

Screening and Surveillance of Postpartum Depression:
A Quality Improvement Project to Implement Screening in Primary Care
A Clinical Scholarly Project by
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With Love, Thank You!

ABSTRACT

Screening and Surveillance of Postpartum Depression:

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by Adaeze Nkeiruka Nwanonenyi

Maternal depression also known as postpartum depression (PPD) is identified as a common complication affecting 10% to 15% of all women after childbirth. PPD is associated with adverse outcomes in infant and maternal health. Negative impacts can be reduced with early diagnosis and management. Although manageable and treatable, it remains largely undetected by primary care providers. Although mothers are receptive to screening, screening rates are less than 50%. Thus, screening for PPD is imperative in the primary care setting. The purpose of this quality improvement project is to implement PPD screening into routine practice in primary care by 1) Initiate PPD screening using an evidence-based screening tool to identify women at risk or likely suffering from PPD and 2) Development of a referral algorithm tool to support PPD screenings and guide healthcare providers in clinical practice. This quality improvement project is aimed at implementing screening tools to enhance early identification of women with PPD symptoms in routine primary care practice. CSP took place at a federally qualified health center (FQHC) in Compton, California which serves a vulnerable population. A total of 50 mothers completed the EPDS for 12 weeks. Out of the 50 PPD screens, 32 women had negative screens, 12 women were identified at risk and 6 women had positive screens. In general, the primary care setting can be utilized as an additional opportunity to identify mothers with symptoms of PPD.

Keywords: postpartum depression; maternal depression; screening instruments; quality improvement and Edinburgh Postnatal Depression Scale (EPDS), primary care

Chapter I: Background and Significance

This chapter is based on the background and significance of PPD, whereby the assessment of the phenomena is described. The historical and societal perspectives, incidence and prevalence, healthcare costs, and the introduction of PICOt foundation are also provided.

Maternal depression, also known as postpartum depression (PPD) is depression that occurs after having a baby. Research indicates that about 1 in 7 women experience symptoms of PPD. PPD is the most common complication of the postpartum period but most women suffer in silence from this treatable disorder. PPD often remains unrecognized, undiagnosed, and untreated. Symptoms of PPD are similar to symptoms of depression and can last for weeks or months at a time. PPD can occur anytime up to 1yr after childbirth.

For the majority of people who suffer from depression, suffer in silence. This reality rings true for women who have PPD, they feel alone, broken, and hopeless that they won't get better. For most women, bringing a child into this world is usually a joyous occasion. For women who suffer from PPD, it can become very difficult and distressing. PPD is a treatable but serious medical condition that carries risks for mother and child. Symptoms of extreme sadness, indifference, and changes to sleep, appetite, and energy can be experienced during pregnancy and especially following delivery.

PPD screening is sometimes done in the hospital before discharge from childbirth and around 6 weeks with the obstetric healthcare provider, diagnosis of the disorder is missed after 6 weeks through 12 months. It is not uncommon for a woman to miss her postpartum (6 weeks) checkup missing the initial PPD screening altogether. Providers need to ensure that PPD screening can occur on time. This is why mothers need to be screened at settings other than the hospital or obstetrician office as well as increased frequency intervals of screening.

The American Academy of Pediatrics recommends PPD screening to be performed at 1, 2, 4, and 6 months well-child visits. PPD is associated with adverse infant and maternal outcomes (e.g., lower breastfeeding initiation and duration and poor maternal and infant bonding) (AAP, 2017). Untreated PPD may cause maternal distress and infant emotional, cognitive, and developmental problems during childhood. On a positive note, PPD is treatable and does not have to be a lifelong sentence.

The purpose of this study is to integrate PPD screening into routine practice in primary care by 1) Initiate PPD screening using an evidence-based screening tool to identify patients at risk or positive for PPD symptoms and 2) Development of a screening algorithm tool to support PPD screening and guide healthcare providers in clinical practice. The result of this study will address the need to implement PPD screening and identification of women in primary care. As a healthcare provider, our mission should be to identify these women, educate, assess, and treat/refer as necessary. **Research Question: Will the introduction of an evidenced-based PPD screening tool and development of a screening algorithm identify women with symptoms of PPD?**

What is Postpartum Depression?

Primarily depression affects about 10% of pregnant women and 13% of postpartum women worldwide. The rate is higher in developing countries, at 15.6% of pregnant women, and 19.8% for postpartum women (WHO, 2019). The American Psychiatric Association's (APA) Diagnostic and statistical manual of mental disorders (DSM-5) defines perinatal depression as a major depressive episode with onset in pregnancy or within 4 weeks of delivery (APA, 2013). Perinatal depression is a serious mental health problem characterized by a prolonged period of emotional disturbance, occurring at a time of major life change, and increased responsibilities in

the care of a newborn (APA, 2017). Mothers affected by PPD cannot function properly and in severe cases, their suffering may lead to self-harm.

Untreated PPD not only affects the mother's health and quality of life but also can affect the wellbeing of the child as well. PPD can cause bonding issues as well as contribute to sleeping and feeding problems for the baby (Field, 2010). In the long-term, children whose mothers have PPD are at greatest risk for cognitive, emotional, development and verbal deficits, and impaired social skills (Brand, 2009). As a result of PPD the child's growth and development can be negatively impacted (WHO, 2019). PPD does not discriminate, any mother regardless of the socioeconomic class can experience the symptoms of PPD. In January of 2016, the U.S. Preventive Services Task Force updated its recommendations for depression screening in adults to include screening pregnant and postpartum women (APA, 2017).

Postpartum Depression vs Baby Blues

It is estimated that one out of seven women will experience PPD (Dave et al., 2010). PPD requires medical attention and can last up to 1yr following the delivery of a child. It is important to note before treatment can be established, postpartum blues must be ruled out. Unlike PPD postpartum blues, also known as "baby blues" is experienced by as many as 80 percent of new mothers. It is a brief episode beginning in the first few days after childbirth and lasting up to about 10 days (Hirst & Moutier, 2010). Baby blues is a short-term emotional condition involving symptoms that are generally mild, self-limiting, and include such effects as poor sleep patterns, irritability, and brief crying episodes. Thoughts of suicide do not occur. Treatment includes reassurance and support of the mother. It does not interfere with daily activities or require medical attention; symptoms usually resolve on their own without treatment after one to two

weeks (Langan & Goodbred, 2016). This should not be confused with postpartum depression, which is more serious and may require additional treatment.

Symptoms of Postpartum Depression

Although there are no specific diagnostic tests for PPD, assessments should include psychiatric and medical evaluations to rule out medical problems that may have symptoms similar to depression, such as thyroid or vitamin deficiencies. Tests such as thyroid-stimulating hormone (TSH) level should be obtained to evaluate possible hypothyroidism, which can mimic symptoms of depression (Hirst & Moutier, 2010). Moreover, symptoms of PPD are similar to symptoms of depression such as feelings of sadness, changes in appetite, sleep disturbances, problems with concentration, and decreased energy. In addition to symptoms of depression, mothers may have symptoms which include guilt, shame, disconnection from baby, feelings of inadequacy as a mother, trouble with bonding or forming an emotional attachment with the baby or even thoughts of harming self or baby (see Table 1) (CDC, 2017). Although symptoms of depression may be diagnosed at any time; symptoms must begin within four weeks following delivery for the mother to be diagnosed with PPD (APA, 2017).

Table 1

Symptoms of Depression vs Symptoms of Postpartum Depression

Symptoms of Depression	Symptoms of Postpartum Depression
<ul style="list-style-type: none"> • Lasting sad, anxious, or “empty” mood. • Feelings of hopelessness or pessimism. • Feelings of guilt, worthlessness, or helplessness. • Feelings of irritability or restlessness. • Loss of interest in hobbies and activities. • Loss of energy. • Problems concentrating, recalling details, and making decisions. • Difficulty falling asleep or sleeping too much. • Overeating or loss of appetite. • Thoughts of suicide or suicide attempts. • Aches or pains that do not get better with treatment. 	<p>Symptoms for depression, but may also include:</p> <ul style="list-style-type: none"> • Crying more often than usual. • Feelings of anger. • Withdrawing from loved ones. • Oversleeping, or being unable to sleep even when your baby is asleep. • Feeling numb or disconnected from your baby. • Worrying that you will hurt the baby (needs immediate help). • Feeling guilty about not being a good mom or doubting your ability to care for the baby

Note: Table adapted from Depression Among Women, CDC (2017).

The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) does not recognize PPD as a separate diagnosis. Thus, a woman must meet the criteria for a major depressive episode with a specifier of peripartum onset (most recent episode occurring during pregnancy or within four weeks of delivery) (APA, 2013). Therefore, she must have at least five out of nine symptoms of depression for at least two successive weeks, the symptoms must cause clinically significant impairment in her functioning, and the symptoms cannot be caused by other medical conditions (see Table 2) (APA, 2013).

Table 2

Diagnostic Criteria for Major Depressive Disorder

A	<p>At least 5 of the following symptoms have been present for at least 2 weeks and cause a change from previous functioning; symptom 1 or 2 must be present.</p> <ol style="list-style-type: none"> 1. Depressed mood most of the day, almost every day, as indicated by either subjective report or observation made by others (Note: In children and adolescents, this can manifest as an irritable mood.) 2. Severely diminished lack of interest or pleasure in all, or almost all, activities most of the day, almost every day (as indicated by either subjective account or observation). 3. Significant weight loss when not dieting or weight gain (a change of more than 5% of body weight in 1 month), or decrease or increase in appetite most days. (Note: In children, can manifest as failure to make expected weight gain.) 4. Insomnia or hypersomnia most days. 5. Physically irritable or moving too slowly nearly every day (observable by others, not merely subjective feelings of restlessness or being slow). 6. Fatigue or loss of energy most days. 7. Feeling worthless or extreme or irrational guilt most days. 8. Poor concentration, or indecisiveness, most days. 9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation with or without a plan.
B	The symptoms cause clinically significant distress or impairment in functioning.
C	The symptoms are not attributable to the effects of a substance or another medical condition.

Note: Criteria A-C represents a major depressive episode. Table adapted from the American Psychiatric Association (2013).

Who Is at Risk?

According to Mental Health America (2019), the causes of PPD are not quite clear but research suggests many factors predispose a woman to develop perinatal depression (see Table 3); these include a decline or fluctuation in reproductive hormones such as estrogen and progesterone, a previous experience of depression, anxiety, personal or family history of depression, marital dysfunction, and younger motherhood (APA, 2015).

Table 3

Common Causes of Postpartum Depression

<p>Hormonal Changes</p>	<p>A woman experiences the greatest hormonal fluctuation levels after giving birth. Intense hormone fluctuations, such as decreased serotonin levels, occur after delivery and may play a role in the development of PPD.</p>
<p>Situational Risks</p>	<p>Childbirth itself is a major life change and transition, and big changes can cause a great deal of stress and result in depression. If a major event coincides with childbirth, a mother may be more susceptible than average to PPD.</p>
<p>Life Stressors</p>	<p>Ongoing stressful circumstances can compound the pressures of having a new baby and may trigger PPD. For example, excessive stress at the office added to the responsibilities of being a mother can cause emotional strain that could lead to PPD. The nature of the mother's relationship with the baby's father and any unresolved feelings about the pregnancy might also affect a mother's risk of getting PPD.</p>

Note: Table adapted from Mental Health American (2019).

Although women from all races and socioeconomic backgrounds can be potentially affected by PPD, the risk of developing PPD is significantly higher in women who experience pregnancy and birth complications than those with normal, uncomplicated pregnancies and delivery (CDC, 2015). The single greatest risk factor for postpartum depression is a prior history of depression (Langan & Goodbred, 2016).

