthesized evidence related to risk factors, biological mechanisms, diagnostic criteria, screening practices, pharmacological interventions, psychotherapeutic approaches, neurosteroid therapies, and emerging treatment modalities for perinatal depression.

Results: Perinatal depression was found to result from a complex interaction of hormonal, genetic, neurobiological, psychological, and social factors. Major risk factors included previous psychiatric illness, inadequate social support, obstetric complications, socioeconomic stressors, and family history of mental disorders. Routine screening using validated tools such as the Edinburgh Postnatal Depression Scale facilitates early detection. Effective management includes cognitive behavioral therapy, interpersonal therapy, antidepressant medications, neurosteroid treatments such as brexanolone and zuranolone, and selected nonpharmacological interventions including transcranial magnetic stimulation and electroconvulsive therapy for severe or treatment-resistant cases.

Conclusion: Perinatal depression is a multifaceted and potentially debilitating condition that requires early recognition and comprehensive management. Integrated mental health services, timely screening, evidence-based interventions, and improved access to care are essential for optimizing maternal and infant outcomes and reducing the long-term burden of perinatal mental health disorders.

Keywords: Perinatal depression, postpartum depression, maternal mental health, postpartum blues, screening, psychotherapy, antidepressants, neurosteroids, perinatal care, cognitive behavioral therapy.

Introduction

Perinatal depression is a significant mood disorder that occurs during pregnancy or throughout the first year following childbirth and represents one of the most prevalent mental health conditions affecting individuals during the perinatal period. Contemporary psychiatric classifications have evolved to recognize the continuity of depressive symptoms across pregnancy and the postpartum phase. According to the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR)*, the previously distinct concept of postpartum depression has been

incorporated into the broader diagnostic framework of perinatal depression.[1] Within this classification system, a major depressive episode that develops during pregnancy or emerges within four weeks after childbirth is identified as peripartum depression. This diagnostic approach acknowledges that depressive disorders may arise before delivery, after delivery, or persist across both periods, thereby emphasizing the interconnected nature of maternal mental health throughout the childbearing continuum. Consequently, postpartum depression is no longer regarded as a separate diagnostic entity but rather as a component of the wider spectrum of perinatal depressive disorders.[2] Perinatal depression is characterized by a range of emotional, cognitive, behavioral, and physical manifestations that substantially affect daily functioning and overall quality of life. Individuals experiencing this condition frequently report persistent feelings of sadness, diminished interest or pleasure in previously enjoyable activities, reduced self-worth, and ongoing emotional distress. Additional symptoms commonly include disturbances in sleep patterns, changes in appetite, heightened anxiety, irritability, excessive self-criticism, feelings of shame, and negative emotional responses toward the infant. Many affected individuals also encounter challenges in establishing an emotional connection with their newborn and may experience profound feelings of hopelessness, helplessness, and worthlessness that interfere with their ability to engage effectively in parental responsibilities and social relationships.[3] These symptoms often extend beyond transient emotional fluctuations and may significantly impair psychological well-being, interpersonal functioning, and maternal-infant interactions.

It is important to distinguish perinatal depression from postpartum blues, commonly referred to as maternity blues or baby blues, which represent a relatively common and self-limiting emotional adjustment following childbirth.[4] Postpartum blues typically emerge within the first few days after delivery and are characterized by mild depressive symptoms and emotional instability. Individuals experiencing postpartum blues may exhibit tearfulness, frequent crying episodes, mood fluctuations, irritability, anxiety, sleep disturbances, poor appetite, fatigue, and temporary difficulties with concentration and decision-making. Although these symptoms may resemble those observed in perinatal depression, their severity, duration, and impact on functioning differ substantially.[5] Postpartum blues generally resolve spontaneously within a short period without requiring formal clinical intervention and do not result in significant impairment in social, occupational, or parental functioning. Furthermore, postpartum blues are not classified as a psychiatric disorder. In contrast, perinatal depression is a more severe and persistent condition that can endure for several months or longer if left untreated, often leading to considerable psychological distress and functional impairment.[6] The identification and effective management of perinatal depression are essential for safeguarding both maternal and infant health. Untreated depressive symptoms during the perinatal period can adversely affect a parent's capacity to provide consistent and responsive care for their child, potentially compromising the quality of the caregiving environment. Research has demonstrated that prolonged maternal depression may contribute to adverse developmental outcomes in children, including emotional, behavioral, social, and cognitive difficulties that can persist into later stages of life. Additionally, perinatal depression may negatively influence family functioning by increasing interpersonal conflict, reducing relationship satisfaction, and creating emotional strain within the household. The disorder is also associated with an elevated risk of self-harm and suicide, highlighting its significance as a major public health concern requiring early recognition and intervention.[7]

Given the substantial consequences associated with untreated illness, routine screening for perinatal depression has become a critical component of comprehensive prenatal and postnatal healthcare services. Standardized assessment instruments, such as the Edinburgh Postnatal Depression Scale (EPDS), are widely utilized to identify individuals who may be experiencing depressive symptoms or who are at increased risk of developing clinically significant depression during the perinatal period. Early detection facilitates timely intervention and improves the likelihood of favorable outcomes for both parent and child. Treatment approaches are typically multifaceted and may include evidence-based psychotherapeutic interventions, participation in support groups, and pharmacological management when clinically indicated. Antidepressant medications can be prescribed safely in many cases during pregnancy and lactation following careful risk-benefit assessment and ongoing clinical monitoring. Despite the availability of effective screening and treatment strategies, a substantial proportion of cases remain unidentified, with estimates suggesting that up to half of all individuals experiencing perinatal depression are never formally diagnosed.[8]

Etiology

The etiology of perinatal depression is complex and multifactorial, involving an intricate interaction among biological, psychological, social, environmental, and genetic influences. Although considerable progress has been made in understanding the mechanisms associated with the disorder, the precise causes of perinatal depression and postpartum blues remain incompletely understood. Current evidence suggests that no single factor is solely responsible for the onset of depressive symptoms during the perinatal period. Rather, the condition appears to emerge from the cumulative effects of multiple vulnerabilities that interact during pregnancy and the postpartum phase. These vulnerabilities may vary significantly among individuals, resulting in differences in symptom severity, duration, and clinical presentation.

