FEMALE HORMONES, PREGNANCY, POSTPARTUM AND MENTAL HEALTH

WOMEN AND MENTAL HEALTH

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ABSTRACT

Gender has a significant impact on the development and presentation of mental illness and the overall mental health of individuals. It affects how mental illness develops and the treatment plan. Socioeconomics, social status and power differences influence gender roles as well as stigma related to mental illness and access to treatment. Diagnostic strategies to identify mental illness in women and to determine the best treatment plan needs to include improved access to therapy and medication as well as follow up.

Policy Statement

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This educational activity is credited for 3 hours. Pharmacology hours include 1 hour. Nurses may only claim credit commensurate with the credit awarded for completion of this course activity.

Statement of Learning Need

Studies are underway to better understand how gender and other influencing factors impact mental health in the general population. Health care researchers and clinicians need to understand how trauma, abuse and other socio-economic factors affect mental health in women. More efforts are needed to help understand stigma in the context of women's mental health, and barriers to accessing psychiatric care.

Course Purpose

To provide health clinicians with knowledge about women and mental health issues, common disorders, treatments as well as stigma and barriers to accessing psychiatric care.

Target Audience

Advanced Practice Registered Nurses and Registered Nurses

(Interdisciplinary Health Team Members, including Vocational Nurses and Medical Assistants may obtain a *Certificate of Completion*)

Course Author & Planning Team Conflict of Interest Disclosures

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There is no commercial support for this course.

Please take time to complete a self-assessment of knowledge, on page 4, sample questions *before* reading the article.

Opportunity to complete a self-assessment of knowledge learned will be provided at the end of the course.

1. **_____ is severe and persistent depression in a woman that sets in within one month after she gives birth.**

    a. Tomber enceinte
    b. Postpartum depression
    c. Postpartum blues
    d. Pseudocyesis

2. **The least severe type of depression that occurs after a woman gives birth is called**

    a. postpartum psychosis.
    b. postpartum blues.
    c. postpartum depression.
    d. bipolar depression.

3. **True or False: In general, the SSRIs, specifically fluoxetine, citalopram, and sertraline, are the antidepressants most commonly used during pregnancy.**

    a. True
    b. False

4. **Atypical antipsychotic agents are commonly used to manage the acute symptoms of bipolar disorder as well as for maintenance treatment. _____ studies thus far have indicated teratogenic risk associated with this class of medications.**

    a. Large scale
    b. Limited
    c. No
    d. Double-blinded

5. **In the development of postpartum psychiatric illnesses, research studies have identified a connection between its development and women who**

    a. experienced separation from their primary parent as an infant.
    b. lack appropriate social supports.
    c. report dissatisfaction with their marital situations.
    d. Answers b., and c., above

Introduction

Many women experience hormonal and emotional changes during the time of menstruation and menopause. A majority of women experience noticeable psychological symptoms during menstruation, and most women report unpleasant psychological symptoms during menopause. Some women will experience more severe physical and psychological symptoms associated with changes in their menstrual cycle and during child birth than others. For these women, they will need support from clinicians to develop a better understanding of the impact hormones have during the lifespan. As hormones change and affect mood and everyday functions in women, there can be significant outcomes to a woman's quality of life.

Premenstrual Dysphoric Disorder And Mood Changes

It is approximated that seventy-five percent of women experience premenstrual syndrome. Premenstrual syndrome can range from mild to severe and will affect each woman differently. There are more than 150 physical, behavioral, emotional, and cognitive symptoms attributed to premenstrual syndrome (PMS) in the health literature. In reality, most patients do not manifest as many symptoms. The most common symptoms of premenstrual syndrome include depression, anger, irritability, anxiety, sensitivity to rejection, sense of feeling overwhelmed, and social withdrawal. In addition to psychological symptoms, many women will also experience physical symptoms, which fatigue, sleep disturbance, increased appetite, abdominal bloating, breast tenderness, headaches (sometimes known as menstrual migraines), muscle aches and joint pain, and swelling of the extremities.[31,32]

Women who experience severe and often debilitating symptoms associated with menses can show erratic, impulsive behavior that is inconsistent with "normal" premenstrual syndrome. Premenstrual Dysphoric Disorder (PMDD) affects approximately three to eight percent of women who are of childbearing age. The most common symptoms of PMDD include severe irritability, depression, anxiety, and mood swings.

It is important to note that PMDD is not the same as standard premenstrual syndrome, as the symptoms are much more severe and impact the patient's ability to function. Many women who suffer from PMDD will require medication to alleviate the symptoms and balance out their hormones. Therefore, it is important to properly diagnose PMDD. The first step in diagnosis is for the patient to track symptoms for a few months to identify the severity and patterns of the symptoms. Once the patient has tracked her symptoms, the clinician will use a prospective scale, such as the Calendar of Premenstrual Experience or the Prospective Record of the Severity of Menstruation, to determine if the symptoms are severe and consistent enough to warrant a diagnosis of PMDD.

The exact cause of PMDD is not known. However, recent research has linked PMDD to specific hormonal changes that occur during menstruation. Specifically, researchers have found a connection between reduced serotonin levels and the onset of PMDD. The brain cells that rely on serotonin are responsible for controlling mood, attention, sleep, and pain. Therefore, when serotonin levels are significantly reduced, the patient experiences negative symptoms associated with these functions of the body.[33]

Menopause And Mood

Most women will experience physical and physiological changes with the onset of menopause. The hormonal fluctuations that occur during this phase are often significant enough to have an impact on the overall mental health of the patient. Many women will experience a change in mood and feelings, including anxiety and mental discomfort. While most psychological effects are caused by hormonal fluctuations, some will be caused by the change itself. Many women have difficulty coping with the physical changes that come with menopause, which can lead to depressive states.

A number of women will experience depression during perimenopause as well as throughout menopause. In the stage where the body prepares for the transition to menopause, which can occur up to eight years before the onset of menopause, hormonal fluctuations may cause women to experience depressive symptoms. For some women, the depression will be significant. In most instances, the depression will last until a year or two after the woman has stopped menstruating.

Research studies has found that depressed, post-menopausal females may respond differently to antidepressants compared to pre-menopausal females. Atypical antipsychotic medication, such as lurasidone, with a different mechanism of action than selective serotonin reuptake inhibitors (SSRIs) and other standard antidepressants, has been shown in randomized, flexible-dose, placebo-controlled study studies to be effective in treating major depressive disorder (MDD) with mixed features (subthreshold hypomanic symptoms). This expands the pharmacological treatment that clinicians can use for major depression, especially where SSRIs may have been partially remitting or failed efficacy.[34]

Pregnancy And Mental Illness

A number of women will experience mental health issues during pregnancy and the postpartum period. A significant number of women will experience mood or anxiety disorders, and will often experience the conditions concurrently. In some instances, women will have a pre-existing condition that is exacerbated by pregnancy and postpartum hormones, while other women will experience these conditions after without a pre-pregnancy diagnosis.

Many women with pre-existing mental health conditions will discontinue pharmacologic treatment during pregnancy to reduce the risk of the fetal exposure to the medications. In fact, some medications are too harmful to be taken during pregnancy. In these situations, the woman will often experience an increase in symptoms that may extend beyond the pregnancy. However, this may not be the best or safest option for some patients. In some instances, the psychiatric condition may be more detrimental to the mother and child than the treatment. In those situations, the risk and benefit of each course of action must be considered before making a decision.