Health care providers should carefully monitor maternal depression in women of high-risk groups who have higher rates of PPD. This includes women who have a history of mental health disorders, women who have had depression with prior pregnancies, women with a family history of depression, women with limited social support, women who had an unplanned

pregnancy, and low-income women (NIHCM, 2010). However, it is important to note that a woman without any known risk factors may develop PPD. Other risk factors include, but are not limited to the following examples demonstrated in (see Figure 1).

- Symptoms of depression (especially in the third trimester) or anxiety during the pregnancy
- Prior psychiatric illness or poor mental health, especially postpartum depression with a prior pregnancy
- A history of physical, sexual, or psychological abuse; domestic violence
- Family history of depression, anxiety, or bipolar disorder
- Lack of social support
- Low socioeconomic status or educational level
- An immigrant from another country
- Medicaid insurance
- Poor income or unemployment
- Intention to return to work
- Single parent status
- Poor relationship with a partner or the father of the baby
- Unintended pregnancy or a negative attitude toward the pregnancy
- Traumatic childbirth experience
- Stress related to child care issues
- Medical illness, neonatal intensive care unit admission, or prematurity in the infant
- Difficulties with breastfeeding
- A temperamentally difficult infant
- A recent stressful life event or perceived stress
- Smoking
- A history of bothersome premenstrual syndrome

Figure 1. *Risk Factors of Postpartum Depression (PPD)*

Source: (ACOG, 2015; ACOG, 2016; Langan & Goodbred, 2016; Norhayati, et al., 2015)

Assessment of the Phenomena (Problem Statement)

Perinatal depression can have significant consequences for both the new mother and her family. The high prevalence of untreated PPD is a major health issue due to its association with functional impairment in the mother, elevated risk of psychopathology in the children as well as

impacts on the mother-infant relationship (Logsdon et al., 2006). However, workgroups responsible for releasing the DSM-5 state a lack of epidemiological evidence to declare PPD as a unique type of depression that occurs more often in a woman's life (Segre & Davis, 2013). According to DSM-5 peripartum onset is defined being within four weeks of delivery. This is limiting as it excludes those cases of depression that begin after four weeks postpartum. Research studies often define PPD as having an onset anywhere between 3-12 months after delivery (Robertson et al., 2003).

PPD is a highly treatable condition, but is often undetected and undertreated, especially in primary care sites relying on usual care (Sockol, Epperson, & Barber, 2011; Yawn et al., 2012). ACOG (2015), recommends screening all women at least once during pregnancy or in the first year postpartum, but if there are risk factors such as a history of depression or anxiety then closer monitoring is warranted. The primary contributing factor to the length of the depressive episode is a delay in receiving treatment (Wisner et al., 2008).

The practice problem identified in this quality improvement project was the lack of an evidence-based screening tool to identify postpartum women at risk for PPD. The project was implemented in a federally qualified health center (FQHC) located in the underserved minority populated area of Compton, California; the clinic has integrative care servicing primary care as well as behavioral health. The clinic currently does not have protocols or procedures in place to screen for PPD despite current recommendations. Also, the clinic currently represents women at increased prevalence of PPD. This includes African American and Hispanic Americans who are of low socioeconomic status mostly insured with State MediCal insurance. Therefore, screening efforts are vital for this current practice setting due to their high risk for PPD.

Screening in Primary Care

Regarding who to screen, the USPSTF (2016) recommends screening all pregnant and postpartum women. This has a recommendation of grade B which indicates a high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial; universal screening is suggested for practice (USPSTF, 2016). Guidelines on when to screen for PPD indicate that optimal screening times include the first prenatal visit, postpartum visits within three to eight weeks after delivery, and future postpartum visits if symptoms or signs raise concern (Michigan Quality Improvement Consortium Guideline, 2016). The AAP recommends incorporating maternal depression screening into well-child visits 1, 2, 4, and 6 months, at peak times postpartum depression occurs (Earls, Yogman, Mattson, & Rafferty, 2019). Well-child visits in the first year of life are also identified as opportune times to screen mothers (Gjerdingen & Yawn, 2007).

In a study of women who screened positive for depression, either early in the third trimester or at the postpartum visit, approximately 3.8 percent reported suicidal ideation (Kim, et al., 2015). Among women with suicidal ideation, approximately 1.1 percent also reported having a plan, the intent, and access to the means to carry it out. Factors associated with suicidal ideation include single relationship status, non-white ethnicity, non-English speaking, and severe vaginal laceration at delivery. Immigrant Hispanic women may be at higher risk for PPD and suicidal ideation (Shellman, et al., 2014). Any patient who is felt to be acutely at risk of suicide or infant harm should be referred for emergent evaluation and/or hospitalization as indicated (Langan & Goodbred, 2016).

PPD Evidenced Based Screening Tools

All mothers should undergo screening for depression at a postpartum visit and/or a well-child visit. For those who screen negative initially, repeat screening should be considered at a later visit or when the mother takes her baby in for a checkup. Well-child visits offer a good opportunity to screen mothers who missed their postpartum visit, those who might benefit from repeat screening, and those who failed to undergo earlier screening for any reason (Earls, Yogman, Mattson, & Rafferty, 2019). A standardized self-administered screening tool (see Table 4), followed by a review of the patient's responses and follow-up questions in a face-to-face interview with the provider, will ensure consistency and efficiency in the screening process (O'Connor, et al., 2016).

Table 4

Validated Postpartum Depression Screening Tools

<p>Edinburgh Postnatal Depression Scale (EPDS; Cox, et al., 1987)</p>	<p>EPDS: A 10-item tool to screen for postpartum depression available free of charge in English and Spanish at the link provided above. A score of 10 or more suggests depressive symptoms. A score of 13 or more indicates a high likelihood of major depression. A score of one or more on question #10 is an automatic positive screen because it indicates possible suicidal ideation and requires immediate further evaluation.</p>
<p>Patient Health Questionnaire-9 (PHQ-9; Yawn, et al., 2009)</p>	<p>PHQ-9: A 9-item tool available free of charge in multiple languages at the link provided. A score of 10 or more indicates a high risk of having or developing depression. A score of two or more on question #9 is an automatic positive screen because it indicates possible suicidal ideation and requires immediate further evaluation.</p>
<p>Postpartum Depression Screening Scale* (PDSS; Beck & Gable, 2000)</p>	<p>PDSS Full form (35-item version): A score of 60 or more suggests depressive symptoms; a score of 81 or more indicates a high likelihood of major depression. A score of six or more on the SUI (suicidal thoughts) subscale is an automatic positive screen because it indicates possible suicidal ideation and requires immediate further evaluation.</p> <p>PDSS Short form (7-item version): A score of 14 or more indicates a high risk of major depression. A score of two or more on question #7 is an automatic positive screen because it indicates possible suicidal ideation and requires immediate further evaluation.</p>

Note: *Available in long and short versions. Table adapted from The Texas Clinician’s Postpartum Depression Toolkit Volume 2.

PPD Treatment – Nonpharmacological vs Pharmacological

The choice of intervention should be dictated by the predominant symptoms. First-line treatment of mild-to-moderate postpartum depression includes psychological and behavioral therapies, such as individual or group counseling, interpersonal psychotherapy (IPT), and partner-assisted IPT (Hirst & Moutier, 2010; Langan & Goodbred, 2016). Mild postpartum depression may respond well to cognitive-behavioral interventions (e.g., stress management, problem-solving, goal setting), provided in individual or group settings (O'Connor, et al., 2016). Mothers can be reassessed by repeating the screening tool to see if the score improves over time. Pharmacologic therapy should be considered if no improvement is seen, or if symptoms worsen.

For patients with more severe symptoms and those who do not respond to non-pharmacologic therapy, medication therapy may be appropriate. Selective serotonin reuptake inhibitors (SSRIs) are one class of drugs commonly used to treat postpartum depression (Hirst & Moutier, 2010, Langan & Goodbred, 2016). There is no evidence that one agent is superior to any other. Of course, the health care provider should initiate an antidepressant the mother has taking in the past with good results, in the absence of contraindications. Table 5 provides common initial, treatment, and maximum doses for antidepressant medications (some SSRIs and Bupropion) commonly used to treat postpartum depression.

Table 5

Common Dosing Regimens for Antidepressants in Women with Postpartum Depression

Drug	Starting Dose	Typical Treatment Dose	Maximum Dose
Sertraline	25 mg	50 – 100 mg	200 mg
Fluoxetine	10 mg	20 – 40 mg	80 mg
Escitalopram	5 mg	10 – 20 mg	20 mg
Citalopram	10 mg	20 – 40 mg	60 mg
Bupropion (sustained release)	100 mg	200 – 300 mg (divided dose)	450 mg

Note: Table adapted from Hirst & Moutier, 2010.

Breastfeeding

Postpartum depression and treatment with antidepressant medications are not contraindications to breastfeeding (Lanza & Wisner, 2009). The LactMed® database provides reviews of safety information on a wide variety of drugs that may be taken by lactating women, including antidepressant medications. Women who wish to breastfeed while taking antidepressants should be counseled on the benefits of breastfeeding, the value of treating postpartum depression (including the benefits outweighing risks). Women who choose to breastfeed should be supported and encouraged in any challenges and obstacles that may be present (Sriraman, et al., 2015).

Historical and Societal Perspective

The first published paper devoted specifically to puerperal mental illness was printed in 1858 by Louis-Victor Marcé. Marcé's Treatise on Insanity in Pregnant, Postpartum, and Lactating Women found that although the symptoms that pregnant and postpartum women were experiencing could be found in other mental disturbances. The combination of symptoms was distinct to the functional changes occurring within the reproductive system after childbirth and

should therefore be classified as a separate diagnosis (Hansotte, 2017). However, there was no consensus on the definition of depression in postpartum women until the late twentieth century. In the mid-1900s, Britain differentiated postpartum psychiatric disorders from nonpuerperal mental illness, but the USA viewed PPD either as harmless, fleeting “baby blues”. In the USA, PPD was formally recognized in 1994 as a clinical diagnosis in the Fourth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) to validate the stress some new mothers experience during the postpartum period (Hansotte, 2017).

High rates of depression in women and the adverse outcomes associated with PPD, is a major public health concern (Wisner et al., 2008). Furthermore, many women often do not report they are experiencing depression early on due to stigma, lack of awareness, or barriers to care (NIHCM, 2010). Many barriers such as cost, lack of insurance, stigma, and discrimination prevent people with mental illness from seeking care.

Many racial and ethnic minorities live below the poverty line or do not have health insurance. Nearly one in four African Americans are uninsured, and few mental health care providers are minorities. For every 100,000 Hispanic individuals in the United States, there are only 29 Hispanic mental health care professionals (Palpant, 2006). These two barriers are compounded by the stigma surrounding mental health issues in both minority and non-minority communities. Also, some cultural and family values do not support help-seeking behaviors; thus, many racial and ethnic minorities remain without care.

Themes that emerged as treatment obstacles include cultural, physical, social, and systemic health care barriers. In the USA, African American and Hispanic women are minorities disproportionately represented and are the populations most at risk for PPD. Consequently, these are the populations affected the most by health care inequities associated with the lack of

resources characteristic of low socioeconomic status. The population of low-income women universally has more barriers to care and thus more vulnerable than women with greater access to resources. The time it takes for the new mother to receive adequate, individualized treatment via medication, therapy or social support is the most significant factor in the duration of PPD (Hansotte, 2017).

Cultural Barriers and Stigmas

PPD studies have shown that cultural factors play a significant role. It can trigger PPD as well as contribute to the alleviation of its depressive symptomatology (Bina, 2008). Racial and ethnic disparities in mental healthcare are detailed in the literature. Studies have found that African American and Hispanic females were less likely than Caucasian females to begin mental health care after delivery, with Caucasians having around twice the odds of starting treatment. Research reveals preferences in treatment modality for depression differ by race. African Americans and Hispanics generally prefer psychotherapy over antidepressant medications (Kozhimannil et al., 2011). In the African American community, only 16% seek care from a mental health specialist with a diagnosable mood disorder and only 29% seek care from any medical provider. Also, African Americans and Hispanics are substantially less likely to use some form of depression treatment than Caucasians (Palpant et al., 2006).