One of the most extensively investigated biological contributors to perinatal depression involves the profound hormonal fluctuations that occur during pregnancy and after childbirth. During pregnancy, estrogen and progesterone levels increase substantially to support fetal development and maintain pregnancy. Following delivery, however, these hormone concentrations decline rapidly, producing significant neuroendocrine changes that may influence emotional regulation and psychological well-being. In susceptible individuals, this abrupt hormonal transition may contribute to

mood instability, emotional distress, and the onset of depressive symptoms. The postpartum period is further characterized by substantial physical and psychological demands associated with infant care, including chronic sleep deprivation, fatigue, and increased caregiving responsibilities. These stressors may amplify the effects of hormonal changes and increase vulnerability to depressive episodes among individuals who possess preexisting biological or psychological susceptibilities [8][9].

Emerging evidence indicates that perinatal depression extends beyond hormonal dysregulation and may involve disturbances in several interconnected metabolic and neurobiological pathways. Research has identified alterations in energy metabolism, amino acid metabolism, purine pathways, steroid synthesis, and neurotransmitter regulation as potential contributors to the development of depressive symptoms during the perinatal period.[9] Disruptions in neurotransmitter systems, particularly those involving serotonin, dopamine, and norepinephrine, may impair emotional regulation and cognitive functioning. Furthermore, exposure to environmental substances and xenobiotics has been suggested as a possible factor influencing neurochemical processes associated with mood disorders. These findings underscore the complexity of perinatal depression and support the view that it is a biologically heterogeneous condition involving multiple physiological systems. Several obstetric and pregnancy-related factors have also been associated with an increased risk of developing perinatal depression. A meta-analysis of 33 studies identified gestational diabetes, a prior history of depression, delivery of male infants, and the use of epidural anesthesia as potential risk factors.[3] Among these variables, a previous history of depressive illness has consistently demonstrated a strong association with future episodes of perinatal depression. However, the relationship between infant sex and epidural anesthesia remains less clear, and further investigation is required to determine the extent to which these factors independently contribute to depressive symptom development. Additional obstetric complications, including high-risk pregnancies, prolonged hospitalization during pregnancy, and traumatic childbirth experiences, may significantly increase psychological distress. Events such as emergency cesarean delivery, umbilical cord prolapse, intrauterine meconium passage, preterm birth, low birth weight, and maternal anemia have been associated with elevated emotional stress and increased susceptibility to depression during the postpartum period.[9]

Psychological factors represent another major component in the development of perinatal depression. Individuals with a prior history of depression or anxiety disorders are particularly vulnerable because pregnancy and childbirth may reactivate underlying emotional difficulties. Premenstrual syndrome has also been associated with an increased likelihood of developing mood disturbances during the perinatal period, potentially reflecting a heightened sensitivity to hormonal fluctuations. Negative perceptions regarding pregnancy, ambivalence toward the infant, disappointment concerning the infant's sex, and unresolved psychological trauma may further contribute to emotional distress. Moreover, a history of sexual abuse has been consistently identified as a significant risk factor, as previous traumatic experiences may influence emotional adjustment, self-esteem, interpersonal relationships, and coping mechanisms during pregnancy and parenthood. Social and environmental influences play a fundamental role in shaping mental health outcomes during the perinatal period. One of the most consistently reported predictors of perinatal depression is inadequate social support.[9] Emotional, practical, and financial assistance from partners, family members, and community networks can serve as protective factors that promote resilience during pregnancy and postpartum adaptation. Conversely, social isolation, marital conflict, and relationship dissatisfaction may significantly increase emotional vulnerability. Domestic violence, including physical, sexual, and verbal abuse, has been strongly associated with depressive symptoms and psychological distress. Exposure to such adverse circumstances not only compromises maternal mental health but may also undermine the safety and stability necessary for healthy family functioning. Additional social determinants, including younger maternal age and cigarette smoking during pregnancy, have also been linked to increased risk, reflecting the broader influence of socioeconomic and behavioral factors on maternal psychological well-being.[9]

Lifestyle-related factors have gained increasing attention as potentially modifiable contributors to perinatal depression. Poor nutritional habits may adversely affect brain function and emotional regulation by limiting the availability of essential nutrients involved in neurotransmitter synthesis. In particular, vitamin B6 plays an important role in the metabolic conversion of tryptophan into serotonin, a neurotransmitter closely associated with mood regulation. Deficiencies in vitamin B6 may therefore contribute to depressive symptomatology by disrupting serotonin production.[10] Similarly, inadequate sleep is a well-established risk factor for mood disorders and is especially relevant during the postpartum period, when frequent infant care responsibilities often interfere with normal sleep patterns. Physical inactivity may further exacerbate depressive symptoms by reducing opportunities for stress reduction and emotional regulation. Regular exercise has been shown to enhance psychological well-being through the stimulation of endogenous endorphins and opioid peptides, which contribute to improved mood, greater self-confidence, enhanced problem-solving abilities, and reduced feelings of helplessness and low self-esteem associated with depression.[10] Genetic and familial influences also appear to play an important role in the etiology of perinatal depression. Recent investigations have demonstrated that individuals with a family history of psychiatric disorders are at increased risk of developing depressive symptoms during pregnancy and the postpartum period.[11] This association likely reflects a combination of inherited biological vulnerabilities and shared environmental experiences. Genetic predisposition may influence neurochemical functioning, stress responsiveness, and emotional regulation, thereby increasing susceptibility to mood disorders. Simultaneously, individuals raised in environments characterized by psychiatric illness may experience reduced social support, maladaptive coping strategies, and greater exposure to

psychosocial stressors, all of which may contribute to the development of perinatal depression. Consequently, the interaction between genetic liability and environmental influences is increasingly recognized as a central mechanism underlying vulnerability to depressive disorders during the perinatal period.

