

STANDARDIZED POSTPARTUM DEPRESSION SCREENING AND TREATMENT

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Standardized Postpartum Depression Screening and Treatment

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ABSTRACT

Postpartum depression affects 7 to 20% of women in the first year after giving birth. Unfortunately, over 50% of women experiencing postpartum depression go untreated due to lack of detection, placing the woman and child at risk for detrimental consequences. One of the most common barriers in detecting and treating postpartum depression is the low incidence of screening performed at primary care and obstetrical visits during the postpartum period. Efforts have focused on improving identification of postpartum depression through the use of a valid screening tool performed throughout the first year.

The purpose of the practice improvement project is to implement routine screening using the Patient Health Questionnaire-2 (PHQ-2) at the four-to-six week and six month postpartum visits at a Community Clinic in a Midwestern City. The two question tool, assesses both sad mood and inability to experience pleasure from activities usually found enjoyable. If a patient answers yes to one or both of the questions, further clinical assessment should be performed to consider diagnosis. Once a patient is diagnosed, treatment through mental health counseling and/or medication should be ordered and consistent follow-up should be provided through phone calls and office visits.

The practice improvement project was implemented in September, 2014 and evaluation took place three months post-implementation. Evaluation consisted of data collection, through chart audit and review, of all postpartum women, ages 18-49 years, who were seen by one of the three OB/GYN providers in the past year. The chart audits identified how many patients were seen overall, including demographic information. Chart audits also identified patients who were diagnosed with depression three months prior to implementation and three months post-

implementation to determine a difference. Chart reviews further analyzed treatment and follow-up methods performed.

Results of the project found an increase of postpartum depression detection from 8% to 15% and an increase in treatment methods. Inconsistency with follow-up methods were found and recommendations were made to address them. It was concluded that routine screening for postpartum depression, using the PHQ-2, provided a means to identify and treat postpartum depression in the primary care setting.

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DEDICATION

This dissertation is dedicated to my husband Kelly, my children, Jacob, Charlie, and Sophie, and all moms out there who tirelessly work to make the world a better place.

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CHAPTER ONE: INTRODUCTION

Nationally and locally, individuals with depression are often underdiagnosed and undertreated. Pregnancy and the postpartum period are no different. “Postpartum depression is characterized by sadness or loss of interest, including poor concentration, appetite disturbance, sleep deficit beyond that required for care of the baby, lack of or excessive concern for the baby, constant fatigue, and anxiety or irritability” (Patel et al., 2012, p. 535). Depending on the source and degree of depression (minor vs. major), postpartum depression (PPD) occurs in approximately 7-22% of mothers. Postpartum depression often goes unrecognized with tragic consequences, in up to 50% of all cases. The U.S. Department of Health and Human Services, Health Resources and Services Administration, and the Maternal and Child Health Bureau identified reducing postpartum depression as a U.S. priority health care need. One of the most common barriers in detecting and treating postpartum depression is the low incidence of screening performed at primary care and obstetrical visits during the postpartum period.

In chapter one, the background and significance of postpartum depression will be examined. To completely understand the significance of the problem this section will address the prevalence of postpartum depression. Potential causes, risk factors, and consequences of postpartum depression will be outlined to gain a better understanding on the importance of treating the condition. An overview, differentiating the “Baby Blues” and postpartum psychosis from postpartum depression will also be included. Once the background of postpartum depression is examined, the significance postpartum depression has on nursing as well as a specific federally qualified health center (FQHC) Community Clinic in a Midwestern town will be examined. The purpose of the project, to address the issue of undetected postpartum

depression will be outlined, including project objectives designed to aid in the project evaluation process.

Background and Significance

Prevalence of postpartum depression

In the United States the prevalence of PPD was found to range from 7 to 20%, with 10 to 15% being the most suggested rate (Patel et al., 2012). A prominent prevalence study for postpartum depression was performed by O'Hara and Swain in 1996 (Ji et al., 2011). It was a meta-analysis consisting of 12,810 postpartum women from 59 studies. Results from the meta-analysis estimated the prevalence of depression in the postpartum period to be around 13.0% (Ji et al., 2011).

Postpartum depression can range from Major Depressive Disorder (MDD) to mild/moderate depressive symptoms. Studies have found 7.1% of women may experience a major depressive episode in the first three months postpartum and when including minor depression, the three-month period prevalence rate increases to 19.2% (O'Hara, 2009). It is estimated that one in five women in the US will develop clinical depression at some point in their life, with the risk peaking during child bearing years. Approximately 45 to 65% of women have their first episode of depression during the first postpartum year (Sulik, 2012).

Causes of postpartum depression

No specific cause of PPD has been documented, but various studies have been performed and many found the more likely causes are related to significant changes in a woman's hormones during pregnancy and the postpartum period. The woman's unique brain and hormone chemistry results in her vulnerability to mood disorders at critical times in her life, such as after the birth of a baby. The hormones estrogen, progesterone, and cortisol drop dramatically within 48 hours

after delivery (Patel et al., 2012). Some women are sensitive to hormonal changes during reproductive events, such as menses, pregnancy, and menopause (Patel et al., 2012). Past sensitivity to the reproductive hormonal changes may be a strong correlation to developing postpartum depression as the hormone levels drop after delivery (Patel et al., 2012).

Depression can result from a process of long-term biochemical “loading” as a woman’s brain repeatedly responds to stress in her life (Kendall-Tackett, 2010). When the woman reaches a point in her life where the brain cannot stabilize, mood disorders may appear. The birth of a baby creates life changes and increased stress as a woman adjusts to life with a new baby. The increase in stress, along with the reproductive hormonal effects on her brain biochemistry predisposes a postpartum woman for potentially developing postpartum depression.

For the past 15 years, research efforts have been placed on the discovery of how inflammation is involved in the development of depression, which is changing how people think about depression. The role of inflammation has played a significant part in explaining how all types of physical and psychological stress can lead to depression (Kendall-Tackett, 2010). Some researchers have since stated inflammation is the greatest cause of depression. During the end of pregnancy, levels of proinflammatory cytokines rise (Kendall-Tackett, 2010). Since cytokines fight infections and heal wounds, the body prepares for the recovery of birth by releasing these agents. Normally the elevation of proinflammatory cytokines is within a normal inflammatory range to protect and help the body prevent infection. When stress is added to this normal increase in inflammation, it can lead to depression (Kendall-Tackett, 2010).

Another identified cause of depression is sleep disturbance. When a person is fatigued from sleep disturbance, it will cause the release of cytokines. The changes in hormones and sleep during the early postpartum period may contribute to the onset of postpartum depression

(Pearlstein, Howard, Salisbury, & Zlotnick, 2009). Sleep and depression have a two-direction relationship: Sleep disturbance increases depression risk and depression causes sleep problems (Kendall-Tackett, 2010). The relationship can dramatically compound the situation in the postpartum period.

Postpartum “Baby Blues” and psychosis

When discussing postpartum depression, it is important to distinguish it from “Baby Blues” and postpartum psychosis. Postpartum blues, also known as “Baby Blues,” refers to mood symptoms that are common in the first week to 10 days after delivery and usually resolve within a few days without any intervention (O’Hara, 2009). Postpartum blues have been reported to occur in 15-85% of women, with a peak incidence on the fifth day. The “Baby Blues” is a reaction to the dramatic drop in estrogen and progesterone women have after giving birth, and is a normal response to these changes.

Common symptoms include mood swings, mild elation, irritability, tearfulness, fatigue, and confusion (Pearlstein et al., 2009). If, however, these symptoms last beyond six weeks or if they get worse, the woman may be experiencing postpartum depression. Unlike the “baby blues,” women with postpartum depression feel worse over time, and changes in mood and behavior do not go away on their own.

At the other end of the spectrum is postpartum psychosis. Postpartum psychosis is characterized by a severely depressed mood, disorganized thinking, psychotic thoughts, hallucinations, restlessness, agitation, sleep disturbance, paranoia, and impulsivity (Patel et al., 2012). Postpartum psychosis is a psychiatric emergency which requires immediate intervention due to the risk of infanticide and suicide (Patel et al., 2012). It occurs in one to two cases per 1,000 live births and usually peaks in the first two weeks after delivery (Patel et al., 2012). First

time mothers 35 years of age and older have been found to have the highest prevalence (Patel et al., 2012). Hospitalization is usually the treatment used due to the need to protect the patient and infant from the dangerous situations psychosis can create.

Consequences of postpartum depression

In the United States, depression is the leading cause of non-obstetric hospitalization among women aged 18 to 44 years (O'Hara, 2009). Many times the onset for depression occurs during the childbearing years. Women who have experienced postpartum depression are twice as likely as women in the general population to have another episode of depression within the next five years (McQueen et al., 2008). Depression accounts for the greatest burden among all mental health problems and by 2020 is expected to become the second most common general health problem.

Postpartum depression is a form of depression which can have significant consequences for not only the woman experiencing the depression, but her infant, other children and significant other. There is considerable evidence showing postpartum depression affects mother-baby interactions as well as long term emotional and cognitive development of the baby (O'Hara, 2009). Depressed mothers often differ from non-depressed mothers in regards to how they gaze at their infants, respond to infant utterances, and positive and negative facial expressions (O'Hara, 2009). They also show flat affect, low activity level, alternating disengagement and intrusiveness with their infant (O'Hara, 2009). Depression during pregnancy and the postpartum period was found to have a higher incidence of substance abuse, including alcohol, illicit drugs, and cigarettes (Strat, Dubertrat, & Foll, 2011).

O'Hara states, "infants of depressed mothers are often observed to show less eye gaze during feeding, less playing, less positive affect, higher levels of withdrawal behavior, and seem

less content, more drowsy and fussy than infants of non-depressed mothers” (2009). Infants of depressed mothers also have been shown to have a higher incidence of colic, sleep problems, and temperament issues. Untreated maternal depression can have a negative effect on child development and risk of anxiety or depressive symptoms in infants later in life (Patel et al., 2012). A higher level of insecure attachment among children of depressed mothers is common as well.