Common Psychiatric Disorders During Pregnancy

The two most common disorders experienced in pregnancy (not including those that were present prior to pregnancy) are anxiety and depression. Approximately thirty percent of women experience depression and/or anxiety during pregnancy. The severity of the symptoms can range from mild to severe. In mild cases, women can manage their symptoms with therapy, environmental manipulation, exercise, social support networks, support groups, and other non-pharmacologic therapies. In more severe

cases, patients will typically require professional psychotherapy, pharmacologic therapy, and inpatient or outpatient treatment.[9,10,20-22]

There are a number of symptoms that appear when a woman experiences depression during pregnancy. The first and most indicative symptom is a depressed mood that lasts throughout the day and extends beyond two weeks in duration. Women also experience a loss of interest in everyday activities and feel little pleasure in activities that would normally be enjoyable. In addition, the patient may experience one or more symptoms of fatigue or lack of energy, restlessness or feeling slowed down, feelings of guilt or worthlessness, difficulty concentrating, trouble sleeping or sleeping too much, and recurrent thoughts of death or suicide. If left untreated, severe depression can pose a risk to the mother and her fetus. Symptoms will often extend into the postpartum period and can negatively affect the health of the mother and child.

Many women will experience anxiety during pregnancy. In some cases, the woman will have a pre-existing condition that is enhanced during pregnancy. In other instances, the patient will experience a pregnancy-induced case of anxiety. In these instances, it is common for the woman to present with either panic disorder, obsessive-compulsive disorder, or generalized anxiety disorder. During pregnancy exams, it is important to conduct a thorough mental assessment to identify any signs of anxiety in the patient. Common anxiety symptoms include panic attacks, hyperventilation, repeated thoughts or images of frightening things happening to the baby, excessive worry, and restless sleep.

Medication During Pregnancy And Postpartum Period

In instances of depression and anxiety, pharmacologic treatment is often necessary to manage the symptoms. However, many of these medications can be detrimental during pregnancy and the post-partum period as they can pose a risk to the fetus and/or newborn child. In fact, there are currently no medications that are approved for use during pregnancy. In some women with a mental health disorder, they may require pharmacologic intervention during pregnancy and the post-partum period. In these situations, it is necessary to weigh the benefits against the risks. With exposure to psychiatric medications, the risk of developing teratogenesis (congenital malformations) is very high. The deformities can include cleft lip or palate, or major deformations of the organs in the fetus. The following table describes the medication exposure risks that occur during pregnancy.[9-12,20-22,28]

Teratogenesis	The baseline incidence of major congenital malformations in newborns born in the United States is estimated to be between 2 and 4%. During the earliest stages of pregnancy, formation of major organ systems takes place and is complete within the first 12 weeks after conception. Therefore, discussion around risks of exposures during pregnancy may be broken down, by the timing of exposure or trimester, with particular vigilance around first trimester exposures. A teratogen is defined as an agent that interferes with the in utero development process and produces some type of organ malformation or dysfunction. For each organ or organ system, there exists a critical period during which development takes place and is susceptible to the effects of a teratogen. For example, neural tube folding and closure, forming the brain and spinal cord, occur within the first four weeks of gestation. Most of the formation of the heart and great vessels takes place from four to nine weeks after conception, although the entire first trimester is often considered pertinent.

Neonatal Symptoms	Neonatal toxicity or perinatal syndromes (sometimes referred to as neonatal "withdrawal") refer to a spectrum of physical and behavioral symptoms observed in the acute neonatal period that can be attributed to drug exposure at or near the time of delivery. Anecdotal reports that attribute these syndromes to drug exposure must be cautiously interpreted, and larger samples studied in order to establish a causal link between exposure to a particular medication and a perinatal syndrome.
Long-Term Effects	Although the data suggest that some medications may be used safely during pregnancy if clinically warranted, our knowledge regarding the long-term effects of prenatal exposure to psychotropic medications is incomplete. Because neuronal migration and differentiation occur throughout pregnancy and into the early years of life, the central nervous system (CNS) remains particularly vulnerable to toxic agents throughout pregnancy. While exposures to teratogens early in pregnancy may result in clear abnormalities, exposures that occur after neural tube closure (at 32 days of gestation) may produce more subtle changes in behavior and functioning. Behavioral teratogenesis refers to the potential of a psychotropic drug administered during pregnancy to have long-term neurobehavioral effects. To date, few studies have systematically investigated the impact of exposure to psychotropic medications in utero on human development and behavior, such as the risk for cognitive or behavioral problems later in the development of children exposed to an antidepressant medication in utero.

There are also a number of complications that can occur during the postpartum period. If a woman is breastfeeding, the risk of transmitting the medication through the breast milk is high. The following table includes a list of the most common medications used to treat mental health issues, as well as their potential complications (during pregnancy and while breast feeding).

Anti-depressants	A relatively small number of cases of first trimester exposure to antidepressants have been reported, but these reports have suggested no increased risk of birth defects. Since there have probably been millions of cases of accidental first trimester exposure in the over thirty years of treatment with tricyclic antidepressants, the lack of reports suggesting teratogenicity is encouraging. Several studies that compared tricyclic antidepressants and SSRIs (selective serotonin reuptake inhibitors) did not demonstrate an increased risk of congenital malformation. Prozac is the most prescribed antidepressant in the United States and has been the most researched. Data collected from over 2500 cases indicate no increase in risk of major congenital malformation in exposed infants. Studies of other specific SSRI medications carry the same results but have not been researched as extensively. MAOIs (monoamine oxidase inhibitors) are generally not used during pregnancy because they require dietary restrictions, potentially compromising the mother's nutritional status, affecting blood pressure, and adversely reacting with terbutaline (used to suppress premature labor). Recent studies have suggested that exposure to SSRIs at the time of delivery may be associated with poor perinatal outcomes. Several studies have reported increased rates of admission to the special care nursery among SSRI-exposed infants. The most commonly reported symptoms in the newborns include tremor, restlessness, increased muscle tone, and increased crying. These symptoms, however, resolve within 1 to 4 days after birth without any specific medical intervention. The best long-term study of antidepressant-exposed fetuses followed 80 cases up to age seven. When compared to a control group without any exposure to antidepressants during pregnancy, the exposed children showed no significant differences in IQ, temperament, behavior, reactivity, mood, distractibility, or activity level. Of all the antidepressants, fluoxetine is the best-characterized antidepressant. Data collected from over 2500 cases indicate no increase in risk of major congenital malformation in fluoxetine-exposed infants. One prospective study of 531 infants with first trimester exposure to SSRIs (mostly citalopram) did not demonstrate an increased risk of organ malformation.

