Postpartum unipolar major depression: Epidemiology, clinical features, assessment, and diagnosis

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INTRODUCTION

Although delivering a baby is typically a happy event, many postpartum women develop depressive symptoms and disorders [1]. Patients may manifest postpartum blues consisting of mild depressive symptoms that are generally self-limited, or more severe syndromes of minor or major depression. Untreated postpartum depression can result in adverse consequences for the mother and infant [1-4].

This topic reviews the epidemiology, pathogenesis, clinical features, assessment, and diagnosis of postpartum unipolar major depression. Treatment of postpartum unipolar major depression is discussed separately, as is the safety of infant exposure to psychotropic drugs through breastfeeding and the diagnosis and treatment of antepartum unipolar major depression.

- (See "Mild to moderate postpartum unipolar major depression: Treatment".)
- (See "Severe postpartum unipolar major depression: Choosing treatment".)
- (See "Safety of infant exposure to antidepressants and benzodiazepines through breastfeeding".)
- (See "Breastfeeding infants: Safety of exposure to antipsychotics, lithium, stimulants, and medications for substance use disorders".)
- (See "Unipolar major depression during pregnancy: Epidemiology, clinical features, assessment, and diagnosis".)

- (See "Mild to moderate episodes of antenatal unipolar major depression: Choosing treatment".)
- (See "Severe antenatal unipolar major depression: Choosing treatment".)

DEFINITION OF POSTPARTUM PERIOD

Consistent with many reviews and studies, we define the postpartum period broadly as the first 12 months after birth [5,6]. However, there is no established consensus as to what time frame constitutes the postpartum period [7,8].

Definitions of the puerperium include the following:

- According to the American Psychiatric Association's Diagnostic and Statistical Manual, Fifth Edition (DSM-5), onset of postpartum major depression can occur prior to or after parturition [9]. The DSM-5 specifier "with peripartum onset" is used when onset of major depression occurs either during pregnancy or in the four weeks following delivery.
- For depressive "episodes that are associated with the puerperium," the World Health Organization's International Classification of Diseases – 10th Revision (ICD-10) requires onset of the episode within six weeks of delivery [10].
- Other definitions of the puerperium range from the first 3 to 12 months following a live birth [7,11-13].

EPIDEMIOLOGY

Prevalence — The estimated prevalence of postpartum unipolar major depression varies widely among different studies, depending upon which country was studied (the rate appears to be higher in low- and middle-income countries), the length of time after delivery for which prevalence is determined, whether depression was identified through self-report measures or clinical interviews, whether estimates included patients with minor depression, and whether postpartum depression was assessed in the community or in clinical settings [8,14,15].

Across multiple studies and in different settings, the prevalence is approximately 10 to 15 percent:

- **Global** – A meta-analysis of 27 studies from 16 countries and regions included more than 130,000 postpartum women; the meta-analysis did not report whether women were recruited from the general population and/or clinical settings [16]. In each study, the

subjects were assessed with the Edinburgh Postnatal Depression Scale (figure 1A-B), which is a screening tool and is thus not intended to make a diagnosis (see 'Screening' below). The estimated prevalence of postpartum unipolar depression was 14 percent. However, heterogeneity across studies was large.

Subgroup analyses found that the prevalence rate was higher in developing countries, compared with developed countries [16]. As an example, the rate was greater in China than Japan (21 versus 14 percent).

- **United States** – A nationally representative survey in the United States used face-to-face interviews and found that among postpartum women (n = 994), the 12-month prevalence of unipolar major depression was approximately 9 percent, which was similar to the rate in nonpostpartum women (n >13,000; 8 percent) [17].

- **Europe** – Two prospective studies from Europe each found that the prevalence of postpartum major plus minor depression was approximately 10 percent [15]. One study was based in a clinical setting and estimated the prevalence for one year after delivery (n >1000 postpartum women), whereas the used a community sample to examine the prevalence for six weeks after delivery.

- **Clinical settings** – Prospective and retrospective studies in clinical settings, in more than 200,000 patients, estimated that the prevalence of depression among postpartum women was approximately 10 to 16 percent [12,18-21].

Onset — Among patients with postpartum depression, onset occurs before or during pregnancy in approximately 50 percent [22-26]. As an example, in a prospective study of 546 women who were recruited from an obstetric population and diagnosed with postnatal depression, onset was as follows [27]:

- Prepregnancy – 20 percent
- Antepartum – 38 percent
- Postpartum – 42 percent

In women with postpartum depression that begins after delivery, onset appears to occur most often within the first few months of parturition [28]:

- A retrospective study of women with postpartum onset of major depression (n = 116) found that onset occurred as follows [29]:

  - Postpartum month 1 – 54 percent
  - Postpartum month 2 to 4 – 40 percent

- Postpartum month 5 to 12 – 6 percent

- A national registry study found that hospitalization for postpartum depression occurred approximately three times more often during the first five postnatal months, compared with the last seven postnatal months [11].