Risk factors

The risk of developing PPD is increased based on psychosocial, socioeconomic and past medical problems. Strat, Dubertrat, and Foll, found postpartum depression was associated with younger age (<20 years), ethnicity, not being married, pregnancy complications, and traumatic events within the past 12 months (2011). Risk factors can be related to past medical history, such as current and past substance abuse, a family or personal history of mental illness, a previous miscarriage, having to take sick leave during pregnancy due to hyperemesis, uterine irritability, or a psychiatric disorder (Patel et al., 2012). An unplanned pregnancy increases the risk of PPD especially if the woman contemplated terminating the current pregnancy (Patel et al., 2012). Stressful life events during pregnancy and in the previous 12 months can add increased risk for PPD as well. Events such as unemployment, marital conflict, child-care issues, and infant health-issues have been found to contribute (Patel et al., 2012). Lastly, relationship issues can greatly increase the risk of developing PPD. Poor relationships with one’s own mother, a lack of emotional and financial support from her partner, or living without a partner have all been found to correlate to the increased risk (Patel et al., 2012).

A study by Goyal, Gay, & Lee examined whether or not women with the socioeconomic risk factors low monthly income, less than a college education, unmarried, and unemployed,

were at a higher risk of developing depressive symptoms compared to women with no socioeconomic risk factors (2010). They found in their study the women with the four risk factors were 11 times more likely to have clinically elevated depression scores at three months postpartum compared to their cohorts. As mentioned above, there have been investigations linking race/ethnicity, younger age, and education to postpartum depression. O'Hara and McCabe found some studies support the correlations, whereas others did not (2013). The overall risk factor of poverty can be the common factor grouping the demographic factors of race/ethnicity, younger age, and education together and creating a higher risk for postpartum depression (O'Hara & McCabe, 2013). Having an awareness of the significant increase in risk related to low socioeconomic status was significant to the project, considering many women who receive care at the FQHC Community Clinic are of lower socioeconomic status.

Statement of the Problem

The incidence of postpartum depression is 7-22%, with over 50% of the cases going undetected, emphasizing the need for a routine, consistent approach in screening women throughout the postpartum period. The postpartum period is typically considered from birth through the first 12 months. Many women receive care during this time period from a primary care provider. Primary care is considered obstetrics, pediatrics, family practice, and internal medicine.

There have been reports that many postpartum depression cases were being missed by primary care providers due to the absence of systematic screening (O'Hara, 2009). Efforts have focused on improving identification of postpartum depression through the use of a valid screening tool. To increase the potential for early intervention, primary care providers are encouraged to screen mothers using a standard universal screening process with all postpartum

patients (Chaudron et al., 2010). The screening process is to be done throughout the first year, not just the four-to-six week follow-up visit.

Needs assessment: Community Clinic

The need for consistent postpartum depression screening was investigated with staff members at a Community Clinic in a Midwestern city. The Community Clinic provides comprehensive medical and dental care to anyone and everyone in need, regardless of age, nationality, or ability to pay. It is a unique healthcare system based on a sliding scale payment system, making healthcare more accessible to members of the community. The Clinic is divided into several different subspecialties: Family Practice, Women's Health, Homeless Health, New American Health, and Lifestyle Medicine. The women's health clinic serves many low-income and New American women and families. The most common ethnic populations served at the clinic include Somalian, Nepali, Native American, Hispanic, Caucasian, and Bosnian. There are two nurse midwives who work alongside a family practice physician. All three providers offer prenatal, labor, delivery, and postpartum care to pregnant women, at the clinic and partnering hospital.

The Women's Health clinic staff and providers held a meeting on January 22, 2014 with the writer to discuss the lack of screening for postpartum depression, as well as barriers to screening and treatment unique to the clinic and the populations they serve. There were several needs identified by the staff of nurses, providers, and clinic administrators:

1. The use of a standardized depression screening tool was not consistently used to assess postpartum women for depression. The providers would ask "How are you doing?" or "Have you been feeling sad at all?" to assess the patients. Not using a valid, consistent screening approach could ultimately miss identifying early signs of depression as well as

treatment opportunities. The physician did say the current electronic medical record does have the Patient Health Questionnaire (PHQ-2 and PHQ-9) built-in, but after speaking with the nurse midwives, it was apparent the tools were not utilized consistently.

2. Postpartum depression assessment was usually only done during the four-to-six week postpartum follow-up visit. Since depression can occur anytime during the first year, more frequent screening should be done. Most child-bearing women are fairly healthy and may not be back to the clinic after the four-to-six week visit, for up to a year or longer.
3. There was no evidenced-based algorithm for screening and treatment available to use as a resource. Having an easy to read, concise algorithm could benefit the nurse midwives and physician by guiding appropriate assessments, treatments, and referrals based on scores obtained from the screening tool. This could ultimately increase provider treatment rates for postpartum depression.
4. The Community Clinic had very limited access to mental health resources on the clinic site. This was a great barrier to treatment, as a large majority of the clinic patient population has limited transportation and access to community services. Literature suggests that routine screening for depression is not beneficial if treatment options are not available. At the time, one mental health professional from a local mental health agency, came to the Community Clinic once a week to provide services. The staff felt expanding services was a great need at the clinic.
5. The clinic is an open network clinic, which can refer to any health system. The clinic staff did not have a comprehensive list of available community mental health resources, especially those related to postpartum depression.

6. Treating postpartum depression with medications is often needed in combination with counseling. The clinic did not have a list of anti-depressants safe for treating pregnant and/or breastfeeding women. This is important since treatment is recommended for nine to 12 months after the patient is stable, which could lead into future pregnancies.
7. Once a patient was identified with postpartum depression, there was no routine follow-up assessments shortly after treatment, such as phone calls or clinic-based support group. Evidence has shown successful treatment for postpartum depression needs frequent follow-up and monitoring (Yawn et al., 2012).

Significance for Nursing

Nurses are known to have concern for the quality of life for the patients they serve. Considering the effects of depression on mothers, as well as their infants, families, and society, nurses must be aware of its devastating effects, symptoms, causes, assessment methods, and treatments. The intention of providing a standardized screening process using a validated screening tool was to provide for earlier detection of postpartum depression. Earlier detection of postpartum depression can provide for a more cost-effective means for treatment with better patient outcomes (Yawn et al., 2012).

Project Description

Project purpose

The purpose of the project was to develop and implement a standardized screening and treatment protocol for postpartum depression at a Community Clinic. Standardized use of an evidence-based screening tool with all postpartum patients at their four-to-six week and six month postpartum office visit will hopefully aide in higher diagnostic and treatment rates for postpartum depression, compared to not using a screening tool. It was decided by the clinic

administration to have patients schedule a postpartum follow-up exam at six months, along with the traditional four-to-six week postpartum visit, to provide more opportunities for screening if the individual is an otherwise healthy person. Unfortunately, due to time constraints of the project, complete evaluation related to the efficacy of the six month screening was not possible, since post-implementation evaluation needed to occur after three months. In regards to treatment, having resources at the clinic related to recommended treatment, with a consistent follow-up method, could hopefully help decrease barriers to treatment and increase treatment success.

Many of the patients seen at the Community Clinic receive their medical care coverage through Medicaid. The Center for Medicaid and CHIP Services (CMCS) issued an informational bulletin regarding services and good practices for individuals with a behavioral health disorder (Center for Medicaid and CHIP Services [CMCS], 2012). The goals to enhance treatment and care to Medicaid patients with mental illness, such as PPD, include: “Effective use of screening for mental and substance use disorders, increased access to behavioral health services, improved integration of primary care and behavioral health, and in some instances, long term services and support to obtain better health outcomes for individuals with mental and substance use disorders” (Center for Medicaid and CHIP Services [CMCS], 2012). To obtain the above goals, CMCS issued the bulletin to assist and encourage states to incorporate better mental health assessment and treatment coverage into their practices. Coverage for postpartum depression screening was verified with the state Medicaid program at six months postpartum if the patient was still enrolled in the program.

Project objectives

Objectives were developed to aid in with evaluation of the project. During the evaluation process, the following objectives will be reviewed and analyzed to determine if the practice improvement project had a positive impact on patient outcomes. The project objectives are:

1. Increase the percentage of detection of patients with postpartum depression through screening using the PHQ-2 at the four-to-six week and six month postpartum healthcare encounters.
2. Increase the treatment rates among the OB/GYN providers for postpartum depression through use of either non-pharmacologic and/or pharmacologic treatment.
3. Increase treatment compliance and patient outcomes, by performing follow-up assessments, via nurse phone-calls at two days and two weeks after diagnosis, as well as an office visit with the provider four weeks after initiating treatment, or sooner if patient's condition dictates.

Having a better understanding on the background and significance of postpartum depression related to the prevalence, potential causes, risk factors, and consequences of postpartum depression, helped identify the need to develop a project to address efficient standardized screening and treatment. Chapter one included the background and significance of postpartum depression along with the purpose of the project. In the next chapter, an in depth literature review will detail barriers to the screening process, available screening tools for postpartum depression, the importance of screening in the primary care setting, and recommended screening intervals during the first year postpartum. Practice guidelines will be reviewed to understand appropriate treatment, if postpartum depression is detected.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Introduction

Chapter two is focused on review of the literature and study framework. Literature review focused on barriers to screening, screening tools for postpartum depression, screening in the primary care setting, recommended screening times throughout the first year postpartum, and treatment for postpartum depression. In order to determine the best process for routine standardized screening for postpartum depression, it is important to identify what barriers to performing screenings on a routine basis exist. Once barriers are determined, identifying the most appropriate screening tool for use in the primary setting is needed. There are several screening tools available to help identify patients with postpartum depression. It was important to consider functionality of the tools in the primary care setting, as well as validity, specificity, and reliability of the tool for diagnosis of postpartum depression. Knowing ideal times to use the screening tool is also crucial for proper identification of postpartum depression.

If postpartum depression is identified, it is necessary to provide appropriate evidence-based treatment to hopefully avoid any adverse effects to both the mother and child. Treatment options vary based on the degree of depression, patient access to treatment, and individualized patient beliefs to treatment. It is important to examine both non-pharmacological and pharmacological treatment options.