	Several meta-analyses combining studies with exposures to SSRIs do not demonstrate an increase in risk of congenital malformation in children exposed to these antidepressants, with the exception of paroxetine. There has been particular controversy around paroxetine use in pregnancy, as past reports have suggested that first trimester exposure to paroxetine was associated with an increased risk of cardiac defects including atrial and ventricular septal defects. Other published studies have not demonstrated increased teratogenicity of paroxetine. Importantly, independently conducted meta-analyses of available data sets have consistently found a lack of association between paroxetine exposure and cardiovascular malformations. Even so, these findings prompted the FDA to change the category label of paroxetine from C to D. Three prospective and more than ten retrospective studies have examined the risk of organ malformation in over 400 cases of first trimester exposure to tricyclic antidepressants. When evaluated on an individual basis and when pooled, these studies do not indicate a significant association between fetal exposure to TCAs and risk for any major congenital anomaly. Among the TCAs, desipramine and nortriptyline are often preferred since they are less anti-cholinergic and the least likely to exacerbate orthostatic hypotension that occurs during pregnancy. Bupropion may be an option for women who have not responded to fluoxetine or a tricyclic antidepressant, as data thus far have not indicated an increased risk of malformations associated with bupropion use during pregnancy. The most recent information from the Bupropion Pregnancy Registry suggested a 3.9% risk of congenital malformation that is consistent with what is observed in women with no known teratogen exposure. While the overall risk of malformation is reassuring, earlier reports had revealed an unexpectedly high number of malformations of the heart and great vessels in bupropion-exposed infants. A retrospective cohort study including over 1200 infants exposed to bupropion during the first trimester did not reveal an increased risk of malformations in the bupropion-exposed group of infants nor did it demonstrate an increased risk for cardiovascular malformations. Scant information is available regarding the reproductive safety of monoamine oxidase inhibitors (MAOIs), and these agents are generally not used in pregnancy as they may produce a hypertensive crisis when combined with tocolytic medications, such as terbutaline.

	With regard to the newer antidepressants, prospective data on 150 women exposed to venlafaxine during the first trimester of pregnancy suggest no increase in risk of major malformation as compared to non-exposed controls. To date, the literature does not include prospective data on the use of duloxetine. Another prospective study assessed outcomes in 147 women taking either nefazodone or trazodone during their first trimester of pregnancy and compared them to two control groups of women exposed to either non-teratogenic drugs or to other antidepressants. There were no significant differences among exposed and non-exposed groups with regard to rates of congenital malformations. In another report, there were no differences in malformation rates among women who took mirtazapine during pregnancy as compared to women who took other antidepressants or controls exposed to known non-teratogens. While these initial reports are reassuring, larger samples are required to establish the reproductive safety of these newer antidepressants. In general, the SSRIs, specifically fluoxetine, citalopram, and sertraline, are the antidepressants most commonly used during pregnancy. Several recent studies have suggested that exposure to SSRIs near the time of delivery may be associated with poor perinatal outcomes. Attention has focused on a range of transient neonatal distress syndromes associated with exposure to (or withdrawal from) antidepressants in utero. These syndromes appear to affect about 25% of babies exposed to antidepressants late in pregnancy. The most commonly reported symptoms in the newborns include tremor, restlessness, increased muscle tone, and increased crying. Reassuringly, these syndromes appear to be relatively benign and short-lived, resolving within 1 to 4 days after birth without any specific medical intervention. These studies deserve careful consideration, yet one of the major shortcomings is that most have failed to use raters blinded to the mother's treatment status. The decision to admit a newborn to a special care nursery may represent a reasonable precaution for an infant exposed to medication in utero and may not be an indication of a serious problem. Another limitation is that few studies have attempted to assess maternal mood during pregnancy or at the time of delivery. There is ample evidence to suggest that depression or anxiety

	in the mother may contribute to poor neonatal outcomes, including premature delivery and low birth weight, and it is important to evaluate the contribution of maternal mood to neonatal outcomes. Based on these findings, many women are advised to taper or discontinue treatment with SSRIs prior to delivery; however, this strategy has not been shown to change neonatal outcomes. Importantly, neonatal effects have been reported with both untreated mood and anxiety disorders, as well as with medication, and limited studies have adequately teased out these variables. One important consideration is that discontinuation of or reductions in the dosage of medication in the latter part of pregnancy may increase the risk of postpartum depression. The postpartum period is a time of increased vulnerability to psychiatric illness and depression or anxiety during pregnancy has been associated with postpartum depression. Another concern has been that maternal SSRI use may be associated with a higher than expected number of cases of persistent pulmonary hypertension of the newborn (PPHN). In one report, the use of an SSRI antidepressant after the 20th week of gestation was significantly associated with a six-fold greater risk of PPHN. If we assume that these findings are correct, the risk is still relatively small; the authors estimate the risk of PPHN to be less than 1% in infants exposed to SSRIs in utero. Since the initial report on this topic, three studies have found no association between antidepressant use during pregnancy and PPHN, and one study showed a much lower risk than the 1% originally reported. These findings taken together bring into question whether there is an association at all and suggest that, if there is a risk, it is much lower than that reported in the original 2006 report. To date, two studies have systematically investigated the impact of exposure to antidepressants in utero on human development and behavior. The first of these studies followed a cohort of 135 children who had been exposed to either tricyclic antidepressants or fluoxetine during pregnancy (most commonly during the first trimester) and compared these subjects to a cohort of non-exposed controls. Results indicated no significant differences in IQ, temperament, behavior, reactivity, mood, distractibility, or activity level between exposed and non-exposed children followed up to 7 years of age. A more recent report from the same group that followed a cohort of children exposed to fluoxetine or tricyclic

	antidepressants for the entire duration of the pregnancy yielded similar results. The authors concluded that their findings support the hypothesis that fluoxetine and tricyclic antidepressants are not behavioral teratogens and do not have a significant effect on cognitive development, language or behavior. Data suggests that using tricyclic antidepressants, fluoxetine, paroxetine, and sertraline during breastfeeding exposes the infant to low amounts of the drug and complications in the infant appear to be rare. Accumulated data regarding the use of SSRIs have been reassuring, showing that the typical serum levels of the medication in the infant have either been very low or undetectable.
Mood Stabilizers	Maintenance treatment with a mood stabilizer can significantly reduce the risk of relapse in pregnant women with bipolar disorder. However, many of the medications commonly used carry some teratogenic risk. First trimester exposure to lithium has been associated with an increased risk of cardiovascular malformation between .05% and .1%. Prenatal exposure to valproic acid can increase the risk of fetal malformation by up to 4%. There is limited information on the reproductive safety of other newer anticonvulsants. There is, however, increased support for the reproductive safety of lamotrigine. Of 360 children exposed to lamotrigine alone, 2.8% had a major malformation, which is within the range of 2 to 4% observed in women with no exposure to toxic agents. For women with bipolar disorder, maintenance treatment with a mood stabilizer during pregnancy can significantly reduce the risk of relapse. However, many of the medications commonly used to treat bipolar disorder carry some teratogenic risk when used during pregnancy. Concerns regarding fetal exposure to lithium have typically been based on early reports of higher rates of cardiovascular malformations (*i.e.*, Ebstein's anomaly) following prenatal exposure to this drug. More recent data suggest the risk of cardiovascular malformations following first trimester exposure to lithium is smaller than previous assessments and is estimated to be between 1 in 2000 (0.05%) and 1 in 1000 (0.1%). Compared to lithium, prenatal exposure to some anticonvulsants is associated with a far greater risk for organ malformation. First trimester use of carbamazepine has been associated with a 1% risk of neural tube defect. Of all of the medications used for psychiatric disorders, the one with the greatest potential of serious birth defects is valproic