Risk factors — A large number of possible risk factors for postpartum unipolar major depression have been identified, many of which are not specific to postpartum depression [1,8].

Most studies examining risk factors for postpartum depression have used the Edinburgh Postnatal Depression Scale (figure 1A-B) to identify cases, which is problematic because the scale is a screening instrument and is thus not intended to make a diagnosis [14]. One study found a few risk factors (previous depression, antenatal depression, and high levels of postnatal stress) were associated with postpartum depression when cases were identified with an interview using standardized diagnostic criteria, and that additional factors were associated with postpartum depression when cases were identified with the Edinburgh Postnatal Depression Scale [30]. Screening for postpartum depression is discussed elsewhere in this topic. (See 'Screening' below.)

- **Primary risk factors** – Many studies indicate that the two risk factors for postnatal depressive syndromes that have the largest effect and are most consistently associated with postpartum depression are [5,8,14,15,21,30-41]:

  - Depression during pregnancy
  - A prior history of depression, either perinatal (antenatal or postnatal) or nonperinatal

  As an example, a prospective study of postpartum women (n >200), who were followed for up to eight weeks after delivery, found that postpartum major depression was five times more likely in women who were depressed during pregnancy, compared with women who were not [18]. In a prospective study of pregnant women (n >1000) who were followed for up to one year postpartum, the risk of perinatal major or minor depression was more than double in women with a prior history of nonperinatal depression, compared to women with no such history [19].

- **Secondary risk factors** – Additional factors that are frequently associated with postpartum depression include:

  - Stressful life events (eg, marital conflict, emigration, or the COVID-19 pandemic) during pregnancy or after delivery [5,8,14,15,18,30,33,35-37,39,41-47]

  - Poor social and financial support in the puerperium [5,8,14,15,19,32-37,39,41,48,49]

Other possible risk factors for postnatal major depression include:

- Perinatal anxiety symptoms and disorders [5,14,15,19,31,36,39,40]
- Young age (eg, age <25 years) [33,35,49]
- Single marital status [15]
- Multiparity [19,41,49,50]
- Family history of postpartum depression or any psychiatric illness [36,51,52]
- Intimate partner violence and lifetime history of physical and/or sexual abuse [18,33,41,53-57]
- Unintended/unwanted pregnancy [14,15,41,58]
- Negative attitudes toward pregnancy [14]
- Fear of childbirth [59]
- Poor perinatal physical health (eg, obesity at the time of conception, pregestational or gestational diabetes, antenatal or postnatal hypertension, or infection following delivery) [14,18,35,60-64]
- Body image dissatisfaction (preconception, antenatal, and/or postpartum) [65]
- Personality traits, such as neuroticism (which is marked by an enduring tendency to worry and to feel anxious, angry, sad, and guilty) [15,31,41,66,67]
- History of premenstrual syndrome or premenstrual dysphoric disorder [41,68,69]
- Perinatal sleep disturbance [70-73]
- Season of delivery (eg, postpartum depression may increase during the time of year when daylight is diminished) [74]
- Adverse pregnancy and neonatal outcomes (eg, including stillbirth, preterm birth, very low birth weight, and neonatal death) [5,41,50,75-77]
- Postpartum blues (subsyndromal depressive symptoms) [33,35,41,78]
- Breastfeeding that is nonexclusive, difficult, relatively short in duration, or ceases relatively early [5,40,79,80]

- Childcare stress such as inconsolable infant crying, difficult infant temperament, or infant sleep disturbance [8,14,41,43,81,82]

PATHOGENESIS

The pathogenesis of postpartum depression is unknown. It is also not known to what degree the underpinnings of postpartum depression differ from those of nonperinatal depression [37], and whether postpartum depression represents a distinct (reproductive) subtype of depression [15,83]. Factors involved in postpartum depression may include genetic susceptibility [84,85], epigenetic phenomena (eg, DNA methylation) [86,87], and hormonal changes [8,88], as well as psychological and social problems and stressful life events [8,89].

- **Genetics** – Vulnerability to postpartum depression may involve genetic factors [15,37]:
  - A national registry study of sisters (n >580,000) found that the relative contribution of genetic factors (heritability) to postnatal depression was 40 percent, and the remaining contribution was attributable to nonshared (unique) environmental factors [90]. Other analyses in the study suggested that the genetic overlap for perinatal depression (both antenatal and postnatal depression) and for nonperinatal depression was only partial.
  - A study (n = 328) found that if one sibling had an episode of postpartum major depression, the risk of an episode in the other sibling was increased fourfold [91].
  - Another study (n = 90) found that in women with a family history of narrowly defined postpartum major depression (onset within four weeks of delivery), 42 percent suffered depression after their first delivery [92]. By contrast, among women with no such history, only 15 percent suffered major depression within four weeks of their first delivery.
- **Hormonal changes** – Changes in serum concentrations of several hormones are associated with postpartum depression [37,93], including decreases in estrogen [94-97] and progesterone [98,99]; other changes involve cortisol [100], melatonin [101], oxytocin [102], and thyroid hormone [37]. Although hormone levels normally fluctuate during pregnancy and following parturition, increased sensitivity to these normal changes may predispose women to depression [15,103]. As an example, differences in the activity of certain genes in the hippocampus may increase vulnerability to postpartum depression by making women more sensitive to the drop in estrogen that occurs after birth [87].