At the end of Chapter Two, conceptual and theoretical frameworks for project development, implementation, and evaluation will be discussed. A conceptual framework is organized to provide focus and rationale, and act as a tool for the integration and interpretation of information (Moran, 2014). A Logic Model was developed to address the resources/inputs, activities, outputs, and outcomes of the project. A theoretical framework was also used to further

define the project variables, by identifying the relationships among the variables to help explain the relationships of postpartum depression, the women who suffer from it, their family, and the healthcare community.

Barriers to Screening

Numerous barriers to performing routine depression screening have been found. One significant barrier is time constraints in the primary care setting (Pearlstein et al., 2009). Providers are already pressed for time during patient exams, and adding more responsibilities to an already maxed out time slot can cause resistance. Another barrier is clinician discomfort with psychiatric disorders. Many times, providers are not trained about the proper use of screening tools, as well as the best ways to diagnose and treat psychiatric disorders. Finally, lack of knowledge about resources is considered a barrier to clinician screening for psychiatric disorders in medical settings (Pearlstein et al., 2009).

Out of 298 members of the Washington Academy of Family Physicians who saw postpartum women, 70.2% said that they ‘always or often’ tried to detect postpartum depression at postpartum examinations, and 46% ‘always or often’ screened mothers at well-child visits, a remarkably high rate (Mitchell & Coyne, 2008). However, of those who tried to detect postpartum depression, only 30.6% reported doing so using a validated method. Agreement that screening takes too much effort was associated with less frequent screening (Mitchell & Coyne, 2008).

Patients can also present barriers to screening by not acknowledging symptoms of depression. Women with postpartum depression are often hesitant to divulge their mood and anxiety symptoms to their clinician because of guilt regarding having symptoms when motherhood is expected to be joyful (Pearlstein et al., 2009). Liberto found in literature review,

women reported a reluctance to identify themselves as having postpartum depression due to stigma associated with depression (2012). Other women view depression as a failure in the transition to being a new mother. Most postpartum women do not recognize or understand the symptoms they are experiencing and are unable to differentiate between normal transitions to motherhood and postpartum depression symptoms (Liberto, 2012).

Another patient barrier related to under-identification of depressive symptoms could be related to having an immigrant status. Refugee and immigrant women are more vulnerable to develop postpartum depression due to the associated risk factors of poverty, language barriers, lack of social support, not understanding a new health system, and possible isolation if new to the country (Tobin et al., 2014). Women with an immigrant status who suffer the symptoms of postpartum depression, may not know the concept of depression or how it is a treatable condition (Tobin et al., 2014). In fact, the word for postpartum depression may not even exist in their language, thus making it even more difficult to identify (Tobin et al., 2014).

Henning-Smith et al., found there were limited studies related exclusively to immigrants from Africa and depression self-identification (Henning-Smith, Shippee, McAlpine, Hardeman, & Farah, 2013). Considering the large population of Somali immigrants the Community Clinic serves, having greater knowledge related to barriers for screening and identification among this population is imperative. Henning-Smith et al. conducted a study to examine mental health among Somalia-born Black adults compared with US-born Black and White adults (2013). During the study, they examined the roles of stigma, discrimination, and symptomatology among Somalia-born Black adults. Research has suggested some Somali immigrants may be reluctant to admit to mental health problems due to shame, guilt, or even suicidal ideation in response to experiencing mental illness (Henning-Smith et al., 2013). It has been found Somalia-born

immigrants often have physical symptoms related to depression instead of mental ailments (Henning-Smith et al., 2013).

Screening Tools

Screening adults for depression in clinical practices with systems in place to assure accurate diagnosis, effective treatment, and follow-up, was recommended by the U.S. Preventive Services Task Force in 2002. These efforts have been enhanced by the introduction of screening tools specifically designed to detect depression in pregnant and postpartum women. Postpartum specific screening tools avoid tapping somatic symptoms of depression, which may not have high diagnostic value in the postpartum period (O'Hara, 2009). Because depression can occur at any time in the postpartum year and some providers screen mothers throughout the year, evaluation of the tools' accuracy at different time points is critical (Chaudron et al., 2010).

During literature review, a variety of screening tools for depression and postpartum depression were found. Tools included the Edinburgh Postnatal Depression Scale (EPDS), Patient Health Questionnaire-9 (PHQ-9), Patient Health Questionnaire-2 (PHQ-2), Postpartum Depression Screening Scale (PDSS), and Beck Inventory II. Extensive literature review focused on Edinburgh Postnatal Depression Scale (EPDS), considered the gold standard for postpartum depression. Currently, the Community Clinic has the PHQ-2 and PHQ-9 incorporated into the electronic medical record and is already used by the providers as needed to screen for depression. It was found if a provider is familiar with a screening tool, they are more likely to use it. Since the PHQ-2 and PHQ-9 screening tools are already in the electronic medical record at the Community Clinic, and providers are familiar with the tool, literature review focused on comparing the PHQ-2 and the PHQ-9 to the EPDS for concordance.

Edinburgh Postnatal Depression Scale (EPDS)

The Edinburgh Postnatal Depression Scale (EPDS) (Appendix A) is a 10-item, self-administered questionnaire developed for assessment of depression in postpartum women. It has been validated against the Research Diagnostic Criteria for major depressive disorder (MDD) or minor depressive disorder (MnDD) and in a variety of settings and community samples (Chaudron et al., 2010). The EPDS is the most widely used screening questionnaire for postpartum depression. Women are asked to rate how they have felt in the previous seven days. Each question is scored zero to three and completion takes approximately five minutes (Gibson, McKenzie-McHarg, Shakespeare, Price, & Gray, 2009). Total scores range from zero to 30, with a cutoff score of 10 being recommended for detection of MDD/MnDD (sensitivity of 90% and specificities between 77% and 88%) and a cutoff score of 13 is recommended for detection of MDD (sensitivities of 85% to 100% and specificities of 80% to 95%) (Chaudron et al., 2010).

The EPDS was developed specifically to avoid over-identification of postpartum depression based on physical symptoms such as fatigue, weight and appetite changes, and problems with sleeping which are a normal part of postpartum recovery (Yawn et al., 2009). Advantages for use of the EPDS include: ease of administration, acceptability by different cultures, international recognition, and availability at no cost (McQueen et al., 2008). Research has demonstrated that the EPDS is most effective in the confirmation of depressive symptoms (sensitivity and specificity) when the recommended cutoff score of greater than 12 is used in the postpartum period among English-speaking mothers (McQueen et al., 2008). This result can lead to the importance of using different cutoff scores for non-English versions of the EPDS. For example, with Japanese subjects, using a 12/13 cutoff score may under-detect depression since no mothers obtained an EPDS score of 13 or higher. Researchers suggest that, due to

cultural expectations, Japanese mothers may be reluctant to disclose depressive symptoms and, therefore, a lower cutoff of 8/9 may be more suitable for that population (McQueen et al., 2008).

Patient Health Questionnaire-9 (PHQ-9)

Another screening tool being used for postpartum depression is the Patient Health Questionnaire-9 (PHQ-9) (Appendix B). The PHQ-9 is a popular screening tool for general depression care because it is an easy to administer diagnostic survey (Gjerdingen, Crow, McGovern, Miner, & Center, 2011). The PHQ-9 is a nine-item questionnaire assessing two components, symptoms and functional impairment (Patel et al., 2012). The patient is asked if they have had any of the symptoms in the past two weeks, and each of the nine questions have an answer from zero, meaning not at all, to three, nearly every day. Interpretation of the total score is from one to 27, with scores of zero to four indicating no depression, five to nine indicates mild depressive symptoms, in which a follow-up PHQ-9 should be administered (Yawn et al., 2009). PHQ-9 scores over 10 have been found to indicate a higher correlation of depression. A score of 10-14 suggests moderate depressive symptoms, and any score >15 suggests moderately severe to severe depressive symptoms (Yawn et al., 2009). The PHQ-9 also specifically asks about suicidal and homicidal ideations.

Many primary care practices are starting to follow recommendations of routine depression screening for all adults by using tools, such as the PHQ-9. The tool has been validated in primary care practices, making it an appealing option (Yawn et al., 2009). A literature review of 38 studies involving more than 32,000 primary care patients found the PHQ-9 was equal or superior to other depression measures (Kroenke, Spitzer, Williams, & Lowe, 2010). The literature review also found the PHQ-9 was similar regardless of sex, age,

racial/ethnic groups and the mode of administration, such as patient self-report or interviewed in person or by telephone (Kroenke et al., 2010).

If the PHQ-9 could be used for postpartum depression screening, physicians and health care systems might be able to use a single tool for screening all adults for depression (Yawn et al., 2009). The PHQ-9 has been used in a depression screening initiative, at publicly funded health care clinics, involving 1336 pregnant and postpartum women receiving obstetrical care (Kroenke et al., 2010). Having a universal screening tool will facilitate more consistent use among all providers in the clinic setting due to confidence with a familiar tool.

A study by Yawn et al., was done to determine the concordance of the PHQ-9 to the EPDS to determine if the universal tool use would be appropriate in practice (2009). During the study, risk was separated into two categories of normal versus increased risk of MDD. Results showed the EPDS and PHQ-9 score were concordant for the vast majority of women screened (83%) (Yawn et al., 2009). One area of discordance was related to a large number of women (25%) who scored in the range of five to nine. With a range of five to nine on the PHQ-9, additional follow-up is recommended. The 25% would be reduced substantially if, to be considered positive, the PHQ-9 results were required to include feeling sad more than half the days during the past two weeks (Yawn et al., 2009).

Patient Health Questionnaire-2 (PHQ-2)

The Patient Health Questionnaire (PHQ-2) (Appendix C) consists of the first two items from the longer PHQ-9. The two-question screen assesses both sad mood and inability to experience pleasure from activities usually found enjoyable (anhedonia). The instrument can be used in a dichotomous yes/no fashion, in which a positive response to either item yields a

positive result. Alternatively, the questions could be scored with a Likert-type scale of zero to three, with zero being “not at all” to three being “nearly every day.”

