POSTPARTUM DEPRESSION :
Blues To Bloom

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Postpartum Depression: Blues To Bloom

ANCC Accredited NCPD Hours: 2.3hrs

Target Audience: RN/APRN

Need Assessment

Despite the growing recognition as a global childbirth-related problem, the importance of detecting and treating post-partum depression has been largely overlooked in practice. It is estimated that only 20% of women who experience symptoms of Postpartum Depression (PPD) report those symptoms to their healthcare providers. Symptoms of PPD are often minimized by both mothers and care providers as normal and natural consequences of childbirth. Evidence has been presented that ***mothers may also be reluctant to disclose their feelings of depression for fear of stigmatization and fear that their depressive symptoms might be determined as evidence of being a bad mother.***

Objectives

- Describe the role of childbirth education in postpartum depression
- Discuss the impact of postpartum depression as a complex health problem
- Identify postpartum mood disorders and symptoms
- Discuss the signs and symptoms in women with postpartum depression
- Describe the influence of postpartum depression in relationships

Goal

The goal of this article is to highlight the common clinical challenges in the treatment of postpartum depression and review the evidence base for currently available treatment options.

Introduction

Pregnancy, labor, and birth are perhaps the most significant life experiences that a woman and her partner will encounter. It is a time of extreme physical and emotional transition with intense hormonal, psychological, and biological changes, all of which can have an effect on the central nervous system. The puerperium may be a time of high vulnerability for women, coupled with feelings of loss of control.

Figure 1: Postpartum Depression behaviour

Tremendous changes occur in the mother's interpersonal and familial world. The birth of a new baby is expected to be a joyful milestone in a woman's life, but that is not always the case. Some women experience minor adjustment issues, and others experience a grave and debilitating mood disorder, known as postpartum depression. ***More than half of the women with PPD go undetected and undiagnosed because the new mother may be unwilling to reveal how she is feeling to her provider or close family members, including her spouse. She may be embarrassed by her symptoms, or afraid that, if revealed, she will be institutionalized and separated from her baby.***

Postpartum depression occurs in approximately 13% of new mothers. It is usually detected between 2 and 6 weeks postpartum and can last up to 2 years. [1, Rank 5]

The Role of Childbirth Education in Postpartum Depression

Childbearing couples are attending childbirth education classes with a new set of eyes. Young couples today are more technologically savvy and have many alternatives to education, including the Internet. ***Many of those who do attend childbirth education classes have broader interests than simply learning the Lamaze way of breathing. Childbirth educators are modifying their curricula to support the social and cultural changes of the childbearing community.*** They are including topics(as shown in fig,2) such as postpartum care,

newborn care, and the prevention and identification of early signs of postpartum depression in the syllabus.

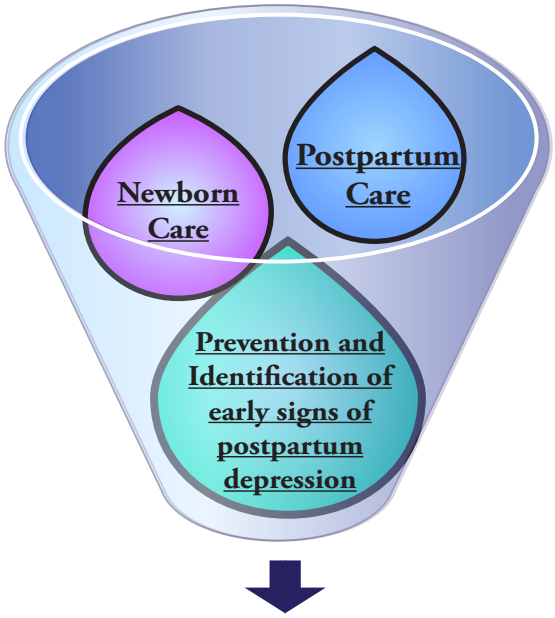

Figure 2: Childbirth education topic

Childbirth education classes provide an opportunity to teach a new mother to anticipate the help and support she might need for the birth of her child. ***Depression and abuse are not adequately attended to prior to childbirth, and weaknesses exist in identifying and supporting women at risk.*** Several studies suggests ways to improve communication and support among childbirth education class members(as shown in fig.3), including maintaining contact via e-mail, sending photos to each other, and even getting together for a reunion. All of these techniques may help to keep the lines of communication open. It is known that social isolation as well as the strong desire for social support during the postpartum period are related to the development of postpartum depression.

Figure 3: Ways to improve communication and support among childbirth education class members,

Childbearing women want information regarding complications and risks of childbirth, including caesarean section, epidural analgesia, and induction. Although often a hidden occurrence of illness, postpartum depression is believed to be the leading complication of childbirth today. It is an illness that is often undetected and usually obscured by the woman, which causes her to suffer in silence. The new mother who is depressed is deprived of the pleasures and joy of giving birth and caring for her newborn baby. [3, Rank 4]

Childbirth educators can play a significant role in helping to break this silence, first by providing the necessary education to help women and their partners recognize the early signs and symptoms of postpartum depression (PPD).

Second, educators can help increase a woman's understanding of how to meet her own needs. This approach can improve a woman's overall state of mental wellness, thereby possibly preventing or lessening the experience of PPD. Although prevention of PPD may not be completely possible, health professionals can help recognize and reduce key risk factors.

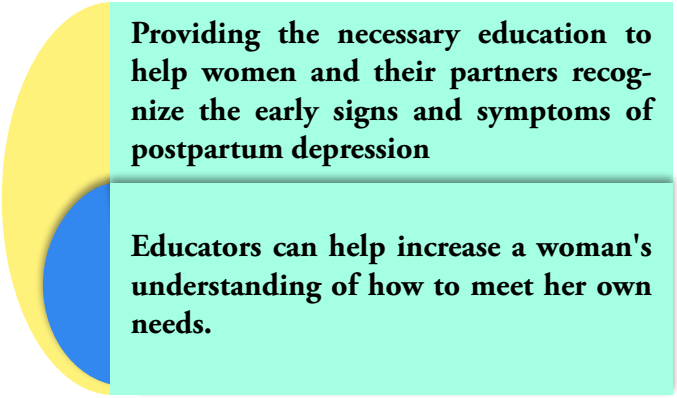

Figure 4: Roles of Childbirth educators

Several studies found that several interventions - including providing antenatal classes, information during the antenatal period, intrapartum support, early postpartum checkups, and continuity of care - may have significant nonpharmacological preventative results. Researchers conducted a literature review to analyze results from studies that examined the relationship between prevention of PPD and selective interventions. Interventions assessed included postpartum debriefing, continuity of care in the postpartum period, education in the prenatal period, early postpartum checkups, support at home following childbirth, and social support in the postpartum period. An overview of such studies provides support for introducing and discussing these topics and preventative methods during childbirth education classes. The childbirth education class is an ideal environment because the educator usually has the attention of both parents or a mother and her significant other.

The overall subject matter of childbirth education should include the postpartum period, newborn and infant care and expectations. Through childbirth education, health-care professionals can also reach out to new fathers. Men often complain about not being an integral part of the childbirth experience. In a study, fathers felt that the information obtained through childbirth classes was inadequate for their particular needs. However, they also reported that the classes not only helped prepare them for the labor and birth experience, but also gave them anticipatory guidance for what to expect when bringing the newborn infant home. A new mother may be overwhelmed and sleep deprived while caring for her newborn; thus, it is often the father (or partner) who may recognize the early signs and symptoms of PPD. The new mother may not want to admit to having these symptoms, but the father/partner can encourage or urge her to seek help when needed. If the

father or partner learns about the early warning signs of PPD during classes, he or she will be in a better position to assess and notice these changes and to encourage the new mother to seek help. [2, Rank 5]

Postpartum Mood Disorders and Symptoms

Postpartum mood disorders can be classified into five categories(as shown in fig.6):

(1) Postpartum depression and/or anxiety;

(2) Postpartum obsessive-compulsive disorder;

(3) Postpartum panic disorder;

(4) Postpartum psychosis; and

(5) Postpartum posttraumatic stress disorder.

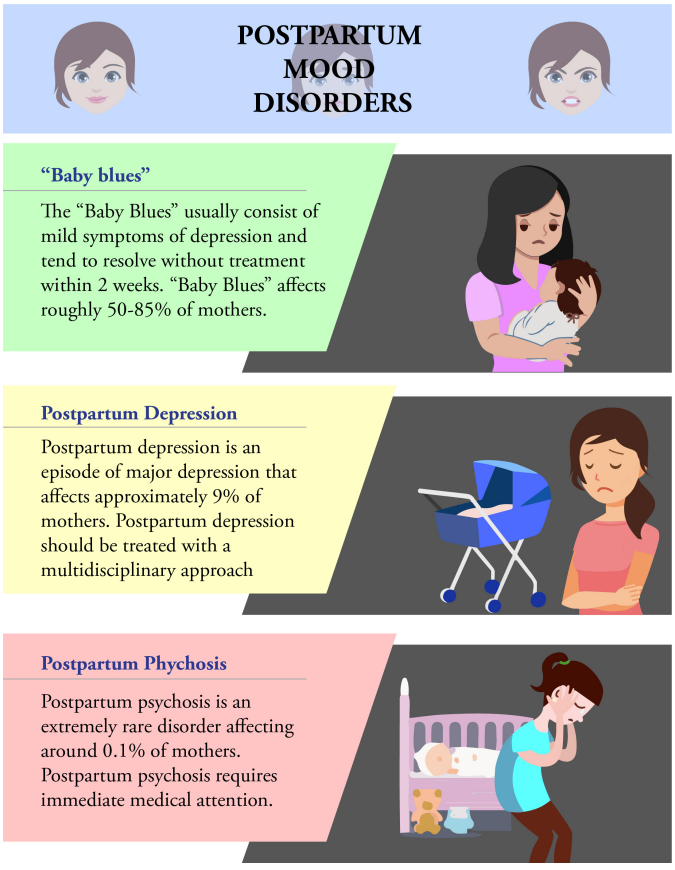

Figure 5: Facts about Postpartum Mood Disorders

Each disorder presents a range of mood changes and physical complaints.