Evidence supporting the hypothesis that endocrine factors are involved in the pathogenesis of postpartum depression includes a study designed to mimic the hormonal changes that occur at parturition; the study compared eight women with a history of postpartum depression with eight women without any history of major depression [94]. All of the subjects were treated with supraphysiologic doses of estrogen and progesterone, which were then withdrawn over four weeks. Increased depressive symptoms during the withdrawal phase occurred in five of the eight women with a history of postpartum depression, but none of the women without any history of depression, suggesting that women with a history of postpartum depression may be unusually sensitive to abrupt decreases in gonadal steroids.

The placenta is an endocrine organ of fetal origin, and dysregulation of placental corticotropin-releasing hormone may play a role in the development of postpartum depression. One study (n = 100 pregnant women) showed that elevated levels of placental corticotropin-releasing hormone at 25 weeks gestational age were a strong predictor of postpartum depression at an average of nine weeks after delivery [104]. A subsequent study (n = 170 pregnant women) found that elevated midgestational placental corticotropin-releasing hormone was associated with depressive symptoms at three (but not six) months postpartum [105].

Abnormal neurotransmitter levels or activity may also be involved in the pathogenesis of postpartum depression. A study of postpartum women found that the density of the enzyme monoamine oxidase-A in the prefrontal and anterior cingulate cortex was elevated in women with postpartum depression, compared with controls [106]. The enzyme metabolizes neurotransmitters such as dopamine, norepinephrine, and serotonin, and more rapid depletion of these neurotransmitters may lead to depression. Other studies suggest that serotonergic activity is diminished during postpartum depression [107].

Other aspects of brain function may be altered in postpartum depression. As an example, a prospective study measured brain derived neurotrophic factor in postpartum women (n = 340) one to two days after delivery, and found that serum concentrations were lower in women (n = 37) who subsequently screened positive for depression three months postpartum [108].

Factors that may be involved in the pathogenesis of unipolar major depression in the general adult population are discussed separately. (See "Unipolar depression in adults: Epidemiology".)

CLINICAL MANIFESTATIONS

The clinical features (eg, symptoms) of postpartum unipolar major depression appear to be comparable to the features of major depressive episodes that occur outside of the postpartum period [1,8,109]. The clinical features of major depression in the general population of patients are discussed separately. (See "Unipolar depression in adults: Clinical features".)

Symptoms — The symptoms of postpartum unipolar major depression and of major depressive episodes that occur outside of the postpartum period appear to be similar. As an example, a nationally representative survey in the United States included women with postpartum major depression (n = 81) as well as women with nonpostpartum major depression (n >1300) [110]. Within each group, the survey examined the prevalence of each of the nine depressive symptoms that are used to diagnose unipolar major depression (table 1), and found little difference between the two groups.

The symptoms of depression are discussed separately. (See "Unipolar depression in adults: Clinical features", section on 'Symptoms'.)

Severity — Episodes of postpartum unipolar major depression vary in their severity (as do nonperinatal episodes). The level of severity is used to choose a treatment regimen.

A study of mostly prospective data from patients with postpartum unipolar major depression (n >4000) found that relatively severe episodes are distinguished by [13]:

- Onset of depressive symptoms during pregnancy
- Average score of 20 on the Edinburgh Postnatal Depression Scale (figure 1A-B)
- Symptoms of anxiety and suicidal ideation
- Obstetric complications (eg, fetal stress, postpartum hemorrhage, and low birth weight)

Comorbid psychopathology — Comorbid mental illness is common in postpartum unipolar major depression. In a prospective observational study of women with postnatal depression (n = 566), at least one comorbid disorder was present in 66 percent [111]. The large majority of the comorbid disorders were anxiety disorders (eg, generalized anxiety disorder). Other comorbidities included eating disorders, obsessive-compulsive disorder, posttraumatic stress disorder, and substance use disorders.

The finding that comorbid psychopathology is present in two-thirds of patients with postpartum depression is comparable to the rate of comorbidity that is observed in the general population of patients with unipolar major depression [112]. (See "Unipolar depression in adults: Clinical features", section on 'Comorbidity'.)