	acid. Factors that appear to increase the risk for teratogenesis include higher maternal serum anticonvulsant levels and exposure to more than one anticonvulsant. With a risk of neural tube defect ranging from 1 to 6%, valproic acid is often considered one of last resort to treat mood disorders in reproductive aged women, since the risk for teratogenicity is high in very early pregnancy, before many women realize they are pregnant. Prenatal exposure to valproic acid has also been associated with characteristic craniofacial abnormalities, cardiovascular malformation, limb defects and genital anomalies, as well as other central nervous system structural abnormalities. Valproic acid exposure during pregnancy has been associated with poorer neurocognitive development in children followed to three years of age. In the same study, lamotrigine use did not affect neurocognitive development. While other anticonvulsants are being used more frequently in the treatment of bipolar disorder, there is limited information on the reproductive safety of these newer anticonvulsants, specifically gabapentin, oxcarbazepine, tigabine, levetiracetam, zonisamide. One report has raised concerns regarding potential teratogenicity of topiramate. However, there is a growing body of information the reproductive safety of lamotrigine, and this may be a useful alternative for some women. The International Lamotrigine Pregnancy Registry in 1992 was developed to monitor pregnancies exposed to lamotrigine for the occurrence of major birth defects. Data from the Registry did not show an elevated risk of malformations associated with lamotrigine exposure. Other data from the North-American Anti-Epileptic Drug Registry indicates the prevalence of major malformations in a total of 564 children exposed to lamotrigine monotherapy was 2.7%; however, five infants had oral clefts, indicating a prevalence rate of 8.9 per 1000 births. In a comparison group of 221,746 unexposed births, the prevalence rate for oral clefts was 0.37/1000, indicating a 24-fold increase in risk of oral cleft in infants exposed to lamotrigine. However, other registries have not demonstrated such a significant increase in risk for oral clefts. It is important to put this risk into perspective. If we assume that the findings from the North American registry are true, the absolute risk of having a child with cleft lip or palate is about 0.9%. Atypical antipsychotic agents are commonly used often to manage the acute symptoms of bipolar illness, as well as for

	maintenance treatment. While the data regarding the reproductive safety of these newer agents is limited, no studies thus far have indicated any teratogenic risk associated with this class of medications. For this reason, some women may choose to use an atypical antipsychotic agent during pregnancy (especially during the first trimester) in order to avoid using a known teratogen, such as lithium or valproic acid. There have been reports of toxicity in nursing infants related to exposure to various mood stabilizers. Lithium is excreted in high levels in the breast milk and nursing infants experience large exposures. Signs of toxicity in the infant have included cyanosis, poor muscle tone, and hypothermia. The lowest possible effective dosage should be used along with close monitor of the infant's condition. There have also been concerns regarding the use of carbamazepine and valproic acid. Both medications have been associated with liver function abnormalities in adults and in some cases, hepatotoxicity. The risk of hepatotoxicity is greatest in children under the age of two, so infants exposed to these medications might be especially vulnerable. The American Academy of Pediatrics, however, has deemed both medications to be appropriate for use in breastfeeding mothers.
Anti-Anxiety Medications	Benzodiazepines are commonly prescribed to people suffering from anxiety disorders. Older studies suggest that there may be an increased risk of cleft lip and palate amounting to .7%, but these results have been widely debated. If correct, the likelihood that a woman exposed to benzodiazepines during the first trimester will give birth to a child with this congenital anomaly remains less that 1%. Benzodiazepines are also associated with prenatal syndrome, including feeding problems, hypothermia, and deficiency in baby's muscle tone. No systematic data are available on the reproductive safety of other, non-benzodiazepine anxiolytic agents and hypnotic agents, therefore their use during pregnancy is not recommended. The consequences of prenatal exposure to benzodiazepines have been debated for over twenty years. Three prospective studies support the absence of increased risk of organ malformation following first trimester exposure to benzodiazepines. More controversial has been the issue of whether first trimester exposure to benzodiazepines increases risk for specific

	malformations. Initial reports suggested that there might be an increased risk of cleft lip and palate, however, more recent reports have shown no association between exposure to benzodiazepines and risk for cleft lip or palate. This risk – if it exists — is calculated to be 0.7%, approximately a ten-fold increase in risk for oral cleft over that observed in the general population. Nonetheless, the likelihood that a woman exposed to benzodiazepines during the first trimester will give birth to a child with this congenital anomaly, although significantly increased, remains less than 1%. Currently, no systematic data are available on the reproductive safety of non-benzodiazepine anxiolytic agents such as buspirone and hypnotic agents zolpidem and zalepion. Therefore, these medications are not recommended for use in pregnancy. Anti-Anxiety Agents: Data suggests that the use of benzodiazepines exposes the nursing infant to low levels of medication and indicates a relatively low incidence of adverse events. The studies conducted have been limited, however, and further research is needed to make these claims more certain.
Anti-Psychotic Medications	High-potency antipsychotics, like Haldol, are effective schizophrenia and bipolar medications. Recent studies have shown no increased risk to fetus or baby and are recommended for used during pregnancy for high-risk patients. Low-potency neuroleptic agents, however, are associated with higher risks of congenital malformations after first trimester exposure and are not recommended. There is not enough data to identify the effects of atypical antipsychotics on the fetus and are not recommended. Recent studies have not demonstrated teratogenic risk associated with high-or medium-potency neuroleptic medications; however, a recent meta-analysis of the available studies noted a higher risk of congenital malformations after first trimester exposure to low-potency neuroleptic agents. In clinical practice, higher potency neuroleptic agents such as haloperidol, perphenazine, and trifluoperazine are recommended over the lower potency agents in managing pregnant women with psychiatric illness. Atypical antipsychotic medications are increasingly being used to treat a spectrum of psychiatric disorders, including psychotic disorders and bipolar disorder, as well as treatment refractory depression and anxiety disorders. The first and largest published prospective study on the reproductive safety of the atypical agents provided reassuring

	data regarding the risk of malformations in the first trimester, although aripiprazole was not among the medications studied. Investigators prospectively followed a group of 151 women taking olanzapine, risperidone, quetiapine, or clozapine and compared outcomes to controls without exposure to known teratogens. The study showed that there were no differences between the study groups in terms of risk for major malformations, or rates of obstetrical or neonatal complications. While this information is reassuring, it is far from definitive, and larger studies are required to provide more information about the reproductive safety of these medications. To this end, the National Pregnancy Registry has been created to prospectively gather information regarding outcomes in infants exposed in utero to these newer atypical antipsychotic medications. The U.S. Food and Drug Administration (FDA) recently updated labels for the entire class of antipsychotic drugs to include warnings regarding the use of antipsychotic drugs (both the typical and atypical agents) during pregnancy. The new drug labels now contain more details on the potential risk for abnormal muscle movements (extrapyramidal signs or EPS) and withdrawal symptoms in newborns exposed to these drugs during the third trimester of pregnancy. The FDA recommendations, derived from adverse event (AE) reporting may signal a potential problem, but do not yield accurate information regarding the prevalence of AE. In mother's who breastfeed, information regarding these medications is limited. The use of chlorpromazine has been associated with AE including sedation and developmental delay. These events seem to be rare when medium/high-potency medications are used instead. Less data is available on atypical anti-psychotic medications.