Due to the recommendation of routine screening for depression with all adults, efforts have been made to analyze the most efficient reliable means to encourage active participation with providers. Many believe that the screening process requires too much time and effort. The Patient Health Questionnaire two-item scale (PHQ-2) may be a reasonable alternative screening measure given its short length and potential to be administered during the clinical interview (Chae, Chae, Tyndall, Ramirez, & Winter, 2012).

The effectiveness of brief depression screening using the PHQ-2 with mothers attending well child visits at three rural pediatric practices was examined as well. The study found screening was well accepted and usually did not prolong visits (Chae et al., 2012). In the two phases of the study, they found 85% of the visits involving screening required no additional time, and 89.6% of the visits took less than three additional minutes (Chae et al., 2012). Further, clinicians expressed the screening was useful because the tool allowed them to obtain valuable psychosocial information pertinent to the child’s care (Chae et al., 2012).

The PHQ-2 has been validated in primary care and obstetrics-gynecology and has been found to be as effective as other depression screens (Chae et al., 2012). Using the EPDS as the gold standard, the PHQ-2 had high sensitivities (80–93%) and specificities (75–86%) in a cross sectional study of women during pregnancy and in the postpartum period (Chae et al., 2012). Chae et al. repeated the study and found a sensitivity of 100% and specificity of 79.3% for the PHQ-2 compared to the EPDS as the reference standard, which is consistent with the findings of the original study performed by Bennett et al, (2012). Advantages of the PHQ-2 include the quick administration time and it can be administered verbally to improve patient compliance

with screening especially in a multiethnic practice where literacy may be a significant issue (Chae et al., 2012). The American Congress of Obstetricians and Gynecologists (ACOG) has also endorsed the use of this two-question screen (National Institute for Healthcare Management [(NIHCM)], 2010).

Primary Care Integration and Recommended Screening Schedule

Many times screening for postpartum depression only occurs at the scheduled four-to-six week follow-up appointment post-delivery. Since postpartum depression can occur anytime within the first year, there have been recommendations for more frequent screening schedules. Pearlstein et al., states the optimal time to screen for postpartum depression is between two weeks and six months after delivery (2009). Often times, the peak risk is at two and six months after delivery (Pearlstein et al., 2009). The risk of PPD at two months postpartum was found to be 5.7%, and 5.6% at six months postpartum (Patel et al., 2012). McQueen et al., found the onset of depression most frequently occurred within the first few weeks or months after delivery (2008). However, for some mothers, the onset of depressive symptoms occurred after twelve weeks and others much later between six and twelve months (McQueen et al., 2008).

A systematic review of 30 studies evaluating the prevalence and incidence of postpartum depression found the prevalence of major and minor depression began to rise following delivery (McQueen et al., 2008). The highest increase of 12.9% was at three months, declining slightly in the fourth through seventh months (9.9%-10.6%), and declining even further (approximately 6.6%) from the eighth to twelfth month (McQueen et al., 2008). Gjerdingen et al., found in a study with 506 total participants, 112 (22.1%) had a positive PHQ-9 (simple score 10) at some time within the first nine months postpartum (2011). The proportion of women with positive depression scores was highest at zero to one month postpartum, dropped to lower levels at two to

six months postpartum, and increased again at nine months postpartum (Gjerdingen et al., 2011). Regardless of the study, it has been shown numerous times, postpartum depression is prevalent throughout the first postpartum year.

Since most postpartum women are generally healthy, many only go to their obstetrician at the four-to-six week time period, and are not seen again in the first year. In fact, sometimes postpartum women do not receive care again with any primary care provider. This brings up the issue of when, where, and how should postpartum depression screening be done?

Translating Research into Practice for Postpartum Depression (TRIPPD)

Translating Research into Practice for Postpartum Depression (TRIPPD) is the first large US-based effectiveness study of screening and follow-up care for postpartum depression that showed any improvement in maternal outcomes at 12 months (Yawn et al., 2012). The study was based in real-world primary care practices, and most of the postpartum depression care was delivered within the primary care practices (Yawn et al., 2012). Many women prefer to discuss mental health issues with their primary care provider versus a new behavioral health practitioner. TRIPPD was designed to aid in keeping the evaluation and possible care in the primary care setting. Tools from the study can facilitate primary care based treatment and follow-up (Yawn et al., 2012).

A key to success found in the TRIPPD study was having universal postpartum depression screening accompanied by on-site depression management in the primary care setting. The study found improved maternal outcomes at 12 months postpartum. Not only did screening increase the number of women with a diagnosis of postpartum depression, it also improved the outcomes in those women whose postpartum depression was diagnosed (Yawn et al., 2012). Considering the multiple and long-lasting adverse effects of postpartum depression, these findings suggest

there should be efforts made to enhance training or include other clinicians, such as on-site mental health clinicians to improve program success (Yawn et al., 2012).

Treatment Guidelines for Postpartum Depression

Evidence-based practice guidelines are an excellent resource for providers to use when caring for patients. The Scottish Intercollegiate Guidelines Network (SIGN) developed a practice guideline in 2012 titled *Management of Perinatal Mood Disorders*. The guideline defines the perinatal period as the term encompassing both the antenatal period, from conception to childbirth, and the postnatal period, from childbirth to the end of the first year (Scottish Intercollegiate Guidelines Network [SIGN], 2012). The guideline states perinatal mood disorders include postnatal depression, postpartum psychosis, and mood and anxiety disorders in the antenatal period. The guideline also outlines the evidence in relation to the use of psychotropic medications in pregnancy and during breastfeeding and assists in the development of local evidence based integrated care pathways and networks (SIGN, 2012). Key clinical recommendations that should be implemented into practice while caring for perinatal women are included in the guideline. The recommendations include predicting and reducing risk, prevention and detection, management, and prescribing issues.

In 2009, ACOG and the American Psychiatric Association (APA) joined together to perform an extensive review of research on perinatal depression ((NIHCM), 2010). After the review, the two organizations outlined the first joint recommendations for managing depression during pregnancy ((NIHCM), 2010). Referring to the pregnancy guidelines can remain useful during the postpartum period, however it is also important to keep in mind a possible need to tailor the treatment based on individual situations as well.

Lastly, in 2008, the American College of Obstetricians and Gynecologists, District II/NY (ACOG), developed *Perinatal Depression Screening: Tools for Obstetrician-Gynecologists*, a toolkit offering relevant provider education regarding perinatal depression (ACOG, 2008). The tool kit included the perinatal depression screening tool, EPDS, assessment and management strategies, pharmacologic chart related to pregnancy and breastfeeding, and a list of relevant provider and patient resources (ACOG, 2008). The goal of the tool kit was to help providers establish a routine perinatal depression assessment in the practice setting, screen and diagnose patients with baby blues, perinatal depression or other depressive disorders, and learn different treatment options along with the benefits and limitations of each (ACOG, 2008).

Management

Untreated postnatal depression may be prolonged and have a detrimental effect on the relationship between mother and baby and on the child's cognitive and emotional development (SIGN, 2012). The good news is response to both pharmacological and psychosocial interventions is positive. SIGN states the choice of treatment for postnatal depression should be governed by efficacy, previous response to treatment, incidence of side effects, likely compliance, patient preference and, in the case of pharmacological therapies, safety of use when pregnant or breast feeding (2012).

Many times when deciding between psychosocial therapy versus pharmacological therapy it is important to look at the severity of the symptoms. For mild to moderate symptoms of depression, cognitive therapies should be considered for treatment (SIGN, 2012). More severe symptoms may require use of pharmacological intervention or a combination of both.

Non-pharmacological treatment options

If a patient is diagnosed with mild-moderate postpartum depression, psychotherapy methods including interpersonal, cognitive-behavioral, and group and family therapies, have been shown effective ((NIHCM), 2010). Psychotherapy has been stated as the preferred initial course of treatment in pregnant women and breastfeeding mothers if the woman is not already taking antidepressant medication ((NIHCM), 2010). Many times, six to 10 interpersonal therapy sessions have been found to be sufficient in relieving depressive symptoms in postpartum women ((NIHCM), 2010).

Besides psychotherapy, other non-pharmacological treatment options include light therapy, bio-feedback, and support groups. Many times, a woman who is depressed has social isolation and feelings that she is the only one with depression. Getting connected with a support group can serve as an outlet for women to connect with others experiencing the same issues and find new ways to deal with stress.

Pharmacological treatment options

Considerations need to be taken when prescribing medications to women who are still pregnant or breastfeeding. Choosing the safest medication and limiting exposure to multiple medications should be priority. SIGN (2012) guidelines recommend sertraline and paroxetine, among selective serotonin reuptake inhibitors (SSRIs), and the tricyclic antidepressants (TCAs) nortriptyline and imipramine have the best evidence base for use during breast feeding. The authors also suggest avoiding doxepin, fluoxetine, citalopram, and escitalopram for treatment of depression in women who are breast feeding (SIGN, 2012).

AAP/ACOG's guidelines concur with the SIGN guideline for treatment of perinatal depression. The (SSRIs) are recommended to be the first-line antidepressants used with pregnant

and breastfeeding women (Meltzer-Brody, 2010). In the past ten years there has been changing evidence about the effects of SSRIs on the fetus and possible complications arising from SSRI use during pregnancy. One complication studied was persistent pulmonary hypertension (PPHN). PPHN is when the pulmonary vasculature cannot decrease resistance at birth, leading to breathing difficulties for the infant and hypoxia (Meltzer-Brody, 2010). Many times infants suffering from PPHN need intubation to assist the breathing effort. As studies have been conducted, the association between SSRI use in pregnancy and PPHN has been found to be much less than originally stated. In fact, approximately 99% of infants born to women who took SSRIs during pregnancy will not develop PPHN (Meltzer-Brody, 2010).

