Unipolar major depression during pregnancy: Epidemiology, clinical features, assessment, and diagnosis

AUTHOR: Sophie Grigoriadis, MD, MA, PhD, FRCPC
SECTION EDITORS: Peter P Roy-Byrne, MD, Charles J Lockwood, MD, MHCM
DEPUTY EDITOR: David Solomon, MD

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INTRODUCTION

Although pregnancy is usually a time of emotional well-being for women, many pregnant women suffer mental disorders, including new onset or recurrence of unipolar major depression [1].

This topic reviews the epidemiology, pathogenesis, clinical features, assessment, and diagnosis of depression during pregnancy. The association of antenatal depression with adverse pregnancy outcomes and adverse outcomes in the offspring is discussed separately, as is the treatment of antenatal depression, and the risks of antenatal antidepressants:

- (See "Antenatal depression: Pregnancy and neonatal outcomes".)
- (See "Antenatal depression: Risks of abnormal infant and child development".)
- (See "Antenatal depression: Risks of cognitive impairment and psychopathology in the offspring".)
- (See "Mild to moderate episodes of antenatal unipolar major depression: Choosing treatment".)
- (See "Severe antenatal unipolar major depression: Choosing treatment".)

- (See "Antenatal use of antidepressants and the potential risk of teratogenicity and adverse pregnancy outcomes: Selective serotonin reuptake inhibitors".)
- (See "Antenatal use of antidepressants and risks of teratogenicity and adverse pregnancy outcomes: Drugs other than selective serotonin reuptake inhibitors".)
- (See "Antenatal exposure to selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs): Neonatal outcomes".)

EPIDEMIOLOGY

General population surveys in the United States and other high-income countries estimate that the prevalence of unipolar major depression in pregnant women is 7 to 9 percent [2-6]. In low- and middle-income countries, the prevalence is roughly twice as high, ranging from 16 to 19 percent [6-8]. In addition, the rate of antenatal depression in the United States appears to be greater among Black Americans and Hispanic Americans than White Americans [9].

Many pregnant women suffer episodes of minor depression that do not fulfill criteria for major depression [10,11]. A nationally representative survey of pregnant women (n >3000) in the United States found that the estimated prevalence of minor depression was 17 percent. In the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), minor depression is called "other specified depressive disorder, depressive episode with insufficient symptoms" (ie, the depressive episode is characterized by an insufficient number of symptoms to meet criteria for major depression) [12]. The clinical features and diagnosis of minor depression (table 1) are discussed separately. (See "Unipolar minor depression in adults: Epidemiology, clinical presentation, and diagnosis".)

Although there is some inconsistency across studies, the risk of depression during each trimester appears to be comparable [13]. In a prospective study of pregnant women (n >1800) who were assessed each trimester with a self-report measure, elevated depression scores ranged from 10 to 15 percent, depending upon the trimester; 4 percent reported ongoing depression throughout pregnancy [14].

General population — Population-based surveys indicate that the prevalence of antenatal unipolar depression is approximately two times greater in low-income countries than high-income countries. In a systematic review that identified 96 studies, meta-analyses estimated that the prevalence of unipolar depression in pregnant women was as follows [6]:

- High-income countries – 9 percent

- Low-income countries – 19 percent

Nationally representative surveys in the United States have found that the prevalence of unipolar major depression in pregnant women is approximately 7 percent [2-4,15,16]. In addition, the surveys suggest that the prevalence of major depression in pregnant women is comparable or slightly lower than the rate in nonpregnant women [3,4,17,18]:

- A nationally representative survey assessed pregnant (n >3000) and nonpregnant women (n >68,000) in the United States [15]. After controlling for potential confounding factors (eg, age, general health, and availability of emotional support), the analyses found that the prevalence of major depression was comparable for pregnant and nonpregnant women (6 and 7 percent).

- A different survey in the United States found that major depression occurred in fewer pregnant women (n = 375) than nonpregnant women (n = 8657) (8 versus 11 percent) [2].

However, major depression may be undiagnosed more often in pregnant women than nonpregnant women [2]. (See 'Missing the diagnosis' below.)

Many of the depressive syndromes that occur during pregnancy represent the first lifetime episode [11,19].

The prevalence of unipolar major depression in the general adult population is discussed separately. (See "Unipolar depression in adults: Epidemiology", section on 'Prevalence'.)