Epidemiology

The epidemiology of postpartum blues and perinatal depression demonstrates that mood disturbances during the perinatal period represent a substantial public health concern affecting individuals and families worldwide. Although both conditions occur during the transition to parenthood, they differ considerably in terms of prevalence, severity, duration, and clinical implications. Understanding their epidemiological patterns is essential for identifying populations at risk, improving screening strategies, and implementing effective preventive and therapeutic interventions. Postpartum blues is recognized as the most common emotional disturbance occurring after childbirth. Epidemiological studies indicate that its incidence is approximately 39.0%, although reported rates vary considerably, ranging from 13.7% to 76.0%.[12] This substantial variability can largely be attributed to differences in diagnostic criteria, assessment methods, study populations, and cultural interpretations of postpartum emotional changes across countries and regions.[4][13] In many settings, postpartum blues is considered a normal psychological adjustment to childbirth, whereas in other contexts it may be viewed as a condition requiring greater clinical attention. These differences contribute to inconsistencies in prevalence estimates reported in the literature. Despite its generally transient and self-limiting nature, postpartum blues should not be regarded as an entirely benign condition. Evidence suggests that it may serve as an early indicator of vulnerability to more severe mood disorders, particularly when symptoms are intense, prolonged, or accompanied by significant psychological distress. Longitudinal research has demonstrated a notable association between postpartum blues and the subsequent development of perinatal depression. One study found that approximately 27.7% of women experiencing postpartum blues later developed perinatal depression, compared with 16.4% of women who did not report symptoms of postpartum blues.[14] These findings highlight the importance of careful monitoring during the postpartum period, particularly among individuals presenting with persistent emotional symptoms following delivery.

Recent epidemiological investigations have also expanded understanding of paternal mental health during the postpartum period. Although maternal mental health has traditionally been the primary focus of research, evidence increasingly indicates that fathers may also experience emotional disturbances following the birth of a child. A study conducted in France reported a prevalence of postpartum blues of 17.5% among new fathers, demonstrating that psychological adjustment challenges are not limited to mothers alone.[15] These findings emphasize the need for a family-centered perspective when addressing perinatal mental health and underscore the importance of recognizing emotional difficulties among all caregivers involved in infant care. Perinatal depression represents the most frequently diagnosed psychiatric disorder during the peripartum period and constitutes a major contributor to maternal morbidity worldwide. Beyond its impact on emotional well-being, perinatal depression is associated with serious adverse consequences, including impaired parent-infant bonding, disrupted family functioning, and an increased risk of self-harm and suicide. Notably, parental suicide is recognized as the second leading cause of mortality during the postpartum period, underscoring the severity and public health significance of this condition.[16] Globally, the prevalence of perinatal depression is estimated to range between 6.5% and 20% among postpartum individuals.[17] However, these rates vary considerably across different countries and populations. Such variations are influenced by multiple factors, including socioeconomic conditions, healthcare accessibility, cultural beliefs surrounding mental health, social support systems, and methodological differences among epidemiological studies. Furthermore, inconsistencies in identified risk factors have contributed to variations in reported prevalence rates, limiting direct comparisons across investigations.[3]

Certain demographic groups appear to be disproportionately affected by perinatal depression. The condition occurs more frequently among adolescent parents, individuals who deliver preterm infants, and those residing in urban environments. Adolescents may face unique psychosocial challenges, including financial instability, limited social support, educational disruptions, and increased psychological stress, all of which may contribute to elevated rates of depression. Similarly, parents of premature infants often encounter heightened emotional distress related to concerns about infant health and prolonged hospitalization. Urban living may also increase exposure to social isolation, economic pressures, and environmental stressors that negatively affect mental health. International comparisons reveal notable differences in prevalence across countries. A large meta-analysis reported the highest prevalence of perinatal depression in China, where approximately 21.4% of postpartum individuals were affected.[3] In contrast, the prevalence was estimated at 14% in Japan and 8.6% in the United States.[3] These disparities likely reflect differences in cultural norms, healthcare infrastructure, screening practices, social support systems, and public awareness of maternal mental health issues. They may also be influenced by variations in study design and diagnostic approaches used across different populations. The timing of symptom onset is another important epidemiological consideration. Research indicates that the average onset of postpartum depression occurs approximately 14 weeks after childbirth.[3] This finding emphasizes that depressive symptoms frequently emerge beyond the immediate postpartum period and may remain undetected if follow-up care is limited to the first few weeks after delivery. Additionally, studies have identified racial and ethnic differences in the timing of symptom presentation. Black and Hispanic individuals tend to report depressive symptoms within the first two weeks following childbirth, whereas Caucasian individuals more

commonly experience symptom onset later in the postpartum period.[3] These differences may reflect variations in biological, social, cultural, and healthcare-related factors that influence the recognition and reporting of mental health symptoms.

Pathophysiology

The pathophysiology of perinatal depression and postpartum blues remains an area of active investigation, as the precise biological mechanisms underlying these conditions have not yet been fully elucidated. Current evidence suggests that their development is multifactorial and results from a complex interaction among genetic predisposition, neuroendocrine alterations, immunological responses, neurotransmitter dysregulation, and psychosocial stressors.[17] Rather than arising from a single pathological process, perinatal depression appears to emerge through the convergence of several biological and environmental factors that collectively influence emotional regulation and psychological resilience during pregnancy and the postpartum period. The significant physiological adaptations that occur throughout pregnancy and childbirth create a unique biological environment that may increase vulnerability to mood disturbances, particularly among individuals with preexisting susceptibilities.[18][19][20] One of the most widely accepted theories regarding the pathogenesis of perinatal depression focuses on the role of reproductive hormones and their effects on the central nervous system. Pregnancy is characterized by substantial elevations in estrogen and progesterone concentrations, which exert profound influences on neuronal activity, neurotransmitter regulation, and emotional processing. These hormones contribute to maintaining pregnancy while simultaneously modulating brain regions involved in mood regulation. Following childbirth, however, there is a rapid and dramatic decline in circulating estrogen and progesterone levels. Although this hormonal transition occurs universally among postpartum individuals, only a subset develops depressive symptoms, suggesting that certain individuals possess increased biological sensitivity to hormonal fluctuations. In these susceptible populations, abrupt endocrine changes may disrupt neural pathways involved in emotional stability, thereby precipitating depressive symptoms and contributing to the onset of postpartum blues and perinatal depression.[17]