Poor neonatal adaptation or neonatal neurobehavioral syndrome (previously called neonatal withdrawal syndrome) is another complication studied with infants exposed to anti-depressants during pregnancy. Even though there is limited evidence, the FDA changed the class labeling in 2004 for SSRIs and serotonin-norepinephrine reuptake inhibitors (SNRIs) (Meltzer-Brody, 2010). The FDA warned third trimester exposure to antidepressants could be associated with “respiratory distress, cyanosis, apnea, seizures, temperature instability, feeding difficulty, vomiting, hypoglycemia, hypotonia, hypertonia, hyperreflexia, tremor, jitteriness, irritability, and constant crying” (Meltzer-Brody, 2010, p. 93). Since the labeling change, many practitioners recommended tapering the woman off the antidepressants several weeks prior to labor and delivery (Meltzer-Brody, 2010). Once again, the recommendation to taper-off has been questioned since most cases of neonatal syndrome appear to be very mild and do not seem to have long-term effects or consequences.

During the postpartum period, research on the risk of exposure to anti-depressant medications has been mostly focused on breast-feeding infants (Meltzer-Brody, 2010). The

studies analyzed infant exposure risks related to adverse events and plasma levels of the drugs in the infants. Results have found low rates of adverse and low or undetectable plasma levels with sertraline (Zoloft), paroxetine (Paxil), and fluvoxamine (Luvox) (Meltzer-Brody, 2010).

Sertraline is strongly considered the first-line of SSRI treatment based on the drug having the lowest concentration of transmission into breast milk among all the SSRI's (Meltzer-Brody, 2010). If sertraline is not an option, it is important to investigate the safety of alternative medications related to pregnancy and breast-feeding. For instance, paroxetine is considered safe with breast-feeding, but is a category D and not recommended for use during pregnancy.

On the other end of the spectrum, are fluoxetine (Prozac) and citalopram (Celexa). Both drugs are not recommended for use with breast-feeding because fluoxetine has a long half-life of 4-6 days and citalopram has been shown to have high concentrations in breast milk after use (Meltzer-Brody, 2010). When considering TCAs, nortriptyline has been shown to have the most data supporting safety during breastfeeding (Fitelson, Kim, Baker, & Leight, 2010).

A review of literature related to antidepressant drugs and breastfeeding was performed by Davanzo, Copertino, DeCunto, Minen, and Amaddeo in 2011. The literature review focused on selected pharmacokinetic characteristics such as half-life, milk-to-plasma ratio, protein binding, oral bioavailability and information about lactation risk (Davanzo et al., 2011). Well-known and used sources of the literature review included the well-known *Drugs in Pregnancy and Lactation* edited by Briggs et al, 2008, *Medications and Mothers' Milk* by Hale, 2010, and the LactMed database of *TOXNET*, accessed June 2010. Davanzo et al. found similar recommendations as mentioned above for anti-depressant use with breastfeeding. They summarized the medications in a table which stratified safety based on the pharmacokinetic characteristics found through each resource. A brief conclusion of the table stated the majority of antidepressants are not usually

contraindicated (Davanzo et al., 2011). SSRI's and nortryptiline have a better safety profile than other antidepressants during lactation (Davanzo et al., 2011). They also noted fluoxetine must be used carefully and the tricyclic doxepin and the atypical nefazodone should be avoided (Davanzo et al., 2011). Lastly, lithium, is usually considered as contraindicated (Davanzo et al., 2011).

It is best to administer low doses of antidepressant medication and gradually increase the dose up while monitoring the infant for adverse effects (Neiman et al., 2010). To minimize infant exposure, avoiding breast-feeding at peak concentration time, may help as well (Neiman et al., 2010). To limit the exposure of medications to the fetus and infant, providers should consider changing medications prior to pregnancy if possible. If a baby is exposed to a medication during pregnancy, it may be better to keep them on the same drug versus changing to a different medication increasing more exposure (Neiman et al., 2010). If pharmacologic treatment is decided, once stable, the woman should continue to take the medication for at least nine to 12 months to prevent relapse (Chisholm-Burns et al., 2010).

Conceptual and Theoretical Framework

A Logic Model (Appendix D) was used to outline the concepts related to the project and provide a focus, rationale, and tool for the integration and interpretation of information. Concepts included in the Logic Model are resources/inputs, activities, outputs, and outcomes. During the planned initial phase, all resources needed for project development, implementation, and evaluation are taken into consideration. Using the resources aides in identifying the activities outlined in the Logic Model, which states the project objectives and how they can be met. After the activities are identified, the model moves into the intended results phase. When examining the intended results, the outputs are constructed to aid in data collection for evaluation of the project outcomes, which are broken down into short-term, intermediate, and long-term.

After evaluation is complete, the impact of the project can be assessed, recommendations for possible changes can be addressed, leading back to the beginning of identifying additional resources if needed.

The theoretical framework for the project is based on Mercer's theoretical framework of Maternal Role Attainment (1985) in combination with Peplau's Theory of Interpersonal Relations (1992). Maternal Role Attainment Theory (Figure 1) examines the interrelated and complex factors of the antepartum and postpartum periods in a new mother's life and their effect on attainment of the maternal role. Mercer's model uses the mother, child, and family in the model through expanding circles and systems. Factors in all these systems affect the mother and the quality of her maternal role attainment to varying degrees. One factor critical in the microsystem, or the most immediate environment, is the presence or absence of depression.

Peplau's Theory of Interpersonal Relations (Figure 2) is a middle range theory with four components, two persons (patient and nurse), professional expertise, and client need (Peplau, 1992). Peplau claimed that the nurse-patient relationship is the primary human contact that is central in a fundamental way to providing nursing care. The purpose of her theory is the improvement of nurses' relations with patients, which is achieved through the nurse's understanding of his or her own behavior, helping others identify personally experienced difficulties, and applying principles of human relations to problems that arise in the context of relationships. The process results in a nursing situation in which both the patient and the nurse learn and grow.

A growth-producing relationship with others is a goal that transcends in any nursing specialty. The Theory of Interpersonal Relations is comprised of three phases of the nurse-patient relationship. During the first phase, the nurse provides an unconditional patient-focused

approach which enables an ongoing relationship to provide for the patient's needs. The second phase of the nurse-patient relationship is when the patient is able to recognize and respond appropriately to cues and show a desire and readiness to grow in the relationship. Lastly, there is a shift of power from nurse to patient as patient assumes responsibility for achieving new goals.

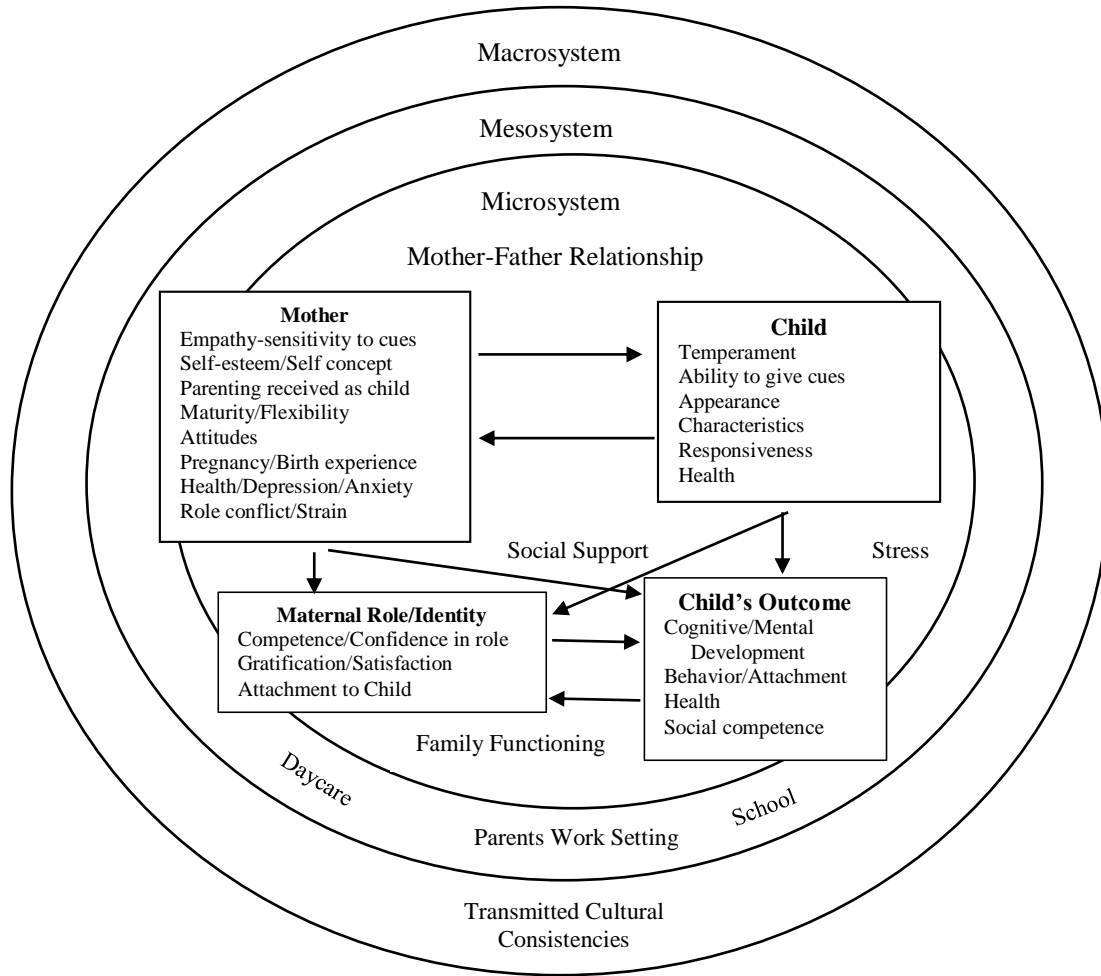


Figure 1: Maternal Role Attainment Theory Diagram

Adapted from Ramona Mercer (1985)

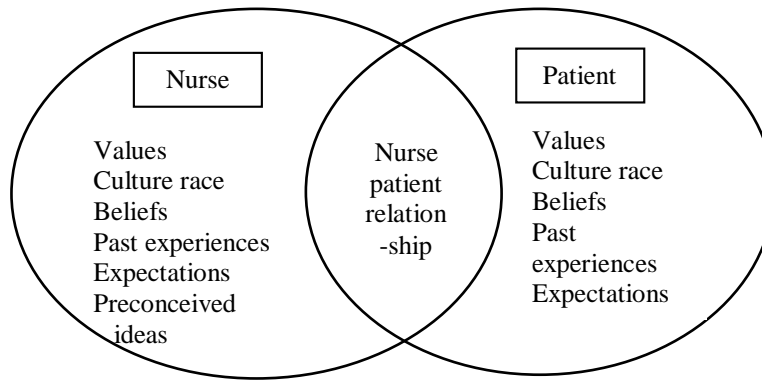


Figure 2: Theory of Interpersonal Relations

Adapted from Hildegard E. Peplau (1992)

The two theories combined have aspects related to the project. According to the Maternal Role Attainment, maternal depression is a factor that can hamper the attainment of the maternal role. Nursing care to help prevent, moderate, or overcome postpartum depression would therefore positively affect the well-being of the mother, infant, and the entire family. The Theory of Interpersonal Relations pertains to the study since an improvement of nurses' relations with patients can exist in primary care due to the consistency and continuity of care. Therefore, a strong nurse-patient relationship will help the patient identify personally experienced difficulties, such as postpartum depression. The relationship will also help the patient apply principles of human relations to the problems that arise in the context of relationships with the infant, family, and others surrounding the patient. It would be interesting to explore the aspect of a strong relationship with a primary care provider related to a better transition into the maternal role.