Clinical settings — The prevalence of unipolar major depression among pregnant women in clinical settings is approximately 3 to 6 percent:

- A prospective study screened pregnant women (n >8800) for depression and then referred those who screened positive for further evaluation by a mental health clinician [20]. Major depression was formally diagnosed in 3 percent of the pregnant women. In addition, a study of a nationally representative sample of hospital deliveries found that depressive disorders were diagnosed in 3 percent [21].

- A prospective observational study (n = 541 pregnant women/1132 completed pregnancies) [22] and a retrospective study (n = 546 women/1189 pregnancies) [23], which formally assessed patients for unipolar major depression, each found that the prevalence was 4 percent. However, the rate of depression in these studies may have been attenuated due to antenatal treatment that was started prior to conception; all of the patients had a known history of major depression and many were treated during pregnancy.

- A retrospective study of administrative primary care and hospital admission datasets that included pregnant women (n >200,000) found that the prevalence of antenatal depression was approximately 6 percent; however, it is not clear that formal assessments were conducted [24].

The prevalence of antenatal major depression may be lower in clinical settings than the general population because only the more severely ill patients present for treatment.

RISK FACTORS

Based upon numerous studies and reviews, the maternal risk factors that have the largest effect and are most consistently associated with antepartum major depression include [7,10,11,19,25-49]:

- Prior history of either perinatal or nonperinatal depression – A prior history of depression appears to be the most important risk factor. As an example, a national registry study found that among women who suffered major depression during pregnancy (n >4000), nearly 50 percent had a history of depression prior to pregnancy [33].
- Current anxiety.
- Unintended or unwanted pregnancy.
- Life stress, including socioeconomic status, and adverse life events (eg, divorce).
- Intimate partner violence and lifetime history of physical and/or sexual abuse.
- Poor social support, including conflict, ineffective communication, and dissatisfaction with one's partner.
- Chronic general medical conditions (eg, diabetes, migraine, or obesity).

Other risk factors that are correlated with antenatal depression across multiple studies include single marital status, smoking, exposure to secondhand smoke, multiparity, past history of pregnancy/delivery complications (eg, miscarriage), prior pregnancy terminations, body image dissatisfaction, and personality traits (such as negative cognitive styles, anger, low self-esteem, and neuroticism) [1,25,26,29,33,34,37,46,50-53]. In addition, family history of depression may be a risk factor for antenatal depression [54].

Among women who are taking antidepressants and then become pregnant, discontinuation of the drugs may precipitate a depressive relapse. (See "Severe antenatal unipolar major

depression: Choosing treatment", section on 'Unplanned pregnancies and discontinuing antidepressants during pregnancy'.)

Many of the risk factors for antenatal unipolar major depression (eg, past history of depression, life stress, and poor social support) are also risk factors for depression in the general population of depressed patients [25].

PATHOGENESIS

The pathogenesis of depression in pregnant women and in the general population of adults is unknown, nor is it known to what degree the underpinnings of antenatal depression differ from those of nonperinatal depression [17]. Antenatal depression may result from biological determinants (eg, hormonal changes), as well as psychological and social factors. For example:

- Several studies suggest that genetic susceptibility is involved in the etiology of antenatal depression. For example, a national registry study of sisters (n >580,000) found that the relative contribution of genetic factors (heritability) to antenatal depression was 37 percent, and the remaining contribution was attributable to nonshared (unique) environmental factors [55]. Other analyses in the study examined the genetic basis for perinatal depression (both antenatal and postnatal depression) and for nonperinatal depression and found that the genetic overlap was only partial.

- Antenatal depression may be secondary to general medical disorders, including iron deficiency anemia and hypothyroidism [56]. Thus, the assessment of antenatal depression should include a physical examination and laboratory tests. (See 'Initial evaluation' below.)

- Threatened miscarriage may lead to antenatal major depression. A study of first trimester pregnancies included women facing threatened miscarriage (n = 121) and women with stable pregnancies (n = 241) [57]. Clinically significant depressive symptoms occurred in more patients with threatened miscarriage (33 versus 17 percent).

Information about the pathogenesis of unipolar major depression in the general adult population, including genetic factors and secondary depression, is discussed separately. (See "Unipolar depression: Pathogenesis" and "Unipolar depression: Genetics".)