Results from a study explored the negative effects of cultural beliefs on women's postpartum well-being. According to Bina (2006), African American women who attempt to live up to the image of being a “strong Black woman” were ashamed of having depression believe that PPD is a myth and can only happen to “White women”. Additionally, prayer and faith were relied upon to help them cope with their depression (Bina, 2008). Amankwaa (2005), stresses

that beliefs and rituals held widely by African American women may prevent them from seeking professional help as well as contribute to the deterioration of their PPD.

Geographical regions report differences in cultural practices that may contribute to key differences in significant PPD predictors. Especially beyond six months, Middle Eastern and Asian mothers have heightened risks of PPD. Girls in the Middle East and developing Asia countries are known to marry as young as 16 years old which has shown to be a significant PPD predictor (Shorey et al., 2018). Other key differences between Asian and Western societies include religiosity, relationship with the mother-in-law, and practice of the confinement period. The confinement period in Asian practice involves special dietary preparations and infant care by the mother or mother-in-law of the postpartum women. Asian cultures are more reliant on social support during the postpartum period, unlike Westerners who have more individualistic postpartum practices. However, Muslims more than non-Muslims were found to have a higher risk of PPD. Middle Eastern women who traditionally reside with their husband's family after marriage have an increased risk of PPD. As such, negative relationships with the mother-in-law lead to marital conflict (Shorey et al., 2018).

Cultural factors are greatly impacted by a mother's beliefs as PPD is not recognized in some cultures. The cultural expectations placed on a women's behavior in motherhood sometimes place reluctance to admit symptoms. Since PPD is not universally recognized and treated, more research is needed across cultures to aid in a better understanding of the burden of PPD globally (Hansotte, 2017).

Incidence and Prevalence

Low-income women have lower rates of screening and treatment for PPD, in part due to a lack of knowledge about PPD, economic barriers, and stigma (Hansotte, 2017). The postpartum

depression prevalence is unclear; however, some investigators claim that the low prevalence of PPD in certain cultures may be due to cultural protective factors (Bina, 2008). Incidence and prevalence rates are difficult to pinpoint due to a non-consistent definition and under-reporting. What has been well-established is that women experience depression most often in their reproductive years, and it is estimated that one in five women in the United States will experience an episode at some point in their lives (NIHCM, 2010).

Rates vary among Hispanic women, but low-income Hispanic women are found to consistently have high prevalence rates (NIHCM, 2010). Data from the Pregnancy Risk Assessment Monitoring System (PRAMS) survey from the Centers for Disease Control found a significant association between minority race and PPD in 13 out of 16 US states which collected ethnicity data (NIHCM, 2010). Using the Pregnancy Risk Assessment Monitoring System (PRAMS), CDC research shows that nationally, about one in nine women experience symptoms of PPD. Estimates of the number of women affected by PPD differ by age, race, or ethnicity (Shulman et al, 2018).

PPD is treatable with pharmacologic therapy and/or behavioral health interventions. However, depression is often underdiagnosed and untreated; nearly 60% of women with depressive symptoms do not receive a clinical diagnosis, and 50% of women with a diagnosis do not receive any treatment (Bina, 2008). The American Academy of Pediatrics (AAP) notes that the incidence of perinatal depression ranges from 5 percent to 25 percent of pregnant and postpartum women and studies of low-income and teenage mothers report depressive symptoms at rates of 40 percent to 60 percent (AAP, 2017).

In a study of women who screened positive for depression, either early in the third trimester or at the postpartum visit, approximately 3.8 percent reported suicidal ideation (Kim,

et al., 2015). Immigrant Hispanic women may be at higher risk for PPD and suicidal ideation (Shellman, et al., 2014). Studies in which low-income mothers were systematically screened for clinical criteria indicate that rates of depression during the postpartum period are similar among Hispanic, African American, and Caucasian women, 8% for major depressive disorder, and 23% for all depressive disorders in the first three months after delivery (Kozhimannil et al., 2011).

Finding and obtaining effective medical treatment for mental illnesses, however, can be extremely difficult, particularly for racial and ethnic minorities. The disparities in healthcare for racial and ethnic minority groups pose a significant public health crisis because racial minorities are continually underserved by mental health providers.

Healthcare Cost

Early identification of potential PPD risk can facilitate prevention and management. Treatment of depression after pregnancy can place a financial burden on the new mother and her family. Some women have to be admitted to psychiatric facilities, which keeps them away from their newborns and can break down the family unit. The cost of untreated mental illness is staggering and has a significant impact on the U.S. economy. A study conducted on the effects of depression in the workplace found that depression caused a loss of \$44 billion each year in both presenteeism (the act of remaining on the job but not being as productive because of illness or stress) and absenteeism. This figure was approximately \$31 billion more than the amount lost for non-depressed workers (Palpant, 2006).

Although the precise cost of PPD in the United States is not known, the overall cost of depression among the entire population is significant. In 2000, the total cost for depression was \$83.1 billion. This includes \$26.1 billion for direct medical costs, \$5.4 billion for suicide-related

mortality costs, and \$51.5 billion for associated workplace costs (Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015).

In 1999, Surgeon General David Satcher released *Mental Health: A Report of the Surgeon General*, which focused on mental illnesses and mental health issues in the United States and issued a call for action in the field of mental health care. According to the Surgeon General, the financial cost of mental illness to the nation was \$63 billion in lost productivity because of illness and \$12 billion because of premature death (Palpant, 2006). The financial burden placed by mental illnesses on the United States points to the need for a concerted effort to focus on prevention and early identification of those illnesses.

Unscreened or untreated PPD puts a burden of cost on society and the healthcare system. Mothers who suffer from PPD incur higher overall healthcare costs when compared to mothers who do not suffer from PPD concluded from a University of Maryland study (Dagher et al., 2012). Utilization of emergency rooms as well as incurring counseling costs for mental health were more likely used by depressed than non-depressed mothers per study (Sorg et al., 2019). Lower employment levels and income are associated with mothers affected by PPD (Sontag-Padilla et al., 2013).

Higher rates of healthcare costs in the form of office and emergency room visits are incurred from children of mothers who suffer from PPD than those from non-depressed mothers. EPDS is free for clinics to use with internet availability and in contrast cost associated with PPD screen is minimal (Sorg et al., 2019). When PPD screening and treatment were part of routine postnatal care, a cost-effectiveness analysis found significant healthcare savings for postpartum women (Wilkinson et al., 2017).

Introduction to PICOt Foundation

The American College of Obstetricians and Gynecologists (ACOG) holds the position statement that mental health screening during and after pregnancy has the potential to benefit a woman and her family and should be strongly considered. Women with a positive screening require follow-up evaluation and treatment if indicated. Medical practices are encouraged to have a referral process for patients identified as at risk. Women with current depression or a history of depression or any mental illness should be monitored closely and evaluated (ACOG, 2015).

Healthcare providers are in an optimal position to screen and identify women at risk for perinatal mood disorders, provide adequate first-line treatment and management, educate patients and family members, and facilitate effective outpatient community referrals (AWHONN, 2015). All facilities that provide care for pregnant and postpartum women and newborns should have a formal screening protocol and referral program for perinatal mood disorders.

The purpose of the project is to evaluate whether the use of the EPDS tool would result in the effective detection of PPD symptoms among postpartum women in a primary care setting. The project will answer the following PICOt question to evaluate the implication effectiveness of EPDS as a screening tool for PPD; In postpartum women between the ages 18 to 45 years old who have a child at least six months or younger in a primary care setting (P) does screening with the Edinburgh Postnatal Depression Scale (EPDS) along with an algorithm tool (I), compared to current practice (C) results in identifying women at risk or positive for postpartum depression (PPD) symptoms and referrals to mental health (O) within a period up to 12 weeks (T)?

Chapter II: Literature Review

Chapter one was based on the background and significance of the project. The project is aimed at evaluating whether the use of EPDS as a screening tool would result in the effective detection of PPD among postpartum women. Thus, this chapter provides a detailed discussion regarding the effectiveness of screening using the EPDS tool. Various studies will be evaluated in the literature review section to determine the significance of using the EPDS screening tool among women 18 years and older. Among the sections that will form the basis of discussion in the chapter include the introduction of PICOt question, synthesis of the literature, and the theoretical framework.

Introduction of PICOt Question

To address this clinical problem and to guide the search for relevant information, a PICOT question was developed. A well-developed PICOT (Patient population, Intervention, Comparison intervention, Outcome, and Time) question assists in guiding the literature search to obtain the most relevant information (Fineout-Overholt & Stillwell, 2015). The actual PICOt question that guided the literature review was: In postpartum women between the ages 18 to 45 years old who have a child at least six months or younger in a primary care setting (P) does screening with the Edinburgh Postnatal Depression Scale (EPDS) along with an algorithm tool (I), compared to current practice (C) result in identifying women at risk or positive for postpartum depression (PPD) symptoms and referrals to mental health (O) within a period of up to 12 weeks (T)?

A comprehensive literature review was conducted to collect evidence for the capstone project. Various databases were searched to gather data related to the effectiveness of screening with EPDS in the detection of PPD symptoms among patients with PPD. The databases searched

were CINAHL Plus, Ovid, ScienceDirect, Gale Academic, and ProQuest Central. Inclusion and exclusion evaluative criteria were applied in the search to establish the quality and suitability of selected articles. The inclusion criteria included articles (i) published in the English language (ii) written in full text (iii) that are scholarly and peer-reviewed, and (iv) studies published between 2015 and 2020. Based on the exclusion criteria, all articles not published in English and not in the full text were excluded from the list. Articles that were not published within the five stated years and included experiences of fathers were also excluded.

The keywords used in the search included postpartum depression, maternal depression, screening instruments, quality improvement, and Edinburgh Postnatal Depression Screening (EPDS). The keywords were selected because they formed phrases closely related to the study's research question. After a careful appraisal, seven articles were found to meet the inclusion criteria.

Synthesis of the Literature

Direct evidence suggests that screening for PPD reduces the overall prevalence of depression and increases treatment response in postpartum women. There are many screening tools made available to assist healthcare providers to identify patients with PPD. An important consideration is the functionality of the screening tool in a primary care setting. Other important features of the tool include its validity, specificity, and reliability in regards to PPD. Aspects such as a timeline to screen, cost, and barriers also play a significant role in the proper identification of PPD within vulnerable populations. From the reviewed literature, three main subtopics emerged: 1) EPDS as an evidenced-based screening tool, 2) screening recommendations and 3) barriers to screening.

Edinburgh Postnatal Depression Scale (EPDS) Screening Tool

An extensive literature review focused on the Edinburgh Postnatal Depression Scale (EPDS); this tool is considered the gold standard for PPD screening. The primary care setting for the study currently has the PHQ-2 and PHQ-9 screening tools incorporated in its electronic medical record system. Although these are both popular screening tools for general depression, they are not specific in the identification of PPD symptoms among postpartum women. The following will support the validity and reliability of the EPDS as an evidence-based screening tool in identifying PPD symptoms among postpartum women.

Since this screening tool was to be utilized in a primary care setting, utilization of the tool needed to have ease of usability; appropriate reading level, brief - less than five minutes to complete, and could be self-administered. Although the English-language version of EPDS was only used for this study (see Appendix H), the availability of the tool in other languages is a plus for future practice use.

