# Postpartum psychosis: Epidemiology, clinical features, and diagnosis

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## INTRODUCTION

During the postpartum time period, females are at an increased risk of the onset or recurrence of psychiatric illness, including mood, anxiety, and psychotic disorders. Postpartum psychosis (or puerperal psychosis) is most often seen in patients that have been or will be diagnosed with bipolar disorder, but can also occur in women with a major depression with psychosis, schizophrenia, or schizoaffective disorder. A subset of women experience isolated postpartum psychosis that does not progress to mood or psychotic episodes outside the postpartum time period [1].

The clinical picture of postpartum psychosis includes rapid onset of psychotic symptoms including hallucinations and delusions, bizarre behavior, confusion, and disorganization that may appear to be delirium. Postpartum psychosis constitutes a medical emergency and generally requires rapid intervention and hospitalization, as well as a comprehensive medical evaluation and psychiatric management.

The epidemiology, pathogenesis, clinical manifestations, course, assessment, and diagnosis of postpartum psychosis are reviewed here. The treatment of postpartum psychosis is discussed separately, as are individual psychotic disorders. The epidemiology, clinical manifestations, assessment, and diagnosis of other serious mental disorders with psychosis are also described separately.

- (See "Treatment of postpartum psychosis".)
- (See "Psychosis in adults: Epidemiology, clinical manifestations, and diagnostic evaluation".)
- (See "Unipolar major depression during pregnancy: Epidemiology, clinical features, assessment, and diagnosis".)
- (See "Bipolar disorder in postpartum women: Epidemiology, clinical features, assessment, and diagnosis".)
- (See "Schizophrenia in adults: Clinical features, assessment, and diagnosis".)
- (See "Psychosis in adults: Epidemiology, clinical manifestations, and diagnostic evaluation".)
- (See "Unipolar major depression during pregnancy: Epidemiology, clinical features, assessment, and diagnosis".)
- (See "Bipolar disorder in postpartum women: Epidemiology, clinical features, assessment, and diagnosis".)
- (See "Schizophrenia in adults: Clinical features, assessment, and diagnosis".)

## DEFINITIONS

Psychosis is a disturbance in an individual's perception of reality. Psychosis can be manifested through one or more of the following:

- Delusions – Fixed, false, idiosyncratic beliefs that are not culturally based.
- Hallucinations – Sensory experiences without physical sensory stimulation including tactile, visual, auditory, gustatory, and olfactory sensations.
- Thought disorganization.
- Disorganized behavior.

## EPIDEMIOLOGY

**Prevalence** — Postpartum psychosis is relatively rare, occurring in 1 to 2 per 1000 births, and is far less common than postpartum blues and postpartum depression [2-5]. A systematic review found low incidence rates ranging from 0.89 to 2.6 per 1000 women [6]. Multiple studies have shown the relative risk of a hospital admission for psychosis to be increased during the first month postpartum (1.09 to 21.7) compared with any other time in a woman's life [2,7,8]. (See

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

**Risk factors** — The risk factors for postpartum psychosis include [3,7,9,10]:

- History of postpartum psychosis – A meta-analysis found a 31 percent relapse rate among females with a history of postpartum psychosis [1].
- Family history of postpartum psychosis.
- History of bipolar disorder, schizophrenia, or schizoaffective disorder – A previous hospitalization for bipolar disorder is strongly predictive of the development of postpartum psychosis [11], and between 25 to 40 percent of deliveries in women with bipolar disorder are affected by postpartum psychosis [10]. A diagnosis of a psychotic disorder prepregnancy is also a strong risk factor for postpartum psychosis, and approximately 20 percent of women with schizophrenia or schizoaffective disorder develop postpartum psychosis [11].

  One study reported risks of postpartum psychosis of [7]:

  - One in seven births in women with a previous history of postpartum psychosis
  - One in four births in women with a history of bipolar disorder
  - One in two births in women with a history of bipolar disorder and a family history of postpartum psychosis
- Family history of bipolar disorder.
- First pregnancy.
- Discontinuation of psychiatric medications for pregnancy [12,13].