Postpartum "blues" is not considered a disorder; it is regarded as part of the normal postpartum adjustment.

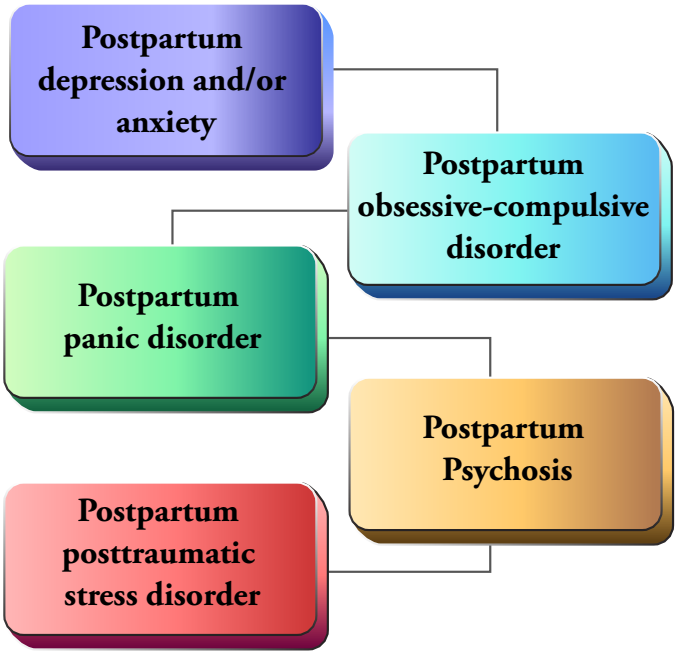

Figure 6: categories of Postpartum Mood Disorders

Postpartum "Blues"

Normal postpartum adjustment and the "blues" represent normal biological and psychosocial adjustments to giving birth and do not impair the daily functioning of the mother or impinge on the maternal-newborn bonding experience. Approximately 80% of postpartum women experience the "blues," which are mild hormonal changes that take place within the first 48 hours after giving birth. These symptoms may last up to 6 weeks. Symptoms of the "blues"(as shown in fig.7) include mood instability, weepi-

ness, sadness, anxiety, lack of concentration, and feelings of dependency. If symptoms last longer than 6 weeks or worsen during the 6-week interval, a woman meets the criteria for being diagnosed with PPD.

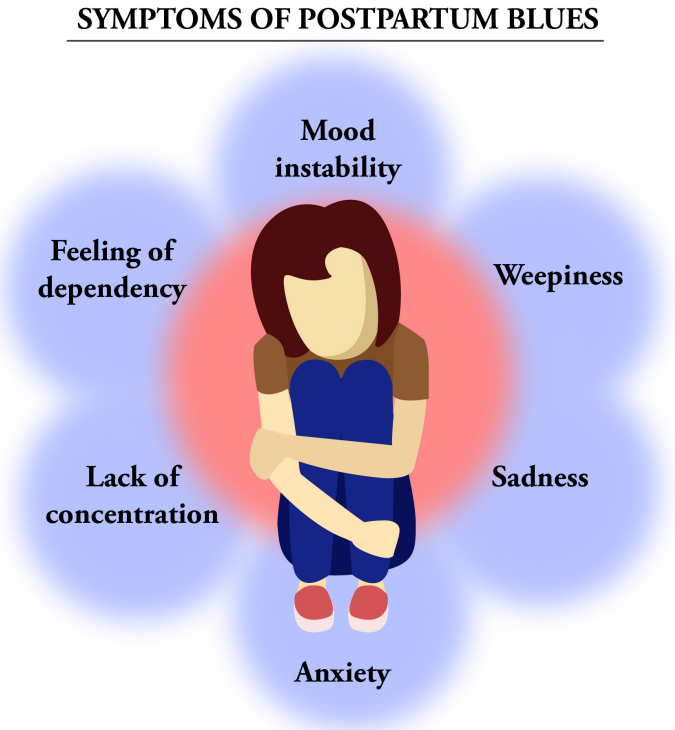

Figure 7: Symptoms of Postpartum "Blues"

Postpartum Depression and/or Anxiety

Symptoms of PPD and anxiety(as shown in fig.8) are presented in a number of ways. They may include excessive worry or anxiety; irritability or short temper; feelings of being overwhelmed; feeling very sad, guilty or phobic; hopelessness; sleep disturbances (either too much or too little sleep); excessive physical complaints; loss of focus or concentration (frequently missing appointments); loss of interest or pleasure in anything; lack of libido; and changes in appetite (weight loss or gain) [4, Rank 4]

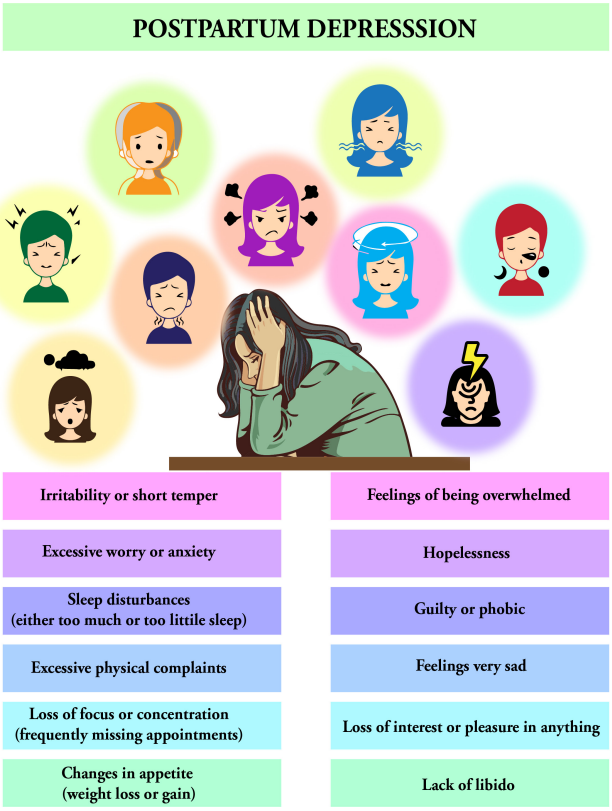

Figure 8: Symptoms of Postpartum Depression and/or Anxiety

Postpartum Obsessive-Compulsive Disorder

Postpartum obsessive-compulsive disorder presents in 3% to 5% of new mothers. ***The primary symptom consists of repetitive and unrelenting thoughts, fears, or images.*** The thoughts appear spontaneously and may or may not involve harming the baby either intentionally or accidentally.

Postpartum Panic Disorder

Postpartum panic disorder occurs in about 10% of postpartum women. ***Feelings come suddenly, and the woman experiences extreme anxiety.*** An episode includes physical symptoms(as shown in fig.9) such

as shortness of breath, chest pain, and sensations of choking, dizziness, derealization, hot or cold flashes, trembling, restlessness, palpitations, numbness, or tingling.

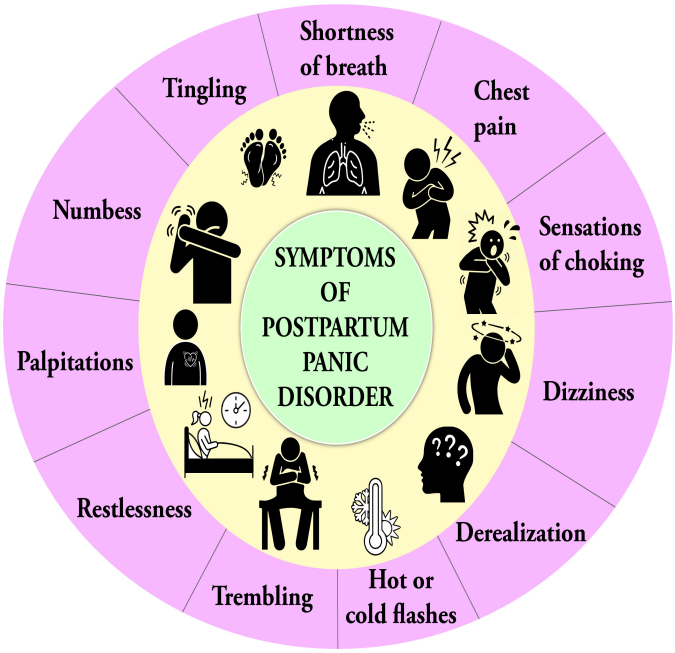

Figure 9: Symptoms of Postpartum Panic Disorder

Postpartum Psychosis

Postpartum psychosis is the most extreme of all the postpartum mood disorders. It is rare, occurring in 1 to 3 mothers per 1,000 births. Onset is within the first 24 to 72 hours after giving birth. Postpartum psychosis has a 5% suicide and a 4% infanticide rate. Afflicted women have an abnormal thought process and lose touch with reality. ***Considerable confusion, poor judgment, delusions, and hallucinations are noted, usually with a religious quality.*** Postpartum psychosis can be life-threatening to both the mother and the baby.