Course of illness — Untreated postpartum depression may resolve spontaneously or with treatment, or develop into a persistent (chronic) depressive disorder [1]. A review of clinical and community samples of treated and untreated patients concluded that episodes of postpartum major depression last at least one year in 30 to 50 percent of patients [113]. This appears to be roughly comparable to what is observed for episodes of major depression that occur outside of the puerperium (figure 2). (See "Unipolar depression in adults: Course of illness", section on 'Recovery'.)

Patients who recover from an episode of postpartum depression are at risk for recurrences [20,114]. Reviews estimate that among women with postnatal depression, recurrence of postpartum and/or nonpostpartum depression occurs in approximately 40 to 50 percent [1,109]. However, the risk of recurrence in women with an episode of postnatal major depression and women with an episode of nonpuerperal major depression appears to be comparable [115]. Recurrence of unipolar major depression in the general population of patients who have suffered one or more episodes is discussed separately. (See "Unipolar depression in adults: Course of illness", section on 'Recurrence'.)

ADVERSE CONSEQUENCES

Postpartum depression impairs maternal functioning, is associated with poor nutrition and health in the offspring [17], and can interfere with breastfeeding, maternal-infant bonding, care of the infant and other children, and the woman's relationship with her partner. In addition, postpartum depression is associated with abnormal development, cognitive impairment, and psychopathology in the children [116].

Breastfeeding — Postpartum depression appears to be associated with an increased risk of not breastfeeding [8,116,117]:

- A prospective study of postpartum mothers (n >5000) found that after controlling for potential confounding factors (eg, maternal education, household income, and number of children in household), breastfeeding was observed in fewer women with depressive symptoms than nondepressed women (odds ratio 0.7, 95% CI 0.5-0.9) [118].
- A review of 10 studies found that postpartum depressive symptoms were generally associated with decreased duration of breastfeeding [79].

Impaired bonding with infant — Maternal postpartum depression can interfere with maternal-infant bonding [2,73]. As an example, a prospective study enrolled postpartum mothers (n >5000) and assessed them nine months after delivery [118]. The analyses were

adjusted for potential confounding factors (eg, maternal education, household income, and number of children in the household), and found that mothers with depressive symptoms were less likely to tell their child stories every day, compared with nondepressed mothers (odds ratio 0.7, 95% CI 0.5-0.9), and depressed mothers were also less likely to play peekaboo (odds ratio 0.6, 95% CI 0.4-0.9). In addition, depressed mothers read to their children less frequently [119].

Child health care — Postnatal depression appears to be associated with poorer health care of children [8,117]:

- **Infant sleep** – Mothers with postnatal depression may be less likely to properly position their infants for sleep [117,120]. A prospective study of postpartum mothers (n >5000) found that after controlling for potential confounding factors (eg, maternal education, household income, and number of children in household), women with depressive symptoms were less likely to put their babies to sleep on their backs, compared with nondepressed women (odds ratio 0.7, 95% CI 0.6-0.9) [118].

- **Child vaccinations** – Children of depressed mothers may be less likely to receive vaccinations. As an example, a prospective study included postpartum women with depressive symptoms (n >800) and postpartum women with no depressive symptoms (n >4000) [121]. After adjusting for potential confounding factors (eg, maternal education, health insurance status, and parity), the analyses found that up to date vaccinations at age 24 months were received by fewer children of depressed mothers than children of nondepressed mothers (54 versus 62 percent).

Postnatal depression may also compromise safety practices such as using infant car seats and electric outlet covers [117,120].

Abnormal infant and child development — Postpartum maternal depression appears to be associated with abnormal infant and child development in the offspring.

Cognitive impairment and psychopathology in the child — Postpartum depression appears to be associated with cognitive impairment and psychopathology in the children. (See "Postpartum depression: Adverse consequences in mothers and their children".)

Marital discord — Postpartum depression may strain the marital relationship [2,37,122]. In turn, marital strain may partially explain the adverse effects of maternal postpartum depression upon child health. Additional information about depression and marital dysfunction, and how they can exacerbate each other, is discussed separately. (See "Unipolar depression in adults: Family and couples therapy", section on 'Theoretical foundation'.)

Suicide — Although suicide is a leading cause of death in postnatal women [123-126], the absolute rate of suicide during the postpartum period is very low, and ranges from approximately 1 to 5 per 100,000 live births [127]:

- Australia – 5 per 100,000 [128]
- Sweden – 5 per 100,000 [125]
- United Kingdom – 1 per 100,000 [123]
- United States – 1 per 100,000 [129,130]

A study of postpartum women who committed suicide (n = 80) in the United Kingdom between 1997 and 2012 found that most of the women appeared to be married and living with a partner, most were receiving mental health treatment but did not manifest suicidal ideas or endorse recent self-harm at the time of the last clinical contact, and most had a primary diagnosis of depression (51 percent) [127].

The incidence of suicide in new mothers appears to be even lower than the low rate in the general population of women [82,124,127]. As an example, one study found that the rate of suicide in postpartum women was approximately half of the rate seen in the general population of women (rate ratio 0.54) [131].