In addition, sleep deprivation may play a role in triggering postpartum psychosis; however, the data are mixed. For example, a small study found that a long duration of labor and to nighttime delivery were more common among 17 women diagnosed with postpartum psychosis compared with 17 controls [14]. However, another study did not find a difference in the sleep-wake cycle in 23 women with a history of postpartum psychosis compared with 15 control subjects [15].

## PATHOGENESIS

The etiology of postpartum psychosis is not known, but research points to genetic, immunologic, and hormonal factors. Additionally, sleep deprivation may be a factor in the development of postpartum psychosis. (See 'Risk factors' above.)

- Family studies of women with one or more episodes have found an aggregation of affective disorders, and suggest a familial susceptibility to triggering of psychosis following childbirth [10,16-18].
- Preliminary evidence suggests that normal rapid hormonal changes following childbirth may also play a role in triggering postpartum psychosis [17,19]. No hormonal abnormalities have been demonstrated in women with postpartum psychosis.
- There is evidence that there is dysregulation of the immunoneuroendocrine set point in postpartum psychosis with over-activation of the monocyte and macrophage arm of the immune system [20,21].
- There is no evidence of a link between stressful life events and the development of postpartum psychosis [22].
- An increased risk of postpartum psychosis may be associated with $D_2$ receptor agonists (bromocriptine and cabergoline) used to suppress lactation, particularly in women with pre-existing psychiatric histories [23].

## CLINICAL FEATURES

**Typical symptoms** — Persistent severe insomnia (not related to caring for the newborn) is often the first indication of an incipient postpartum psychosis [16,17].

Symptoms including hallucinations and delusions are usually present, often with thought disorganization and/or bizarre behavior [16,17]. Command auditory hallucinations may be present, instructing the mother to harm the baby or herself. When command hallucinations are present, the individual requires a higher level of care or hospitalization. (See 'Risk of suicide and infanticide' below and "Treatment of postpartum psychosis", section on 'Ensure safety'.)

Symptoms of a mood disorder, such as manic or depressed mood (or both), severe insomnia, rapid mood changes, anxiety, irritability, and psychomotor agitation may be present [16,17].

In some cases, the patient may appear to be delirious (eg, disorientation to person, place, or time), without evidence of cause [16,17,24]. The patient's mental status may fluctuate between

periods of confusion or perplexity and intermittent clearing. (In contrast, psychosis that is not associated with childbirth typically presents without disorientation to person, place, or time.)

Delusions in postpartum psychosis tend to be related to the patient's mood state (eg, in the depressed or mixed state, the woman may believe that the baby is evil or that people are poisoning her).

Delusions in postpartum psychosis typically involve their baby and are less bizarre than typically seen in schizophrenia. In a study of 108 consecutive women hospitalized with postpartum psychosis, 53 percent had delusions about their baby (ie, their baby was "ill fated" or "the devil" or somebody would "take their baby away") [25].

If there is a prior history of psychosis, relapse during pregnancy or postpartum is likely to have a similar presentation. (See "Unipolar major depression during pregnancy: Epidemiology, clinical features, assessment, and diagnosis" and "Bipolar disorder in postpartum women: Epidemiology, clinical features, assessment, and diagnosis".)

The clinical features and diagnostic evaluation of psychosis in adults are discussed in detail separately. (See "Psychosis in adults: Epidemiology, clinical manifestations, and diagnostic evaluation", section on 'Clinical manifestations'.)

**Risk of suicide and infanticide** — In the first year after childbirth, suicide increases 70-fold and is the leading cause of maternal death in the general population [26]. Among women with first-episode postpartum psychosis, a systematic review and meta-analysis reported suicide rates as high as 4 to 11 percent [27], although some studies not included have reported lower rates [28]. Nevertheless, these findings highlight the importance of being clinically aware of the increased risk of suicidality in this population.

Homicidal behavior is rare in postpartum psychosis. Approximately a third of women hospitalized for postpartum psychosis expressed delusions about their infants, and 9 percent had thoughts of harming their infants [29]. Approximately 4 percent of women with postpartum psychosis have been found to commit infanticide [30]. Disorganization and confusion in the mother add to the potential risks for the infant, who should not be left alone in the care of a mother with postpartum psychosis [28]. (See "Treatment of postpartum psychosis", section on 'Ensure safety'.)