The EPDS is a widely used tool to identify PPD symptoms among women during the postpartum period. It is a widely accepted, most reliable validated screening tool that helps clinicians identify women who are at risk for PPD. Not only has the tool been validated for use in the postpartum year it is also reliable in differentiating symptoms of PPD from that of “baby blues”. The tool is a ten-item self-report questionnaire in which women are asked to rate how they felt in the previous seven days. It assesses for symptoms of depression, anxiety, and suicidality (Sorg et al., 2019). Items 1 and 2 assess anhedonia (lack of pleasure); item 3: self-blame; item 4: anxiety; item 5: fear or panic; item 6: inability to cope; item 7: difficulty sleeping; item 8: sadness; item 9: tearfulness and item 10: ideas of self-harm. With a simple method of

scoring (see Appendix I), each question is scored from 0 to 3 according to the increasing severity of the symptoms which results in a total score range from 0 to 30 (Bhusal et al., 2016).

An accurate screening tool is one that can distinguish between healthy and unhealthy patients. Sensitivity is the ability of the tool to correctly identify women who are at risk of PPD. Whereas, specificity is the ability of the tool to correctly identify women who are not at risk of postpartum depression (Ukatu et al., 2018). Research indicates the importance of EPDS not being a diagnostic tool but rather a tool to identify the mother's risk based on her total score.

As reported by Sorg et al. (2019), a quality improvement project to improve standardized screening for PPD in a pediatric care setting. The EPDS was the standardized screening tool selected with an internal consistency level of 0.83 utilizing Cronbach's alpha coefficient, the EPDS has a sensitivity of 92% and a specificity of 73% when detecting depressive disorders, a total score greater than ten suggests a risk for PPD (Sorg et al., 2019). Another study involving the improvement of PPD screening rates in a rural pediatric primary care practice also utilized the EPDS based on several factors. Factors as reading level and short duration were desirable attributes. Along with having the highest reliability (0.87) and validity (0.88) over time, and sensitive to changes in depression severity (Russomango & Waldrop, 2019).

A research study by Bhusal et al. (2016), validated the EPDS as a screening tool for PPD. The study determined the tool had satisfactory sensitivity and specificity and was also sensitive to change in the severity of depression over time. The sensitivity between 80% and 90 % were considered relatively well incorrectly identify those who had depression. Similarly, a specificity of 95 % was also considered quite good to identify correctly those not having depression. Hence, the study identified EPDS as a valid tool to measure PPD among its study participants. It was noted that EPDS total scores were computed against a clinical diagnosis of where levels of

sensitivity and specificity were assessed for each score. EPDS cutoff levels of 12 and 13 are close in their sensitivity (true positive) and 1-specificity (false positive) values. Thus, the cutoff point of the screening test was found on 12/13. The original English version of EPDS by Cox identified sensitivity and specificity of 86% and 78 % respectively with threshold level above 12/13 (Bhusal et al., 2016).

As reported by O'Connor et al. (2016), a study by the United States Preventive Services Task Force (USPSTF) involving primary care screening of PPD, sensitivity, and specificity of selected screening measures to detect depression were assessed. The study revealed standard cutoff scores of 10 (indicating moderate-level symptoms) and 13 (indicating probable depressive disorder) for the English-language version of the EPDS. Sensitivity with this version was estimated to be approximately 0.80 and specificity approximately 0.90, using a cutoff of 13 to detect PPD. While the study determined that the range of sensitivities and specificities were quite large for the English version, the largest studies and those most applicable to the US healthcare system among postpartum women reported sensitivities around 0.80 and specificities of 0.87 and higher at a cutoff of 13 in the detection of PPD. Bhusal et al. (2016), examines that social and economic diversity, cultural norms, and heterogeneities in sample characteristics contribute to variations of cutoff point scores seen in different validation studies. The higher EPDS cutoff score ensures the screening tool has the best performance by identifying the most cases so that diagnostic and or therapeutic interventions can be offered.

Screening Recommendations

Several medical committees have screening recommendations regarding the initiation of PPD screens. The American College of Obstetricians and Gynecologists (ACOG) recommends that the clinician screen patients at least once during the perinatal period and for depression and

anxiety. If a patient is screened for depression and anxiety during pregnancy, additional screening should then occur during the comprehensive postpartum visit (American College of Obstetricians and Gynecologists, 2018). The American Academy of Pediatrics (AAP) recommends integrating PPD surveillance and screening at 1, 2, 4, and 6-month visits (AAP, 2017). The National Association of Pediatric Nurse Practitioners (NAPNAP) position statement recommends screening mothers for depression in the child's first year of life (National Association of Pediatric Nurse Practitioners, 2011).

As reported by Waldrop et al. (2018), the study examined the appraisal of current evidence on implementing PPD screening in pediatric care. It was determined that there was limited opportunity for screening to a very narrow window when PPD screening only occurred with obstetrician or primary care provider (PCP). During the postpartum period, women had one to two visits with obstetrician or PCP. Whereas a pediatric primary care provider is placed in a strategic position to screen for PPD via seeing a mother as frequently as eight times within the first 6 months of her child's life. As reported by Sorg et al. (2019), the study examined the improvement of PPD screening in pediatric primary care. Higher rates of positive PPD screens were found at the 1-month WCC visit, supporting ACOG's and AAP's consensus that PPD starts about 1–3 weeks after childbirth and peaks at approximately 6 weeks, 2-3 months and 6 months postpartum. Both studies highlight the critical need for PPD screening during these specific timeframes.

The study of Waldrop et al. (2018), determined that the use of an algorithm for clinical decision supports increased confidence with screening; along with a well-developed referral process and resource list that was explored in the study. It recognized that screening alone was not sufficient and a referral process in place to behavioral health resources as appropriate. The

USPSTF recommends that if screening is to be performed, there must be adequate systems in place for necessary referral and care. Screening for depression should be implemented “with adequate systems in place” ensuring there are appropriate protocols in place to identify individuals needing referral, treatment, or further assessment as recommended by the USPSTF (USPTSF, 2016).

As reported by Sorg et al. (2019), the study addressed positive screens and screens that indicated increased suicide or infant harm risk by developing a safety plan before implementing EPDS interventions. Mothers who had positive screens were referred internally to the clinical mental health team; suicidal mothers and mothers at increased risk for infant harm were directly handed off to clinical social workers per the clinic's crisis response policy (Sorg et al, 2019). This method of improving the likelihood that a mother will follow up with a referral is a warm handoff (Waldrop et al, 2018). A warm handoff will improve health outcomes by decreasing depressive symptomatology, suicide deaths, attempts, or ideation.

Screening Barriers

Identification of barriers although challenging can be circumvented once they are identified. With the aforementioned studies, most barriers involve screening practices of health care providers. Evidence identified pediatricians out of obstetrician-gynecologists (OB/GYN), and family practitioners as the least likely provider group to utilize a screening tool to assess PPD. Personal uncertainty in skill and inability to respond to detected risks is a sensitive issue and contributes to many clinician’s oppositions to PPD screening (Russomango & Waldrop, 2019). The most frequently mentioned barrier was time constraints followed by inadequate training skills or knowledge needed to screen. Other perceived barriers include a lack of mental health services for referral, liability issues, and lack of financial incentives (Waldrop et al.,

2018). Lack of reimbursement for PPD screening was also identified, however, many Medicaid programs provide some reimbursement (CPT code 99420). Some participants expressed concern with disclosing symptoms of depression or defensive regarding mental health concerns due to stigma and fear of losing parental rights. This creates fears that PPD screens would lead to notification of Child Protective Services (CPS) (Russomango & Waldrop, 2019).

In summary, the EPDS is an evidenced-based and validated screening tool that can identify PPD symptoms among postpartum women. The EPDS has attributes appropriate for the primary care setting. Attributes include self-administration, concise, takes less time to complete, usage with adequate literacy levels, and the availability in multiple languages. Most importantly, the incorporation of a clinical decision support algorithm tool can complement the screening tool by identifying postpartum women who will need additional support. The collaboration of healthcare providers in integrative care allows for appropriate referrals, resources, further evaluation, and or treatment from the care management team. Screening timeframes and perceived barriers should be taken into consideration when it comes to PPD screenings. Evidence supports that the effects of screening will improve health outcomes (improved functioning, quality of life, and health status), reduce the overall prevalence of depression, and increase the likelihood of remission or treatment response in postpartum women.

Theoretical Framework

The theoretical framework for the project is based on Beck's Theory of Postpartum Depression published in 1993, a relatively new theory regarding PPD using a grounded theory approach developed by Cheryl Beck. Beck's Theory of Postpartum Depression provides insight into the experience of PPD as well as stressing the importance of identifying mothers who might be suffering from PPD. Beck's grounded theory involved purposive sampling of women

attending her PPD support group. Data analyzed from field notes and support group meetings were collected for 18 months. Loss of control was identified as being the core variable or basic psychological problem in PPD which the women experienced as teetering on the edge of insanity.

As claimed by Beck (1993), the grounded theory found that loss of control which the women experienced as teetering on the edge of insanity involved four-stages: encountering terror, dying of self, struggling to survive, and regaining control (see Figure 2). In the first stage of PPD, encountering terror, the women live with horrifying anxiety, relentless obsessive thinking, and enveloping foginess. During the second stage, dying of self, they experienced alarming un-realness, isolation, and thoughts/attempts at self-harm. The third stage of PPD, struggling to survive, reflects the women's attempts to survive by praying for relief, battling the system, and seeking solace in support groups. In the fourth and final stage, regaining control, participants experience unpredictable transitioning, a mourning of lost time, and guarded recovery.

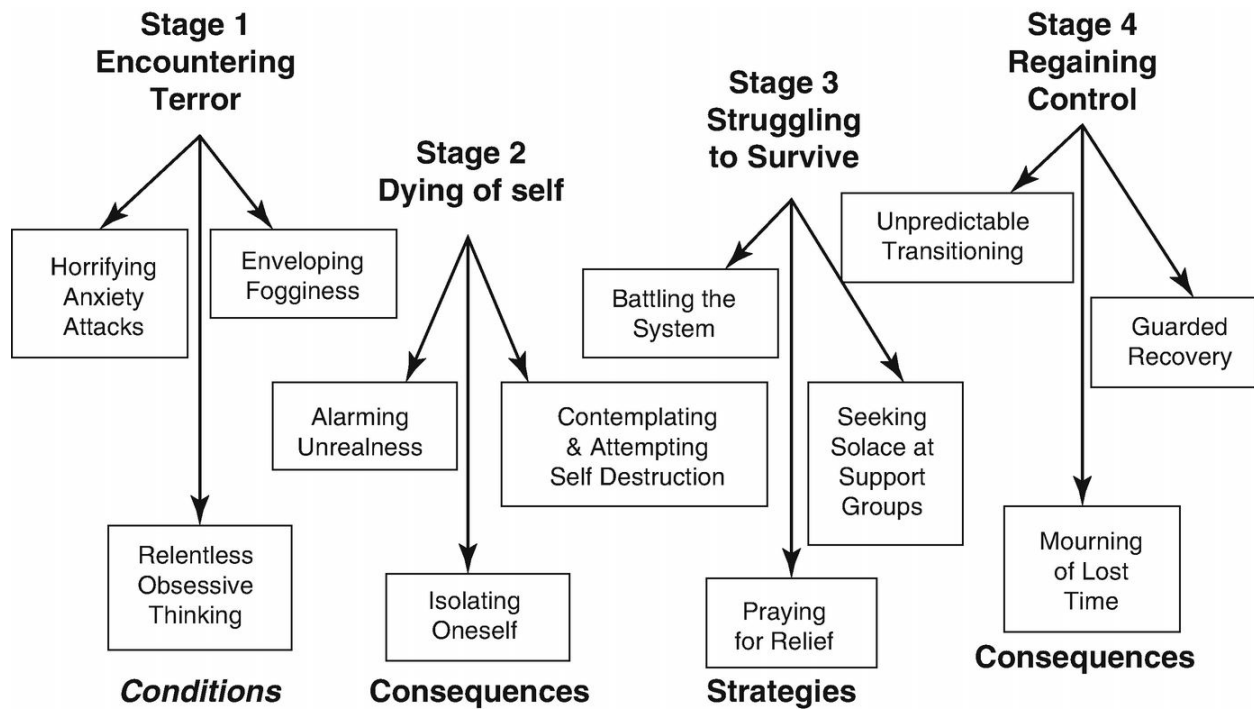


Figure 2. The 4 - stage process of *Teetering on the Edge*.