Postpartum Period and Mental Illness

It is quite common for women to experience some type of mood disturbance during the postpartum period. Postpartum depression may occur at any time after delivery but it typically emerges in the first four weeks. In fact, approximately eighty-five percent of women will experience some sort of

disturbance in the weeks following birth. In most instances, the symptoms are mild and do not cause a significant disruption to the woman's life. However, approximately fifteen percent of women will experience more severe cases of depression or anxiety. These women will exhibit symptoms that typically cause disruption to their lives and affect everyday functions. The postpartum psychiatric illnesses are divided into three categories ranging from least severe to most severe, starting with the least severe, postpartum blues, then postpartum depression, and the most severe, postpartum psychosis.

While it is common for women to experience some level of postpartum blues within the first few weeks of giving birth, in most instances the symptoms resolve themselves quickly and cause little disruption to their daily lives. These mild shifts are caused by hormonal changes that occur immediately after birth. In the forty-eight hours immediately following delivery, the woman experiences a significant decrease in estrogen and progesterone. This can trigger mild to moderate alterations in mood. However, there is no conclusive answer as to why some women experience more severe forms of postpartum psychiatric illness.

Current theories focus on hormone sensitivity. It is believed that some women experience increased sensitivity to hormonal changes, which can make them more susceptible to severe postpartum mood alterations. For these women, the mood disturbances do not diminish within a few weeks. They can continue indefinitely and often require pharmacologic treatment to minimize the symptoms. The table below provides detailed descriptions of each type of postpartum psychiatric illness.[10-12]

Postpartum Blues	It appears that about 50 to 85% of women experience postpartum blues during the first few weeks after delivery. Given how common this type of mood disturbance is, it may be more accurate to consider the blues as a normal

	experience following childbirth rather than a psychiatric illness. Rather than feelings of sadness, women with the blues more commonly report mood lability, tearfulness, anxiety or irritability. The postpartum symptoms typically peak on the fourth or fifth day after delivery and may last for a few hours or a few days, remitting spontaneously within two weeks of delivery. While these symptoms are unpredictable and often unsettling, they do not interfere with a woman's ability to function. No specific treatment is required; however, it should be noted that sometimes the postpartum blues heralds the development of a more significant mood disorder, particularly in women who have a history of depression. If symptoms of depression persist for longer than two weeks, the patient should be evaluated to rule out a more serious mood disorder.
Postpartum Depression	Postpartum depression may occur at any time after delivery but it typically emerges in the first four weeks. Some women actually note the onset of milder depressive symptoms during pregnancy. Postpartum depression is clinically indistinguishable from depression occurring at other times during a woman's life. The symptoms of postpartum depression include: • Depressed or sad mood • Tearfulness • Loss of interest in usual activities • Feelings of guilt • Feelings of worthlessness or incompetence • Fatigue • Sleep disturbance • Change in appetite • Poor concentration • Suicidal thoughts Significant anxiety symptoms may also occur. Generalized anxiety is common, but some women also develop panic attacks or hypochondriasis. *Postpartum obsessive-compulsive disorder* has also been reported, where women report disturbing and intrusive thoughts of harming their infant. Especially with milder cases, it may be difficult to detect postpartum depression because many of the symptoms used to diagnose depression (*i.e.*, sleep and appetite disturbance, fatigue) also occur in postpartum women in the absence of depression.

	The Edinburgh Postnatal Depression Scale is a 10-item questionnaire that may be used to identify women who have PPD. On this scale, a score of 12 or greater or an affirmative answer on question 10 (presence of suicidal thoughts) raise concern and indicate a need for more thorough evaluation.
Postpartum Psychosis	Postpartum psychosis is the most severe form of postpartum psychiatric illness. It is a rare event that occurs in approximately 1 to 2 per 1000 women after childbirth. Its presentation is often dramatic, with onset of symptoms as early as the first 48 to 72 hours after delivery. The majority of women with puerperal psychosis develop symptoms within the first two postpartum weeks. It appears that in most cases, postpartum psychosis represents an episode of bipolar illness; the symptoms of puerperal psychosis most closely resemble those of a rapidly evolving manic (or mixed) episode. The earliest signs of postpartum psychosis are restlessness, irritability, and insomnia. Women with this disorder exhibit a rapidly shifting depressed or elated mood, disorientation or confusion, and erratic or disorganized behavior. Delusional beliefs are common and often center on the infant. Auditory hallucinations that instruct the mother to harm herself or her infant may also occur. Risk for infanticide, as well as suicide, is significant in this population.

Research studies have also identified a connection between women who lack appropriate social supports and/or report dissatisfaction with their marital situations, and the development of postpartum psychiatric illnesses. In these instances, women will often be more prone to experiencing more severe forms of psychiatric illness than their female counterparts who have appropriate support mechanisms in place. Women who experience stressful life events during pregnancy or in the time immediately following delivery

are also at an increased risk of developing more severe postpartum psychiatric symptoms.

One of the most common factors in the development of postpartum depression is a genetic or biological vulnerability to psychiatric illness. Women who have a history of previous psychiatric illnesses, such as depression or bipolar disorder, are at an increased risk of developing severe postpartum disorder. Therefore, women with a history of mental illness should be monitored carefully throughout the duration of pregnancy and within the weeks immediately following delivery.

The above factors are all connected to the onset of postpartum depression. More specifically, the risk factors that have been indicated in cases of postpartum psychiatric illness include previous episode of PPD, depression during pregnancy, history of depression or bipolar disorder, recent stressful life events, inadequate social supports, and marital problem.

To accurately diagnose postpartum mental illness the woman will require a thorough psychiatric evaluation. Postpartum blues can typically be diagnosed and treated by the woman's primary care physician. However, more severe forms of postpartum mental illness will require an evaluation by a trained mental health professional. Steps that need to be taken during work-up for a diagnosis include: 1) Clinical evaluation for postpartum mood and anxiety disorders, 2) Medication management, 3) Consultation regarding breastfeeding and psychotropic medications, 4) Recommendations regarding non-pharmacological treatments, and 5) Referral to support services within the community.

Treatment for Postpartum Illness

Treatment options for postpartum mental illness will vary depending on the type and severity of illness. Women who experience mild postpartum blues will typically require minimal intervention. In most instances, non-pharmacological treatment will be sufficient. Most women will see positive results with the addition of support mechanisms, counseling, and cognitive behavioral therapy. Non-pharmacologic treatments are the most appealing as they minimize the risks associated with psychiatric medication and breastfeeding. Many women are hesitant to initiate medication, as they may have to discontinue breastfeeding to do so. Other women are uncomfortable relying on pharmacologic therapy for treatment.[10-12]

In more severe cases, women will typically require medication to minimize the symptoms. However, before initiating pharmacologic treatment, it is important to ensure the illness is not caused by a medical condition such as thyroid dysfunction or anemia. This will be determined during an initial consult and through the use of basic laboratory tests. While medication will help minimize the symptoms of severe postpartum depression, the patient will typically see greater results if other non-pharmacologic therapies are used alongside medication. Pharmacologic therapy combined with counseling, cognitive behavioral therapy, and support networks have the highest success rate for women with postpartum depression.