Postpartum Posttraumatic Stress Disorder

Postpartum posttraumatic stress disorder is usually connected to a specific trauma relating to the birth of the baby or an event from the woman's past. A new mother who is reminded of this past trauma can often suffer from panic attacks. Symptoms may include recurrent nightmares, extreme anxiety, or reliving past traumatic events, including sexual trauma, physical or emotional trauma, and childbirth. [5, Rank 5]

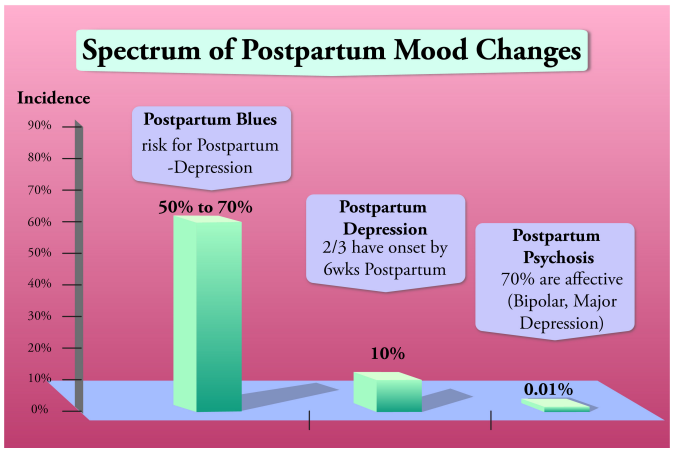

Figure 10: Spectrum of Postpartum Mood changes

The Impact of PPD as a Complex Health Problem

The occurrence of PPD is rapidly being recognized as a major public health problem. Furthermore, the occurrence of PPD is an apparent paradox. It is an unusual disparity for a woman to become clinically depressed just weeks after giving birth, a time when one would assume the new

mother is happy and joyous. Although PPD mimics a traditional clinical depression, there are major symptomatic differences between the two disorders. Women who suffer from PPD usually manifest symptoms that are much more severe than women who suffer from a major depressive disorder that is unrelated to the postpartum period.

Women with PPD perceive themselves and those around them with trepidation. These women assume a passive attitude, and they will often isolate themselves from others due to fear and a lack of understanding of their illness. ***Women with PPD would rather separate themselves from friends and loved ones than reveal what they are experiencing,*** especially when it goes against social and cultural standards and expectations. Their fear of being labeled as a nonperfect mother creates the silence that makes their illness difficult to endure and their recovery complex. [7, Rank 5]

Signs, Symptoms and Behavioural Changes in Women with Postpartum Depression

A variety of symptoms of PPD contribute to the silence in sufferers. The experience from one woman to the next varies tremendously, which results in confusion for the woman who tries to distinguish and understand what she is experiencing. Some women may feel that they do not have PPD because they do not feel "depressed." Instead, they may be experiencing severe anxiety, disrupted sleep, loss of appetite, and obsessive thoughts about their newborn. Some women actually feel as if they are "going crazy" because their symptoms do not match what they read or hear about, and they are afraid to reveal the things that are really going on inside their heads. These symptoms can lead to feelings of worthlessness and of being a bad mother, no interest in previous enjoyable activities, little interest in her newborn, and obsessive worry over the baby's health. If left untreated, a new mother can begin to experience repeated thoughts of death or suicide, which can occur in any major depressive illness.

Postpartum depression has become a type of psychological block for women who suffer. When a girl grows into womanhood, she is expected to become a selfless individual. Attachment or bonding is fundamental in the development of a loving and trusting relationship between a mother and her newborn baby. What new mothers do not realize is that bonding with their infant can take some time and effort. A new mother's expectation of an immediate bonding can cause her to feel incompetent.

A combination of physical, psychological, and biopsychosocial factors can

cause this bonding experience to go awry. The social stigma of a lack of bonding or the possibility of a new mother not feeling complete bliss over the birth of her child causes the woman to remain silent. This loss of relationship leads to a muting of voice, leaving inner feelings of sadness and isolation. In effect, the young woman becomes shut up within herself. The woman with PPD may feel a loss of relationship with her newborn, spouse, friends, and even her own mother. Women have described feeling totally alone, unaware that they may be causing their own isolation. [6, Rank 4]

Reason Behind the Silence in Women with Postpartum Depression

Women with PPD tend to suffer with their symptoms for quite some time before admitting to their symptoms or seeking help. ***Some women never get help and just wait until the symptoms dissipate with time. Many choose to suffer alone, unable to tell their friends, spouse or health-care provider what is happening. They often struggle with this decision, knowing that by not seeking help they are being irresponsible, placing themselves and their new baby in possible danger, yet they still choose to remain silent.***

Many new mothers are afraid to admit to their symptoms of PPD and are disinclined to seek any form of medical or psychotherapeutic help because they are fearful of the consequences. These women know that, if they admit to having thoughts of harming their newborn or themselves, they will be hospitalized. They are also terrified of having their baby taken away from them. These women are concerned about the public humiliation. They do not want to feel different from other mothers, and they are apprehensive about the stigma related to depression and being under the care of a mental health provider. Some women, especially those who grew up in a cultural community that has high expectations of motherhood and parenting, may be afraid of disapproval by others in their society. They are gravely concerned about their future relationship with their child and how their depression will affect the child's development.

Childbirth education classes provide information about the process of pregnancy, childbirth, and the early stages of becoming a parent. The purpose

> **" Symptoms of PPD are often minimized by both mothers and care providers as normal and natural consequences of childbirth. "**

is to help expectant couples gain awareness and prepare for their birthing experience and to provide them with comfort and pain-management skills. Childbirth educators have a captive audience and can broaden their curricula. Childbirth classes are an ideal time to introduce the possibility that things may not go as planned and to provide content about signs and symptoms of PPD. [8, Rank 5]

The Influence of PPD in Relationships

Women, in general, are deeply concerned with relationships and become somewhat vulnerable and dependent on others. ***Their vulnerability intensifies when they have a new baby and realize that the workload, sleep deprivation, responsibilities, and social isolation are not what they anticipated. This creates a sense of loss of control, causing depression to set in.*** Mothers are constantly belittled, and motherhood is viewed in a negative light. Women who are career-oriented are looked upon more favorably in the public eye and are viewed as independent. Postpartum depression occurs when women are unable to experience, express and validate their feelings and needs within supportive, accepting and non-judgmental interpersonal relationships and cultural context.

In a phenomenological research study on women with PPD, a general theme that emerged was guilt, humiliation, and a feeling of not being an average mother. These women wanted to fit in with everyone else and felt somewhat disgraced by the fact that they did not. Women with PPD who choose to remain silent are more concerned about their exposure to the public than they are about what is going on inside of themselves. They seem to have high expectations of themselves around caring for their newborn, tending to their physical appearance, their homes, breast-feeding around the clock, and so on. Their silence may stem from that fastidiousness, vying for perfection, and not being able to admit that they might be less than a perfect mother. [9, Rank 4]

> **"Postpartum depression occurs in approximately 13% of new mothers. It is usually detected between 2 and 6 weeks postpartum and can last up to 2 years."**

Expression of Feelings in Women with Postpartum Depression

The new mothers try so hard to manage their newborn and their feelings that they were afraid to show any kind of weakness. The women are not willing to

discuss their feelings with anyone, even close friends and family. Women with PPD are often thankful when they discover they have a diagnosable illness as opposed to being crazy or bad mothers. ***Health-care providers may not be able to pick up on symptoms of depression because the symptoms often mimic other perinatal disorders, such as anemia, thyroid disease, and gestational diabetes.***

Women with PPD may not report their symptoms to their health-care provider due to stigmatization, and they may refuse psychotropic medications, thinking the medication will harm their newborn if they are breastfeeding. Most of the studies on PPD have included women who presented with symptoms in their health-care provider's office or clinic. Study results reveal that not many women seek treatment on their own. Women who do seek treatment are probably more symptomatic than those who do not, and they may also have had a prior history of depression. [11, Rank 5]

The women all felt that their symptoms were a reflection of them as mothers, and if they were perceived as unable to cope with motherhood, their babies would be taken from their care. They felt that they did not have the natural maternal instincts that other mothers reported, and even though they were caring for their infants in a mechanical way, they feared that even those tasks might become difficult as their illness progressed. Once the women were told that they actually had a treatable illness, they were quite relieved.

The Role of Childbirth Educators in Postpartum Depression

Childbirth educators can offer anticipatory guidance and instruction by increasing awareness of possible mental health changes in the postpartum period. According to results in a study, postpartum women are unprepared for the feelings of stress, loneliness, and seclusion that they experience. ***Women who attended childbirth education classes did not feel prepared for motherhood. Although they felt confident in their knowledge regarding self and newborn care, they were unprepared for the demands of the first postpartum month.*** However, couples who attended a subsequent class on emotional issues felt prepared for the demands of bringing home a newborn, the possibility of mood disorders, and were told to alert their spouses for help if symptoms of mood disorders became apparent. Childbirth educators need to be upfront with couples and provide information on postpartum changes and possible mood disorders, offering them appropriate resources on where to get help if the need arises.

Nurses and childbirth educators in all clinical areas need to be aware of the signs and symptoms of PPD and increase awareness that PPD is a treatable disorder. By teaching women and their partners about symptoms of PPD, educators can increase the chance that an afflicted woman will receive proper screening, diagnosis, and treatment. Couples who have been educated about the signs and symptoms of PPD will be aware and alert if and when the disorder occurs. Knowing that PPD is an illness that does happen on occasion, and the odd feelings they may experience are all part of the syndrome, will help new mothers come forward and not feel stigmatized. This knowledge will enable them to ask for help and to seek out the necessary resources for their care. [10, Rank 5]

The Importance of Advance Planning Prior to Birth

Couples can be encouraged to do ***some after-birth planning such as interviewing pediatricians, preparing their hospital bag, and stocking up on all the necessities and paraphernalia that they will need for their arrival home from the hospital with their newborn.*** This is also a good time to discuss breastfeeding.