CLINICAL FEATURES

The clinical features and course of illness in pregnant women with unipolar major depression generally resemble the features and course observed in the general population of adults with major depression [58]. (See "Unipolar depression in adults: Clinical features" and "Unipolar depression in adults: Course of illness".)

Patients with antepartum major depression may develop complications such as psychotic features or catatonia. (See "Unipolar major depression with psychotic features: Epidemiology, clinical features, assessment, and diagnosis" and "Catatonia in adults: Epidemiology, clinical features, assessment, and diagnosis".)

Symptoms — The symptoms of antenatal unipolar major depression appear to be comparable to the symptoms of major depressive episodes that occur outside of pregnancy [25,58]. As an example, a nationally representative survey in the United States included pregnant women with major depression (n = 36) as well as nonpregnant women with major depression (n >1300) [59]. Within each group, the survey examined the prevalence of each of the nine depressive symptoms that are used to diagnose unipolar major depression (table 2) and found little difference between the two groups.

Some of the symptoms of major depression, such as changes in sleep, energy level, and appetite, overlap with changes observed in women who are pregnant but not depressed [46,54,58]. This overlap may cause clinicians to miss the diagnosis of major depression. (See 'Missing the diagnosis' below.)

Suicide — Although suicide is a leading cause of death in pregnant women [60,61], studies in multiple countries indicate that the absolute rate of suicide is very low. As an example, multiple registry studies suggest that the rate of antenatal suicide is approximately 1 per 100,000 live births, or even less:

- Canada – A study from 1994 to 2008 found that the rate of antenatal suicide was 1 per 100,000 live births (20 pregnant women committed suicide) [62].
- Sweden – During a 28-year period, three pregnant women committed suicide (approximately 1 per 1 million live births) [63].
- United Kingdom – A 16-year study in the United Kingdom found that 18 pregnant women committed suicide [64]. Most of the women who died by suicide appeared to be married and living with a partner, most did not manifest suicidal ideas or endorse recent self-harm at the time of the last clinical contact, and the most common primary diagnosis was depression (n = 6).

- United States – A five-year study of pregnant women in 17 states found that there was roughly 1 suicide for every 100,000 live births [65], and a subsequent study in one of the states (Colorado) over a nine-year period found the same rate of antenatal suicide [66].

The prevalence rate for suicide in expectant mothers may be even lower than the low rate in the general population of women [61]. As an example, one study found that the rate of suicide in pregnant women was approximately one-quarter of the rate seen in the general population of women (rate ratio 0.27) [67]. In addition, a 15-year study found that among all female suicide deaths (n = 1648), only 1 percent of the women were pregnant [62]. Nevertheless, it is not well established that suicide occurs less often in pregnant women than nonpregnant women.

Suicide attempts during pregnancy are also relatively rare events. One study of pregnant women in the United States found that there were 40 suicide attempts for every 100,000 deliveries [68]. In addition, the rate of attempts appears to be lower in pregnant women than matched, nonpregnant controls [69].

Suicidal ideation is more common than suicide attempts and deaths and occurs in 4 to 8 percent of pregnant women. In a study of pregnant women (n >13,000) who were screened for depression with the Edinburgh Postnatal Depression Scale (figure 1A-B), thoughts of self-harm were endorsed by 4 percent [70]. 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. Another study assessed pregnant women (n >1200) with the Patient Health Questionnaire-9 (table 3) and found that the point prevalence of suicidal ideation was 8 percent [71].

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

Comorbidity — Women with antenatal major depression typically have comorbid psychopathology, such as anxiety disorders [7,10]. In addition, the rate of comorbidity generally appears to be roughly comparable in pregnant and nonpregnant women who are depressed. As an example, a nationally representative survey in the United States found that in women who had either antenatal or postnatal major depression, the one-year prevalence of at least one comorbid psychiatric disorder (eg, anxiety disorder or substance use disorder) was approximately 67 percent [72]. In nonpregnant women with major depression, the prevalence was 74 percent.

However, smoking tobacco may be more common in women with antenatal major depression than in women without antenatal major depression. Analyses of data from a nationally

representative survey in the United States, which were adjusted for potential confounding factors (eg, education, income, and marital status), found that the prevalence of smoking during pregnancy was greater in women with major depression than without major depression (34 versus 10 percent) [16].

Additional information about comorbid psychopathology in the general population of patients with unipolar major depression is discussed separately. (See "Unipolar depression in adults: Clinical features", section on 'Psychiatric'.)