The neuroendocrine system plays a central role in the development of perinatal mood disorders, particularly through the involvement of the hypothalamic-pituitary-adrenal (HPA) axis. The HPA axis serves as one of the body's primary stress-response systems and regulates the secretion of cortisol in response to physical and psychological stressors. During pregnancy, significant physiological adaptations occur within this system, resulting in increased production of corticotropin-releasing hormones and elevated cortisol levels. These hormonal changes are considered essential for fetal development and maternal adaptation to pregnancy. However, HPA axis activity often remains elevated for several weeks after childbirth, with hormonal alterations persisting for up to twelve weeks postpartum. Dysfunction within this regulatory system may impair the body's ability to respond effectively to stress, contributing to emotional instability and depressive symptomatology. Abnormal HPA axis functioning has been associated with reduced catecholamine release, diminished stress tolerance, and impaired emotional regulation, all of which are commonly observed in individuals experiencing perinatal depression and postpartum blues.[17] In addition to hormonal influences, neurotransmitter abnormalities have emerged as important contributors to the pathophysiology of perinatal depression. Recent research has highlighted the potential role of the gamma-aminobutyric acid (GABA) neurotransmission system in the development of mood disturbances during the perinatal period. GABA functions as the primary inhibitory neurotransmitter within the central nervous system and plays a crucial role in maintaining neural stability, reducing excessive neuronal excitation, and regulating emotional responses. Disruptions in GABAergic signaling may lead to increased anxiety, emotional dysregulation, and depressive symptoms. Evidence suggests that alterations in reproductive hormone levels may influence GABA receptor activity, thereby contributing to the development of mood disorders during pregnancy and after childbirth. Consequently, an imbalance within the GABA system is increasingly recognized as a key neurobiological mechanism underlying perinatal depression.[17]

Additional biochemical changes have also been implicated in the disease process. Elevated cortisol concentrations, commonly observed in individuals experiencing chronic stress, have been associated with depressive symptoms during the perinatal period.[9] Persistently increased cortisol levels may adversely affect brain structures involved in mood regulation, including the hippocampus and prefrontal cortex. Furthermore, reduced levels of tryptophan, an essential amino acid required for serotonin synthesis, have been identified in some individuals with perinatal depression.[9] Because serotonin plays a critical role in regulating mood, emotional stability, appetite, and sleep, diminished tryptophan availability may contribute to neurotransmitter imbalances that increase vulnerability to depression. These findings support the hypothesis that disturbances in neurochemical pathways are central components of the pathophysiological processes underlying perinatal mood disorders. The immunological system has also attracted considerable attention in recent years as a potential contributor to perinatal depression. Pregnancy and the postpartum period involve significant alterations in immune function that are necessary to support fetal development and maternal adaptation. Dysregulation of inflammatory pathways and immune responses may influence neurotransmitter metabolism and neuroendocrine functioning, thereby affecting mood and behavior. Although the precise relationship between immune activity and perinatal depression remains under investigation, growing evidence suggests that inflammatory processes may interact with hormonal and neural mechanisms to increase susceptibility to depressive symptoms. Lactogenic hormones, particularly oxytocin and prolactin, represent another important aspect of the pathophysiology of perinatal depression. These hormones are essential for successful breastfeeding and maternal-

infant bonding. Oxytocin is responsible for facilitating the milk ejection reflex and promoting social attachment behaviors, while prolactin stimulates breast milk production. Clinical observations have demonstrated that difficulties with lactation frequently coincide with the onset of depressive symptoms, suggesting a possible biological connection between breastfeeding challenges and maternal mental health. Low oxytocin levels have been consistently associated with perinatal depression and premature discontinuation of breastfeeding. Furthermore, studies have shown that reduced oxytocin concentrations during the third trimester are correlated with increased depressive symptoms during pregnancy and the postpartum period.[21] Given oxytocin's role in emotional bonding, stress regulation, and maternal behavior, deficiencies in this hormone may contribute significantly to the development and persistence of depressive symptoms.

History and Physical

The diagnosis of perinatal depression is primarily based on a comprehensive clinical history and detailed mental health assessment. The disorder is generally identified when an individual experiences at least five depressive symptoms for a minimum duration of two consecutive weeks, with symptom onset occurring during pregnancy or within the first twelve months following childbirth.[22] A diagnosis requires the presence of either persistent depressed mood or a marked loss of interest and pleasure in previously enjoyable activities, commonly referred to as anhedonia. These core manifestations are typically accompanied by additional symptoms, including disturbances in sleep patterns such as insomnia or hypersomnia, significant changes in appetite or body weight, fatigue, diminished energy levels, psychomotor agitation or retardation, impaired concentration, indecisiveness, excessive feelings of guilt or worthlessness, and recurrent thoughts of death or suicide.[16][22] The clinical presentation of perinatal depression closely resembles that of major depressive disorder occurring outside the perinatal period, although it is distinguished by its temporal relationship to pregnancy and childbirth. Symptoms are often persistent and severe enough to interfere with daily functioning, maternal responsibilities, interpersonal relationships, and overall quality of life. Affected individuals may report difficulty caring for their infant, challenges in establishing emotional attachment, and reduced confidence in their parenting abilities. Anxiety symptoms frequently coexist with depressive manifestations and may further exacerbate emotional distress. To establish a diagnosis, clinicians must ensure that symptoms are not attributable to substance use, medication effects, medical illnesses, psychotic disorders, or a history of manic or hypomanic episodes.[16]