Educators can also conduct discussions on how couples can prepare their home in order to make life as easy as possible. Most new couples are unaware of the magnitude of bringing a newborn home. Educators can suggest that the couples prepare meals in advance or obtain takeout menus from local restaurants. Most of all, they can be encouraged to arrange in advance for domestic help during the postpartum period. Many new mothers are unaware of how tired, sore, and overwhelmed they will be during the postpartum period. There is also always the possibility of having an unplanned caesarean section, which can further immobilize the mother in the first few days after birth. By making advance arrangements—with her mother, mother-in-law, or even hired help such as a doula—the new mother can anticipate the ability to get the rest that she needs. A new mother's most important tasks in the early postpartum period are to initiate a good feeding relationship with her newborn, to get enough rest, and to eat properly in order to give both partners an opportunity to get to know their newborn.

Stressing the importance of planning in advance for help during the postpartum period may prevent the fatigue, sleep deprivation, and/or social isolation that can sometimes create vulnerability in postpartum women and, in turn, may make them more likely to develop PPD. Women may have various psychological or psychosocial issues or stressful life events that occur over

time. The weight of these life events can disrupt the balance of the brain biochemistry, resulting in a sort of emotional earthquake. [12, Rank 5]

Introduction of Possibility of Developing Postpartum Depression by Educators

Studies have shown that many physiological, biological, and psychosocial factors may contribute to the etiology of PPD(as shown in fig.11). Some of the physiological factors include fatigue, pain, thyroid abnormalities, weakened immune system, and elevated cholesterol. Some of the psychosocial factors include alterations in self-esteem, expectations of motherhood, a sense of loss, prior psychiatric diagnosis, family history of psychiatric illness, history of abuse or violence, parenting difficulties, stressful life events, socioeconomic status, social support, and cultural rituals.

Again, the final childbirth education or Lamaze class, which typically focuses on the postpartum period, is an appropriate time to introduce the possibility of developing PPD. A brief discussion of normal postpartum adjustment issues and postpartum blues can be presented, followed by a discussion of more severe emotional reactions such as PPD. Because the spectrum of symptoms can vary, it is important to review the five categories of postpartum

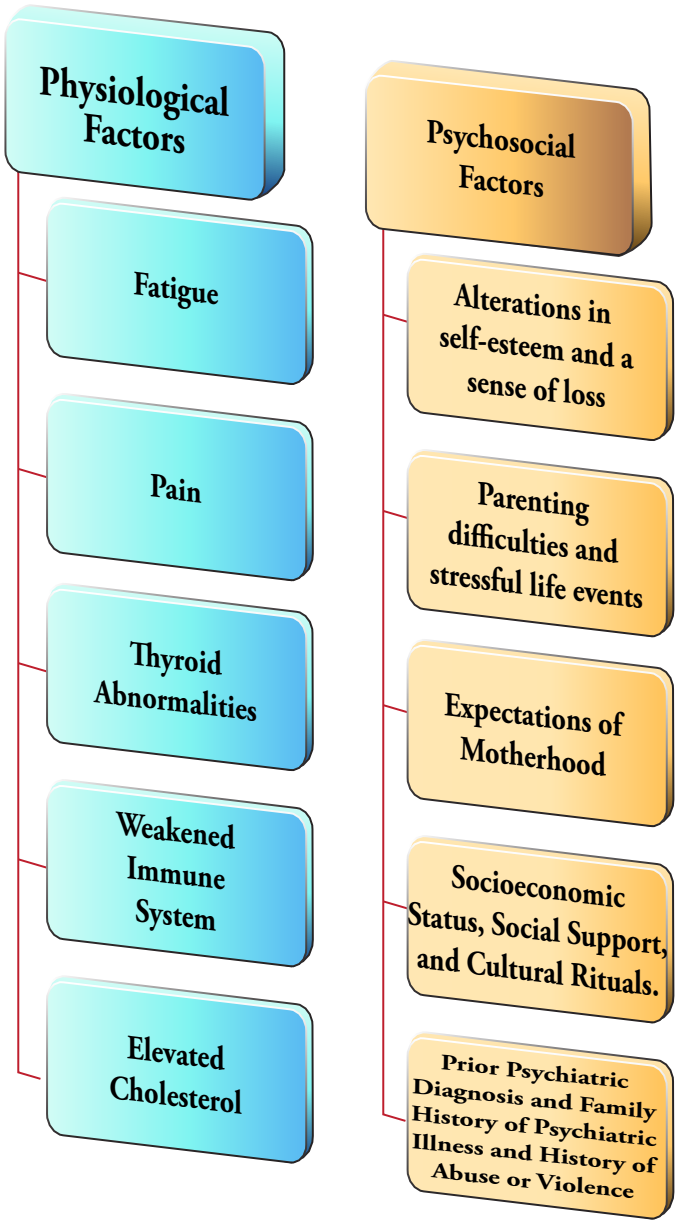

Figure 11: Factors contribute to the etiology of Postpartum Depression

mood disorders. Sometimes, a postpartum woman will feel a variety of symptoms and not be aware that she is experiencing PPD because she is having more anxiety than depression. Providing a list of warning signs will help couples understand what to look for and when to know to seek help. It is important to emphasize that early detection and treatment is the fastest way to recovery. It is also important to explain to the couples

how to differentiate between normal postpartum adjustment, postpartum blues, or a postpartum mood disorder. [13, Rank 5]

Some childbirth educators address postpartum emotions during the class scheduled for discussion of possible complications in labor and caesarean sections. Potential complications in the postpartum period and warning signs such as increased bleeding and fever are typically discussed; this would be a good opportunity to mention the possibility of developing postpartum blues, which is very normal, and, if the depression worsens, that a small percentage of women can develop PPD. A discussion of risk factors (e.g., prenatal depression, childcare stress, life stress, a lack of social support, prenatal anxiety, marital conflicts, a prior history of depression, postpartum blues, single parenting, and low self-esteem) can alert parents to their risks of developing PPD and increase their awareness of these factors.

Many different resources are available to postpartum women. The two largest national organizations are Depression After Delivery and Postpartum Support International. These organizations focus on helping women through education, information, support, and referrals in the event of difficulties after birth. They also offer support-group information, conferences, recommended reading lists, and lists of mental health providers in every state. Postpartum Support International has a Web site that includes information about PPD and offers self-help suggestions. Web sites are a good source of information for childbirth educators to keep up on current information regarding postpartum mood disorders. They are also helpful for couples to access information on their own, so they can recognize their symptoms and not feel as if they are completely alone [14, Rank 5]

Consequences of Postpartum Depression in a Woman's Life

Postpartum Depression is prevalent and associated with significant negative consequences for the woman, her infant, and her family. Yet, a majority of women fail to recognize or seek help for PD. The public health significance of postpartum depression has resulted in various practice guidelines and large-scale screening efforts. The estimated prevalence of PD in the general population in Western countries is between 12.9%–21.9% during the first year postpartum; these rates vary widely internationally with higher rates in developing than developed countries and among certain cultural groups. Despite such variations in PD prevalence, there are common risk factors(as shown in fig.12), with the strongest predictors, including a personal or

family history of mood or anxiety disorders, stressful life events, poor social supports, and prior miscarriages or stillbirths.

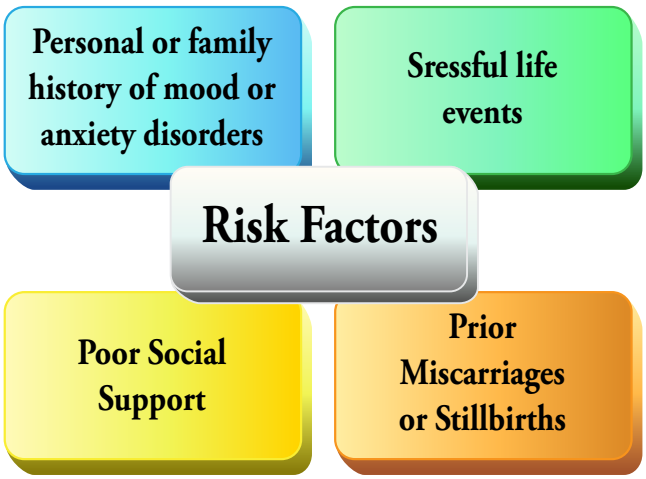

Figure 12: common risk factors of Postpartum Depression

Currently, systematic screening for depression in the perinatal period is controversial because methodological differences in trials have resulted in discrepant conclusions about the benefits of screening. There is currently no well-designed clinical trial that shows a benefit of depression screening alone; positive outcomes, however, were found to be associated with screening when enhanced depression care was available for postpartum women who screen positive. Existing international guidelines thus differ in their recommendations.