Conclusion

The focus of chapter two was to review the literature and outline the conceptual and theoretical frameworks to aid in project design and implementation. Literature review focused on barriers to screening, screening tools for postpartum depression, screening in the primary care

setting, recommended screening times throughout the first year postpartum, and treatment for postpartum depression. Application of a logic model as a conceptual framework was explained along with the theoretical framework. The information gained during literature review and frameworks outlined during chapter two, helped facilitate the project design, implementation, and data collection, which will be outlined and discussed in the next chapter.

CHAPTER THREE: PROJECT DESIGN AND IMPLEMENTATION

The practice improvement project design, implementation, and data collection are illustrated in this chapter. A key factor for the practice improvement project is congruence between the project goals, design, data collection, and analysis (Rouen, 2014). Project objectives were continually considered during all phases of the project development. A review of evidence-based studies, practice guidelines, and the unique needs of the Community Clinic were taken into account during the design and implementation process.

Project Design

The project design was developed based on needs investigated in January, 2014 with the clinic staff, physician, and nurse midwives in the OB/GYN department at a Community Clinic. Information obtained from the evidence-based research study, *Translating Research into Practice for Postpartum Depression (TRIPPD)*, ACOG's *Perinatal Depression Initiative*, and the Scottish Intercollegiate Guidelines Network (SIGN) practice guideline developed in 2012 titled *Management of Perinatal Mood Disorders*, was used as a foundation for the project design. Integrating postpartum depression screening in the primary care setting throughout the first year, with a validated screening tool has been found to increase the detection of postpartum depression and reduce the risk of consequences. ACOG developed a tool kit for providers, which was used to develop the projects screening process, communication techniques for providers and nursing staff, and treatment recommendations specific to postpartum women who may be breastfeeding or become pregnant while receiving treatment. During project design, the author utilized a logic model to demonstrate the planning and evaluation for standardized depression screening and treatment among postpartum patient.

A dissertation proposal meeting with committee members was held on March 14, 2014. After receiving feedback from committee members, final project development was initiated in March 2014 and continued through September 2014. During the development phase, the author and a nurse midwife from the clinic collaborated to develop necessary project components to address the needs and barriers of the patients and clinic. Listed below are the components to the final project design, based on recommendations from ACOG, SIGN, and TRIPPD. The components were designed to facilitate the implementation of the project and support meeting the three project objectives identified in Chapter One. Components of the project design were:

1. Postpartum women will be screened for postpartum depression using PHQ-2 at the four-to-six week and six month scheduled postpartum visits with the physician and nurse midwives. If a patient answered yes on one or more question on the PHQ-2, further screening using the PHQ-9 should be performed. If a patient scored over ten out of a possible 27 points, or reported thoughts of hurting oneself or others, the provider should further assess the patient clinically and treat appropriately. It is important to rule out other possible conditions such as metabolic and substance abuse disorders.
2. A screening and treatment algorithm was developed (Appendix E), based on PHQ-9 scores, to be used as a clinical resource when developing a treatment plan to meet the unique needs of patients at the Community Clinic.
3. A community resource list was developed (Appendix F), identifying mental health services in the community for providers to use as an easy guide to assist patients in getting help they need. The list included options available at the clinic site as well as community options based on types of payment accepted including Medicaid and expansion plans under the Affordable Care Act, wait times for appointment scheduling,

whether the agency offers postpartum specific counseling, and if they have sliding scale payment options based on income.

4. As mentioned in literature review, “A key to success found in the TRIPPD study was having universal postpartum depression screening accompanied by on-site depression management in the primary care setting.” In September, 2014, the clinic was able to hire a mental health clinical nurse specialist (CNS) through a grant they received. The addition of having the CNS on site will hopefully help address the barrier of patients getting to appointments at other sites in the community.
5. A medication list for providers to use based on practice guidelines for treatment of postpartum depression, as well as depression during pregnancy, was developed based on literature review. The list included medications safest for breastfeeding mothers, as well as with subsequent pregnancies. Keeping in mind treatment is recommended for nine-to-twelve months after the patient is stable, the possibility of future pregnancies while taking anti-depressant medication was taken into consideration.
6. If a patient is diagnosed with postpartum depression, a feasible follow-up method for treatment, through follow-up phone calls by nursing staff at two days and two weeks was developed with a quick text note for nursing to use when charting (Appendix H). During the two day follow-up phone call the patient will be asked if they have any suicidal ideations, if they have scheduled a counseling appointment (if applicable) and when they were scheduled to attend. If they were to have scheduled an appointment and have not done so, the nurse will ask about barriers to getting the appointment made and assist as needed. The same assessment was done in regards to filling medications. If a patient has started taking medications, the nurse will ask about any side effects experienced. The

two week nursing phone call included the above questions along with a follow-up PHQ-9 score to assess decompensation in the patient. All pertinent data should be relayed to the diagnosing provider for further treatment or assessment as needed.

7. Patients will schedule a follow-up appointment with the provider in four-to-six weeks to assess treatment compliance and effectiveness, as well as re-assess patients for decompensation.

The design includes all females 18 to 49 years old who have delivered a baby within the last year, attending the Community Clinic for a postpartum follow-up office visit with an OB/GYN provider. Since all postpartum patients are at risk for developing postpartum depression, screening is recommended to be completed with all patients seen, including non-English speaking patients, if an interpreting service is available at the time of the appointment. Due to the large immigrant population the Community Clinic serves, on-site interpreting services are usually available.

Initially the practice improvement project plan was to be implemented as a pilot project by screening only the patients seen by the collaborating nurse midwife who assisted with the design phase. After the design was completed the department lead physician decided it was important to implement the project among all providers in the OB/GYN department. The rationale was that having consistency among all the providers and nursing staff would hopefully help aid in more consistent screening practices.

Congruence of the project with Community Clinic's strategic plans

According to the Community Clinic philosophy, the clinic recognizes the importance of preventive medicine, early intervention, and management of disease. A major goal is for the primary care provider to develop a relationship with each patient and know the patient's medical

history to deliver more personal and comprehensive medical care, including preventive care such as health screenings. The Community Clinic plays an important role in supporting the safety and health of the community by providing preventive medicine and the consistent management of disease for the most vulnerable, including those with low incomes and diverse cultures.

The clinical dissertation project supports the clinic's mission and values by aiding in early identification of postpartum depression through routine and consistent screening using a valid screening tool. Early identification can help minimize the devastating consequences of postpartum depression through early intervention and consistent follow-up. The project was designed to address the challenges of limited access to healthcare among the many clients they serve.

The Community Clinic has expressed a desire to further improve in identification and treatment of patients with postpartum depression. The current system was found to be inconsistent with screening as well as having limited resources for treatment and follow-up. The willingness of the physician, certified nurse midwives, clinic administrators, informational technology, and nursing staff to participate in the project reinforces congruence of the project with the clinic's strategic plans to provide optimal mental health care to the patients they serve.

Project Implementation

Implementation of the project started on September 22, 2014. The above project design was reviewed by all members of the practice and approved by the Medical Director of the Community Clinic and the North Dakota State University (NDSU) Review Board. The informational technology department was able to set-up the postpartum visit template in the EMR to automatically prompt the rooming nurse to ask the two PHQ-2 screening questions.

Having the screening questions on the flow sheet is aimed to decrease the barrier of staff and providers not completing the screening,

Prior to implementation, a meeting was held with all the providers and nursing staff in the OB/GYN department at the Community Clinic. A list of project resources were distributed to staff and reviewed. The distributed resource list included: the Depression Screening and Treatment Algorithm, Quick Text Note for PPD Follow-up Phone-Calls, Anti-depressant Medications and Breastfeeding Table, Anti-depressants and pregnancy recommendations, and the PHQ-2 and PHQ-9 screening tools with an overview of the tools.

Resources for project design and implementation

Project resources included the community agencies serving postpartum patients and patients with depression, screening tools, clinical practice guidelines, and electronic medical records (EMR). During project design, staff at the Community Clinic served as a valuable resource, providing input on the current screening and treatment process, and identifying gaps in the process to be used for project development. Clinical practice guidelines from ACOG, TRIPPD, AAP, APA, and SIGN served as a project design resource to help identify appropriate screening times and treatment methods for pregnant and postpartum populations. Reference books and literature review served as aids in developing a medication list for staff to use outlining medications which are safest for use in postpartum and pregnant patients.

Community agencies in the area were a resource to provide non-pharmacological and pharmacological treatment for those postpartum patients identified with depression. Project design included contacting various mental health agencies in the community and compiling a user-friendly guide for providers to use if referral for additional treatment is necessary outside of the clinic facility.

The Community Clinic facility and staff members were significant resources for project implementation. Clinic administrators and providers assisted in setting up the process as well as disseminating information to staff involved in the care of the patient. The clinic's EMR and information technology staff were important for the initial chart audit prior to project implementation, as well as evaluation of the project three months after implementation.