Suicide attempts are also rare events during the puerperium [132]. A study of hospitalizations for suicide attempts in postpartum women found a rate of approximately 44 attempts for every 100,000 live births; by comparison, the rate in the general female population was 64 per 100,000 [129]. Fetal or infant death was associated with suicide attempts in postpartum women, but other adverse infant outcomes (eg, teratogenicity) as well as labor and delivery complications were not.

Among postnatal women, suicidal ideation occurs in approximately 3 percent. Two studies screened postpartum women (n = 10,000 and n >8,000) for depression with the Edinburgh Postnatal Depression Scale (figure 1A-B); in each study, thoughts of self-harm were endorsed by 3 percent [111,133]. However, clinical assessments revealed that very few of the women were at high risk, as manifested by active suicidal ideation with plans, intent, and access to means [133].

Additional information about suicidal ideation and behavior, including the evaluation and management of suicidality, is described separately. (See "Suicidal ideation and behavior in adults".)

Infanticide — Rumination about harming the baby can occur in postpartum depression [123,134]. Patients may describe these thoughts as "scary" or frightening, and typically express

no intent of wanting to harm their infant [135]. Thoughts of harming the baby are generally experienced as unwanted, unacceptable (ego dystonic), and intrusive, and are usually not revealed unless patients are questioned directly [135-137].

Rumination about harming the baby may be due to postpartum psychosis and should prompt an evaluation for psychotic symptoms such as delusions or hallucinations. As part of the assessment, clinicians need to distinguish rumination about harming the baby without intent (an unwanted intrusive thought), from rumination with intent, which is often seen in postpartum psychosis. (See "Postpartum psychosis: Epidemiology, clinical features, and diagnosis".)

Infanticide is a rare event. A review of seven studies found that the incidence ranged from approximately 2 to 7 per 100,000 infants [138].

Infanticide during postpartum depression may be more likely to occur in women who are psychotic or were previously admitted to a psychiatric hospital [134,139-141]. Mothers who kill their infants often try to kill themselves [141], and one study found that among 80 postpartum women who committed suicide over a 15-year period, two killed their infant before killing themselves [127]. A case series of 10 mothers with postpartum depression who killed their infants found that the pregnancy was wanted and the baby was healthy, but that the women felt overwhelmed and were reluctant to be left alone with the baby [141].

ASSESSMENT

When to suspect the disorder — Postnatal depression may be present in women who manifest the following symptoms [37,82,109]:

- Anxiety about the health of the infant
- Concern about one's ability to care for the infant
- Negative perception of infant temperament and behavior
- Despondency for at least two weeks
- Lack of interest in the infant's activities
- Lack of response to support and reassurance
- Using alcohol, illicit drugs, or tobacco
- Nonadherence to postnatal care
- Frequent nonroutine visits with or telephone calls to the obstetrician or pediatrician

Anxiety about the health of the infant, concern about one's ability to care for the infant, and lack of interest in the infant's activities may be apparent while observing the mother's behavior with

her infant.

Screening — We suggest that primary care clinicians (including obstetricians, gynecologists, or pediatricians) screen all postpartum women for depression, and that screening be implemented with services in place to ensure follow-up for diagnosis and treatment. This approach is based upon practice guidelines issued by the United States Preventive Services Task Force [142,143] (the full guideline can be accessed through the website for the United States Preventive Services Task Force [144]). In addition, screening for depression is consistent with guidelines from the American College of Obstetricians and Gynecologists [5], the United Kingdom National Institute for Health and Care Excellence [145], and the American Academy of Pediatrics [120]. The rationale for screening is that postnatal depression is serious, prevalent, under-recognized, and treatable, and that standardized, valid screening tools are available [36].

The most widely used instrument to screen postpartum women for major depression is the self-report, 10-item Edinburgh Postnatal Depression Scale (figure 1A-B), which can be completed in less than five minutes [146]. The scale is acceptable to most women and clinicians [147], easy to score, and is available in over 50 languages [148]. The specificity of the scale is enhanced because the instrument does not include items that ask about somatic depressive symptoms such as changes in sleep and appetite, which are common in postpartum women who are not depressed [5]. Responses to items are scored 0, 1, 2, or 3, with a maximum score of 30. We suggest a cutoff score of 11, which appears to maximize sensitivity plus specificity, and provides generally good to excellent test performance. As an example, a meta-analysis of 36 studies included participant-level data from 9066 pregnant and postpartum women who were screened; major depression was present in 1330, based upon semistructured interviews (gold standard reference) [149]. The optimal cutoff score for maximizing sensitivity (0.81) plus specificity (0.88) in detecting major depression was ≥11, and the positive predictive value exceeded 60 percent.