Both the National Institute for Health and Care Excellence and the Canadian Task Force on Preventive Healthcare's guidelines recommend against formal screening for depression during the perinatal period. In the United States, professional organizations, including the American Academy of Pediatrics, and the U.S. Preventive Services Task Force recommend screening for depression among pregnant and postpartum women, with the caveat that such screening efforts be implemented with adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up. Given the variations in PD prevalence, screening decisions might take into consideration both the practice population characteristics and available supports for follow-up. [15, Rank 5]

Proposed Biomarkers for Identification of Postpartum Depression

A number of biomarkers have been proposed to be useful identifiers for patients at risk for postpartum depression, including neuroendocrine, epigenetic, and neuroinflammatory biomarkers. However, many of these biomarkers have not been replicated across studies, which may be due to heterogeneity in the patient population. Useful information can still be gleaned from these biomarker studies despite this lack of confirmation in that integration of these findings may point to potential common pathways. Please note that this section will focus only on biomarkers implicated specifically in postpartum depression, not those inferred from

studies on major depressive disorders. Further, we will provide a concise summary of biomarker findings since this topic is reviewed in greater depth elsewhere. It is also important to acknowledge the challenges of biomarker identification, such as the heterogeneity in the patient population, limited access to samples (largely limited to circulating factors in the blood), and lack of control over the experimental conditions in the clinic. [16, Rank 5]

Levels of reproductive hormones

Given the timing of symptom onset, altered levels of reproductive hormones are obvious candidates for potential biomarkers. However, consistent changes in reproductive hormone levels have not been observed in association with postpartum depression. Interestingly, there is evidence that women suffering from postpartum depression may be differentially sensitive to the effects of gonadal steroids, since withdrawal from supraphysiologic doses of estradiol and progesterone increased depressive symptoms only in patients with a history of postpartum depression. Further, lower levels of oxytocin have been shown to be a predictor of postpartum depression as well as severity of symptoms. However, another study demonstrated that oxytocin levels only predicted postpartum depression symptoms in patients with a history of major depressive disorder

> **" Each disorder presents a range of mood changes and physical complaints. Postpartum "blues" is not considered a disorder; it is regarded as part of the normal postpartum adjustment. "**

Levels of Stress Hormones

Placental corticotropin releasing hormone (CRH) was shown to be a strong predictor of postpartum depression in one study and was proposed as a useful diagnostic criteria for postpartum depression. However, ***a follow-up commentary based on this report warned that the recommendation for the use of CRH as a diagnostic marker for postpartum depression is premature.*** In fact, an independent study found an inverse relationship between placental CRH levels and depression scores, but found that this association was not maintained in a covariate-adjusted comparison, suggesting that placental CRH was not directly associated with an increased risk of postpartum depression and, therefore, not a useful biomarker. [17, Rank 5]

Neurosteroid Levels

The neuroactive steroid allopregnanolone, a metabolite of progesterone, has also been suggested as a potential biomarker for postpartum depression. Allopregnanolone has been demonstrated to exert anxiolytic and antidepressant effects, making it a good candidate as a biomarker for postpartum depression. Further, neurosteroid levels rise during pregnancy and fall precipitously during the postpartum period, alloprenanolone levels are decreased in major depressive disorder, and are increased following antidepressant treatment. Several studies have documented reduced allopregnanolone levels associated with the risk of developing PPD, a reduction in women experiencing postpartum blues, and a negative correlation of serum allopregnanolone with symptoms of postpartum depression. However, it is important to note that other studies have not observed a decrease in circulating levels of allopregnanolone in patients with postpartum depression though the timing of the blood sample (for example 2nd versus 3rd trimester) may play a role in differing results. Thus, the association between allopregnanolone levels and postpartum depression remains unclear.

Other Factors

Several other factors have also been investigated as biomarkers for postpartum depression. For example, ***higher levels of β-endorphin, a reduction in platelet serotonin levels, increased monoamine oxidase-A density, low omega-3 levels, and lower vitamin D levels have all been associated with a greater risk for developing postpartum depression but have yet to been replicated.***

Genetic polymorphisms and epigenetic modifications associated with postpartum depression have also been proposed to be useful biomarkers postpartum depression and have been suggested to contribute to the underlying neurobiology of the disorder. [18, Rank 3]

Genetics of Postpartum Depression

There is evidence for a genetic influence in postpartum depression, based on twin and family studies. Genome-wide association studies have also identified individual candidate genes as well as potential pathways involved in postpartum depression. ***Candidate gene studies have largely focused on genes previously implicated in major depressive disorder, such as the serotonin transporter, tryptophan hydroxylase-2 (TPH2), Catechol-O-methyl transferase (COMT), Monoamine Oxidase (MAO), and Brain Derived Neurotrophic Factor (BDNF).*** Interestingly, pathway analyses based on candidate genes or unbiased screens

point to estrogen signaling and the hypothalamic-pituitary-adrenal (HPA) axis involvement. In fact, a recent study identified 44 risk variants in patients with major depression, with one of the strongest candidates having known involvement in the regulation of the CRH response to stress.

Genetic studies face the same limitations as the search for potential biomarkers in postpartum depression insofar as the heterogeneity of the patient population makes identification of common genes or common biomarkers challenging. It has been estimated that to adequately power a genome-wide association study for major depression would require five times more patients than for schizophrenia, the flagship adult psychiatric disorder for genomics research. Despite these challenges, several studies have identified polymorphisms in specific genes or pathways associated with postpartum depression

> **"Pregnancy, labor, and birth are perhaps the most significant life experiences that a woman and her partner will encounter. It is a time of extreme physical and emotional transition with intense hormonal, psychological, and biological changes, all of which can have an effect on the central nervous system."**

Categorization of Postpartum Depression

A large body of empirical studies has examined risk factors for PPD. Current evidence can be categorized into two categories, biological and psychosocial. For the most part, the biological research addresses the endocrine system, the immune system, and genetic factors, and the psychosocial literature addresses stressors and interpersonal relationships. Review papers typically concern only one of these bodies of research. The downside of this bifurcated literature on PPD is that biopsychosocial processes and interactions are neglected, and integrative models remain underdeveloped and untested. The present review incorporates the empirical evidence from both research domains in an effort to provide an expanded perspective on PPD risk, to foster integrative work, to provide insight into biobehavioral mechanisms in PPD etiology, and to identify potential avenues for interventions. [19, Rank 5]

Complexity in the Classification of Postpartum Depression

The same criteria used to diagnose major depressive disorder apply in the postpartum period (DSM-IV-TR). ***A postpartum specifier can be attached to the diag-***

nosis if symptom onset occurred within four weeks after delivery. In the DSM-5, this has been expanded to a peripartum specifier, indicating onset at any time during pregnancy or the first four weeks post partum. The International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10) lists criteria for postpartum depressive episodes similar to those in the DSM-IV-TR, but it specifies symptom onset within six weeks post partum. In empirical research, definitions of the postpartum period are more variable, including anywhere from the first few hours after delivery up to one year.

A complexity given this definition is that PPD can be a first episode of depression (de novo), or it may be preceded by depressive symptoms in the present pregnancy, in previous pregnancies, or in previous postpartum periods, and it may also occur within the context of a lifetime history of depression. In particular, a history of puerperal depression—that is, depression in this or previous pregnancies and PPD following previous pregnancies—and nonpuerperal depression, anxiety, and stress typically have moderate to strong associations with PPD. Thus, although disagreement exists about whether PPD is a disorder distinct from other depressions, it is unique in at least two ways. First, it is preceded and accompanied by major biological adaptations that may also affect mood. Second, PPD not only affects the mother but also adversely affects the newborn's cognitive, behavioral, and emotional development, with effects potentially lasting into adolescence.

Most reports indicate that 10% to 15% of new mothers experience PPD, with the most recent meta-analysis estimating the prevalence within three months after delivery at 19.2% for minor and 7.1% for major PPD. Comorbidity studies suggest that PPD is likely to co-occur with other psychiatric disorders that affect women after birth, most commonly anxiety disorders. [20, Rank 5]

> **" The childbirth education class is an ideal environment because the educator usually has the attention of both parents or a mother and her significant other. "**

Diagnosing Postpartum Depression

The gold standard for diagnosing PPD is a clinical interview, the most well known of which is the Structured Clinical Interview for the DSM-IV. ***Shorter screening tools, most prominently the Edinburgh Postnatal Depression Scale are also commonly used in research because they are reliable, well validated, and often more***

practical and cost-effective in widely screening for PPD risk. In particular, the EPDS has demonstrated a sensitivity of 95% and specificity of 93% compared to DSM-III criteria.

Biological and Psychological Theories Concerning Postpartum Depression

Biological and psychological theories have guided research and provided insight into an important piece of the PPD puzzle, but they do not help us understand how psychosocial stress processes are instantiated in women's brains and bodies, nor how genetic or epigenetic changes interact with psychosocial risk factors to influence PPD risk. To bridge this divide, integrated models have been developed, including the stress vulnerability model, which proposes that stress can trigger PPD in women with genetic, hormonal, and cognitive vulnerabilities.

There is evidence to support this theory, although most studies have relied on family and personal history of depression as proxies for underlying genetic risk. ***More recently, bio-psycho-social-cultural model overlaid the stress vulnerability model with additional biological sophistication and added cultural aspects to the list of moderating variables.*** By this account, biological vulnerability is conceptualized as a genetically derived hypersensitivity to hormonal changes and to dysregulation or impaired adaptation mechanisms in the central nervous system. This vulnerability is thought to interact reciprocally with the environment, both shaping the organism's responses to environmental challenges and being shaped by stressors and positive experiences over the life span. Very few studies have attempted to test these integrated models. [22, Rank 3]

Classic biological models of PPD can be conceptualized as withdrawal models that concern the fact that reproductive hormones and stress hormones rise dramatically prior to delivery and then drop suddenly at delivery, which is hypothesized to trigger system dysregulation and depressive symptoms in a subset of vulnerable women. Support for these theories comes from observations of a reproductive subtype of depression related to hormonal fluctuations during the menstrual cycle, puberty, pregnancy, the postpartum period, and menopause and from treatment studies and case reports documenting a rapid improvement in symptoms after estradiol administration.