## COURSE

Postpartum psychosis most commonly presents within two weeks of childbirth. Episodes of postpartum psychosis can be severe and prolonged. Postpartum psychosis may interfere with maternal-infant bonding, which is also disrupted by inpatient hospitalization of the mother.

Postpartum psychosis has been strongly and consistently associated with bipolar disorder. Its onset in the immediate postpartum period has been shown to significantly predict a subsequent diagnosis of bipolar disorder [31]. Postpartum psychosis can also occur in individuals with a major depression with psychosis, schizophrenia, or schizoaffective disorder, as discussed elsewhere (see 'Risk factors' above). However, 50 percent or more of women with postpartum psychosis have no prior psychiatric history [16,17].

Women experiencing first-episode postpartum psychosis appear to have a high risk of recurrence outside of the postpartum time-period. A systematic review and meta-analysis analyzed the outcomes of 645 patients with a first psychosis episode postpartum with follow-up periods of 11 to 26 years [27]. Three hundred sixty-six (weighted estimate 56.5 percent) experienced one or more subsequent episodes outside of the postpartum period. Forty-six women (weighted estimate 6.1 percent) experienced one or more subsequent episodes exclusively limited to the postpartum time period. Two hundred seventy-nine women (weighted estimate 43.5 percent) did not experience subsequent episodes and were classified as having “isolated postpartum psychosis”.

## SCREENING

Our preference is to screen all females presenting for medical care during pregnancy or postpartum for current mental health problems, a history of psychiatric treatment, and a family history of mental illness.

- Patients screening positive for any of these items should be further assessed for a history of mania or hypomania, psychotic depression, or a psychotic disorder.
- Patients with a family history of psychiatric disorders should be queried further about a family history of hospitalization, suicide, mania, depression, or psychotic disorder.

Patients with a personal or family history of one of these conditions should be educated and monitored during the first weeks of the postpartum period. More intensive monitoring and prophylactic treatment should be considered for patients with a history of bipolar or schizoaffective disorder. (See "Treatment of postpartum psychosis".)

## ASSESSMENT

**Psychiatric evaluation** — In assessing an individual with postpartum psychosis, a psychiatric evaluation will in particular consider the following elements. (See 'Clinical features' above.)

- The onset and course of psychotic symptoms (eg, episodic versus chronic)
- The nature of the affective symptoms (eg, depressed, manic, or mixed state, or not present)
- The presence of passive death wishes, suicidal thoughts, and/or suicidal plans
- The impact of these symptoms on the patient's behavior and functioning
- The patient's history and family history of prior affective or psychotic episodes
- Safety of the child and others under the patient's care
- The presence of a comorbid substance use disorder

**Medical evaluation** — Each patient requires a comprehensive evaluation, including a history, physical examination, and laboratory testing to exclude other medical causes of psychosis. We assess for past or current general medical and psychiatric conditions, current medications, and the use of alcohol and illicit substances in all patients that we are evaluating for possible postpartum psychosis. Our physical examination includes a basic neurologic examination and a mental status evaluation. (See "Psychosis in adults: Epidemiology, clinical manifestations, and diagnostic evaluation", section on 'Diagnostic evaluation'.)

## DIAGNOSIS

Postpartum psychosis (or puerperal psychosis) is often seen in patients with bipolar disorder but can occur in women with a major depression with psychosis, schizophrenia, or schizoaffective disorder. A subset of women experience isolated postpartum psychosis which does not progress to mood or psychotic episodes outside the postpartum time period [1].

**Diagnostic criteria** — The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR) does not classify postpartum psychosis as a distinct diagnostic entity. Instead, patients with postpartum psychosis are assigned a diagnosis based on their primary mental disorder, with the addition of the specifier

"with peripartum onset" if onset of the current episode was during pregnancy or within four weeks postpartum [32].