Course of illness — Episodes of antenatal major depression may have their onset prior to pregnancy and can persist beyond childbirth [5,25,41,54,73]. (See "Postpartum unipolar major depression: Epidemiology, clinical features, assessment, and diagnosis", section on 'Epidemiology'.)

Women who recover from antenatal depressive episodes are at increased risk of suffering depressive episodes after pregnancy; in addition, they may develop chronic depression or change diagnosis to bipolar disorder [74]. As an example, a retrospective study of administrative health care datasets examined onset of depression in women after they delivered a child (total n >200,000 women, including more than 11,000 with antenatal depression) [24]. The likelihood of a new episode during the first five years after childbirth was three times greater in women with antenatal depression than in women without perinatal depression (incident rate ratio 3.3).

Similarly, the general population of patients who have suffered at least one episode of unipolar major depression are at risk for recurrences, and some patients develop chronic depression or change diagnosis. (See "Unipolar depression in adults: Course of illness".)

POTENTIAL ADVERSE OUTCOMES

Observational studies have found that antenatal depression is associated with:

- Altered fetal physiologic effects – Based upon studies of pregnant women with depressive symptoms that were not treated with medications, and pregnant women without depression, antenatal depression is associated with proportion of time that the fetus is active [75] and decreased activity in response to vibratory stimulation [75].
- Adverse pregnancy and neonatal outcomes. (See "Antenatal depression: Pregnancy and neonatal outcomes".)

- Abnormal infant and child development. (See "Antenatal depression: Risks of abnormal infant and child development".)

- Cognitive impairment and psychopathology in the offspring. (See "Antenatal depression: Risks of cognitive impairment and psychopathology in the offspring".)

In addition, antenatal depression is a risk factor for postnatal depression. (See "Postpartum unipolar major depression: Epidemiology, clinical features, assessment, and diagnosis", section on 'Risk factors'.)

SCREENING

We suggest that primary care clinicians (including obstetricians and gynecologists and midwives) screen all pregnant women for depression and that screening be implemented with services in place to ensure follow-up for diagnosis and treatment. Patients who screen positive should be interviewed to establish or rule out the diagnosis because screening is not sufficient for case-finding.

Screening for antenatal depression is based upon practice guidelines issued by the US Preventive Services Task Force [76,77] (the full guideline can be accessed through the website for the US Preventive Services Task Force [78]). In addition, screening is consistent with other guidelines [54], including those from the American College of Obstetricians and Gynecologists [46] and the United Kingdom National Institute for Health and Care Excellence [58], and screening is strongly recommended by the American Psychiatric Association [79]. The rationale for screening is that antenatal depression is serious, prevalent, underrecognized, and treatable, and that standardized, valid screening tools are available [80] and feasible to use [20].

The most widely used instrument to screen pregnant women for major depression is the self-administered, 10-item Edinburgh Postnatal Depression Scale (figure 1A-B), which can be completed in less than five minutes [81]. Items asking about the somatic symptoms of depression such as sleep and appetite are not included because these symptoms are common in pregnant women who are not depressed [46,54,58]. The scale is acceptable to most women and clinicians [82], easy to score, and is freely available in over 50 languages [83]. Responses are scored 0, 1, 2, or 3, with a maximum score of 30; scores ≥12 or 13 identify most women with major depression. However, many studies have used a cutoff score of ≥10 [84]. The scale was initially developed for screening postpartum women but is clinically applicable to antenatal depression. Studies that have validated the instrument for use in pregnant women have found that the psychometric properties vary widely (sensitivity 70 to 100 percent, specificity 74 to 97

percent, and positive predictive value 22 to 75 percent) [85]. The heterogeneity is likely due to screening different populations in different settings, and using different cut-off values to identify a positive screen [82,85,86].

The American College of Obstetricians and Gynecologists has identified reasonable alternatives to the Edinburgh Postnatal Depression Scale that can be used to screen for depression during pregnancy [46]. These other instruments include the self-administered, nine-item Patient Health Questionnaire (table 3) [76,87-89] and the self-administered, 20-item Center for Epidemiologic Studies Depression Scale (table 4); both have been validated for antenatal depression and are freely available in multiple languages [46,54]. However, results from the Patient Health Questionnaire and Center for Epidemiologic Studies Depression Scale should be interpreted judiciously because the instruments include items about appetite, energy, and sleep, which may reflect the physical effects of pregnancy rather than depression [7,46].