In contrast, ***psychological models such as the stress process model and the cognitive behavioral model of PPD emphasize the deleterious role of psychological stressors (e.g., father abandonment, financial strain) and underlying cognitive vulnerabilities (e.g., negative attributional style)***

and the ameliorating role of psychosocial resources (e.g., social support, self-esteem). These theories posit that pregnancy, childbirth, and new parenthood are stressors for many mothers, helping to explain why women may be especially vulnerable to depression at this life stage. Psychological models have consistently found support in the psychological literature and are still quite influential. [21, Rank 4]

Biological Predictors of Postpartum Depression

Normal human pregnancy is characterized by substantial biological changes designed to maintain the pregnancy, support fetal development, and promote labor, delivery, and lactation. To meet the often-conflicting needs of the mother and the quickly developing fetus, the female body is equipped with considerable adaptive capacity. After delivery of the baby and the placenta, the intricate balance that sustained the maternal-placental-fetal unit throughout gestation is suddenly obsolete, and the maternal systems undergo dramatic biological changes within the first postnatal days. Depending in part on how long a woman breastfeeds, the new nonpregnant biological balance may take many months to establish. Ultimately, these biological adjustments may also impact maternal mental health.

Reproductive Hormones

Reproductive hormones play an important role in orchestrating pregnancy, labor, and birth. They have also been implicated in nonpuerperal depression. A review of 30 years of literature finds that mood disturbance is associated with the sudden withdrawal of estrogen, estrogen fluctuations, and sustained estrogen deficiencies. Likewise, progesterone is thought to be protective against depression because of its anxiolytic and anesthetic properties and because it modulates serotonergic receptors. Thus, shifts in estrogen and progesterone during pregnancy and post partum may contribute to PPD.

Reproductive hormones increase over the course of pregnancy to a degree that is unparalleled by any other neuroendocrine events (e.g., menstruation, puberty, menopause) in the life span of a healthy female. Most prominently, estriol increases by approximately 1,000-fold. Estradiol increases approximately 50-fold, progesterone 10-fold, and prolactin 7-fold; testosterone shows modest increases compared to prepregnancy levels, and oxytocin increases just before parturition. Most hormones return to prepregnancy levels within one to two weeks. However, in breastfeeding women, prolactin remains elevated, and breastfeeding bouts trigger acute increases in both prol-

actin and oxytocin, while estradiol and progesterone levels are suppressed during lactation amenorrhea. [24, Rank 5]

> **" Postpartum depression occurs when women are unable to experience, express and validate their feelings and needs within supportive, accepting and non-judgmental interpersonal relationships and cultural context. "**

Estrogens

The strongest evidence that estrogen withdrawal plays a causal role in PPD comes from a double-blind pregnancy-simulation study in which synthetic estradiol and progesterone were administered and then withdrawn, triggering symptoms of depression in the eight women with a history of PPD but not in the eight women without a history of PPD. Of note, at no time were group differences in estradiol or progesterone levels observed nor was hormone correlated with EPDS scores. This small but influential landmark study suggests that women with a history of PPD may be differentially sensitive to the mood-destabilizing effects of changes in gonadal steroids and that the assessment of estradiol and progesterone levels may not be an appropriate measure to adequately reflect the processes through which these hormones impact PPD development.

Accordingly, little support exists for the association of the magnitude of the perinatal estrogen drop or perinatal estrogen levels with PPD. In a study of 70 mothers without a psychiatric history, a study found no link between the severity of postpartum blues symptoms and the magnitude of the estriol drop between 36 weeks' gestational age (GA) and the first week post partum. Two smaller studies not selecting for psychiatric history also report the lack of an association between late-pregnancy levels of estradiol or the magnitude of the estradiol drop and PPD symptoms within six months post partum.

All studies on endogenous estrogen and PPD symptoms obtained a measure postpartum, hypothesizing that if estradiol is psycho-protective, lower naturally occurring estrogen levels should be associated with PPD symptoms. However, the majority of studies report null results or point to higher estradiol as a risk factor. The largest study of new mothers at five days post partum found that mothers with a PPD diagnosis had higher levels of plasma estradiol on the third but not the first day after birth compared to healthy controls.

Another study found a link between

higher estradiol and a concurrent PPD diagnosis within the first six months post partum. Neither study controlled for breastfeeding, which is a viable confounding variable associated with both lower rates of PPD and lower levels of estradiol. The one study that did find evidence for a psycho-protective effect of postpartum estrogen was also the lone study measuring the estrogen subtype estriol. In that study, blues symptoms within the first week post partum were inversely correlated with estriol levels. All other studies failed to detect a link between postpartum levels of estradiol and PPD symptoms. In sum, little evidence supports estrogen withdrawal theories, and biological vulnerability models remain largely untested. [23, Rank 2]

Progesterone

A few studies implicate progesterone withdrawal in PPD risk. ***Progesterone levels after 36 weeks' GA were not associated with PPD symptoms in small studies. Moreover, few of these studies found no evidence that the magnitude of the perinatal progesterone drop predicted PPD symptoms.***

If progesterone is psycho-protective, women with higher naturally occurring levels of progesterone post partum may experience lower rates of PPD symptoms. Consistent with this hypothesis, a longitudinal study of 54 mothers found that progesterone levels within 12 to 48 hours after birth, but not at 1 or 4 weeks post partum, were inversely related to PPD symptoms 6 months after delivery. Three small studies report on the absence of a link between progesterone and concurrent symptoms of depression between 1 and 17 weeks post partum. In sum, little evidence suggests that progesterone in late pregnancy or post partum predicts PPD symptoms, but studies have been small, and moderators associated with vulnerability to hormone changes remain untested. [26, Rank 4]

Prolactin

Few studies addressed the role of prolactin for PPD risk, and most assessed prolactin post partum. ***One exception is a study of mothers that reports lower prolactin at 36 weeks' GA with higher likelihood of PPD symptoms at six months post partum.*** However, this association did not hold after controlling for progesterone and stressful life events. Moreover, no significant association

> **" Childbearing women want information regarding complications and risks of childbirth, including caesarean section, epidural analgesia, and induction. "**

between PPD symptoms and the magnitude of the perinatal prolactin drop was observed. Prolactin has anxiolytic properties and is thought to contribute to the stress-buffering effects of lactation consistently observed in studies of humans. Therefore, higher basal levels post partum may be protective against PPD onset. In line with this view, two studies with partially overlapping samples found that women in the highest decile on the Profile of Mood States-Depression subscale between four and six weeks post partum had lower levels of prolactin compared to the other women in the sample. However, a study of 48 women found no association between PPD symptoms and prolactin at baseline and in response to breastfeeding at two and eight weeks post partum. One study suggests no prospective link between prolactin in the first week post partum and PPD symptoms at six months. In sum, although data are mixed, it is noteworthy that the two largest studies suggest an inverse association between PPD and prolactin. [27, Rank 4]

Oxytocin and Testosterone

One prospective study of ***women who were symptom free at the time of recruitment found that lower oxytocin levels between 21 and 32 weeks' GA predicted more PPD symptoms within the first two weeks post partum.*** Lower baseline oxytocin at two and eight weeks was also associated with concurrent symptoms of PPD in another study of women. In that study, lower oxytocin released in association with breastfeeding or pumping was also linked with more symptoms at eight weeks but not at two weeks post partum. Another cross-sectional study of women with and without cocaine use during pregnancy found no evidence for such a link between 1 and 11 months post partum, but these latter findings should be considered in light of the small sample, the unique population, and the large window for PPD assessment. In sum, this small literature suggests that lower levels of oxytocin in pregnancy or post partum may be a risk factor for PPD.

A prospective study of women provided no evidence that testosterone levels late in pregnancy or the magnitude of the perinatal drop were associated with PPD symptoms in the first four postpartum days or at six weeks post partum. That study also reports on the absence of a link between concurrently assessed testosterone and PPD symptoms within the first four days and at six weeks post partum. In contrast, a correlational study of women suggests a positive association between testosterone and PPD symptoms within the first three postpartum days [25, Rank 5]

Stress Hormones

The negative mood, cognitive difficulties, and heightened anxiety that are characteristic of depressive disorders are hypothesized to involve dysregulation of the body's stress response systems such that affective and biological stress responses occur in disproportion to events or persist for extended periods of time. ***Stress hormones, in particular those of the hypothalamic-pituitary-adrenal (HPA) axis, have been implicated in nonpuerperal depression.*** In principle, stress hormones follow a pattern similar to reproductive hormones, such that they increase over the course of pregnancy and then drop after delivery. However, the neuropeptide corticotropin-releasing hormone (CRH) increases exponentially over the course of pregnancy, reaching levels observed only under conditions of stress in the median eminence, a local portal system connecting the hypothalamus with the pituitary gland. This exponential increase occurs because CRH, which is typically released by the hypothalamus, is also produced by the placenta. Because cortisol stimulates placental CRH production, a positive feed-forward loop is established. Thus, (stress-related) cortisol increases early in pregnancy may result in accelerated CRH increases throughout pregnancy.

Corticotropin-Releasing Hormone

A prospective study of ***women found accelerated CRH trajectories between 23 and 26 weeks' GA and higher CRH levels between 18 weeks' GA and the end of pregnancy among women with PPD symptoms at 9 weeks post partum.*** Similarly, another prospective study of pregnant women found more pronounced increases in CRH from 29 to 37 weeks' GA and higher absolute levels at 37 weeks' GA with PPD symptoms at 8 weeks post partum. An earlier finding however, suggests a lack of association between CRH levels between 25 and 37 weeks' GA and PPD symptoms at 6 months post partum. Researchers reconcile these seemingly contradictory findings by showing a significant association of CRH levels and trajectories with PPD symptoms at 3 months but not at 6 months post partum.