Examples include:

- Major depressive disorder, with psychotic features, with peripartum onset. (See "Unipolar major depression during pregnancy: Epidemiology, clinical features, assessment, and diagnosis".)
- Bipolar disorder, current episode manic, with psychotic features, with peripartum onset. (See "Bipolar disorder in postpartum women: Epidemiology, clinical features, assessment, and diagnosis".)
- Brief psychotic disorder, with postpartum onset (if the onset is during pregnancy or within four weeks postpartum). (See "Brief psychotic disorder".)

**Differential diagnosis** — Psychosis in the postpartum period can be a symptom of many disorders. We differentiate them by taking a careful history of symptoms and course. In many cases, the etiology is initially tentative and is made after monitoring over time.

**Bipolar disorder** — Females with either postpartum psychosis or bipolar disorder may present with psychosis in the postpartum period [12,13,16,17]. A prior history of mania or hypomania is often a determining factor in distinguishing the disorders. However, for females without a prior history, bipolar disorder is still considered as postpartum may be a first manifestation of bipolar disorder. (See "Bipolar disorder in postpartum women: Epidemiology, clinical features, assessment, and diagnosis".)

Standard clinical questions to identify a history of mania include:

- Have you had any periods of increased energy lasting at least four days? Were they accompanied by elevated or grandiose mood, decreased need for sleep, rapid speech, racing thoughts, or unusual creativity and productivity?

A less direct approach may elicit responses that suggest a previously unidentified hypomania or mania:

- Did other people tell you that you were too active, needed to slow down, or were talking too fast?
- Have you ever been given medication for anxiety or to control your mood? If so, what type of medication?

In addition to the clinical interview, talking with a patient's family members or others in frequent contact with the patient can be critical to getting an accurate history of psychosis, mania, and hypomania, as patients are more likely to recall only their depressive episodes.

A family history of bipolar disorder should increase the suspicion for bipolar disorder in the patient, particularly if presenting with postpartum psychosis.

**Schizoaffective disorder** — A past history of psychosis or affective psychosis is often a determining feature in the differentiation of schizoaffective disorder from postpartum psychosis. Additionally, the development of chronic or intermittent symptoms of psychosis with mood symptoms is seen in schizoaffective disorder. (See "Psychosis in adults: Epidemiology, clinical manifestations, and diagnostic evaluation", section on 'Primary psychiatric causes and their differentiation'.)

**Schizophrenia** — Approximately 20 to 25 percent of patient with schizophrenia will relapse during the postpartum time period [7,11,33,34]. Individuals are diagnosed with schizophrenia if they have six months of continuous signs of the disturbance including one month of active symptoms (eg, disorganized behavior or speech, delusions hallucinations), and a decline in major areas of work, interpersonal relations or self-care.

**Major depression with psychotic features** — This condition can present up to several months after delivery. The psychotic features occur in conjunction with severe depressive symptoms. The psychosis commonly takes the form of paranoid delusions of persecution. Neither hallucinations nor agitation are common. Psychotic depression is often preceded by longstanding untreated postpartum depression. Clinically, it is then referred to as "late-onset postpartum psychosis." (See "Unipolar major depression during pregnancy: Epidemiology, clinical features, assessment, and diagnosis" and "Unipolar major depression with psychotic features: Epidemiology, clinical features, assessment, and diagnosis".)

**Brief psychotic disorder with postpartum onset** — This is a disturbance that involves the sudden onset of delusions, hallucinations, or disorganized speech during pregnancy or within four weeks postpartum. The duration of the episode is at least one day but less than one month with full return to premorbid level of functioning. (See "Brief psychotic disorder".)

**Substance use disorders** — Self-medication with drugs (including prescription drugs) and alcohol is a common complication of mood disorders, even in pregnant and postpartum women. Women with a prior history of a substance use disorder are at risk of relapse when they develop antepartum and postpartum mood disturbances. Psychosis can present as the result of substance intoxication or withdrawal. Patient assessment should include a review of the patient’s prescription medications, herbal preparations, dietary supplements, and over-the-

counter medications. Serum and urine toxicology should be conducted. (See "Alcohol intake and pregnancy" and "Substance use during pregnancy: Screening and prenatal care" and "Screening for unhealthy use of alcohol and other drugs in primary care", section on 'Pregnancy'.)