However, other studies have used cutoff scores ranging from ≥10 to ≥13 [111,149]. As an example, a systematic review that included 11 studies (which screened more than 3000 postpartum women) found that a cutoff of 12 yielded sensitivities and specificities that ranged from 80 to 90 percent [150]. In addition, a meta-analysis of 18 studies in postpartum women (sample size not reported) found that the cutoff score for balancing sensitivity (0.86) plus specificity (0.87) in detecting major depression was 12 or higher [151].

A reasonable alternative to the Edinburgh Postnatal Depression Scale is the self-report, nine-item Patient Health Questionnaire (table 2) [5,142,152].

A reasonable alternative to a screening tool is to ask questions such as, "During the last month, have you often been bothered by feeling down, depressed, or hopeless?" and "During the last month, have you often been bothered by having little interest or pleasure in doing things?" [145,150]. For patients who endorse dysphoria or anhedonia, follow-up questions can better define the patient's clinical status, including questions as whether the patient has intrusive thoughts about harming herself or the baby. Patients who screen positive for depression, either with a screening instrument or a few clinical questions, require a clinical interview to make the diagnosis.

We suggest that postpartum patients be screened at least once, which is consistent with the recommendation of the American College of Obstetricians and Gynecologists that clinicians screen perinatal patients at least once [5]. A reasonable time to screen is four to eight weeks after delivery, based upon randomized trials that found screening once at those time points was beneficial compared with usual care [142]. Nevertheless, the timing and frequency of screening are not established [153], and repeated screening during the first postpartum year (eg, three times) increases the number of women who screen positive for depression [154]. As part of screening, patients can be counseled about their risk of developing a depressive syndrome, and taught to recognize early symptoms and seek appropriate intervention. Risk factors for postpartum depression are discussed elsewhere in this topic. (See 'Risk factors' above.)

The evidence that supports screening for postpartum depression includes a systematic review, which identified three randomized trials (total n >6600 women) that compared screening four to eight weeks after delivery with usual care; the screening tool was the Edinburgh Postnatal Depression Scale and all study patients were followed for three to five months [142]. The prevalence of depression at follow-up was lower in the groups that were screened than controls, with absolute differences ranging from 5 to 9 percent. In addition, two trials (total n >6000 postpartum women) each found that among women who were diagnosed with depression, improvement/remission at follow-up was greater in patients who were screened than controls, by approximately 11 percent.

Some systematic reviews have found little evidence that screening for postpartum depression is beneficial [155]; thus, a few practice guidelines do not endorse universal screening for postpartum depression [156]. As an example, the Canadian Task Force on Preventative Health Care guideline recommends not routinely screening for depression in primary care settings [157,158].

The benefit of screening for postpartum depression is predicated upon practice settings establishing adequate systems to ensure accurate diagnosis, effective treatment, and appropriate follow-up. Providing these services at the same site where screening occurs may

provide better results than referring patients who screen positive to a different clinic for psychiatric evaluations and treatment. In one study, patients (n >1100) who screened positive for depression (Edinburgh Postnatal Depression Scale ≥13) in an obstetric setting were referred to a separate specialty perinatal psychiatric clinic; nearly 80 percent did not show up for their appointment [50].

Information about screening for depression in the general adult population is discussed separately. (See "Screening for depression in adults".)

Initial evaluation — The initial evaluation of postpartum women with suspected unipolar major depression is similar to that of nonpostpartum individuals. Assessment includes the history of psychiatric and general medical disorders, mental status and physical examination, and focused laboratory tests. (See "Unipolar depression in adults: Assessment and diagnosis", section on 'Assessment'.)

In particular, the assessment should address current and past suicidal ideation and behavior as well as psychosis (eg, delusions, hallucinations, and disorganized thinking and behavior); identification of these symptoms should prompt a referral to a mental health specialist for further evaluation and management. Patients with severe symptoms (eg, suicidal ideation with a specific plan and intent, suicidal behavior, or command auditory hallucinations) should be referred to an emergency department. Additional information about assessing suicidality is discussed separately. (See "Suicidal ideation and behavior in adults".)

We suggest that the assessment for major depression focus upon the five mood and cognitive symptoms of major depression (table 1) [37]:

- Dysphoria
- Anhedonia
- Worthlessness or excessive guilt
- Impaired concentration and decision making
- Suicidal ideation and behavior

The somatic symptoms of major depression – changes in sleep, energy level, and appetite – overlap with changes observed in postpartum women who are not depressed [5]. The diagnosis of major depression can be made with more confidence if the patient has at least three of the five mood and cognitive symptoms, especially suicidality. Focusing upon mood and cognitive symptoms is consistent with the approach taken when diagnosing major depression in the context of general medical disorders. (See "Unipolar depression in adults: Assessment and diagnosis", section on 'Unipolar major depression'.)