Institutional Review Board Approval

Protection of human subjects was done by obtaining approval from the North Dakota State University (NDSU) Review Board. NDSU is committed to protecting the rights, safety and welfare of all individuals participating in NDSU research projects. Research with human subjects is conducted in accordance with regulations of the Department of Health & Human Services, Food and Drug Administration, and other applicable agencies. These protections ensure risks to participants are minimized, risks are reasonable in relation to benefits, recruitment procedures are fair, subjects are sufficiently informed and able to make a voluntary choice, their privacy and confidentiality are respected, and extra protections are in place for vulnerable groups (NDSU Policy #345). IRB approval was obtained on September 8, 2014. See Appendix I.

Data Collection

A preliminary chart audit was performed with assistance from the clinic's information technology staff to review data on patients seen three months prior to project implementation. Data collection consisted of using the EMR to formulate an audit report and by performing individual chart reviews. The audit reports were completed by the information technology staff at the Community Clinic with direction from the author. Search criteria for the audit report included female patients, between the ages of 18 and 49 years old, who had a visit from June 22, 2014 to September 21, 2014 with one of the three OB/GYN providers. The search narrowed the

patients down to those who had been in for a postpartum follow-up appointment based on ICD-9 codes.

After the data set was formulated, additional information was generated into the report and included demographics such as age, race, and ethnicity, as well as, any history of depression on all patients seen. Once the report was generated, the author further investigated, through chart review, the patients' marital status, gravida/parity, and if screening using the PHQ-2 was performed. A second report was generated using the above filters along with adding a current diagnosis of depression.

If a patient was diagnosed with depression during the postpartum period, a more in depth chart review was performed by the author to investigate what treatment was ordered (pharmacologic or non-pharmacologic), along with whether or not follow-up was completed. If follow-up was completed, the author examined when and how it was completed. The author was granted temporary EMR guest access from the informational technology department staff to perform the in-depth chart reviews. Prior to chart review, the author read the Community Clinic's Health Information Privacy Policy, guided by the Health Insurance Portability and Accountability Act (HIPPA), and signed the consent form stating all patient information would be protected and used only as an auditing tool.

Post-implementation data collection was performed three months after project implementation. The data collection process was the same during the post-implementation audit as it was during the pre-implementation audit, except for timeframe used to filter charts. The post-implementation chart audit included patients seen from September 22, 2014 to December 22, 2014 who had delivered in the past year. During the post-implementation data collection the author analyzed PHQ-2 scores on all patients seen. If the patient was diagnosed with postpartum

depression, the author completed the same in depth chart review as done in the pre-implementation data collection. Since the PHQ-2 screening tool was consistently utilized during the post-implementation chart audit, the author investigated if the PHQ-2 score was negative or positive in relation to whether or not a postpartum diagnosis was made.

Chapter Three gave an in-depth review of the project design, how the project was implemented, and data collection process was done. In the next chapter, the evaluation process of the project will be discussed. Chapter Four also indicates how project objectives were considered and used to aid the evaluation process. The Logic Model was used to outline the evaluation process and is defined in further detail in Chapter Four as well.

CHAPTER FOUR: EVALUATION

Chapter Four focuses on the evaluation process of the project. Evaluation was based on proportional comparison analysis and included the total number of female patients seen by the three OB/GYN providers, ages 18-49 years old, who had a pregnancy in the past year prior to the corresponding data collection dates. Comparison was performed on two different groups of patients, those seen three months prior to implementation, and those seen three months after implementation. Data was further evaluated to identify common trends related to possible risk factors of age, marital status, race, gravida/parity, and history of depression.

During the evaluation process, the three project objectives were outlined and specific details for each objective were included to define how they were evaluated. Evidence-based measures and instruments were included, as well as, the method of analysis for each objective. The evaluation process was guided by the Logic Model.

Logic Model

Project evaluation was performed using the Logic Model (Appendix D). The bottom section of the Logic Model shows progression of the intended results of the project from outputs to the outcomes (short-term, intermediate, and long-term). After evaluating the outcome levels, the impact of the project was evaluated and recommendations were made for further development if needed.

Outputs

The outputs defined the variables used during data collection. The variables included the number of postpartum female patients, ages 18-49 years seen by the OB/GYN providers; number of positive scores on the PHQ-2; number of patients diagnosed with postpartum depression; number of referrals for mental health counseling; number of patients receiving medication

treatment for depression; number of follow-up phone calls completed at two days, two weeks after diagnosis; and number of follow-up visits completed at four-to-six weeks after diagnosis with provider. Results from the evaluation of outputs are discussed in further detail in the next chapter.

Short-Term Outcome

The short-term outcome defined on the Logic Model is to have “a greater number of postpartum patients with symptoms of depression identified.” The short-term outcome corresponds to objective one in the project objectives: “Increase the percentage of detection, of patients with postpartum depression, through screening using the PHQ-2 at the four-to-six week and six month postpartum healthcare encounters.” Evaluation methods of the short-term outcome and objective one entailed using the evidence-based depression screening tool, PHQ-2, to screen all patients seen by the three OB/GYN providers. If a patient screened positive on the PHQ-2, by answering yes to one of the two questions, a follow-up PHQ-9 was performed along with clinical assessment by the provider.

If a patient was diagnosed with postpartum depression, the provider added depression (ICD-9 code 311) to the patient’s problem list in their electronic medical record. Having the ICD-9 code tied to the EMR allowed identification of the number of patients diagnosed with depression. The author was able to use a proportional comparison analysis to evaluate the number of patients identified with postpartum depression prior to project implementation compared to the number of patients diagnosed with postpartum depression post implementation. Having the correlating values provided a means to evaluate an increase or decrease in detection of depression.

Further evaluation of the data was done to analyze some of the potential risk factors identified in literature review related to postpartum depression. The risk factors analyzed included demographic information (age, marital status, and race), as well as the conditions such as a history of depression and whether or not this was the patients first live birth. In obstetrics, the term gravida, means the number of times a patient is pregnant and parity is the number of live births a patient has had. If a patient has a history of miscarriage or stillbirths, her gravidty will be more than the parity. Thus for evaluation of the data, the author considered any patient with a parity of one, regardless of the gravidty (number of pregnancies) to be a risk for postpartum depression, since it is the first time she is postpartum after the birth of a live newborn.

Intermediate Outcome

The intermediate outcome defined on the Logic Model is “more postpartum patients in the post-implementation group will be referred and treated for depression.” The intermediate outcome corresponds to objective two in the project objectives: “Increase the treatment rates among the OB/GYN providers for postpartum depression through use of either non-pharmacologic and/or pharmacologic treatment.” Evaluation of objective two investigated how many patients diagnosed with depression were treated by either non-pharmacologic and/or pharmacologic treatment. The author used in-depth chart review to analyze the treatment methods ordered for each patient diagnosed with postpartum depression. Proportional comparison analysis was performed to compare the two groups of patients (pre-implementation and post-implementation) and determine if there was any difference in treatment rates before and after project implementation.

Long-term Outcome

The long-term outcome defined by the Logic Model is “consistent follow-up methods in the post-implementation group will lead to treatment compliance and decrease the number of adverse effects related to postpartum depression.” The long-term outcome corresponds to objective three in the project objectives: “Increase treatment compliance and patient outcomes in the post-implementation group, by performing follow-up assessments, via nurse phone-calls at two days and two weeks after diagnosis, as well as an office visit with the provider four weeks after initiating treatment, or sooner if patient’s condition dictates.”

Evaluation of objective three entailed performing an in-depth chart review on each patient diagnosed with postpartum depression pre- and post-implementation of the practice improvement project. The author systematically reviewed charts noting any follow-up appointments or phone calls performed. The provider notes were reviewed to evaluate whether or not a follow-up phone call was placed at the proposed two-day and two-week post diagnosis time periods. The notes were also reviewed to determine the patient response and/or compliance to treatment ordered. Once again a proportional comparison analysis was performed between the two pre-and post-implementation subgroups to determine if there was an increase in treatment compliance related to a consistent follow-up method.

The evaluation process consisted of identifying the short-term, intermediate, and long-term outcomes, along with the project objectives, to review and interpret the data collected during the project implementation phase. The evaluation process was guided by the Logic Model, which was explained in depth in this chapter. The next chapter will discuss the findings of the results found through the evaluation process and the impact the results have on the quality of patient care at the Community Clinic.

CHAPTER FIVE: RESULTS

Presentation of Findings

Results of the practice improvement project were determined after comprehensive evaluation was complete. In this section, results will be examined to identify what extent each objective was achieved and the impact the practice improvement project had to the Community Clinic practice. Use of the Logic Model, through review of the outputs, will be a part of the results discussion.

Objective 1: Increase the percentage of detection of patients with postpartum depression through screening using the PHQ-2 at the four-to-six week and six month postpartum healthcare encounters

Output: Number of patients diagnosed with postpartum depression

From June 22 to September 22, 2014, the OB/GYN providers did not use the PHQ-2 screening tool routinely to screen for postpartum depression. During the three month period, pre-implementation of the practice improvement project, 45 postpartum patients were seen by one of the three OB/GYN providers at the Community Clinic. Of the 45 patients seen pre-implementation of project, four (8%) were diagnosed with postpartum depression. From September 22, 2014 to December 22, 2014, the PHQ-2 screening tool was used on every patient (100%) seen by the three OB/GYN providers at the Community Clinic. During the three month post-implementation of the practice improvement project, 71 patients were seen, and of the 71 patients seen, there were 11 (15%) patients diagnosed with postpartum depression. The difference of diagnosis from 8% pre-implementation to 15% post-implementation is nearly double, and is a noteworthy finding.

The FQHC Community Clinic had an average of 26.8 births per month in the 2014 year. May 2014 had the lowest number of births in a month (16) and March, April, and November each had the highest number (33). There were 151 births during the first six months of the year (January-June), and 171 births the second six months of the year (July-December). Eleven patients seen during the post-implementation period who were also seen during the pre-implementation period. An increase of 20 births during the second half of the year, along with repeated visits, may explain why more patients (71) were seen in the post-implementation period, compared to the pre-implementation period (45).