**Psychosis due to general medical conditions** — Potential general medical causes of psychosis are numerous. Possible etiologies and their evaluation are described below [35,36] (see "Psychosis in adults: Epidemiology, clinical manifestations, and diagnostic evaluation", section on 'Determining the etiology'):

- Infectious diseases (eg, mastitis, endometritis, cellulitis) – Check complete blood count with differential and perform physical examination.
- Metabolic encephalopathy/delirium – Check basic serum electrolytes, glucose, complete blood count with differential, blood urea nitrogen and creatinine, liver function tests, urinalysis, and oxygen saturation. Rule out eclampsia, autoimmune encephalitis, and drug-induced psychosis [36].
- Endocrine dysfunction (eg, thyroid disease) – Check basic serum electrolytes (including calcium), thyroid stimulating hormone, thyroperoxidase antibodies, and thyroid function tests. Autoimmune thyroid disease was found in 19 percent of women presenting with postpartum psychosis compared with 5 percent of a control postpartum group [36], and primary hypoparathyroidism has also been described [37].
- Central nervous system events (eg, stroke, neoplasms or trauma) – Perform neurologic examination; head computed tomography or magnetic resonance imaging if focal neurologic findings.

Findings indicating a general medical cause of psychosis do not rule out the possibility of a comorbid primary psychiatric condition contributing to the psychosis and requiring treatment.

Although the primary treatment of a general medical condition causing psychosis is determined by the underlying disease, antipsychotic medication can reduce psychotic symptoms and agitation while the evaluation is underway. (See "Treatment of postpartum psychosis".)

## 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: Psychotic disorders" and "Society guideline links: Postpartum care".)

## SUMMARY


- **Epidemiology** – Postpartum psychosis (or puerperal psychosis) is relatively rare, occurring in 1 to 2 out of every 1000 births, and is far less common than postpartum blues and postpartum depression. The risk of postpartum psychosis increases to one in seven births in women with a previous history of postpartum psychosis, one in four births in women with a history of bipolar disorder, and one in two births in women with a history of bipolar disorder and a family history of postpartum psychosis. (See 'Epidemiology' above.)

- **Clinical manifestations** – Postpartum psychosis most commonly presents within two weeks of childbirth. Hallucinations and delusions are usually present, often with thought disorganization and/or bizarre behavior. These symptoms are typically accompanied by symptoms of a mood disorder, such as manic or depressed mood (or both), severe insomnia (often the first indication), rapid mood changes, anxiety, irritability, and psychomotor agitation. (See 'Clinical features' above.)

- **Course** – Postpartum psychosis most commonly presents within two weeks of childbirth. Episodes of postpartum psychosis can be severe and prolonged. Postpartum psychosis may interfere with maternal-infant bonding, which is also disrupted by inpatient hospitalization of the mother.

  Postpartum psychosis has been strongly and consistently associated with bipolar disorder. Many patients with postpartum psychosis ultimately are diagnosed with an underlying psychiatric disorder (mainly bipolar disorder). A subset of women experience isolated postpartum psychosis which does not progress to mood or psychotic episodes outside the postpartum time period. (See 'Course' above.)

- **Risk of suicide or infanticide** – In the first year after childbirth, suicide increases 70-fold and is the leading cause of maternal death in the general population. Homicidal behavior is uncommon in postpartum psychosis; however, disorganization and confusion in the mother add to the potential risk to the infant who should not be left alone in the care of a mother with the disorder. (See 'Risk of suicide and infanticide' above and "Treatment of postpartum psychosis", section on 'Ensure safety'.)

- **Screening** – We screen all females presenting for medical care during pregnancy or postpartum for current mental health problems, a history of psychiatric treatment, and a family history of mental illness. Patients with a personal or family history of one of these conditions should be educated and monitored during the first weeks postpartum. More

intensive monitoring and prophylactic treatment should be considered for patients with a history of bipolar or schizoaffective disorder. (See 'Screening' above.)

- **Differential diagnosis** – We rule out other disorders that may have similar presentation. We consider bipolar disorder, schizoaffective disorder, schizophrenia, major depression, brief psychotic disorder, and psychosis due to medical condition or substance use as part of the differential diagnosis in all patients presenting with postpartum psychosis.



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