Pharmacologic Agents

Although postpartum depression is caused by different factors than standard forms of depression, most conventional antidepressants will effectively treat postpartum mental illness. Standard doses have proven to be effective and well tolerated by patients. Typically, patients will start with Specific Serotonin Reuptake Inhibitors (SSRIs), as they are non-sedating and well-tolerated. If SSRIs do not work, or if the woman is unable to tolerate them,

other agents may be used. Bupropion is a common second choice when SSRIs are not tolerated. Tricyclic antidepressants may be prescribed, but due to the high sedative effect they produce, they must be prescribed only to women who would benefit from sedation (*i.e.*, those women experiencing sleep disturbances).[10,12,20-22,28]

Women experiencing severe postpartum psychosis will require more intensive pharmacologic therapy, and will sometimes require time in an inpatient facility. This level of postpartum mental illness is considered a psychiatric emergency, and pharmacologic treatment is always necessary. Most women will require a mood stabilizer in addition to general antidepressants. Some women will also benefit from electroconvulsive therapy (ECT).

Pharmacologic Agents During Breastfeeding

In instances of depression and anxiety, pharmacologic treatment is often necessary to manage the symptoms. In these situations, it is necessary to weigh the benefits of treatment against the risks to the fetus or newborn. Some medication may require the mother not to breastfeed. These are important, difficult decisions that a mother may have to make. In these cases, it is important for the clinician to provide the patient with information regarding treatment options and the potential side effects.[35,36]

Risks to Fetus, Newborn and Breastfeeding

Many medications can be detrimental during pregnancy and the post-partum period as they can pose a risk to the fetus and/or newborn child. In fact, there are currently no medications that are approved for use during pregnancy. With some medications, the risk of developing teratogenesis

(congenital malformations) from exposure to psychiatric medications is very high. The deformities can include cleft lip or palate, or major deformations of the organs in the fetus.

All psychotropic medications are secreted into breast milk and transmitted to the infant during breastfeeding. However, the concentrations of different agents will vary widely depending on dosage, rate of drug metabolism, and frequency, timing, and duration of infant feedings. Infant complications related to most tricyclic antidepressants are rare, and there have been no reported complications associated with other antidepressants.

Women with other postpartum mental health conditions, such as bipolar disorder or postpartum psychosis will have more difficulty continuing to breastfeed while taking medication. The levels of medication secreted into the breast milk are much higher with the agents used to treat these conditions, and the adverse effects are greater. In most instances, the woman will be required to cease breastfeeding so stronger agents can be used.

Initiating pharmacologic treatment requires a thorough assessment and analysis of the patient's condition and specific needs. There are numerous medications available to treat each condition, and each medication acts differently. Therefore, the specific medication used will depend on the needs of the patient. A couple examples of medications and their considered use may be seen with Specific Serotonin Reuptake Inhibitors (SSRIs) and tricyclic antidepressants.[28]

Specific Serotonin Reuptake Inhibitors

Specific Serotonin Reuptake Inhibitors are non-sedating and well-tolerated, as mentioned above. They can also be taken while breastfeeding with minimal risk to the infant.

Tricyclic Antidepressants

Infant complications related to most tricyclic antidepressants are rare, and there have been no reported complications associated with other antidepressants.

FDA-Approved Drugs and Approved Age

The following medication tables provide the trade name, generic name, and the U.S. Food and Drug Administration approved age for each type of psychiatric medication. These tables will provide a starting point for identifying the pharmacologic options available to treat patients.

Trade Name	Generic Name	FDA Approved Age
Combination Antipsychotic and Antidepressant Medication		
Symbyax (Prozac & Zyprexa)	fluoxetine & olanzapine	18 and older
Antipsychotic Medications		
Abilify	Aripiprazole	10 and older for bipolar disorder, manic or mixed episodes; 13 to 17 for schizophrenia and bipolar
Clozaril	Clozapine	18 and older
Fanapt	Iloperidone	18 and older
fluphenazine (generic only)	Fluphenazine	18 and older

Geodon	Ziprasidone	18 and older
Haldol	Haloperidol	3 and older
Invega	Paliperidone	18 and older
Latuda	Lurasidone	18 and older
Loxitane	Loxapine	18 and older
Moban	Molindone	18 and older
Navane	Thiothixene	18 and older
Orap (for Tourette's syndrome)	Pimozide	12 and older
Perphenazine (generic only)	Perphenazine	18 and older
Risperdal	Risperidone	13 and older for schizophrenia; 10 and older for bipolar mania and mixed episodes; 5 to 16 for irritability associated with autism
Seroquel	Quetiapine	13 and older for schizophrenia; 18 and older for bipolar disorder; 10-17 years for treatment of manic and mixed episodes of bipolar disorder
Stelazine	Trifluoperazine	18 and older
thioridazine (generic only)	Thioridazine	2 and older
Thorazine	Chlorpromazine	18 and older
Zyprexa	Olanzapine	18 and older; ages 13-17 as second line treatment for manic or mixed episodes of bipolar disorder and schizophrenia

Trade Name	Generic Name	FDA Approved Age
Antidepressant Medications (also used for anxiety disorders)		
Anafranil (tricyclic)	Clomipramine	10 and older (OCD only)
Asendin	Amoxapine	18 and older
Aventyl (tricyclic)	Nortriptyline	18 and older
Celexa (SSRI)	Citalopram	18 and older
Cymbalta (SNRI)	Duloxetine	18 and older
Desyrel	Trazodone	18 and older
Effexor (SNRI)	Venlafaxine	18 and older
Elavil (tricyclic)	Amitriptyline	18 and older
Emsam	Selegiline	18 and older
Lexapro (SSRI)	Escitalopram	18 and older; 12 - 17 (major depressive disorder)
Ludiomil (tricyclic)	Maprotiline	18 and older
Luvox (SSRI)	Fluvoxamine	8 and older (OCD only)
Marplan (MAOI)	Isocarboxazid	18 and older
Nardil (MAOI)	Phenelzine	18 and older
Norpramin (tricyclic)	Desipramine	18 and older
Pamelor (tricyclic)	Nortriptyline	18 and older
Parnate (MAOI)	Tranylcypromine	18 and older
Paxil (SSRI)	Paroxetine	18 and older
Pexeva (SSRI)	paroxetine-mesylate	18 and older
Pristiq	desvenlafaxine (SNRI)	18 and older
Prozac (SSRI)	Fluoxetine	8 and older
Remeron	Mirtazapine	18 and older
Sarafem (SSRI)	Fluoxetine	18 and older for premenstrual dysphoric disorder (PMDD)
Sinequan (tricyclic)	Doxepin	12 and older

Surmontil (tricyclic)	Trimipramine	18 and older
Tofranil (tricyclic)	Imipramine	6 and older (bedwetting)
Tofranil-PM (tricyclic)	imipramine pamoate	18 and older
Vivactil (tricyclic)	Protriptyline	18 and older
Wellbutrin	Bupropion	18 and older
Zoloft (SSRI)	Sertraline	6 and older (for OCD only)

Trade Name	Generic Name	FDA Approved Age
Mood Stabilizing and Anticonvulsant Medications		
Depakote	divalproex sodium (valproic acid)	2 and older (for seizures)
Eskalith	Lithium carbonate	12 and older
Lamictal	Lamotrigine	18 and older
lithium citrate (generic only)	Lithium citrate	12 and older
Lithobid	Lithium Carbonate	12 and older
Neurontin	Gabapentin	18 and older
Tegretol	Carbamazepine	any age (for seizures)
Topamax	Topiramate	18 and older
Trileptal	Oxcarbazepine	4 and older

Summary

To better understand how women experience mental illness, it is important to examine the factors that contribute to these experiences, which include changes women experience along the life span and during childbirth. The numerous tables and diagrams included in this course are intended to assist clinicians to readily identify contributing factors and treatment options unique to women with a mental illness. The knowledgeable clinician will be able to recognize the unique experience of women with mental illness that may impact their diagnosis, care and treatment.