There is an absence of a link between CRH before 20 weeks' and between 24 and 29 weeks' GA and PPD symptoms at 12 weeks and 1 year post partum. However, the study used a less validated assay technique and that study also failed to detect the well-established link between CRH and gestational length. Only one study assessed the magnitude of the perinatal CRH drop and found larger CRH decreases from 36 weeks' GA to the first week post partum with less pronounced PPD symptoms, contradicting

the withdrawal hypothesis. None of the studies assessing CRH post partum report a significant link with PPD symptoms [28, Rank 1]

Heterogeneity of Postpartum Depression Symptoms

Postpartum depression affects 10–15% of women and confers substantial morbidity and mortality to mothers and children, being associated with increased risk of suicide, decreased maternal sensitivity and attachment to infants, infanticide, and poor child development. ***The strongest predictors of postpartum depression are history of depression or anxiety during pregnancy or post partum, a personal or family history of mood disorders, including bipolar disorder, previous perinatal loss, experiencing stressful life events, and lack of social support. Moderate predictors include parity, unplanned pregnancy, obstetric factors, and maternal personality characteristics.***

Postpartum depression has been understudied and, consequently, there are significant controversies about the disorder, including whether it is a distinct disorder or part of major depressive disorder, whether childbirth acts as a specific trigger for the onset of depression, and whether the diagnostic criteria for postpartum depression should be specific to the postpartum period or extended to include symptom onset during pregnancy? One view is that postpartum depression is partly or wholly distinctive from major depressive disorder, and that its risk is confined to the immediate postpartum period.

Women with postpartum depression are suggested to be biologically different from those with major depressive disorder and, therefore, more sensitive to the dramatic fluctuations in gonadal hormones during the perinatal period. An alternative perspective is that postpartum depression is essentially an episode of major depressive disorder that manifests in a specific temporal period. The debate about timing of onset has multiple important implications. As a field, perinatal psychiatry is attempting to disentangle the biological, genetic, psychological, and social contributions that determine prognosis and long-term outcomes for postpartum depression, and to identify risk factors and phenotypic characteristics that might distinguish postpartum depression from major depressive disorder occurring at other times of a woman's life. [30, Rank 4]

The diagnostic definition of postpartum depression also remains a topic of debate, with varying temporal definitions having been proposed. The Diagnostic and Statistical Manual of Mental Disorders (DSM), fifth edition, has expanded the definition to include onset of symptoms during pregnancy and for up to 4 weeks postpar-

tum. In contrast, the International Statistical Classification of Diseases, tenth revision, defines postpartum depression as onset within 6 weeks postpartum, and WHO and the Centers for Disease Control and Prevention extend the risk period to 12 months postpartum. Thus, timing of symptom onset is a crucial line of inquiry.

Clinical screening for depressive symptoms might occur only once in the postpartum period. A positive screen will be diagnosed as postpartum depression but will not delineate when symptoms began and the length of time for which they have been present. This lack of specificity could lead to diagnostic confusion and inadequate or ineffective treatment, as the factors that distinguish treatment response or prognosis, or whether they will differ as a function of when the depressive episode began, are not yet clearly understood. Identification of whether the episode began before and continued into the pregnancy, during pregnancy, or in the postpartum period is, therefore, very important.

Postpartum depression might differ from major depressive disorder outside the perinatal period in terms of clinical presentation and heritability of the trigger, but postpartum depression in itself might also be heterogeneous. Characterisation of heterogeneity would have important diagnostic, therapeutic, and prognostic implications. A well defined classification of phenomena in postpartum depression based on symptom profiles and timing of onset will inform future research and advance understanding of the causes of this disorder. [29, Rank 5]

Identifying the Timing of Onset of Postpartum Depression

The timing of onset of postpartum depression is an area of intense investigation. This feature was the sole change in the diagnostic criteria between the fourth and fifth editions of DSM. Researches are eager find out whether it was associated with a particular subgroup of women. In a study, it was found that around 67% of those in the most severely depressed group, reported onset of symptoms during pregnancy. This group might, therefore, be more likely to have more chronic or remitting and relapsing presentations of symptoms, obstetric complications, and suicidal ideation in the postpartum period.

Another class was further differentiated from by history of mood and anxiety disorders, which suggests that the onset of psychiatric symptoms could have predated pregnancy and might implicate worse prognosis, including the risk of bipolarity. Identification of timing of onset of symptoms, therefore, becomes a crucial part of assessment and has important implications for understanding the cause and prognosis of

perinatal psychiatric illness. In this study, which enabled more detailed examination of the differences between classes, 62% of women reported onset of symptoms in the first 4 weeks postpartum, whereas in class 3, in which symptoms were more severe, most women reported onset during pregnancy. The timing of symptom onset might be a useful indicator for use in future biological and genetic analyses of postpartum depression.

Some women report depressive and anxiety symptoms on the individual items, but these were less severe than those who did not include suicidal ideation. This was also characterized by the presence of severe anxiety symptoms and feeling overwhelmed. These findings are consistent with women in reporting severe mood symptoms present most of the time and reporting suicidal ideation quite often. Suicidal ideation is the primary cause of psychiatric hospital admissions in the postpartum period and suicide is the leading cause of maternal death. The identification of a distinct class characterised by suicidal thoughts, therefore, is noteworthy. Additionally, women at higher risk of worse prognosis of bipolarity need to be assessed further.

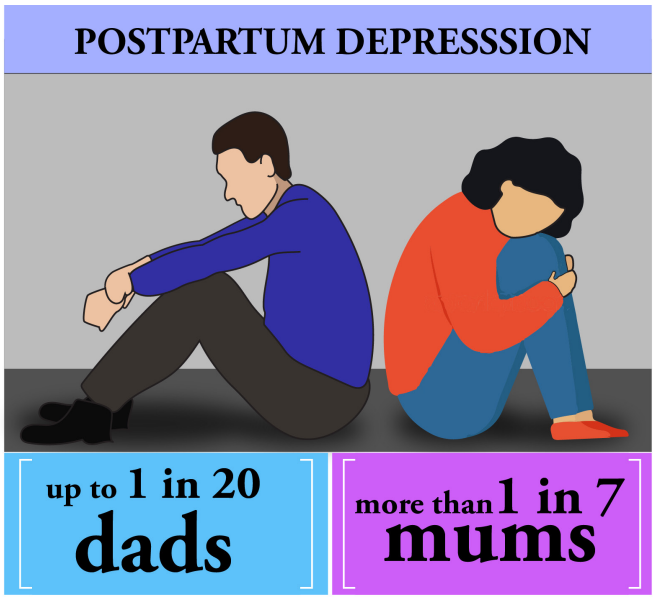

Figure 13: Postpartum Depression in both parents

For example, a study reported that 14% of women who sought psychiatric evaluation within 1 month of giving birth developed lifetime bipolar disorder, and that inpatient admissions were associated with increased diagnostic rates of bipolar disorder than outpatient contacts. Another study also found a high prevalence of bipolar disorder (22%) in structured psychiatric interviews of women with positive EPDS screening scores in the first 4–6 weeks postpartum. These findings, therefore, suggest that the underlying biological or genetic vulnerabilities in women who manifest this most severe form of postpartum depression, and the degree to which these might represent bipolarity that would require a different approach to treatment, warrant further exploration. [31, Rank 3]

The necessity of Screening for Postpartum Depression Symptoms

Several depression screening tools exist can significantly increase detection of

depression. Both ***the Edinburgh Postnatal Depression Scale (EPDS) and the Patient Health Questionnaire (PHQ-9) are most commonly used to screen for PD in studies located in pediatric and community-based settings.*** Standard cutoff scores for both the EPDS and PHQ-9 are 10 (for possible depressive disorder). Women who score in the severe range (a score of 19 and above on both the EPDS and PHQ-9) or who endorse self-harm should be directly referred to a behavioral health specialist.

There are currently no clear recommendations on periodicity of screening. In the absence of data, a pragmatic approach would be to conduct a first systematic screening at 6–8 weeks postpartum (or to coincide with the 2-month well-baby checkup). Postpartum blues, which are milder and more transient, are common among up to 80% of new mothers and tend to resolve within 2 weeks postpartum. Somatic complaints common among mothers of new babies (e.g., fatigue and lack of sleep) also overlap with key symptoms of depression. Early screening, especially in the first weeks postbirth, tends to be unstable. Screening at the 2-month well-baby visit thus avoids false positives due to the conflation of depression symptoms with complaints that are common during the early postpartum period.

Because the risk period for depression increases over the postpartum period, with peaks documented through 6 months, screening should be integrated into routine practice and repeated at all well-child visits up to at least the 6-month well-baby visit. [32, Rank 5]

Routine and formal screening using a validated screening tool for depression improves identification of depression in primary care and can lead to earlier treatment of PD. Common screening tools can be self-administered or administered by various providers, office staff, and/or allied health professionals. In busy pediatric practices, such systematic screenings allow for identification of mothers whose persistent depression or distress may otherwise go unrecognized and unaddressed. Given prevalence estimates and studies based in

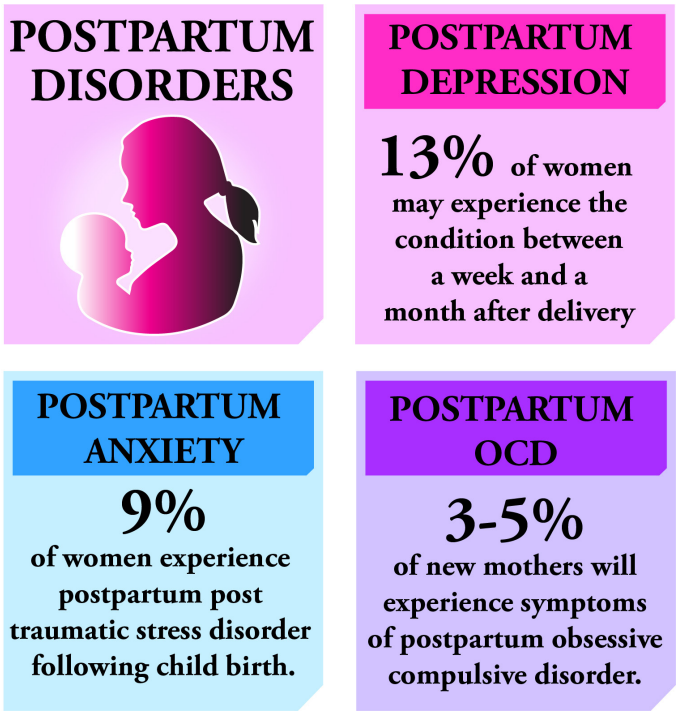

Figure 14: Facts about Postpartum Disorders

real-world practices, pediatric practices can expect to detect up to 34% cases over the 12-month postpartum period. These numbers may be higher among low-income and minority women, who are also more likely to have characteristics associated with an increased risk of chronic and severe depression.