The *International Classification of Diseases, Tenth Revision (ICD-10)* characterizes depressive episodes by the presence of a persistently depressed mood accompanied by reduced activity, diminished energy, and a marked decline in the capacity for enjoyment, concentration, and interest in everyday activities. Individuals often experience overwhelming fatigue even after minimal effort, sleep disturbances, appetite reduction, and feelings of low self-esteem, guilt, and worthlessness. Additional somatic manifestations may include anhedonia, early morning awakening, psychomotor changes, weight loss, reduced libido, and appetite disturbances. Depending on the number and severity of symptoms, depressive episodes may be classified as mild, moderate, or severe.[16] In some cases, perinatal depression may be accompanied by psychotic features, representing a severe psychiatric emergency. Psychotic symptoms may include hallucinations, delusions, or command auditory hallucinations instructing the individual to harm themselves or their infant. Such presentations require immediate psychiatric intervention due to the substantial risk posed to both parent and child. Untreated perinatal depression may contribute to impaired parent-infant bonding, breastfeeding difficulties, dysfunctional parenting behaviors, marital conflict, and adverse developmental outcomes affecting the child's emotional, behavioral, and psychological well-being. A thorough clinical evaluation should therefore include assessment of previous episodes of perinatal depression, postpartum psychosis, major depressive disorder, bipolar disorder, and any relevant family psychiatric history, as these factors significantly increase the likelihood of recurrence and future psychiatric morbidity.

Postpartum blues shares several clinical features with perinatal depression, including tearfulness, emotional lability, irritability, anxiety, sleep disturbances, appetite changes, and a dysphoric mood.[23] However, the severity, duration, and functional impact of symptoms are considerably less pronounced. Symptoms typically emerge within two to three days after childbirth and resolve spontaneously within approximately two weeks without meeting the diagnostic criteria for major depressive disorder. Although postpartum blues is generally self-limiting, careful clinical monitoring remains essential because persistent or worsening symptoms may indicate progression to perinatal depression. Consequently, healthcare professionals should assess mood, emotional functioning, suicidal ideation, and psychotic symptoms during every postpartum encounter to ensure early identification and timely intervention for potentially serious mental health conditions affecting both the parent and infant.[23]

Evaluation

The evaluation of perinatal depression is a critical component of comprehensive maternal healthcare and aims to facilitate early identification, accurate diagnosis, and timely intervention. Given the significant impact of perinatal depression on both parental and infant well-being, several professional organizations, including the American College of Obstetricians and Gynecologists (ACOG), the American Academy of Pediatrics (AAP), and the American Academy of Family Medicine (AAFP), recommend universal screening for perinatal depression during pregnancy and throughout the postpartum period. Routine screening enables healthcare providers to recognize symptoms that may

otherwise remain undisclosed and helps reduce the substantial number of undiagnosed cases observed in clinical practice.[3][6] A thorough clinical assessment extends beyond the evaluation of depressive symptoms and should include a comprehensive review of the individual's medical, psychiatric, social, and substance-use history. Clinicians should obtain detailed information regarding current and past mental health conditions, alcohol consumption, recreational drug use, smoking habits, and the use of prescription or over-the-counter medications. These factors may influence symptom presentation, contribute to mood disturbances, or complicate treatment planning. Furthermore, assessing psychosocial stressors, family support systems, and previous episodes of depression is essential for understanding the overall risk profile and identifying potential contributing factors. Several validated screening instruments are available for the detection of perinatal depression. Commonly utilized tools include the Patient Health Questionnaire-9 (PHQ-9) and the Generalized Anxiety Disorder-7 (GAD-7), both of which assess symptoms of depression and anxiety. However, the Edinburgh Postnatal Depression Scale (EPDS) remains the most widely used screening instrument specifically designed for the perinatal population.[24][12] The EPDS is a brief, self-administered questionnaire consisting of ten items that can typically be completed within a few minutes. Scores range from 0 to 30, with higher scores indicating greater symptom severity. A score of 13 or higher is generally associated with an elevated risk of perinatal depression and warrants further clinical evaluation. Many healthcare institutions also consider scores exceeding 9 or 10, particularly when accompanied by suicidal thoughts, as indicators for mental health referral and additional assessment.[25]

The primary objectives of the evaluation process are to confirm the diagnosis, determine the severity of symptoms, assess the risk of suicide or harm to others, and exclude alternative psychiatric or medical conditions that may account for the clinical presentation.[25] Particular attention should be directed toward identifying suicidal ideation, self-harming behaviors, or homicidal thoughts, as these require urgent intervention. Clinicians should also evaluate for symptoms suggestive of bipolar disorder, anxiety disorders, substance-related disorders, and psychotic conditions, which may influence treatment decisions and prognosis. According to the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR)*, episodes that meet the criteria for major depressive disorder and occur during pregnancy or within four weeks following childbirth are classified using the specifier “with peripartum onset.” This terminology reflects evidence that approximately half of postpartum depressive episodes actually begin before delivery, highlighting the importance of screening throughout pregnancy rather than exclusively after childbirth. In some cases, severe mood disturbances may be accompanied by psychotic symptoms, including hallucinations and delusions. Under these circumstances, the specifier “with psychotic features” is applied. Postpartum psychosis constitutes a psychiatric emergency because affected individuals may experience command hallucinations or delusional beliefs involving their infant, significantly increasing the risk of harm and necessitating immediate psychiatric treatment and close clinical supervision.