Postpartum unipolar depression is often not recognized by patients and clinicians because the somatic symptoms of depression overlap with some of the usual discomforts of the acute puerperium, such as fatigue, difficulty sleeping, poor appetite, and low libido [5]. These somatic symptoms should be evaluated in the context of normal expectations for the postpartum period. As an example, lack of energy to the point that patients cannot get out of bed for hours is abnormal and should be distinguished from the normal lack of energy that results from sleep deprivation and caring for an infant. Although postpartum insomnia is common, patients who are unable to sleep even when their babies sleep may have postpartum depression. Decreased appetite that is accompanied by the inability to enjoy the taste of food, having to force oneself to eat, and rapid weight loss probably represents a depressive syndrome.

Women are often reluctant to discuss their depressive symptoms, perhaps because of perceived social expectations that new mothers are happy, which may engender embarrassment, guilt, and stigma [82,159]. In addition, some mothers fear that their babies will be taken away by child welfare agencies. A study of patients with postpartum depression (n = 195) who were evaluated by the obstetricians found that approximately 60 percent of the patients presented with physical symptoms (eg, pain or bleeding) and did not mention their psychologic distress [160].

As part of our initial evaluation for postpartum major depression, we ask patients about their attitude toward the pregnancy and infant, functioning (eg, ability to care for the infant), alcohol and drug abuse, and stressors and supports, as well as intimate partner violence [145]. (See "Intimate partner violence: Diagnosis and screening", section on 'Assessment'.)

DIAGNOSIS

The diagnostic criteria for postpartum major depression are the same criteria that are used to diagnose nonpuerperal major depression (table 1) [9]. In clinical practice, the term postpartum depression is used to describe depression that begins within 12 months of childbirth [161]. (See 'Definition of postpartum period' above.)

However, postpartum depression is not a separate diagnosis in the DSM-5; instead, patients are diagnosed with major depression along with the specifier "with peripartum onset" for episodes that arise during pregnancy or within four weeks postpartum [9]. For episodes of postpartum depression that present more than four weeks after delivery, no modifier is available in DSM-5. Although ICD-10 includes the diagnosis postpartum depression not otherwise specified, ICD-10 discourages use of this diagnosis and instead encourages clinicians to diagnose a depressive episode according to the same criteria that are used for nonpuerperal episodes [162].

Additional information about the diagnosis of major depression is discussed separately. (See "Unipolar depression in adults: Assessment and diagnosis".)

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of postpartum unipolar depression includes normal postpartum-related changes, postpartum blues, and bipolar depression, as well as other psychiatric disorders. Reviewing the differential diagnosis can prevent inappropriate treatment.

Normal postpartum changes — The somatic symptoms of major depression (changes in sleep, energy level, and appetite) overlap with changes observed in postpartum women who are not depressed. Clinicians can determine whether problems with sleep, energy, and appetite are due to depression or to normal puerperal-related changes by evaluating these symptoms in the context of normal expectations for the puerperium. (See 'Initial evaluation' above.)

Postpartum blues — Depressive symptoms such as dysphoria, insomnia, fatigue, and impaired concentration can appear in both postpartum major depression and postpartum blues. However, the two disorders are distinguished in that the diagnosis of postpartum blues does not require a minimum number of symptoms. In addition, the symptoms of postpartum blues are mild and self-limited; symptoms typically develop within two to three days of delivery, peak over the next few days, and resolve within two weeks of onset. By contrast, the diagnosis of major depression requires a minimum of five symptoms that must be present for at least two weeks (table 1). Symptoms of postpartum blues that persist beyond two weeks are best viewed as postpartum depression rather than postpartum blues.

Bipolar depression — Postpartum depression can represent bipolar depression rather than unipolar depression [163,164]. As an example, in a prospective study of postpartum women who screened positive for depression (n = 826), the primary diagnosis was unipolar depression in 69 percent and bipolar depression in 23 percent [111].

Bipolar depression is marked by a past history of hypomania (table 3) and/or mania (table 4). Also, agitation may be more prevalent in bipolar depression. In one prospective study of women diagnosed with bipolar major depression (n = 180) or unipolar major depression (n = 547), agitation was reported more often by women with bipolar depression than unipolar depression (43 versus 21 percent) [27]. Additional information about distinguishing bipolar major depression from unipolar major depression is discussed separately. (See "Bipolar disorder in adults: Assessment and diagnosis", section on 'Unipolar major depression'.)

Other psychiatric disorders — Other psychiatric disorders (eg, psychotic disorders) that are part of the differential diagnosis for postpartum major depression are discussed elsewhere, in the context of nonperinatal major depression. (See "Unipolar depression in adults: Assessment and diagnosis", section on 'Differential diagnosis'.)

MINOR DEPRESSION

Unipolar minor depression is diagnosed in patients with two to four depressive symptoms lasting for a period of at least two weeks, and no history of mania or hypomania (table 5). (See "Unipolar minor depression in adults: Epidemiology, clinical presentation, and diagnosis", section on 'Diagnosis'.)