Care Management Based on Risk Profile for Postpartum Depression

Women who fall in the middle section of the care pathway, defined as those with moderate levels of depression symptoms, are the focus of PD management within pediatric practices. These moderately symptomatic women are most likely to benefit from supportive interventions that could be integrated as part of well-child care. For women with moderate risk profiles (e.g., moderate symptoms and few psychosocial risks), psychoeducation about PD, including the myths and realities of motherhood, distinctions between baby blues versus more chronic depression symptoms, ways to engage social supports, and other self-help activities could be readily delivered as part of anticipatory guidance during well-child visits. Extra follow-up visits can be scheduled similar to visits that might be scheduled for a breast feeding infant with suboptimal weight gain. Pediatric providers are in a good position to educate, encourage, and facilitate access to services and resources increasingly available through the Internet and/or informal supports such as family networks or groups for mothers, all of which are effective in buffering current life stressors that contribute to depressive symptoms. [33, Rank 3]

For women with higher risk profiles (e.g., moderate levels of symptoms and numerous psychosocial risks), typical options in pediatrics include active linkage to specialty care outside of pediatric primary care. Our care pathway includes an option of providing behaviorally-based management of PD by trained pediatric providers or allied health providers, ideally to coincide with well-child visits to increase likelihood of adherence. Studies have shown that depressed mothers share common needs for support around non-medical issues such as relationship with the infant's father, parenting practices to increase attachment to the infant, financial stressors, employment, and loss/grieving.

Targeted interventions to address these issues have been shown to be effective for addressing depression and to prevent the development of major depression among at risk women. Core components of evidence-based strategies for depression, such as pleasant activity planning, stress

management, developing social supports, managing relationship expectations, effective communication, and problem solving skills, are readily integrated into pediatric primary care visits. These are real options for practices with the necessary support staff.

A range of intervention options, potentially feasible within pediatric settings, are included in the care pathway. The decision to manage PD within pediatric settings or elsewhere should be a joint decision by the pediatric provider and mother. Mothers should be informed about the efficacy of psychosocial and pharmacotherapy treatments, both of which are effective in reducing depressive symptoms. Options for follow-up care should be discussed and decisions based on various factors, including maternal preference and available competency within the pediatric setting. Active facilitated linkage, especially those that engage mothers' intrinsic motivation and support help-seeking behaviors, may be needed for successful follow-through. [34, Rank 5]

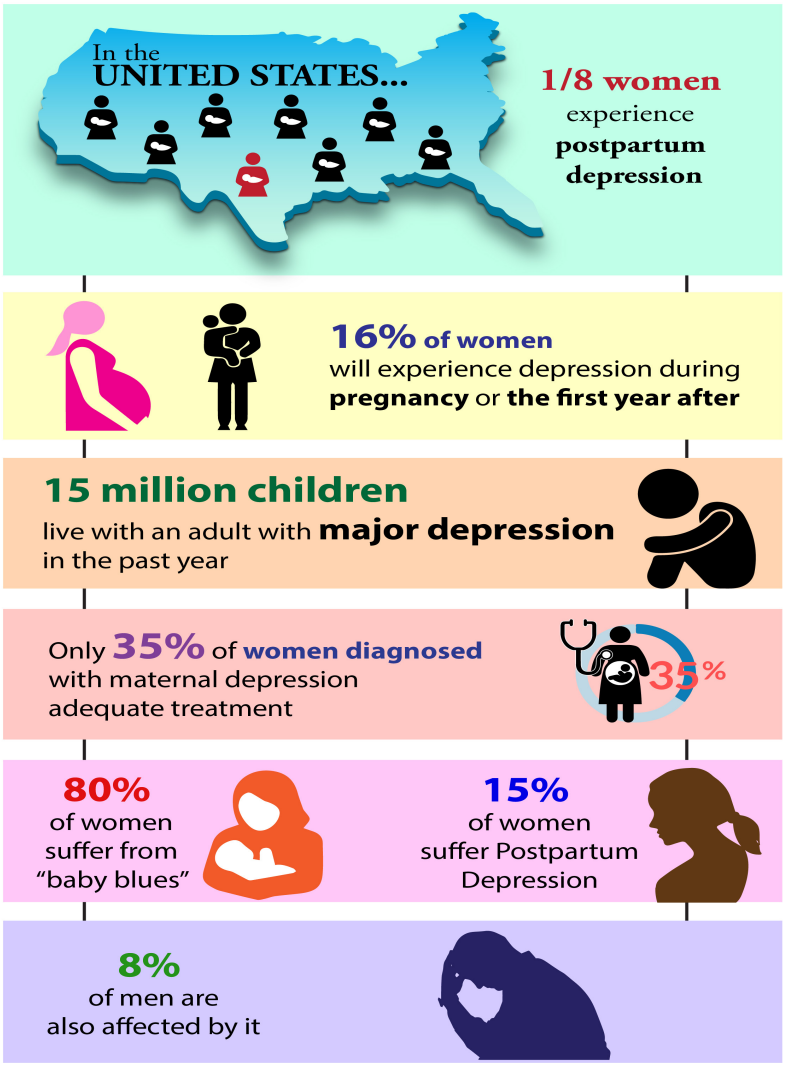

Figure 15: Postpartum Depression in the U.S

Conclusion

The veil of the stigma associated with PPD will slowly lift as more women struggle to find their voice. Childbirth educators are in the front line to alert expectant couples to the possibility of a postpartum mood disorder. Many obstetrics and pediatric offices now provide screening tests for women who exhibit signs and symptoms of PPD. However, many of these women will still be reluctant to admit to or come forward with their symptoms. By educating them in their prenatal classes, it is hoped that these women will be empowered to admit that they are having a problem. Likewise, their spouse or significant other will also be more aware of the signs and symptoms and encourage the new mother to seek help. [35, Rank 5]

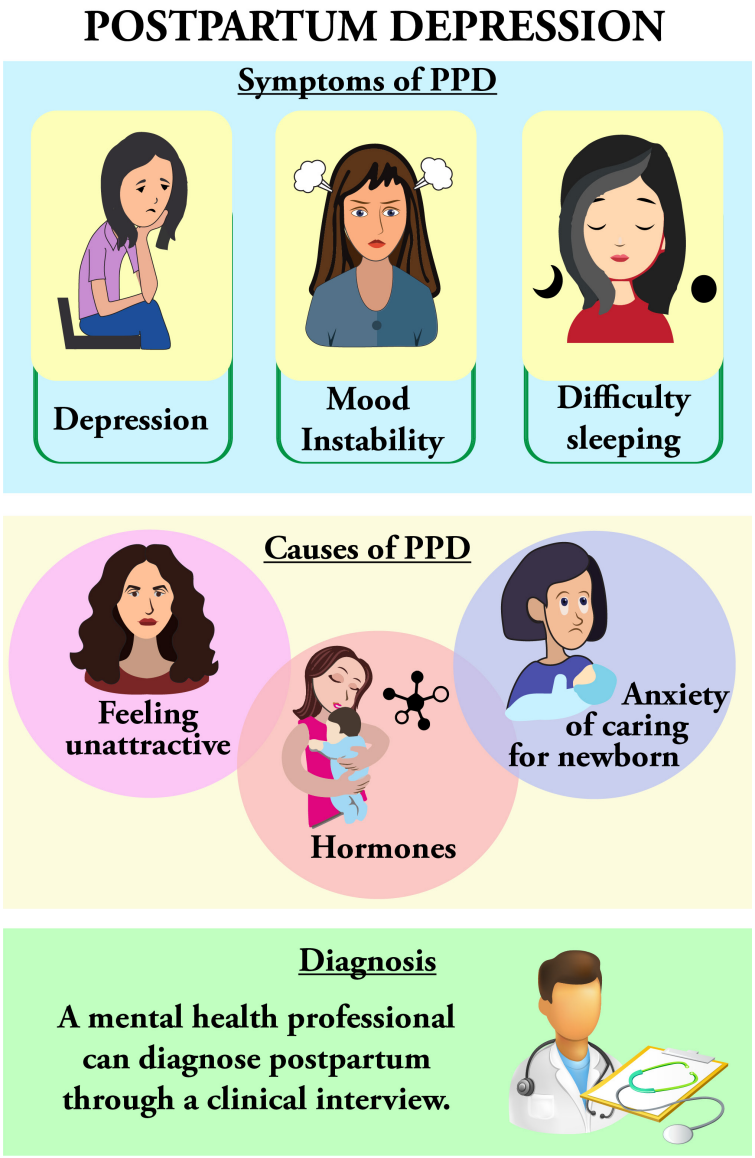

Figure 16: Postpartum Depression

*Important information for post-test is highlighted in red letters, boxes and diagrams.

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