We suggest that pregnant patients be screened at least once, based upon the recommendation of the American College of Obstetricians and Gynecologists that clinicians screen perinatal patients at least once during pregnancy [46]. A reasonable time to screen is in the second trimester. In one prospective observational study that found screening was beneficial compared with usual care [90], and in an observational study that validated multiple antenatal screening instruments [91], pregnant patients were screened once during the second trimester. Nevertheless, the timing and frequency of screening are not established [54,92], and women with multiple risk factors for depression (eg, prior history of depression, low-income, and intimate partner violence) may benefit from multiple screenings (eg, once in the second trimester and again in the third trimester). 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 [54]. Risk factors for antenatal depression are discussed elsewhere in this topic. (See 'Risk factors' above.)

The evidence that supports screening for antenatal depression is limited [46]:

- Direct evidence – Systematic reviews have found little direct evidence from high quality studies that screening for antenatal depression is beneficial [76,93], and it appears that no randomized trials have been conducted. However, one prospective observational study screened two groups of pregnant women with the Edinburgh Postnatal Depression Scale at week 25 of gestation [90]. The midwives in one group (study group) were given the scale score; the midwives in the other (control) group did not receive the score. Within the study group, 48 women screened positive for depression, and within the control group, 45 screened positive. The scale was administered again at week 36 of gestation, at which

point fewer pregnant women in the study group screened positive for depression, compared with controls (54 versus 89 percent).

- Indirect evidence – Indirect evidence suggests that screening for antenatal depression is beneficial. A systematic review identified three randomized trials that compared screening for postpartum depression four to eight weeks after delivery with usual care (n >6600 postpartum women), and followed patients for three to five months [76]. 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 (n >6000 postpartum women) each found that among women who were diagnosed with depression, improvement/remission at follow-up was greater in the groups that were screened than controls.

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?” [1,58,94]. For patients who endorse dysphoria or anhedonia, follow-up questions can better define the patient's clinical status, including questions as to whether the patient has intrusive thoughts about harming herself or the baby. Patients who screen positive, either with a screening instrument or a few clinical questions, require a clinical interview to make the diagnosis.

Due to the limited evidence regarding the benefits of screening, some practice guidelines do not endorse universal screening for antenatal depression [95]. As an example, the Canadian Task Force on Preventative Health Care guideline recommends not routinely screening for antenatal depression in primary care settings [96]

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

ASSESSMENT

When to suspect the disorder — The presence of major depression during pregnancy is suggested by the following clues [17,97]:

- Prior history of depression
- Unplanned pregnancy
- Excessive anxiety about the fetus
- Poor self-esteem (eg, excessive concern about one’s ability to be a good mother)

- Despondency
- Anhedonia (eg, lack of interest in pregnancy)
- Inadequate or poor response to support
- Interpersonal problems or domestic violence
- Nonadherence to antenatal care
- Using alcohol, illicit drugs, and tobacco
- Poor weight gain due to decreased appetite and inadequate diet
- Suicidal ideation

Initial evaluation — The initial clinical evaluation of patients with a possible diagnosis of unipolar major depression includes a psychiatric history, mental status examination, general medical history, physical examination, and a basic set of laboratory tests (eg, complete blood count, serum chemistry panels, thyroid stimulating hormone, urinalysis, and urine toxicology screen for drugs of abuse) [98,99]. Additional information about the initial assessment for depression is discussed separately. (See "Unipolar depression in adults: Assessment and diagnosis", section on 'Assessment'.)

For diagnosing major depression, we suggest that the assessment focus upon the five mood and cognitive symptoms of major depression (table 2) [17]:

- Dysphoria (depressed, sad, or anxious)
- Anhedonia
- Worthlessness or excessive guilt
- Impaired concentration and decision making
- Suicidal ideation and behavior

The somatic symptoms of depression – changes in sleep, energy level, and appetite – overlap with changes observed in pregnant women who are not depressed [46]. Focusing more 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'.)

If patients report problems with appetite, energy, and sleep, clinicians can determine whether these problems are due to depression or to normal pregnancy-related changes by evaluating these symptoms in the context of normal expectations for pregnancy. As an example, although food aversions can occur during pregnancy, anorexia that leads patients to lose weight may be a symptom of depression. In the same vein, pregnancy can cause fatigue; however, lack of energy to the point that patients cannot get out of bed for hours is probably a symptom of depression.