Treatment / Management

The management of perinatal depression requires a comprehensive, individualized, and multidisciplinary approach that addresses both symptom reduction and the restoration of maternal functioning, parent-infant bonding, and family well-being. Effective treatment strategies encompass preventive interventions, psychotherapeutic approaches, pharmacological therapies, neurosteroid treatments, and specialized nonpharmacological modalities. Early identification of at-risk individuals and timely implementation of evidence-based interventions are essential for improving maternal and infant outcomes while minimizing the long-term consequences of untreated illness. Preventive strategies play a particularly important role among individuals considered at high risk for developing perinatal depression. Research has demonstrated that structured counseling interventions, cognitive behavioral therapy (CBT), and interpersonal therapy (IPT) can significantly reduce the likelihood of developing depressive symptoms during pregnancy and the postpartum period.[22] These interventions focus on enhancing coping mechanisms, improving interpersonal relationships, addressing maladaptive thought patterns, and strengthening emotional resilience. Healthcare professionals should identify vulnerable individuals early in pregnancy and implement preventive mental health support whenever appropriate. Such measures are especially beneficial for patients with a history of depression, significant psychosocial stressors, limited social support, or previous episodes of perinatal mood disorders.[22]

Psychotherapy remains a cornerstone of treatment and is generally regarded as the first-line intervention for individuals experiencing mild to moderate perinatal depression. Cognitive behavioral therapy and interpersonal therapy have consistently demonstrated effectiveness in reducing depressive symptoms and improving psychosocial functioning. These therapeutic approaches help patients recognize and modify negative cognitive patterns, improve emotional regulation, strengthen interpersonal relationships, and develop practical coping strategies. For patients with moderate to severe depressive symptoms, a combination of psychotherapy and pharmacological treatment is often recommended to maximize therapeutic outcomes. Referral to mental health specialists, including psychologists, psychiatrists, and behavioral health professionals, may be necessary when symptoms are severe, persistent, or associated with significant functional impairment.[22] Pharmacological management constitutes an important component of treatment for many patients with moderate to severe perinatal depression. The American College of Obstetricians and Gynecologists recommends several classes of antidepressants, including selective serotonin reuptake inhibitors (SSRIs), serotonin-norepinephrine reuptake inhibitors (SNRIs), and tricyclic antidepressants, as

effective therapeutic options.[16] Among these medications, SSRIs are generally considered the preferred first-line pharmacological treatment due to their favorable safety profile and extensive clinical experience in perinatal populations. Sertraline and escitalopram are frequently recommended as initial therapeutic choices because of their demonstrated efficacy and reassuring safety data.[22] In cases where SSRIs fail to produce an adequate response, alternative agents such as SNRIs or mirtazapine may be considered. Patients who have previously responded successfully to a specific antidepressant may often benefit from continuing or resuming that medication during pregnancy or the postpartum period, provided that a careful assessment of risks and benefits supports its use.[22]

The primary objective of antidepressant therapy is the complete remission of depressive symptoms rather than partial improvement alone. Monitoring treatment response should involve the repeated use of validated assessment tools, such as the Edinburgh Postnatal Depression Scale or the Patient Health Questionnaire-9, to objectively track symptom changes over time. A reduction of at least 50% in symptom severity is generally considered indicative of a positive treatment response. Clinicians should aim to use the lowest effective medication dose capable of achieving symptom remission while avoiding undertreatment, a common concern in obstetric practice. Polypharmacy and unnecessary medication switching should be minimized whenever symptom control can be achieved with a single therapeutic agent.[22] Although some individuals may experience early benefits within the first week of treatment, meaningful clinical improvement generally requires four to eight weeks of continuous antidepressant therapy.[16] Once symptom remission is achieved, maintenance treatment should continue for a minimum of six to twelve months to reduce the risk of relapse.[26] Discontinuation of antidepressant medication during pregnancy or the postpartum period is associated with a substantial risk of recurrence and is generally discouraged unless clinically necessary. Similarly, routine discontinuation during the third trimester to reduce the likelihood of neonatal adaptation syndrome is not recommended.[22] Abrupt cessation of SSRIs or SNRIs should also be avoided because withdrawal symptoms may occur, including gastrointestinal disturbances, dizziness, anxiety, headaches, sleep disruption, fatigue, tremors, muscle aches, and sensory disturbances.[22]

Special consideration must be given to breastfeeding individuals. Clinical decision-making should involve a balanced discussion regarding the benefits of breastfeeding, the potential risks associated with antidepressant exposure through breast milk, and the significant consequences of untreated maternal depression. Current evidence indicates that exposure to SSRIs during breastfeeding is generally low, allowing many individuals to safely continue both breastfeeding and antidepressant treatment simultaneously. Studies have demonstrated that cognitive behavioral therapy, sertraline monotherapy, and combined therapeutic approaches can all provide meaningful clinical benefits, with psychotherapy often producing particularly rapid initial improvements.[22] Recent advances in neurosteroid therapy have expanded treatment options for individuals with moderate to severe perinatal depression. Brexanolone, a synthetic analog of allopregnanolone and a positive modulator of gamma-aminobutyric acid type A (GABA-A) receptors, became the first medication specifically approved by the United States Food and Drug Administration for the treatment of perinatal depression.[27] Administered as a continuous intravenous infusion over approximately sixty hours, brexanolone has demonstrated rapid antidepressant effects in multiple clinical trials involving patients with moderate to severe illness.[28][29] Despite its effectiveness, clinical use may be limited by cost, accessibility challenges, and the requirement for inpatient monitoring due to potential adverse effects, including excessive sedation, loss of consciousness, and hypoxia.[16][22] Furthermore, breastfeeding is generally discouraged during treatment and for several days afterward because of limited safety data.[22] Another neuroactive steroid, zuranolone, received FDA approval in 2023 for the treatment of perinatal depression.[17] Similar to brexanolone, zuranolone acts as a GABA-A receptor modulator but offers the advantage of oral administration. Treatment typically consists of a nightly oral dose administered for fourteen days with a fat-containing meal. One of the most notable characteristics of zuranolone is its rapid onset of action, often producing symptom improvement within hours to days. This rapid therapeutic effect may be particularly valuable for individuals experiencing severe emotional distress. However, clinicians must counsel patients regarding potential adverse effects, including somnolence and impaired driving ability. Additionally, concerns regarding fetal exposure and breastfeeding safety necessitate careful consideration when prescribing this medication during pregnancy or lactation.[17][30]