Beck's theory provides insight into the experience of PPD. The internal struggle with self in each stage is a reflection of teetering on the edge involved with those women who suffer from PPD. It also explores that PPD has just as negative effects on their children's health and development just as that to the mother. As reported by Sorg et al. (2019), not only is the mother impacted by PPD but also the family, especially the infant. Untreated PPD is associated with breastfeeding of lower rates and shorter duration along with poor maternal-child bonding, child and infant developmental delays, and poor mental health outcomes in childhood.

Beck's theory is important to the study because it examines the importance of identifying, preventing, and or treating PPD early in postpartum women. With early intervention providers display a vested interest and are uniquely positioned in increased face time with new mothers (Sorg et al., 2019). In doing so, the internal struggle can be avoided or at the very least identified in the early stages. Once a woman can gain control and is not teetering on the edge the byproduct

of negative health outcomes toward the child can be avoided. This is why primary care settings along with healthcare providers must implement PPD screenings with pathways to support those mothers identified at risk. The stressfulness of the postpartum period should be acknowledged by healthcare providers and screening should be no less than one year during this period regardless of psychiatric history.

Chapter III: Methodology

Chapter two was based on the literature review section in which various studies were assessed to determine the effectiveness of using the EPDS tool in screening for PPD symptoms among adult females aged 18 to 45 years, as well as recommended screening timelines and integration in primary care. The most effective theoretical framework for application in the project was also identified. Chapter three presents a discussion of the methodology, including the study design, population and sample, instrumentation, data collection, data analysis, and the summary of the section.

Study Design

The study utilized a quantitative research design to standardize PPD screening at an FQHC clinic. The collected data included the EPDS scores of participants obtained from the EPDS screening tool completed at designated visits. Designated visits to obtain data included postpartum (6 weeks), newborn, one, two, four, and six months well-child visits over twelve weeks. The EPDS scores were evaluated using a developed algorithm based on evidenced-based research to determine if participants had screens that produced negative, positive, or at-risk results for PPD symptoms (see Appendix J). According to the algorithm, participants with at-risk or positive screens for PPD symptoms were provided with PPD educational materials and resources in addition to a referral to mental health within the clinic for further evaluation and

treatment. Moreover, all participants received PPD educational materials and resources regardless of screen score (see Appendix M). The success of the intervention can be assessed by the increased number of screens that detected participants at risk or positive for PPD symptoms, along with referrals for further evaluation and treatment for PPD. Also, participants had the option to participate in a raffle to win one of three diaper tote bags as an incentive (see Appendix L).

Population and Sample

The target population comprised of English-speaking female patients in the postpartum period no greater than six months, within the age range of 18 to 45 years who were currently residing in the underserved area serviced by the FQHC. The members of the population are currently seeking services at the primary care clinic for obstetrics and or pediatric care for their family. This population is vulnerable for PPD due to having a child under the age of six months along with being economically and socially disadvantaged. A sample of 50 participants was screened for PPD symptoms. The sample was recruited by the front desk clerks at the clinic, participants who met study criteria were provided with a recruitment flyer which indicated that participation was voluntary and confidential. Participants who chose to move forward with the study were provided with a consent form and EPDS screening tool along with the participant's bill of rights, demographic survey, and raffle flyer. The inclusion criteria were (a) females within the postpartum period no greater than six months, (b) age range 18 to 45 years, and (c) fluent in English. The exclusion criteria were (a) male subjects, (b) postpartum period greater than six months, (c) less than 18 years or greater than 45 years, and (d) fluent in languages other than English.

Instrumentation

The study utilized the EPDS screening tool to identify PPD symptoms among study participants at the clinic. The tool is the most widely used and one of seven recommended screening tests that have been validated for use during pregnancy and the postpartum period (Morares et al., 2017). The EPDS was developed specifically to avoid over-identification of PPD based on "physical" symptoms such as fatigue, weight and appetite changes, and problems with sleeping that can be suggestive of depression but are a normal part of postpartum recovery (Yawn et al., 2009). The tool is a self-report instrument containing 10 questions about symptoms of depression present in the preceding 7 days. Each question has four possible responses that are rated on a scale of 0 to 3, and total scores can range from 0 to 30. The cutoffs selected by the authors of the scale for women after childbirth are 9/10 for possible depression or a minor depressive disorder, and 12/13 for probable depression or MDD (Morares et al., 2017). The interpretation of the EPDS scores from the study are represented in the Appendices (see Appendix A-C). More than 20 countries have used EPDS for the identification of PPD symptoms with significant levels of sensitivity (86%) and specificity (78%) along with the advantage of the tool being free (Harvey & Pun, 2007). The tool has been recommended for the detection of depression, not only after birth but also during pregnancy. Consequently, although EPDS is a validated screening tool for PPD, it cannot be used as a validated diagnostic tool for PPD (Figueira et al, 2009). A diagnostic interview performed by a trained clinician is considered the gold standard for diagnosing PPD (Horowitz et al, 2009).

A screening algorithm was developed with evidenced-based data from the literature review. The postpartum depression screening algorithm (PPD-SA) tool was developed to support PPD screening and guide healthcare providers in clinical practice (see Appendix J). It would

allow the provider to determine the appropriate interventions needed for those women who screened at risk or positive for PPD symptoms. According to the algorithm, the EPDS screen scores indicate the following: (a) score zero to nine indicates a negative screen; individual likely not suffering from PPD at time of the screen, no immediate referral is required, (b) score ten to twelve indicates at risk for PPD; referral to mental health is recommended, and (c) score thirteen or greater and or “yes” answer to question ten “the thought of harming myself has occurred to me” indicates a positive screen; the individual is most likely suffering from PPD and immediately referred to mental health (see Appendix K). The provider must initially determine if there is any imminent danger present – harm to self or child. If confirmed, the next step involves initiating a crisis plan. The crisis plan involves further assessment, not leaving the individual with child, determine support systems, mental health referral and involvement of emergency services when appropriate. All participants regardless of screen score will be provided with PPD educational materials, resources, and support (see Appendix M).

Data Collection

The project commenced following IRB approval. After eligible participants who met study criteria were identified, participants were asked to provide consent before the initiation of the study. In addition to obtaining consent, assurance of confidentiality was discussed. Only selected demographic data were included in the questionnaire. Contact info of the researcher was provided in regards to questions participants may have regarding the study or to withdraw consent. Due to the nature of the project, steps were taken to protect the welfare of participants involved directly and indirectly. As such, any participant whose screening indicated imminent danger to self, child, or others would be given an emergency referral, and or 911/emergency services would be contacted if warranted. Per mandated reporter guidelines, the Department of

Child and Family Services (DCFS) would be notified if screening indicated a risk for child or children's safety.

A total of 50 participants, all female subjects within the age range of 18 to 45 years comprised the final sample. Participants in the sample self-screened for PPD symptoms using the EPDS questionnaire. Participants completed the questionnaire that took no more than five minutes to complete while waiting for their healthcare provider. The principal researcher scored questionnaires and reviewed results with participants and healthcare providers. Results of screening and any recommended follow up interventions were documented in the respective health records. At the end of the twelve weeks, EPDS scores and demographic data were compiled for analysis.

Data Analysis

The principal researcher analyzed the data for descriptive statistics as shown in Appendices A-F. The analysis was performed using Microsoft Excel 2019 Version 1910. The data were assessed for descriptive statistics with a focus on the mean and standard deviation as the measures of central tendency. Frequency tables for the results of demographic data, risk factors, EPDS scores, and interventions were generated. The findings from the analysis are generalizable to the overall population, because (a) the data came from the target population, and (b) the data were specific to the diverse participants establishing the sample.

Summary

A total of 50 mothers completed the EPDS during a 12-week implementation period. Out of the 50 PPD screens, 32 women had a negative screen, 6 women were identified at risk and 12 women had a positive screen. A total of 18 women were identified as at-risk or likely suffering from PPD and were referred to mental health. The results suggest that the EPDS screening tool is

effective in detecting PPD symptoms among women within the postpartum period. The use of the self-administered EPDS tool has facilitated increased accuracy in the diagnosis and treatment of PPD. There was an increase of participants identified to be at risk or screen positive for PPD symptoms. Also, mental health referrals for the identified participants were initiated.

The goal of the EPDS and screening algorithm was to create feasibility for healthcare providers in identifying PPD symptoms in the clinical setting. In identifying participants earlier in the postpartum period, we can integrate behavioral health services with primary care. Thus, allowing for a decrease in negative health outcomes in mother and child in the vulnerable populations.

Chapter IV: Findings

Among pregnant women, the rate of depression diagnosis at delivery has increased by seven times from 2000 to 2015 (Haight et al, 2019). Also, research shows one and nine women will experience postpartum symptoms (Ko et al, 2017). Identification leads to access to treatment, consistent screening of PPD will help identify patients most vulnerable to PPD. Treatment can only begin when patients have access to treatment. The project is aimed at presenting how identifying PPD symptoms in a primary care setting using the EPDS screening tool will not only identify patients at risk but also those patients likely suffering from PPD. Henceforth, the process for referrals and treatment will begin. This chapter presents the findings of the project.

Results

A total of 50 participants were recruited for the project. After screening after 12 weeks, results indicated that 64% (n = 32) of the participants had a negative screen – likely not suffering from PPD, 12% (n = 6) were at risk for PPD, and 24% (n = 12) had a positive screen – likely suffering from PPD. Total participant screening scores resulted on average (M = 7.84,

SD = 7.58, R = 0-25). Participants with a positive screen who answered “yes” to question #10 – “The thought of harming myself has occurred to me.”, results indicated 8% (n = 4). Total participants who responded “no” were 92% (n = 46). Participants requiring interventions resulting in referral to mental health due to at-risk and positive screens were 36% (n = 18). Out of those participants referred to mental health, 22.2% (n = 4) or 8% of total participants had a crisis plan initiated, 27.7% (n = 5) or 10% of total participants had therapy initiated and 22.2% (n = 4) or 8% of total participants were started on medication. The aforementioned screening results are presented in the Appendices (see Appendix A-C).

PPD screenings utilizing the EPDS tool were administered at designated visits. These visits included postpartum (around 6 weeks), newborn, 1, 2, 4, and 6 months of well-child visits. At conclusion of screening, total data collected indicated 26% (n = 13) during postpartum visit, newborn visit 12% (n = 6), 1-month well-child visit 12% (n = 6), 2 months well-child visit 22% (n = 11), 4 months well-child visit 14% (n = 7) and 6 months well-child visit 14% (n = 7). The results of the screening visits are presented in the Appendices (see Appendix D).

Along with participants being screened for PPD, data were collected regarding sociodemographic info as well as risk factors indicated for PPD. Demographic survey data that were collected include the following: age of mother, race, English as a first language, relationship status, education, yearly household income, employment status, number of children in the household, and age of the youngest child. The demographic data results frequently occurring the most include the following: a) Age range 21 to 29 years old at 46% (n = 23), b) Hispanic race at 76% (n = 38), c) Education resulting in HS diploma or GED at 40% (n = 20), d) English as their first language at 76% (n = 38), e) Relationship status as single at 42% (n = 21), f) Household yearly income reported less than \$10,000 at 62% (n = 31),

g) Employment status reported as looking for work at 40% (n = 20) followed by 28% (n = 14) on maternity leave, h) No greater than two children in the household at 68% (n = 34) followed by 32% (n = 16) with 3 or more in the household and i) almost half of participants at 44% (n = 22) have a youngest child that is less than 4 weeks or one month old. The results of the demographic data are presented in the Appendices (see Appendix G).