Other aspects of the assessment for depression that are important for pregnant patients include [1]:

- Nutrition
- Pregnancy complications
- Attitude towards the pregnancy
- Relationship with partner
- Social circumstances
- Employment and finances
- Housing
- Presence of other children
- Relationships with significant others
- Intimate partner violence (see "Intimate partner violence: Diagnosis and screening")

The initial assessment in the general population of pregnant women is discussed separately. (See "Prenatal care: Initial assessment".)

DIAGNOSIS

Antenatal depression is often not recognized [2,100]. In a pooled analysis of three prospective studies of pregnant women with depression (n = 246), clinicians made the diagnosis in only 50 percent [101]. Thus, we recommend screening for antenatal depression to facilitate diagnosis and treatment. (See 'Screening' above.)

Criteria — The criteria for diagnosing major depression during pregnancy are the same criteria used in the general population (table 2) [12,58]. (See "Unipolar depression in adults: Assessment and diagnosis", section on 'Unipolar major depression'.)

Missing the diagnosis — Major depression in pregnant women is often not recognized, such that approximately 50 to 66 percent of women with antenatal major depression go undiagnosed [2,100], and major depression may be identified less frequently in pregnant women than nonpregnant women [2]. One reason is that the somatic symptoms of depression during pregnancy – changes in appetite, energy, libido, and sleep – may be attributed to normal pregnancy-related changes [46,54,58] (see 'Differential diagnosis' below). In addition, women may be reluctant to report depressive symptoms due to stigma and fear of losing custody of the infant [58,80,102].

Differential diagnosis — Somatic symptoms of major depression (table 2), including changes in sleep, energy level, and appetite, overlap with changes observed in women who are

pregnant but not depressed [7,46]. Depression is distinguished from normal pregnancy changes by focusing upon the five mood and cognitive symptoms of depression, that is, dysphoria, anhedonia, worthlessness or excessive guilt, impaired concentration and decision making, and suicidal ideation and behavior [17].

Additional information about the differential diagnosis of antenatal unipolar major depression, including bipolar major depression (table 5), is discussed separately. (See "Unipolar depression in adults: Assessment and diagnosis", section on 'Differential diagnosis'.)

PATERNAL DEPRESSION

Antenatal depression is common in expectant fathers, but prospective studies suggest that the risk of depression seems comparable for men who are partners of pregnant women and men who are not [103]. As an example, one study enrolled young adult males from the community and interviewed them up to four times over 12 years [104]. After adjusting for potential confounding factors (eg, age, use of alcohol, and financial hardship), the analyses found that the risk of depression was comparable during antenatal periods, compared with pre-antenatal periods. Information about the prevalence of major depression in the general population of men is discussed separately. (See "Unipolar depression in adults: Epidemiology", section on 'Sex'.)

Across studies of antenatal paternal depression, the estimated point prevalence ranges from 2 to 12 percent, depending upon the trimester [105-107]. However, some of the studies may overestimate the true prevalence, because many of the studies identified cases of paternal depression with self-report questionnaires, rather than diagnostic interviews [106,108].

The primary risk factor that has been identified for antenatal paternal depression is antenatal depression in the partner (maternal antenatal depression) [105,106,109,110]. Other risk factors that have been identified include paternal stress and fair to poor health in the expectant father [107].

In studies that have assessed both antenatal paternal depression and postnatal paternal depression, antenatal depression was not associated with adverse outcomes in the offspring, whereas postnatal symptoms were associated with poor outcomes [111].

The assessment, diagnosis, and management of antenatal paternal depression is similar to that for depression in the general population of men. (See "Unipolar depression in adults: Assessment and diagnosis" and "Unipolar major depression in adults: Choosing initial treatment" and "Unipolar depression in adults: Choosing treatment for resistant depression".)

MANAGEMENT

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

The effects of antenatal antidepressant medication upon the fetus and neonatal development are discussed separately.