For individuals who either cannot tolerate medication or fail to respond adequately to conventional therapies, several nonpharmacological interventions may be considered. Transcranial magnetic stimulation (TMS) is a noninvasive neuromodulation technique that uses magnetic pulses to stimulate targeted brain regions implicated in mood regulation.[31] Treatment is typically administered daily over several weeks and has shown promise as an alternative option for patients who do not respond sufficiently to antidepressants and psychotherapy. Available evidence suggests that TMS is generally safe during pregnancy and is associated with relatively mild side effects, including headaches, scalp discomfort, lightheadedness, and transient facial muscle contractions. Serious complications are uncommon but may include seizures, hearing impairment, or induction of mania in individuals with bipolar disorder.[32] Theta burst stimulation, a newer variation of TMS, may offer additional advantages during pregnancy due to shorter treatment durations and reduced risk of postural hypotension.[31] In cases of severe, treatment-resistant perinatal depression, electroconvulsive therapy (ECT) remains an important therapeutic option. ECT may be particularly beneficial for patients who have failed multiple medication trials, exhibit psychotic features, experience severe suicidal ideation, demonstrate infanticidal thoughts, or refuse food and fluids to the extent that malnutrition or dehydration develops.[33][34] Several observational studies suggest that ECT may represent a relatively safe and effective

intervention for pregnant and lactating individuals when administered under appropriate clinical supervision.[35][36] Nevertheless, opinions regarding its routine use remain varied, and treatment decisions should be individualized based on clinical severity, patient preferences, and multidisciplinary consultation.

Beyond direct clinical interventions, addressing social determinants of health is essential for improving treatment outcomes. Individuals facing socioeconomic disadvantage, discrimination, racism, or limited healthcare access often experience significant disparities in the diagnosis, treatment, and outcomes of perinatal mental health conditions. Furthermore, transgender and gender-diverse individuals may encounter unique barriers related to limited clinical knowledge, stigma, and inadequate healthcare resources. To address these challenges, Perinatal Psychiatry Access Programs have been established to support obstetric clinicians through specialized training, psychiatric consultation services, and enhanced referral networks.[6] These initiatives aim to improve integration between obstetric and mental health services, expand access to evidence-based care, and ensure that individuals experiencing perinatal depression receive timely and appropriate treatment. Through a combination of preventive strategies, psychotherapy, pharmacotherapy, innovative neurosteroid treatments, neuromodulation techniques, and supportive healthcare systems, effective management of perinatal depression can significantly improve outcomes for parents, infants, and families.[6]

Conclusion

Perinatal depression represents a major mental health challenge that affects individuals during pregnancy and throughout the postpartum period, with substantial consequences for mothers, infants, and families. The disorder arises from a complex interaction of biological, hormonal, genetic, psychological, and social factors that influence vulnerability to depressive symptoms. Early recognition is essential because untreated perinatal depression can impair parent-infant bonding, disrupt family relationships, compromise child development, and increase the risk of self-harm and suicide. Routine screening using validated assessment tools enables timely identification of affected individuals and facilitates appropriate intervention. Evidence demonstrates that psychotherapy, antidepressant medications, neurosteroid therapies, and selected nonpharmacological treatments can significantly reduce symptom severity and improve functional outcomes. Preventive strategies targeting high-risk populations further contribute to reducing disease burden. Strengthening awareness, reducing stigma, expanding access to mental health services, and integrating psychiatric care into routine perinatal healthcare are critical for improving maternal well-being and promoting healthier outcomes for children and families across the perinatal continuum.

References

1. Serati M, Redaelli M, Buoli M, Altamura AC. Perinatal Major Depression Biomarkers: A systematic review. J Affect Disord. 2016 Mar 15;193:391-404.
2. Radoš SN, Akik BK, Žutić M, Rodriguez-Muñoz MF, Uriko K, Motrico E, Moreno-Peral P, Apter G, den Berg ML. Diagnosis of peripartum depression disorder: A state-of-the-art approach from the COST Action Riseup-PPD. Compr Psychiatry. 2024 Apr;130:152456.
3. Liu X, Wang S, Wang G. Prevalence and Risk Factors of Postpartum Depression in Women: A Systematic Review and Meta-analysis. J Clin Nurs. 2022 Oct;31(19-20):2665-2677.
4. Howard LM, Molyneaux E, Dennis CL, Rochat T, Stein A, Milgrom J. Non-psychotic mental disorders in the perinatal period. Lancet. 2014 Nov 15;384(9956):1775-88.
5. Carlson K, Mughal S, Azhar Y, Siddiqui W. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Jan 22, 2025. Perinatal Depression.
6. Screening and Diagnosis of Mental Health Conditions During Pregnancy and Postpartum: ACOG Clinical Practice Guideline No. 4. Obstet Gynecol. 2023 Jun 01;141(6):1232-1261.
7. Valdes EG, Sparkman L, Aamar R, Steiner L, Gorman JM, Ittel V, Bethea JJ, Reist C. Improving maternal mental health: assessing the extent of screening and training about peripartum depression. J Matern Fetal Neonatal Med. 2023 Dec;36(1):2155042.
8. Zauderer C. Postpartum depression: how childbirth educators can help break the silence. J Perinat Educ. 2009 Spring;18(2):23-31.
9. Konjevod M, Gredicak M, Vuic B, Tudor L, Nikolac Perkovic M, Milos T, Svob Strac D, Pivac N, Nedic Erjavec G. Overview of metabolomic aspects in postpartum depression. Prog Neuropsychopharmacol Biol Psychiatry. 2023 Dec 20;127:110836.
10. Ghaedrahmati M, Kazemi A, Kheirabadi G, Ebrahimi A, Bahrami M. Postpartum depression risk factors: A narrative review. J Educ Health Promot. 2017;6:60.
11. Zacher Kjeldsen MM, Bricca A, Liu X, Frokjaer VG, Madsen KB, Munk-Olsen T. Family History of Psychiatric Disorders as a Risk Factor for Maternal Postpartum Depression: A Systematic Review and Meta-analysis. JAMA Psychiatry. 2022 Oct 01;79(10):1004-1013.
12. Tosto V, Ceccobelli M, Lucarini E, Tortorella A, Gerli S, Parazzini F, Favilli A. Maternity Blues: A Narrative Review. J Pers Med. 2023 Jan 13;13(1)