The project collected data regarding PPD risk factors among participants. A total of 18 risk factors were listed and participants had the choice to check all that apply or none. Total participant risk factor data resulted on average (M = 1.82, SD = 2.37, R = 0-11). The most occurring risk factors with frequency of six or more include the following: 1) financial challenges (n = 12), 2) difficulty breastfeeding (n = 9) and unplanned pregnancy (n = 9), 3) personal history of major depression/PPD (n = 8) and difficult pregnancy, labor/delivery (n = 8), 4) major life stressors (n = 7) and history of miscarriages (n = 7) and 5) teen pregnancy (n = 6) and history of domestic violence (n = 6). The highest amount of risk factors checked by a single participant was 11 followed by a close second at 9. A total of 17 participants indicated having no risk factors. Total participants with five or more risk factors were 10% (n = 5). Among at-risk and positive participants 26% (n = 13) identified with less than five risk factors. The frequency of risk factors data results is presented in the Appendices (see Appendix F).

Chapter V: Discussion

According to WHO (2019), maternal mental health, primarily depression is a worldwide issue, affecting 10% of pregnant women and 13% who just given birth. Stats are evening higher during pregnancy and after childbirth in developing countries, 15.6% and 19.8% respectively. Severe cases lead to the suffering of mothers committing suicide. Moreover, affected mothers are unable to function properly resulting in negative outcomes of a child's growth and development.

The project involved screening for PPD symptoms using the EPDS tool. PPD is a treatable disorder, once identified referred patients can be treated by the appropriate healthcare providers. This chapter discusses the project findings, implications, and sustainability into practice. The limitations of the project and application of the DNP essentials in developing and implementing the project are also presented.

Implications

Symptoms of PPD are similar to symptoms of depression and can last for weeks or months at a time. American Academy of Pediatrics recommends PPD screening be performed at 1, 2, 4, and 6 months well-child visits. PPD is associated with adverse infant and maternal outcomes (e.g., lower breastfeeding initiation and duration and poor maternal and infant bonding). Untreated PPD may cause maternal distress and infant emotional, cognitive, and developmental problems during childhood.

The purpose of this study was to integrate PPD screening into routine practice in primary care via an evidence-based screening tool and developed algorithm tool. Study findings indicate that early screening and referral can identify vulnerable mothers at risk or exhibit symptoms of PPD. Screening for PPD at time frames that coincide with recommended guidelines appeared feasible within the primary care setting.

Objective#1) Initiate PPD screening using an evidence-based screening tool to identify patients at risk or positive for PPD symptoms. The study results are clinically significant and would suggest that the EPDS is the preferred method of screening for PPD symptoms with scores between 10-12 at risk for PPD and cutoff of 13 or greater or yes to question 10 as a positive screen. Healthcare providers need to be aware that a positive screen

result from the EPDS is not a diagnostic tool for depression; it is a tool to screen for possible symptoms of PPD.

Objective #2) Development of a screening algorithm tool to support PPD screening and guide healthcare providers in clinical practice. Utilizing EPDS as a screening tool for PPD in conjunction with a developed screening algorithm provided a protocol that outlined clear steps that can be understood and completed by healthcare providers. The clinical tool identifies the most vulnerable mothers in primary care, establishes early pathways of interventions that can lead to non-pharmacological and or pharmacologically treatment, and identifies mothers who may have self-harm behavior or ideations.

In conclusion, the result of this study indicates there is a need to implement an evidenced-based PPD screening tool (EPDS) that will identify women in primary care with PPD symptoms to further prevent negative health outcomes that could occur with mother or her family. The study results will contribute to existing knowledge in the field by 1) Identifying strategies on how to increase PPD education and awareness. 2) Education tailored for healthcare providers on how to identify and treat disorders in maternal mental health. 3) Integration of behavioral health services within primary care. 4) Decrease negative health outcomes that can result from PPD such as cognitive and developmental delays in children. Individuals who participated in the study obtained benefits that included: Increased awareness, community resources, and early detection of PPD symptoms and linkage to mental health services if needed. Early detection will lead to a decrease in negative maternal and child health outcomes.

I anticipate findings from the study will lead to benefits to society and or academic knowledge. Increased awareness regarding maternal mental health among the public and healthcare providers. Create healthcare policies that aid in insurance coverage that is extended

through the postpartum period in states that do not offer Medicaid expansion. Initiating research for PPD among fathers. Contribute to research on the safety of antidepressants during pregnancy and breastfeeding which currently yield mixed results.

Supporting Evidence for Advanced Practice Registered Nursing

PPD is a significant public health problem among women of childbearing age. Although treatable, in the United States the most underdiagnosed pregnancy complication is PPD. Among low income and minority women, rates are as high as 35% to 40%. Since the morbidity and mortality that exists resulting from consequences of PPD, improving detection and improving treatment modalities presents a significant interest. An interest that can be satisfied by healthcare providers, Advanced Practice Registered Nursing (APRN).

According to McQueen et al. (2008), early detection and treatment of postpartum depression symptoms are supported by current evidence. The APRN has adequate training and a unique position to identify depressive symptoms and make appropriate referrals that will reduce negative outcomes associated with untreated and prolonged symptoms of PPD. APRNs are healthcare providers that can identify symptoms of depression among maternal women of vulnerable populations and provide individualized care. According to McQueen et al. (2008), vulnerable mothers that were identified in developing depression postnatally, had home visits that were not only individualized but also effective. APRNs can initiate preventive strategies in the early postpartum period. Research supports the importance of early interventions that can minimize the impact of PPD symptoms for mothers and families (McQueen et al., 2008).

APRNs can provide immediate assessment of self-harm behavior or thoughts during PPD screening with EPDS. A major risk factor for suicide is depression. The APRN has the knowledge and decision-making tools to be able to further assess suicidal ideation or self-harm

behavior promptly among mothers who score positive on item number ten of the EPDS. Furthermore, the APRN must encourage the completion of the EPDS by mothers in privacy, research indicated mothers are more reluctant to disclose emotional problems with professional assistance (McQueen et al., 2008).

Mothers with symptoms of PPD can benefit from the interventions provided by APRNs which can include non-directive counseling, weekly supportive interactions, and facilitation or referral to support groups. Some may require pharmacologic therapy including non-pharmacologic treatments that include interpersonal or cognitive behavioral therapy (McQueen et al., 2008). The mother's preference for preventive and treatment interventions for PPD would mostly be supported by the APRN role. This would include ongoing assessment focusing on the mental health needs of the mother and facilitation of opportunities of peer support groups.

Healthcare providers such as APRN are in a unique position to be able to screen but also can provide treatment leading to positive health outcomes and wellbeing for the patient. With adequate education and training, the APRN role can be utilized to properly identify, counsel, and treat affected mothers. These attributes can be seen in the role of the psychiatric mental health APRN. According to the American Psychiatric Nurse Association (APNA) (2020), these specialized providers can offer primary care services to the psychiatric-mental health population. They can assess, diagnose, and treat individuals and families with psychiatric disorders or the potential for such disorders using their full scope of therapeutic skills, including the prescription of medication and administration of psychotherapy.

Limitations

Being that this was a quality improvement project, limitations can accompany project design and findings. The clinical environment needs to accommodate the project for

implementation of change to occur. There was no purposeful control of variables, though implementing screenings and referrals was the goal of the project. The generalization of results is limited by the small sample size and project's short time frame. The EHR system had depression screenings incorporated in its database, the PHQ-2 and PHQ-9. The EPDS had not been incorporated, which meant paper screenings were the only tool utilized during the study. Healthcare providers were not trained in the screening tool so screening, scoring, and referrals were done only by the principal researcher. Participants were only screened once; re-screening is very important during the postpartum period especially in those participants who were at risk. There was no follow up if they later identified with negative or positive screens at a later date. All the aforementioned factors created an inability to determine statistical significance.

Sustainability

Several factors need to be initiated to create the sustainability of the project. The initial outcome of project findings with stakeholders would need to be presented and approved by board members. Increased number of patients identified with PPD symptoms, intervention plans, and optimal screening times would be emphasized. Participants who were grateful for PPD educational material and resources would be highlighted. Cost-effectiveness and increasing billing incentives with PPD screens would be discussed. For successful incorporation into the existing clinic environment, healthcare providers will need to be trained on PPD screening and interventions via algorithm tool. This will allow the healthcare provider to be comfortable regarding PPD knowledge. Referral pathway guidelines need to be established between primary care and behavioral health services within the clinic. The prompting of healthcare providers to screen for PPD by standardizing EHRs. Lastly, the implementation of support groups in conjunction with the clinic's mental health mobile unit for pregnant mothers.

Dissemination

Results of the pilot quality improvement project would be shared at lectures, public health campaigns, nurse conferences, and Women Infant and Children (WIC) offices. After academic approvals, the CSP manuscript will be submitted and hopefully published in peer-reviewed journals to reach a broader nursing audience. Publications that address mental health issues such as the Journal of Psychiatric and Mental Health Nursing and the Journal of the American Psychiatric Nurses Association would be ideal publication platforms. With any luck, study findings along with positive health outcomes with patients will encourage the clinic and its healthcare providers to adopt EPDS, the screening tool of choice to identify PPD symptoms among its patients and integration of the referral pathway. Culturally specific public health campaigns that would educate women and their families regarding PPD and if needed resources on where to seek treatment. Establishing a community support network involving local churches and businesses to support pregnant and postpartum women. Promotion of continuing education and training for healthcare providers.

Application to the Essentials

Essential II: Organizational and Systems Leadership for Quality Improvement.

Doctor of nursing practice graduates uniquely contributes to nursing science by evaluating, translating, and disseminating research into practice. This essential emphasizes the DNP graduate's role in assimilating nursing science and practice with the complex needs of humankind (AACN, 2006). Key skills include the development of clinical practice guidelines, designing evidence-based interventions, and evaluating practice outcomes.

This project was developed due to noticing a care gap being missed in the clinic involving postpartum mothers. I determined that there was a need and benefit and determining

how the clinic could utilize health promotion and prevention in implementing PPD screening. As with Essential II, I used evidenced-based research via literature review to design a project implementation with the proper validated screening tool that would produce the best practice outcomes for not only the patients but for the healthcare providers. After the project was completed, findings were presented to the clinic who plan to integrate PPD screening in the mobile programs as well as their standalone clinics.

Essential VI: Inter-Professional Collaboration for Improving Patient and Population Health Outcomes. The IOM defends the necessity of team-based care for the safety and wellbeing of all patients (IOM, 2001). This essential prepares DNP graduates to lead interprofessional teams in the analysis of multifaceted practice and systems issues through effective communication and collaborative skills (AACN, 2006). Doctors of nursing practice take a leadership role in the development and implementation of practice models, standards of care, and other scholarly projects.

My project embodies the essence of Essential VI because the success of the project to obtain the best positive outcomes for the patients is the collaborative and integrative care with behavioral health services. For PPD screening among patients to be successful, there needs to be a pathway or continuum of care which can only happen with the involvement of the mental health department, recognizing that PPD is a mental health disorder. The project utilized collaboration of mental health with patients who were at risk or had a positive screen for mental health referral for follow up interventions, which may include therapy, medications, or both. Although patients can be re-evaluated in primary care, the developed algorithm tool puts in place a therapeutic pathway for the patient to obtain the best health outcomes in the treatment of PPD.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health. Nursing theory has its foundation in health promotion and risk reduction; however, the DNP degree further prepares graduates to evaluate and interpret epidemiological, biostatistical, occupational, and environmental information imperative to improving the health of both individuals and communities. This essential also equips doctors of nursing practice with the skills to synthesize the psychosocial dimensions and cultural impacts related to population health (AACN, 2006).