- (See "Antenatal use of antidepressants and the potential risk of teratogenicity and adverse pregnancy outcomes: Selective serotonin reuptake inhibitors" and "Antenatal use of antidepressants and risks of teratogenicity and adverse pregnancy outcomes: Drugs other than selective serotonin reuptake inhibitors" and "Antenatal exposure to selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs): Neonatal outcomes".)
- (See "Antenatal use of antidepressants and the potential risk of teratogenicity and adverse pregnancy outcomes: Selective serotonin reuptake inhibitors" and "Antenatal use of antidepressants and risks of teratogenicity and adverse pregnancy outcomes: Drugs other than selective serotonin reuptake inhibitors" and "Antenatal exposure to selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs): Neonatal outcomes".)
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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 1). (See "Unipolar minor depression in adults: Epidemiology, clinical presentation, and diagnosis", section on 'Diagnosis'.)

BIPOLAR DEPRESSION

Depression can occur in the context of bipolar disorder, which is marked by episodes of hypomania (table 6) or mania (table 7). Distinguishing bipolar depression from unipolar depression is discussed separately. (See "Bipolar disorder in adults: Assessment and diagnosis", section on 'Unipolar major depression'.)

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: Depression in adults (The Basics)")
- Beyond the Basics topics (see "Patient education: Depression in adults (Beyond the Basics)")

In addition, other sources of educational material regarding the clinical features and treatment of antenatal depression include the following:

- Depression During and After Pregnancy
- Moms' Mental Health Matters
- MotherToBaby

SUMMARY AND RECOMMENDATIONS

- General population surveys in high-income countries estimate that the prevalence of unipolar major depression in pregnant women is 7 to 9 percent. In low- and middle-income countries, the prevalence ranges from 16 to 19 percent. In clinical settings, the prevalence of antenatal depression is approximately 3 to 6 percent. (See 'Epidemiology' above.)

- The primary risk factor for antepartum major depression is a prior history of perinatal or nonperinatal depression. Other risk factors include current anxiety, unintended or unwanted pregnancy, life stress, intimate partner violence and lifetime history of physical and/or sexual abuse, poor social support, and chronic general medical conditions. (See 'Risk factors' above.)

- Although the pathogenesis of depression during pregnancy is unknown, antenatal depression may result from biological determinants (eg, genetic factors and hormonal changes), as well as psychological and social factors. (See 'Pathogenesis' above.)

- The clinical features and course of illness in pregnant women with unipolar major depression generally resemble the features and course observed in the general population of adults with major depression. However, the prevalence rate for suicide in expectant mothers appears to be lower than the low rate in the general population of women. Women with antenatal major depression typically have comorbid psychopathology, such as anxiety disorders, and the rate of comorbidity appears to be roughly comparable in pregnant and nonpregnant women who are depressed. Episodes of antenatal major depression may have their onset prior to pregnancy and can persist beyond childbirth. In addition, women who recover from antenatal depression are at increased risk of suffering another depressive episode after pregnancy. (See 'Clinical features' above.)

- We suggest screening all pregnant women 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). (See 'Screening' above.)

- The presence of major depression during pregnancy is suggested by clues such as excessive anxiety about the fetus, poor self-esteem, anhedonia (eg, lack of interest in pregnancy), poor response to support and reassurance, nonadherence to antenatal care, substance use disorders, poor weight gain, and suicidal ideation. (See 'When to suspect the disorder' above.)

- The initial clinical evaluation of patients with a possible diagnosis of unipolar major depression includes a psychiatric history, mental status examination, general medical

history, physical examination, and a basic set of laboratory tests. For diagnosing major depression, we suggest that the assessment focus primarily upon the five mood and cognitive symptoms of major depression: dysphoria, anhedonia, worthlessness or excessive guilt, impaired concentration and decision making, and suicidal ideation and behavior. (See 'Initial evaluation' above.)

- The criteria for diagnosing unipolar major depression during pregnancy are the same criteria used in the general population (table 2). (See "Unipolar depression in adults: Assessment and diagnosis", section on 'Unipolar major depression'.)
- The differential diagnosis of antenatal unipolar major depression includes antenatal bipolar major depression (table 5). (See 'Differential diagnosis' above and "Unipolar depression in adults: Assessment and diagnosis", section on 'Differential diagnosis'.)
- Antenatal depression is associated with adverse pregnancy outcomes and adverse outcomes in the offspring. (See "Antenatal depression: Pregnancy and neonatal outcomes" and "Antenatal depression: Risks of abnormal infant and child development" and "Antenatal depression: Risks of cognitive impairment and psychopathology in the offspring".)
- Antenatal depression is common in expectant fathers, but the risk of depression seems comparable for men who are partners of pregnant women and men who are not. (See 'Paternal depression' above.)

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