13. Rezaie-Keikhaie K, Arbabshastan ME, Rafiemanesh H, Amirshahi M, Ostadkelayeh SM, Arbabisarjou A. Systematic Review and Meta-Analysis of the Prevalence of the Maternity Blues in the Postpartum Period. J Obstet Gynecol Neonatal Nurs. 2020 Mar;49(2):127-136.
14. Landman A, Ngameni EG, Dubreucq M, Dubreucq J, IGEDEPP Groups. Tebeka S, Dubertret C. Postpartum blues: a predictor of postpartum depression, from the IGEDEPP Cohort. Eur Psychiatry. 2024 Apr 01;67(1):e30.
15. Baldy C, Piffault E, Chopin MC, Wendland J. Postpartum Blues in Fathers: Prevalence, Associated Factors, and Impact on Father-to-Infant Bond. Int J Environ Res Public Health. 2023 May 20;20(10)
16. Hutcherson TC, Cieri-Hutcherson NE, Gosciak MF. Brexanolone for postpartum depression. Am J Health Syst Pharm. 2020 Feb 19;77(5):336-345.
17. Sharma R, Bansal P, Saini L, Sharma N, Dhingra R. Zuranolone, a neuroactive drug, used in the treatment of postpartum depression by modulation of $GABA_A$ receptors. Pharmacol Biochem Behav. 2024 May;238:173734.
18. Couto TC, Brancaglion MY, Alvim-Soares A, Moreira L, Garcia FD, Nicolato R, Aguiar RA, Leite HV, Corrêa H. Postpartum depression: A systematic review of the genetics involved. World J Psychiatry. 2015 Mar 22;5(1):103-11.
19. Meltzer-Brody S. New insights into perinatal depression: pathogenesis and treatment during pregnancy and postpartum. Dialogues Clin Neurosci. 2011;13(1):89-100.
20. O'Hara MW, McCabe JE. Postpartum depression: current status and future directions. Annu Rev Clin Psychol. 2013;9:379-407.
21. Cardaillac C, Rua C, Simon EG, El-Hage W. [Oxytocin and postpartum depression]. J Gynecol Obstet Biol Reprod (Paris). 2016 Oct;45(8):786-795.
22. Treatment and Management of Mental Health Conditions During Pregnancy and Postpartum: ACOG Clinical Practice Guideline No. 5. Obstet Gynecol. 2023 Jun 01;141(6):1262-1288.
23. O'Hara MW, Wisner KL. Perinatal mental illness: definition, description and aetiology. Best Pract Res Clin Obstet Gynaecol. 2014 Jan;28(1):3-12.
24. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. Br J Psychiatry. 1987 Jun;150:782-6.
25. Lakkis NA, Mahmassani DM. Screening instruments for depression in primary care: a concise review for clinicians. Postgrad Med. 2015 Jan;127(1):99-106
26. Beck CT. Postpartum depression: it isn't just the blues. Am J Nurs. 2006 May;106(5):40-50; quiz 50-1.
27. Powell JG, Garland S, Preston K, Piszczatoski C. Brexanolone (Zulresso): Finally, an FDA-Approved Treatment for Postpartum Depression. Ann Pharmacother. 2020 Feb;54(2):157-163.
28. Kanes S, Colquhoun H, Gunduz-Bruce H, Raines S, Arnold R, Schacterle A, Doherty J, Epperson CN, Deligiannidis KM, Riesenberg R, Hoffmann E, Rubinow D, Jonas J, Paul S, Meltzer-Brody S. Brexanolone (SAGE-547 injection) in post-partum depression: a randomised controlled trial. Lancet. 2017 Jul 29;390(10093):480-489.
29. Meltzer-Brody S, Colquhoun H, Riesenberg R, Epperson CN, Deligiannidis KM, Rubinow DR, Li H, Sankoh AJ, Clemson C, Schacterle A, Jonas J, Kanes S. Brexanolone injection in post-partum depression: two multicentre, double-blind, randomised, placebo-controlled, phase 3 trials. Lancet. 2018 Sep 22;392(10152):1058-1070.
30. Deligiannidis KM, Meltzer-Brody S, Maximos B, Peeper EQ, Freeman M, Lasser R, Bullock A, Kotecha M, Li S, Forrestal F, Rana N, Garcia M, Leclair B, Doherty J. Zuranolone for the Treatment of Postpartum Depression. Am J Psychiatry. 2023 Sep 01;180(9):668-675.
31. Senda M, Johnson K, Taylor I, Jensen M, Flynn H, Kozel FA. Accelerated Transcranial Magnetic Stimulation Provided Rapid Improvement in Depressive, Anxiety, Trauma, and Pain Symptoms in a Woman Experiencing Postpartum Depression. J ECT. 2023 Sep 01;39(3):e14-e15.
32. Milgrom J, Gemmill AW, Ericksen J, Burrows G, Buist A, Reece J. Treatment of postnatal depression with cognitive behavioural therapy, sertraline and combination therapy: a randomised controlled trial. Aust N Z J Psychiatry. 2015 Mar;49(3):236-45.
33. Stewart DE, Vigod SN. Postpartum Depression: Pathophysiology, Treatment, and Emerging Therapeutics. Annu Rev Med. 2019 Jan 27;70:183-196.
34. Yonkers KA, Vigod S, Ross LE. Diagnosis, pathophysiology, and management of mood disorders in pregnant and postpartum women. Obstet Gynecol. 2011 Apr;117(4):961-977.
35. Robakis TK, Williams KE. Biologically based treatment approaches to the patient with resistant perinatal depression. Arch Womens Ment Health. 2013 Oct;16(5):343-51.
36. Anderson EL, Reti IM. ECT in pregnancy: a review of the literature from 1941 to 2007. Psychosom Med. 2009 Feb;71(2):235-42.