The purpose of the CSP is to implement PPD screening in an underserved clinic that serves low income and minority women who have the greatest disparities. This allows for this population to be the most vulnerable to PPD, this encompasses what essential VII is, health promotion. My project involved mothers from Hispanic and African American ethnic backgrounds, a population not only missed when it comes to identifying PPD but also symptoms can be overlooked in their culture. By implementing screening in practice, these women are being educated and given resources regarding PPD that would most likely be shared with family and friends who identify with the symptoms and will come to the clinic to be screened and or treated. Thus, this will lead to positive health outcomes for mother, child and family.

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Appendices

Appendix A

EPDS Screen Results

Postpartum Depression Score	Participants	
	Frequency	Percent
Negative screen (0-9)	32	64
At risk screen (10-12)	6	12
Positive screen (13+)	12	24
Total	50	100

Appendix B

EPDS Screen Results

Question #10	Participants	
	Frequency	Percent
Yes	4	8
No	46	92
Total	50	100

Appendix C

EPDS Screen Results

Interventions	Participants	
	Frequency	Percent
Refer to Mental Health	18	36
None	32	64
Total	50	100
<i>Crisis Plan</i>	4	22.2
<i>Therapy</i>	5	27.7
<i>Medication</i>	4	22.2

Appendix D

EPDS Screening Visits

Visit Type	Participants	
	Frequency	Percent
Postpartum	13	26
Newborn	6	12
1 month	6	12
2 months	11	22
4 months	7	14
6 months	7	14
Total	50	100

Appendix E

Sociodemographic Characteristics

Demographics	Participants	
	Frequency (n = 50)	Percent
Age of mother		
18-20	11	22
21-29	23	46
30-39	15	30
40-49	1	2
Race		
Black/African American	9	18
Hispanic	38	76
Mixed/Other	3	6
English as first language		
Yes	38	76
No	12	24
Relationship status		
Single	21	42
Married	11	22
Divorced/Separated	2	4
Widowed	1	2
Living together	10	20
Not living together	5	10
Education		
Less than HS	12	24
HS/GED	20	40

Some College	13	26
Associate	3	6
Bachelor	2	4
Graduate	0	0
Yearly income		
Less than 10k	31	62
10-19k	5	10
20-29k	9	18
30-39k	3	6
40-49k	0	0
More than 50k	2	4
Employment status		
Working full-time	2	4
Working part-time	7	14
Maternity leave	14	28
Looking for work	20	40
Not looking for work	7	14
Disabled	0	0
Number of children in household		
0-1	19	38
1-2	15	30
3-4	15	30
5 or more	1	2

Age of youngest child		
Less than 4 weeks/1mo	22	44
1-2 months	5	10
2-3 months	9	18
3-4 months	4	8
4-5 months	5	10
5-6 months	5	10

Appendix F

Postpartum Risk Factors

Risk Type	Participants	
	Frequency	
Personal history of major depression/PPD	8	
Family history of PPD	2	
Gestational diabetes	1	
Difficulty breastfeeding	9	
Fetal/newborn loss	1	
Financial challenges	12	
Substance use/addiction	1	
Infertility treatments	2	
Multiples	1	
Teen pregnancy	6	
Unplanned pregnancy	9	
Major life stressors	7	
Poor marital/partner relationship	3	
Isolation from family or friends	4	
Difficult pregnancy, labor/delivery	8	
Special needs/NICU baby	4	
History of miscarriages	7	
History of domestic violence	6	
None	17	

Appendix G

Demographic Survey Data

Age

18-20yrs 21-29yrs 30-39yrs 40-49yrs

Race

Black or African American Hispanic Mixed/Other

Is English your first language?

Yes No

Relationship Status

Single Divorced/Separated In a Relationship, living together
 Married Widowed In a Relationship, not living together

Education

Less than HS degree Some College Bachelor degree
 HS degree or GED Associate Degree Graduate degree

Household Income (yearly)

Less than \$10,000 \$20,000 - \$29,000 \$40,000 - \$49,000
 \$10,000 to \$19,999 \$30,000 - \$39,000 More than \$50,000

Employment

Working FT (more than 32hrs/week) Not Employed, looking for work
 Working PT (less than 32hrs/week) Not Employed, not looking for work
 Not working, on maternity Leave Disabled, not able to work

Number of Children in Household

0-1 1-2 3-4 5 or more

Age of Youngest Child

Less than 4 weeks/1 month 2-3 months 4-5 months
 1-2 months 3-4 months 5-6 months

Risk Factors (check all that apply)

- | | |
|---|--|
| <input type="checkbox"/> Personal history of major depression/PPD | <input type="checkbox"/> Teen pregnancy |
| <input type="checkbox"/> Family history of PPD | <input type="checkbox"/> Unplanned pregnancy |
| <input type="checkbox"/> Gestational diabetes | <input type="checkbox"/> Major life stressors |
| <input type="checkbox"/> Difficulty breastfeeding | <input type="checkbox"/> Poor marital/partner relationship |
| <input type="checkbox"/> Fetal/newborn loss | <input type="checkbox"/> Isolation from family or friends |
| <input type="checkbox"/> Financial challenges | <input type="checkbox"/> Difficult pregnancy, labor/delivery |
| <input type="checkbox"/> Substance use/addiction | <input type="checkbox"/> Special needs/NICU baby |
| <input type="checkbox"/> Infertility treatments | <input type="checkbox"/> History of miscarriages |
| <input type="checkbox"/> Multiples | <input type="checkbox"/> History of domestic violence |

Appendix H

Edinburgh Postnatal Depression Scale (EPDS)

Name _____ DOB _____ Visit _____

Please check the answer that comes closest to how you have felt in the PAST 7 DAYS, not just how you feel today:

1) I have been able to laugh and see the funny side of things.

- As much as I always could
- Not quite so much now
- Definitely not so much now
- Not at all

2) I have looked forward with enjoyment to things.

- As much as I ever did
- Rather less than I used to
- Definitely less than I used to
- Hardly at all

3) I have blamed myself unnecessarily when things went wrong.

- Yes, most of the time
- Yes, some of the time
- Not very often
- No, never

4) I have been anxious or worried for no good reason.

- No not at all
- Hardly ever
- Yes, sometimes
- Yes, very often

5) I have felt scared or panicky for no very good reason.

- Yes, quite a lot
- Yes, sometimes
- No, not much
- No, not at all

6) Things have been getting on top of me.

- Yes, most of the time I haven't been able to cope at all
- Yes, sometimes I haven't been coping as well as usual
- No, most of the time I have coped quite well
- No, I have been coping as well as ever

7) I have been so unhappy that I have had difficulty sleeping.

- Yes, most of the time
- Yes, sometimes
- Not very often
- No, not at all

8) I have felt sad or miserable.

- Yes, most of the time
- Yes, sometimes
- Not very often
- No, not at all

9) I have been so unhappy that I have been crying.

- Yes, most of the time
- Yes, quite often
- Only occasionally
- No, never

10) The thought of harming myself has occurred to me.

- Yes, quite often
- Sometimes
- Hardly ever
- Never

Administered/Reviewed by _____ Date _____ Score _____

Source: Cox, J.L., Holden, J.M., and Sagovsky, R. 1987. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry* 150:782-786.

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Appendix I

Edinburgh Postnatal Depression Scale¹ (EPDS)

Postpartum depression is the most common complication of childbearing.² The 10-question Edinburgh Postnatal Depression Scale (EPDS) is a valuable and efficient way of identifying patients at risk for "perinatal" depression. The EPDS is easy to administer and has proven to be an effective screening tool.

Mothers who score above 13 are likely to be suffering from a depressive illness of varying severity. The EPDS score should not override clinical judgment. A careful clinical assessment should be carried out to confirm the diagnosis. The scale indicates how the mother has felt **during the previous week**. In doubtful cases it may be useful to repeat the tool after 2 weeks. The scale will not detect mothers with anxiety neuroses, phobias or personality disorders.

Women with postpartum depression need not feel alone. They may find useful information on the web sites of the National Women's Health Information Center <www.4women.gov> and from groups such as Postpartum Support International <www.chss.lup.edu/postpartum> and Depression after Delivery <www.depressionafterdelivery.com>.

SCORING

QUESTIONS 1, 2, & 4 (without an *)

Are scored 0, 1, 2 or 3 with top box scored as 0 and the bottom box scored as 3.

QUESTIONS 3, 5-10 (marked with an *)

Are reverse scored, with the top box scored as a 3 and the bottom box scored as 0.

Maximum score: 30
Possible Depression: 10 or greater
Always look at item 10 (suicidal thoughts)

Users may reproduce the scale without further permission, providing they respect copyright by quoting the names of the authors, the title, and the source of the paper in all reproduced copies.

Instructions for using the Edinburgh Postnatal Depression Scale:

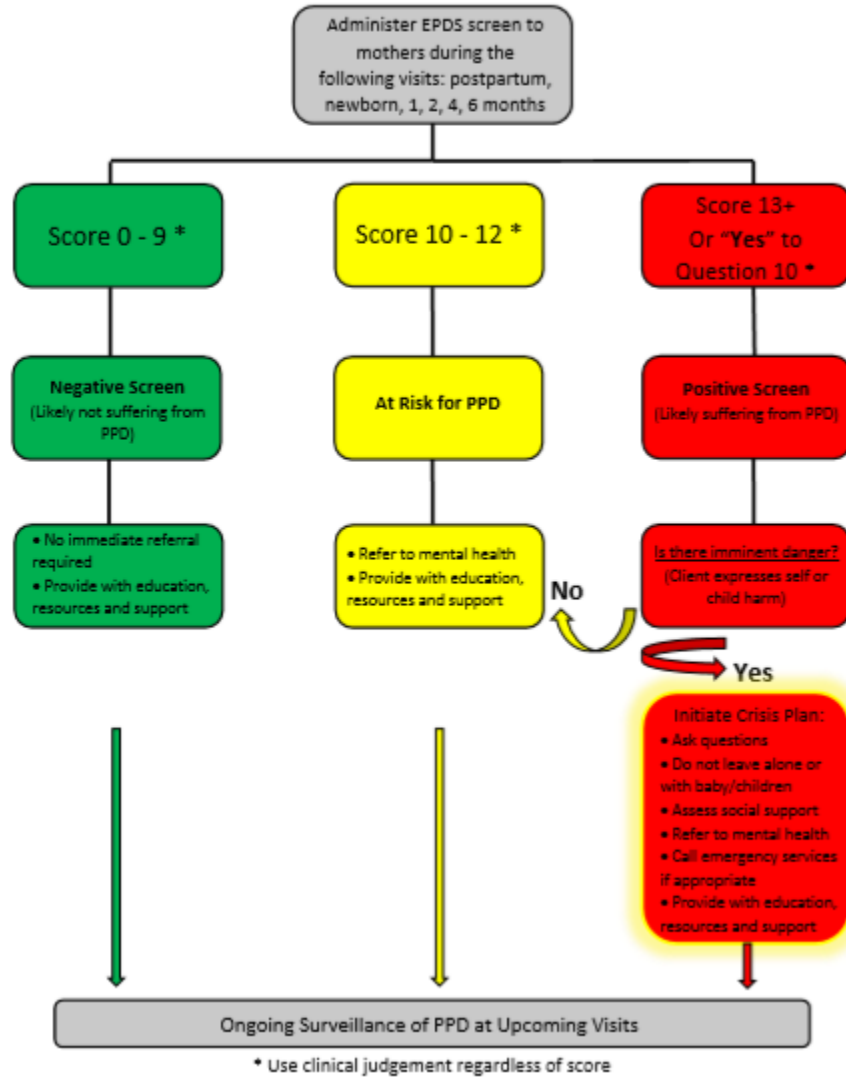
1. The mother is asked to check the response that comes closest to how she has been feeling in the previous 7 days.
2. All the items must be completed.
3. Care should be taken to avoid the possibility of the mother discussing her answers with others. (Answers come from the mother or pregnant woman.)
4. The mother should complete the scale herself, unless she has limited English or has difficulty with reading.