Many women with pre-existing mental health conditions will discontinue pharmacologic treatment during pregnancy or at other times of their life for varied reasons. However, this may not be the best or safest option for some patients. In some instances, the psychiatric condition may be more detrimental to the mother and child than the treatment. In those situations, the risk and benefit of each course of action must be considered before making a decision.

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Completing the study questions is optional and is NOT a course requirement.

1. **_____ is severe and persistent depression in a woman that sets in within one month after she gives birth.**

    a. Tomber enceinte
    b. Postpartum depression
    c. Postpartum blues
    d. Pseudocyesis

2. **The least severe type of depression that occurs after a woman gives birth is called**

    a. postpartum psychosis.
    b. postpartum blues.
    c. postpartum depression.
    d. bipolar depression.

3. **True or False: In general, the SSRIs, specifically fluoxetine, citalopram, and sertraline, are the antidepressants most commonly used during pregnancy.**

    a. True
    b. False

4. **Atypical antipsychotic agents are commonly used to manage the acute symptoms of bipolar disorder as well as for maintenance treatment. _____ studies thus far have indicated teratogenic risk associated with this class of medications.**

    a. Large scale
    b. Limited
    c. No
    d. Double-blinded

5. **In the development of postpartum psychiatric illnesses, research studies have identified a connection between its development and women who**

    a. experienced separation from their primary parent as an infant.
    b. lack appropriate social supports.
    c. report dissatisfaction with their marital situations.
    d. Answers b., and c., above

6. Approximately _____ percent of women experience premenstrual syndrome, ranging from mild to severe.

a. 30
b. 40
c. 50
d. 75

7. True or False: Women with a history of previous psychiatric illnesses, such as depression or bipolar disorder, have increased risk of developing severe postpartum disorder.

a. True
b. False

8. The forms of postpartum depression include all, EXCEPT

a. postpartum blues.
b. postpartum depression.
c. *folie à deux*.
d. postpartum psychosis.

9. The two most common disorders experienced in pregnancy are

a. somatization.
b. anxiety.
c. depression.
d. Answers b., and c., above

10. Teratogenesis (congenital malformations) from exposure to psychiatric medications can include

a. cleft lip or palate.
b. major deformations of the organs in the fetus.
c. biliary jaundice.
d. Answers a., and b., above

11. Infant complications related to most tricyclic antidepressants are

a. moderate risk.
b. rare.
c. not reported as ever occurring.
d. None of the above

12. True or False: As early as eight years before the onset of menopause, hormonal fluctuations may cause women to experience depressive symptoms.

a. True
b. False

13. Risks for postpartum psychiatric illness include all, EXCEPT

a. depression during pregnancy.
b. stressful life events.
c. inadequate social supports.
d. gestational diabetes.

14. Approximately _____ percent of women experience depression and/or anxiety during pregnancy.

a. 20
b. 30
c. 45
d. 50

15. A woman with severe forms of postpartum mental illness will require a mental health evaluation, which should be performed by

a. the woman's primary care physician.
b. a certified nurse-midwife.
c. a trained mental health professional.
d. a licensed practical nurse.

16. True or False: In most instances, depression will last only a few months after the woman stops menstruating.

a. True
b. False

17. In severe cases of postpartum mental illness, women will typically require medication to minimize the symptoms, which should be

a. prescribed immediately so the mother may begin breastfeeding.
b. treated as standard forms of depression since they are caused by the same factors.
c. after basic laboratory tests to ensure illness is not due to a medical condition.
d. prescribed only at the end of the postpartum period.

18. Tricyclic antidepressants should be prescribed only to women

a. who are not breastfeeding.
b. with severe mental illness.
c. with difficulty sleeping who may benefit from their sedative properties.
d. who are anemic.

19. _____ is a common second choice for treating non-severe postpartum illnesses when Specific Serotonin Reuptake Inhibitors are not well-tolerated.

a. An MAOI (monoamine oxidase inhibitor)
b. Bupropion
c. A tricyclic antidepressant
d. Valproic acid

20. True or False: Women should be hesitant to initiate medication treatment for postpartum illnesses because they will have to discontinue breastfeeding if they use medication.

a. True
b. False

21. First trimester exposure to tricyclic antidepressants have reported

a. major congenital malformation.
b. no increased risk of birth defects.
c. high incidence of premature labor.
d. an increased risk of birth defects.

22. _____ are generally not used during pregnancy because they require dietary restrictions, potentially compromising the mother's nutritional status, affecting blood pressure, and adversely reacting with terbutaline.

a. MAOIs (monoamine oxidase inhibitors)
b. Tricyclic antidepressants
c. Bupropion and Sertraline
d. SSRIs (selective serotonin reuptake inhibitors)

23. _____ are secreted into breast milk and transmitted to the infant during breastfeeding.

a. Only MAOIs (monoamine oxidase inhibitors)
b. Only Tricyclic antidepressants
c. Only SSRIs (selective serotonin reuptake inhibitors)
d. All psychotropic medications

24. _____ are non-sedating, usually well-tolerated, and they may also be taken while breastfeeding with minimal risk to the infant.

a. MAOIs (monoamine oxidase inhibitors)
b. Tricyclic antidepressants
c. Anticonvulsants (*i.e.*, valproic acid)
d. SSRIs (selective serotonin reuptake inhibitors)

25. Prenatal exposure to _____ can increase the risk of fetal malformation by up to 4%.

a. valproic acid
b. bupropion
c. lamotrigine
d. lithium

CORRECT ANSWERS:

1. _____ is severe and persistent depression in a woman that sets in within one month after she gives birth.

b. Postpartum depression

"*Postpartum depression may occur at any time after delivery but it typically emerges in the first four weeks.*"

2. The least severe type of depression that occurs after a woman gives birth is called

b. postpartum blues.

"*The postpartum psychiatric illnesses are divided into three categories ranging from least severe to most severe, starting with the least severe, postpartum blues, then postpartum depression, and the most severe, postpartum psychosis.*"

3. True or False: In general, the SSRIs, specifically fluoxetine, citalopram, and sertraline, are the antidepressants most commonly used during pregnancy.

a. True

"*In general, the SSRIs, specifically fluoxetine, citalopram, and sertraline, are the antidepressants most commonly used during pregnancy. Several recent studies have suggested that exposure to SSRIs near the time of delivery may be associated with poor perinatal outcomes.*"

4. Atypical antipsychotic agents are commonly used to manage the acute symptoms of bipolar disorder as well as for maintenance treatment. _____ studies thus far have indicated teratogenic risk associated with this class of medications.

c. No

"*Recent studies have not demonstrated teratogenic risk associated with high-or medium-potency neuroleptic medications; however, a recent meta-analysis of the available studies noted a higher risk of congenital malformations after first trimester exposure to low-potency neuroleptic agents.*"

5. In the development of postpartum psychiatric illnesses, research studies have identified a connection between its development and women who

a. experienced separation from their primary parent as an infant.
b. lack appropriate social supports.
c. report dissatisfaction with their marital situations.
d. Answers b., and c., above *[correct answer]*

"*Research studies have also identified a connection between women who lack appropriate social supports and/or report dissatisfaction with their marital situations, and the development of postpartum psychiatric illnesses.*"

6. Approximately _____ percent of women experience premenstrual syndrome, ranging from mild to severe.

d. 75

"*It is approximated that seventy-five percent of women experience premenstrual syndrome. Premenstrual syndrome can range from mild to severe and will affect each woman differently.*"

7. True or False: Women with a history of previous psychiatric illnesses, such as depression or bipolar disorder, have increased risk of developing severe postpartum disorder.

a. True

"*Women who have a history of previous psychiatric illnesses, such as depression or bipolar disorder, are at an increased risk of developing severe postpartum disorder.*"

8. The forms of postpartum depression include all, EXCEPT

c. *folie à deux*.