TREATMENT

Treatment of postpartum unipolar major depression is discussed separately. (See "Mild to moderate postpartum unipolar major depression: Treatment" and "Severe postpartum unipolar major depression: Choosing treatment".)

PRENATAL DEPRESSION

The clinical features, diagnosis, and treatment of antenatal unipolar major depression is discussed separately. (See "Unipolar major depression during pregnancy: Epidemiology, clinical features, assessment, and diagnosis" and "Mild to moderate episodes of antenatal unipolar major depression: Choosing treatment" and "Severe antenatal unipolar major depression: Choosing treatment".)

SOCIETY GUIDELINE LINKS

Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "Society guideline links: Postpartum care".)

INFORMATION FOR PATIENTS

UpToDate offers two types of patient education materials, “The Basics” and “Beyond the Basics.” The Basics patient education pieces are written in plain language, at the 5th to 6th grade reading

level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10th to 12th grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also locate patient education articles on a variety of subjects by searching on “patient info” and the keyword(s) of interest.)

- Basics topics (see "Patient education: Coping with high drug prices (The Basics)" and "Patient education: Depression during and after pregnancy (The Basics)")
- Beyond the Basics topics (see "Patient education: Coping with high prescription drug prices in the United States (Beyond the Basics)")

SUMMARY AND RECOMMENDATIONS

- **Definition** – We define the postpartum period as the first 12 months after delivery. However, definitions of the puerperium range from the first 1 to 12 months following a live birth. (See 'Definition of postpartum period' above.)
- **Epidemiology** – The prevalence of postpartum unipolar depression, across different settings in multiple countries, is approximately 10 to 15 percent; however, the rate appears to be higher in low- and middle-income countries. Onset of episodes occurs before or during pregnancy in approximately 50 percent of patients. (See 'Epidemiology' above.)
- **Pathogenesis** – The pathogenesis of postpartum depression is not known. Factors that may be involved in postnatal depression include genetic susceptibility and hormonal changes, as well as psychological and social problems. (See 'Pathogenesis' above.)
- **Clinical features** – The clinical features of postpartum unipolar major depression appear to be comparable to the features of major depressive episodes that occur outside of the postpartum period (table 1). Comorbid mental illness (especially anxiety disorders) is common in postpartum unipolar major depression. Studies of treated and untreated patients suggest that episodes of postpartum major depression last at least one year in 30 to 50 percent of patients. (See 'Clinical manifestations' above.)

- **Adverse consequences** – Postpartum depression is associated with poor nutrition and health in the offspring, and may interfere with breastfeeding, maternal-infant bonding, care of the infant and other children, and the relationship with the woman's partner. In addition, postnatal depression is associated with abnormal development, cognitive impairment, and psychopathology in the children.

  Although suicide is a leading cause of death in postnatal women, the absolute rate of suicide during the postpartum period is very low. Suicide attempts are also rare events during the puerperium. Among postnatal women, suicidal ideation occurs in approximately 3 percent. Rumination about harming the baby can occur in postpartum depression, but infanticide is a rare event that may be more likely to occur in women who are psychotic. (See 'Adverse consequences' above.)

- **When to suspect the disorder** – Postnatal depression may be present in women who manifest anxiety about the health of the infant, concern about their ability to care for the infant, despondency, lack of interest in the infant's activities, lack of response to support and reassurance, nonadherence to postnatal care, and substance use disorders. (See 'When to suspect the disorder' above.)

- **Screening** – For all postpartum women, we suggest screening for depression when services are in place to ensure appropriate diagnosis, treatment, and follow-up (**Grade 2C**). We typically use the self-report Edinburgh Postnatal Depression Scale (figure 1A-B). A reasonable alternative is to use the self-report nine-item Patient Health Questionnaire (table 2). (See 'Screening' above.)

- **Initial evaluation** – The initial evaluation of postpartum women with suspected depression is similar to that of nonpostpartum individuals. In particular, the assessment should address suicidality and psychosis; identification of these symptoms should prompt a referral to a mental health specialist. Patients with severe symptoms (eg, suicidal ideation with a specific plan and intent, or command auditory hallucinations) should be referred to an emergency department.

  We suggest that the assessment focus upon the five mood and cognitive symptoms of major depression (table 1): dysphoria, anhedonia, worthlessness or excessive guilt, impaired concentration and decision making, and suicidal ideation and behavior. The somatic symptoms of major depression – changes in sleep, energy level, and appetite – overlap with changes observed in postpartum women who are not depressed. (See 'Initial evaluation' above and "Unipolar depression in adults: Assessment and diagnosis".)

- **Diagnosis** – The diagnostic criteria for postpartum depression are the same criteria that are used to diagnose nonpuerperal major depression (table 1). (See 'Diagnosis' above.)

- **Differential diagnosis** – The differential diagnosis of postpartum unipolar depression includes normal postpartum-related changes, postpartum blues, and bipolar depression, as well as other psychiatric disorders. (See 'Differential diagnosis' above.)

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