¹Source: Cox, J.L., Holden, J.M., and Sagovsky, R. 1987. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry* 150:782-786.

²Source: K. L. Wisner, B. L. Parry, C. M. Piontek, Postpartum Depression N Engl J Med vol. 347, No 3, July 18, 2002, 194-199

Appendix J

Postpartum Depression Screening Algorithm (PPD-SA)



Appendix K

PPD Algorithm Screening Script

After patient completes PPD screen using the EPDS

Score and explain results and provide education specific to patient's risk level using
Provided PPD algorithm

Score of 0-9: Normal/Negative Screen (likely not suffering at this time)

"From the screen, it seems like you are doing well. Having a baby is always challenging and every parent deserves support. Do you have any concerns you would like to talk to us about? In the future, should you start to have a difficult time or develop depression or anxiety, please follow-up with your doctor or talk to me about it at your child's next visit."

Score of 10-12: At-Risk for Depression and/or Anxiety

"Based on what you've told me and your score, I am concerned that you may be having a difficult time or be depressed. It can be hard to feel this way when you have a baby/young child. There are things you can do to feel better. Let's talk about some ideas that might work for you."

Score of 13+: Positive Screen (likely suffering from depression and/or anxiety)

"Based on what you've told me and your score, I am concerned that you may be depressed. What you are feeling is real and it is not your fault. It can be very hard to feel this way when you have a baby/young child. Getting help is the best thing you can do for you and your baby. Many effective support and treatment options are available. Let's talk about some ideas that might work for you."

Question #10 (self-harm): If "Yes" to – hardly ever, sometimes, or quite often

INITIATE CRISIS PLAN

Source: Adapted from Massachusetts Child Psychiatry Access Project for Moms' Postpartum Depression Screening Algorithm for Pediatric Providers During Well-Child Visits, available at www.mcpapformoms.org

Appendix L

Raffle Flyer

Thank you for participating in my research study,

I understand that I will not be compensated for my participation but I have the choice to be entered in a raffle to win 1 of 3 diaper tote bags with changing pad available.

Winners will be selected after data collection of study.

Please provide reachable contact info.

In the event you are selected as a winner, you will be contacted only via contact info provided.

If you are unreachable with the given contact info after 3 attempts you will forfeit your spot.

Arrangements will be made to pick up diaper tote bag at ROADS Foundation clinic during business hours.

If you agree complete contact info below.



About the product

- A stylish diaper tote with an exterior made of both printed and solid-color polyester
- The roomy main compartment boasts 2 elastic bottle holders, 1 slip pocket, and 1 zippered pocket. 2 Velcro-secured flap pockets, 2 bottle pockets, and 1 Velcro slip pocket on the exterior provide additional storage
- Includes a foldable, easy-to-clean changing pad. 2 sturdy top handles and the adjustable shoulder strap make it easy for you to keep this diaper bag close at hand
- Approximate Dimensions(in inches): Exterior - 18 L X 4.5 W X 13 H; Interior Main Compartment - 16 L X 4.5 W X 12 H

Study ID _____

Name _____

Phone # _____

Email Address _____

Appendix M

Patient Education Materials

SPEAK UP WHEN YOU'RE DOWN

6 THINGS EVERY NEW MOM & MOM-TO-BE SHOULD KNOW ABOUT PERINATAL DEPRESSION

1 *Perinatal depression is common.*
It is, in fact, the number one complication of pregnancy. In the US, 15% to 20% of new moms, or about 1 million women each year experience perinatal mood and anxiety disorders, and some studies suggest that number may be even higher.
YOU ARE NOT ALONE.
Perinatal depression can affect any woman regardless of age, income, culture, or education.

2 *You may experience some of these symptoms*

- Feelings of sadness.
- Mood swings, highs and lows, feeling overwhelmed.
- Difficulty concentrating.
- Lack of interest in things you used to enjoy.
- Changes in sleeping and eating habits.
- Panic attacks, nervousness, and anxiety.
- Excessive worry about your baby.
- Thoughts of harming yourself or your baby.
- Fearing that you can't take care of your baby.
- Feelings of guilt and inadequacy.
- Difficulty accepting motherhood.
- Irrational thinking; seeing or hearing things that are not there.

Some of the ways women describe their feelings include:

- I want to cry all the time.*
- I feel like I'm on an emotional roller coaster.*
- I will never feel like myself again.*
- I don't think my baby likes me.*
- Everything feels like an effort.*

3 *Symptoms can appear any time during pregnancy and up to the child's first year.*
Baby blues, a normal adjustment period after birth, usually lasts from 2 to 3 weeks. If you have any of the listed symptoms, they have stayed the same or gotten

4 *You did nothing to cause this.*
You are not a weak or bad person. You have a common, treatable illness. Research shows there are a variety of risk factors that may impact how you are feeling, including your medical history, how your body processes certain hormones, the level of stress you are experiencing, and how much help you have with your baby. What we do know is, **HELP IS NOT YOUR FOLLY.**

5 *The sooner you get treatment, the better.*
Recent studies show that your baby's well-being and development are directly tied to your physical and emotional health. You deserve to be healthy, and your baby needs a healthy mom in order to thrive. Don't wait to reach out for **HELP**. It is available.

6 *There is help for you.*
There comes a time in every woman's life when she needs help. **NOW** is the time to reach out to a caring professional, who is knowledgeable about perinatal depression, and who can help you through this time of crisis. He or she can understand the pain you are experiencing and guide you on the road to recovery. Contact Postpartum Support International, 1.800.944.4773 or www.postpartum.net, for referrals and support near you.

LOS ANGELES COUNTY MENTAL HEALTH TASK FORCE
www.LAMH.org
For referrals and resources, call 211 or 1.800.944.4773 www.postpartum.net

LOS ANGELES COUNTY MENTAL HEALTH TASK FORCE
Los Angeles County Child Abuse Council
www.lacchabusecouncil.org

POSTPARTUM DEPRESSION

IS THE MOST COMMON PROBLEM ASSOCIATED WITH CHILDBIRTH

1 in 7  women suffers from postpartum depression (PPD)



PPD is the most under-diagnosed obstetrical complication in the United States.

Suicide accounts for about **20%** of postpartum deaths and is the second most common cause of mortality in postpartum women.

Symptoms can appear any time during pregnancy and the first 12 months after childbirth.

Women who have one episode of postpartum depression have **50% chance** of experiencing it again with a second pregnancy.



PPD can affect as many as **10%** of fathers within the first year.

Within the first **24 HOURS** after childbirth, a woman's hormone levels abruptly return to normal. **This change may contribute to PPD.**

PPD is often treated with counseling and medication.



It may help to talk through your concerns with a mental health professional. Through counseling, you can find better ways to cope with your feelings, solve problems and set realistic goals.



Antidepressants are a proven treatment for postpartum depression. If you're breastfeeding, work with your doctor to weigh the potential risks and benefits of antidepressants, as any medication you take will enter your breast milk.

What is PPD?

PPD is a serious mental health problem characterized by a prolonged period of emotional disturbance, occurring at a time of major life change and increased responsibilities in the care of a newborn infant. PPD can have significant consequences for both the new mother and family.

PPD Symptoms

- Loss of appetite
- Insomnia
- Excessive crying or anger
- Overwhelming fatigue
- Loss of interest in life
- Loss of energy
- Thoughts of harming yourself or the baby
- Thoughts of harming the baby or yourself
- Thoughts of suicide
- Thoughts of self-harm
- Thoughts of death

What are Baby Blues?

Baby Blues begin in the first few days following delivery and are typically gone by about two weeks postpartum. Symptoms tend to be mild.

Baby Blues Symptoms

- Excessive crying or irritability
- Insomnia
- Irritability
- Exhaustion
- Anxiety
- Depression
- Loss of energy
- Thoughts of death

SOURCES:
 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
 American Psychological Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
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 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.



WINNIE PALMER HOSPITAL
 For Women & Babies

Supported by Arnold Palmer Medical Center Foundation

POSTPARTUM DEPRESSION IN MEN

- As many as 10% of new dads suffer from PPD
- Men's rate of depression is more noticeable in early 3-6m
- Postpartum dads are less likely to engage with their children
- Unlike women, men often become aggressive, irritable and more hostile
- Men are less likely to seek help than women for PPD because of their assumed role and responsibilities
- First-time new dads are at the greatest risk for developing PPD

 <p>PPD could possibly be linked to a drop in testosterone that many new dads experience</p>	 <p>Estrogen, prolactin, and cortisol levels also go up in men after the birth of a baby</p>
 <p>Men who work with partners who have PPD will develop PPD themselves</p>	 <p>More prevalent today because dads are more involved with raising children than ever before</p>



Rate of PPD in men goes up 3-6 months after birth (around the same time women typically go back into the workforce)

The best way to treat PPD in men is to see a licensed therapist.



Created by your therapist

LARKR

Download LARKR on the App Store or Google Play



Download on the App Store

Screenhots:
 1. LARKR is a mobile app that provides a safe space for men to share their thoughts and feelings.
 2. LARKR is a mobile app that provides a safe space for men to share their thoughts and feelings.
 3. LARKR is a mobile app that provides a safe space for men to share their thoughts and feelings.
 4. LARKR is a mobile app that provides a safe space for men to share their thoughts and feelings.

BABY BLUES	PPD	NO PPD
SLEEP DEPRIVATION MAKES YOU EMOTIONAL	SLEEP DEPRIVATION MAKES YOU ANGRY	SLEEP DEPRIVATION MAKES YOU TIRED
BONDING WITH BABY DOESN'T HAPPEN IMMEDIATELY	BONDING WITH BABY DOESN'T HAPPEN AT ALL	BONDING WITH BABY HAPPENS SHORTLY AFTER BIRTH
THE CHANGES IN YOUR LIFE MAKE YOU FEEL OVERWHELMED	THE CHANGES IN YOUR LIFE MAKE YOU FEEL WORTHLESS	THE CHANGES IN YOUR LIFE MAKE YOU FEEL EXCITED
YOU CRY TEARS OF SADNESS	YOU CRY TEARS OF FRUSTRATION	YOU CRY TEARS OF JOY
YOUR MIND IS FOGGY AND UNCLEAR	YOUR MIND IS FULL OF BAD THOUGHTS	YOUR MIND IS FORGETFUL AND DISTRACTED
YOU WORRY ABOUT MINOR THINGS	YOU WORRY IF YOU ARE FIT TO BE A MOTHER	YOU WORRY FOR GOOD REASONS
YOU FEEL WEEPY AND EMOTIONAL LEAVING THE HOUSE IS INTIMIDATING	YOU FEEL NOTHING	YOU FEEL HAPPY AND HOPEFUL LEAVING THE HOUSE
AFTER A FEW WEEKS YOU START TO FEEL BETTER	AFTER A FEW WEEKS YOU START TO FEEL WORSE	AFTER A FEW WEEKS YOU GET INTO A GOOD ROUTINE

www.RUNNINGINTRIANGLES.com

Depression is Treatable!



Managing Your Depression:
Things you can do to help yourself

1. Stay physically active.



Exercise, stretch, go for a walk or a swim!

2. Make time for pleasurable activities.

Do your favorite hobby



Play a video or Listen to music



3. Spend time with people who can support you.



Hugs help



Talk with a friend

4. Practice relaxing.



When your baby is napping, rest and put your feet up



Try taking a bath when you feel tense

5. Simple goals and small steps.

Set reasonable goals you can attain



Don't try to solve the big problems all at one

Break them up into smaller steps



6. Eat balanced nutritious meals.

Cut down on junk food



Include fruits and vegetables



Avoid alcohol