"*The postpartum psychiatric illnesses are divided into three categories ranging from least severe to most severe, starting with the least severe, postpartum blues, then postpartum depression, and the most severe, postpartum psychosis.*"

9. The two most common disorders experienced in pregnancy are

a. somatization.
b. anxiety.
c. depression.
d. Answers b., and c., above *[correct answer]*

"*The two most common disorders experienced in pregnancy (not including those that were present prior to pregnancy) are anxiety and depression.*"

10. Teratogenesis (congenital malformations) from exposure to some psychiatric medications can include

a. cleft lip or palate.
b. major deformations of the organs in the fetus.
c. biliary jaundice.
d. Answers a., and b., above *[correct answer]*

"*With exposure to psychiatric medications, the risk of developing teratogenesis (congenital malformations) is very high. The deformities can include cleft lip or palate, or major deformations of the organs in the fetus.*"

11. Infant complications related to most tricyclic antidepressants are

b. rare.

"*Infant complications related to most tricyclic antidepressants are rare, and there have been no reported complications associated with other antidepressants.*"

12. True or False: As early as eight years before the onset of menopause, hormonal fluctuations may cause women to experience depressive symptoms.

a. True

"*In the stage where the body prepares for the transition to menopause, which can occur up to eight years before the onset of menopause, hormonal fluctuations may cause women to experience depressive symptoms.*"

13. Risks for postpartum psychiatric illness include all, EXCEPT

d. gestational diabetes.

"*More specifically, the following is a complete list of the risk factors that have been indicated in cases of postpartum psychiatric illness: Previous episode of PPD; Depression during pregnancy; History of depression or bipolar disorder; Recent stressful life events; Inadequate social supports; Marital problem.*"

14. Approximately _____ percent of women experience depression and/or anxiety during pregnancy.

b. 30

"*Approximately thirty percent of women experience depression and/or anxiety during pregnancy.*"

15. A woman with severe forms of postpartum mental illness will require a mental health evaluation, which should be performed by

c. a trained mental health professional.

"*Postpartum blues can typically be diagnosed and treated by the woman's primary care physician. However, more severe forms of postpartum mental illness will require an evaluation by a trained mental health professional.*"

16. True or False: In most instances, depression will last only a few months after the woman stops menstruating.

b. False

"*In most instances, the depression will last until a year or two after the woman has stopped menstruating.*"

17. In severe cases of postpartum mental illness, women will typically require medication to minimize the symptoms, which should be

c. after basic laboratory tests to ensure illness is not due to a medical condition.

"*In more severe cases, women will typically require medication to minimize the symptoms. However, before initiating pharmacologic treatment, it is important to ensure the illness is not caused by a medical condition such as thyroid dysfunction or anemia. This will be determined during an initial consult and through the use of basic laboratory tests. Although postpartum depression is caused by different factors than standard forms of depression, most conventional antidepressants will effectively treat postpartum mental illness.*"

18. Tricyclic antidepressants should be prescribed only to women

c. with difficulty sleeping who may benefit from their sedative properties.

"*Tricyclic antidepressants may be prescribed, but due to the high sedative effect they produce, they must be prescribed only to women who would benefit from sedation (i.e., those women experiencing sleep disturbances).*"

19. _____ is a common second choice for treating non-severe postpartum illnesses when Specific Serotonin Reuptake Inhibitors are not well-tolerated.

b. Bupropion

"*Typically, patients will start with Specific Serotonin Reuptake Inhibitors (SSRIs), as they are non-sedating and well-tolerated. If SSRIs do not work, or if the woman is unable to tolerate them, other agents may be used. Bupropion is a common second choice when SSRIs are not tolerated. Tricyclic antidepressants may be prescribed, but due to the high sedative effect they produce, they must be prescribed only to women who would benefit from sedation (i.e., those women experiencing sleep disturbances).*"

20. True or False: Women should be hesitant to initiate medication treatment for postpartum illnesses because they will have to discontinue breastfeeding if they use medication.

b. False

"*Many women are hesitant to initiate medication, as they may have to discontinue breastfeeding to do so.*"

21. First trimester exposure to tricyclic antidepressants have reported

b. no increased risk of birth defects.

"*A relatively small number of cases of first trimester exposure to antidepressants have been reported, but these reports have suggested no increased risk of birth defects. Since there have probably been millions of cases of accidental first trimester exposure in the over thirty years of treatment with tricyclic antidepressants, the lack of reports suggesting teratogenicity is encouraging.*"

22. _____ are generally not used during pregnancy because they require dietary restrictions, potentially compromising the mother's nutritional status, affecting blood pressure, and adversely reacting with terbutaline.

a. MAOIs (monoamine oxidase inhibitors)

"*MAOIs (monoamine oxidase inhibitors) are generally not used during pregnancy because they require dietary restrictions, potentially compromising the mother's nutritional status, affecting blood pressure, and adversely reacting with terbutaline (used to suppress premature labor).*"

23. _____ are secreted into breast milk and transmitted to the infant during breastfeeding.

d. All psychotropic medications

"*All psychotropic medications are secreted into breast milk and transmitted to the infant during breastfeeding.*"

24. _____ are non-sedating, usually well-tolerated, and they may also be taken while breastfeeding with minimal risk to the infant.

d. SSRIs (selective serotonin reuptake inhibitors)

"*Specific Serotonin Reuptake Inhibitors (SSRIs), are non-sedating and well-tolerated, as mentioned above. They can also be taken while breastfeeding with minimal risk to the infant.*"

25. Prenatal exposure to _____ can increase the risk of fetal malformation by up to 4%.

a. valproic acid

"*Maintenance treatment with a mood stabilizer can significantly reduce the risk of relapse in pregnant women with bipolar disorder. However, many of the medications commonly used carry some teratogenic risk. First trimester exposure to lithium has been associated with an increased risk of cardiovascular malformation between .05% and .1%. Prenatal exposure to valproic acid can increase the risk of fetal malformation by up to 4%. There is limited information on the reproductive safety of other newer anticonvulsants. There is, however, increased support for the reproductive safety of lamotrigine. Of 360 children exposed to lamotrigine alone, 2.8% had a major malformation, which is within the range of 2 to 4% observed in women with no exposure to toxic agents.*"

References Section

The References below include published works and in-text citations of published works that are intended as helpful material for your further reading. [References are for a multi-part series on Women and Mental Health].

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