In the post-implementation group there were eight positive PHQ-2 results collected among the 71 patients seen postpartum. Seven (64%) of the PHQ-2 scores were positive and four (36%) of the scores were negative among the 11 patients diagnosed with postpartum depression. One patient had a positive PHQ-2 score noted in chart review and further clinical assessment was not completed by the provider. The results show an almost 11% positive overall screening rate for depression, using the PHQ-2 screening tool. It is important to note the screening tool is a tool used to aid in identification, but should not replace further clinical assessment for depression.

Chart reviews of the post-implementation group also found there was little use of the PHQ-9 as a follow-up screening tool, with patients whose PHQ-2 scores were positive. Out of the eight positive PHQ-2 scores, only two PHQ-9 scores were identified. The PHQ-9 screening is more in depth and can provide further details regarding the severity of the depression the patient is experiencing. Having a PHQ-9 score can also facilitate proper treatment when following the treatment algorithm.

Demographics: Age, race, marital status

Although postpartum depression can affect patients of all ages, marital status, and race, demographics are important to identify when assessing postpartum patients, since it has been found to have a higher prevalence among younger and older mothers, single mothers, and mothers of different ethnic backgrounds. Being aware of the population groups commonly seen at the Community Clinic demonstrates several common risk factors are present among the patients seen there. The author reviewed the demographics (age, race, and marital status) during data collection and evaluation to be able to inform the Community Clinic of common trends in the patient populations they see. Figure 3 represents the age ranges of the total (45) patients seen pre-implementation compared to the patients diagnosed with postpartum depression (PPD).

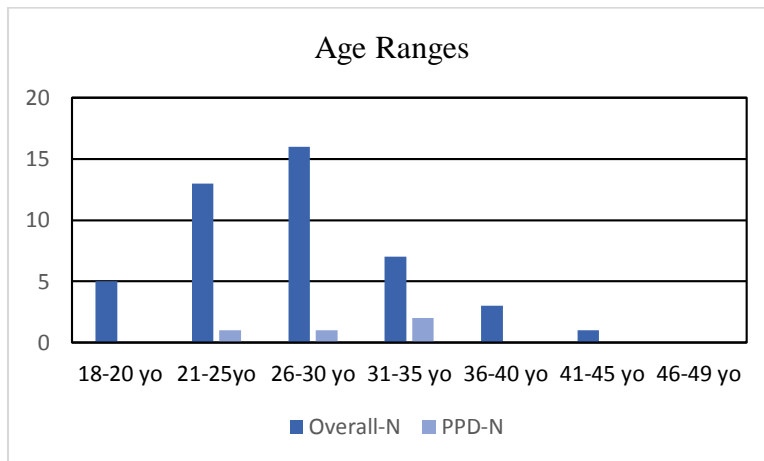


Figure 3: Age Ranges Pre-implementation

Age groups were divided into 18-20 year olds, 21-25 year olds, 26-30 year olds, 31-35 year olds, 36-40 year olds, 41-45 year olds, and 46-49 year olds. The largest age group seen at the Community Clinic postpartum during the pre-implementation phase, was the 26-30 year olds (36%). There were no postpartum patients seen in the 46-49 year old group and the smallest age group represented was the 41-45 year old group (2%). Of the patients diagnosed with

postpartum depression, two of the four (50%) were in the 31-35 year old group, with one (25%) in the 21-25 year old group and one (25%) in the 26-30 year old group.

Figure 4 represents the age ranges of the total (71) patients seen post-implementation compared to the patients diagnosed with postpartum depression.

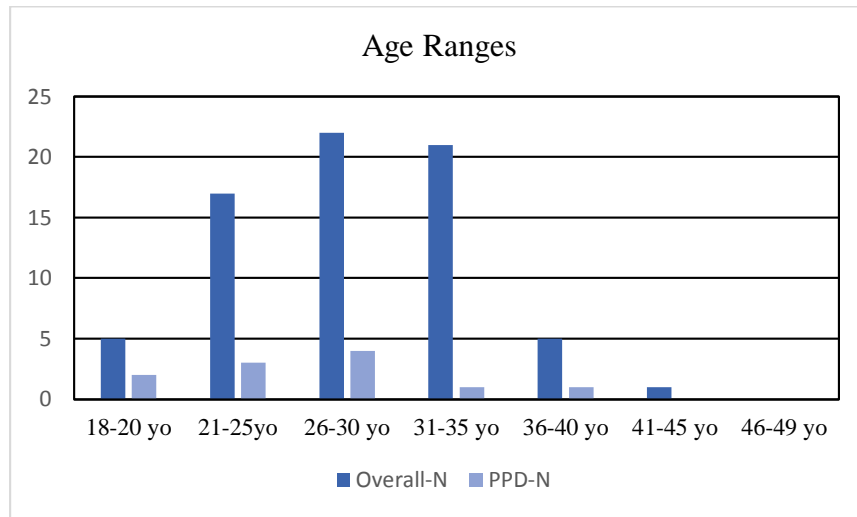


Figure 4: Age Ranges Post-implementation

The largest age group seen at the Community Clinic postpartum, from September 22-December 22, 2014, during the post-implementation phase, was also the 26-30 year olds (31%). There were no postpartum patients seen in the 46-49 year old group and the smallest age group represented was the 41-45 year old group (1%). Of the patients diagnosed with postpartum depression, the largest representation was among the 26-30 year olds (36%) followed by 21-25 year olds (27%) and 18-20 year olds (18%). The overall age groups seen during pre-implementation and post-implementation are consistent during both time periods. Among the patients diagnosed with depression, the author found the most common age range to be over 21 years old (n=9) at 82%, but among the five 18-20 year old patients seen, two (40%) of them were diagnosed with postpartum depression.

Figure 5 represents the various racial groups seen at the Community Clinic pre-implementation. Five different races were identified during pre-implementation data collection: White, Black/African American, American Indian, Asian, and more than one race. Overall, 16 (36%) Black/African American patients were seen, which represented the largest population. Further chart review (Figure 6) identified 10 of the Black/African American patients seen were from Somalia, with eight of the 10 stating they spoke Somalian as their preferred language. Among the remaining Black/African American patients, chart review identified one who spoke Swahili, one spoke Arabic, and one spoke Krahn primarily. There were only five of the total 16 (31%) who identified speaking English as the preferred language among this population. Following close behind were White with 14 (31%) patients, and Asian with 11 (24%) patients. Of the 11 Asian patients seen, 10 of them spoke Nepali as their primary language and one spoke Chinese. There were three (7%) American Indian patients seen overall, representing one of the smaller subgroups along with one patient identifying with more than one race.

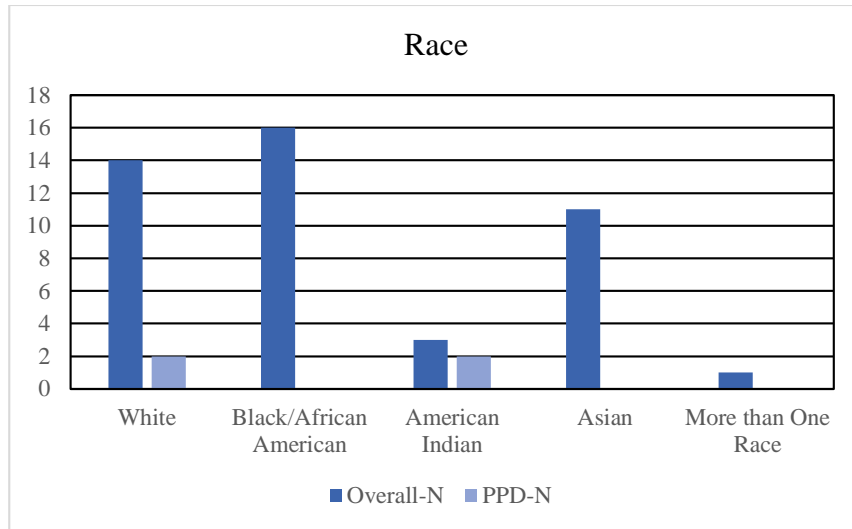


Figure 5: Racial Groups Pre-implementation

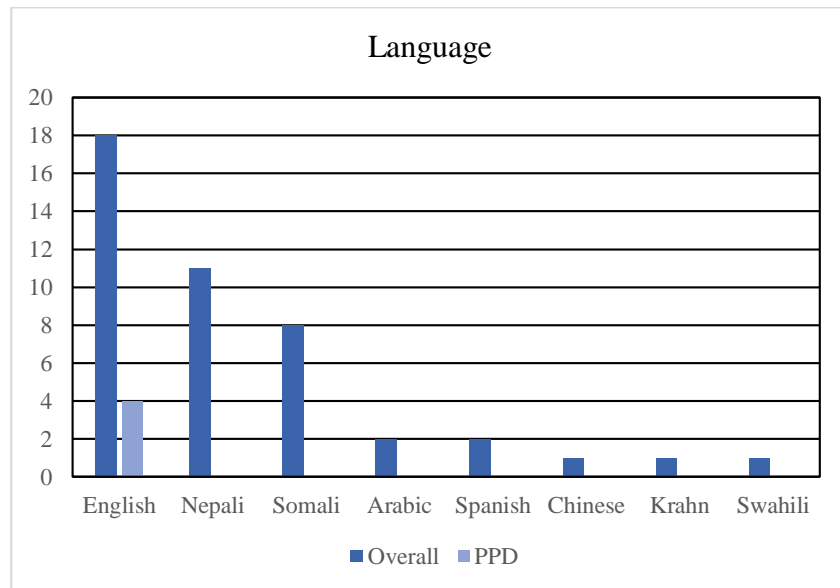


Figure 6: Primary Spoken Language Pre-implementation

Figure 7 represents the various racial groups seen at the Community Clinic during the post-implementation period. Consistent with the pre-implementation racial subgroup, the Black/African American patients represented the largest population with 28 patients (39%). Following close behind were White 21 (30%) patients, and Asian with 14 (20%).

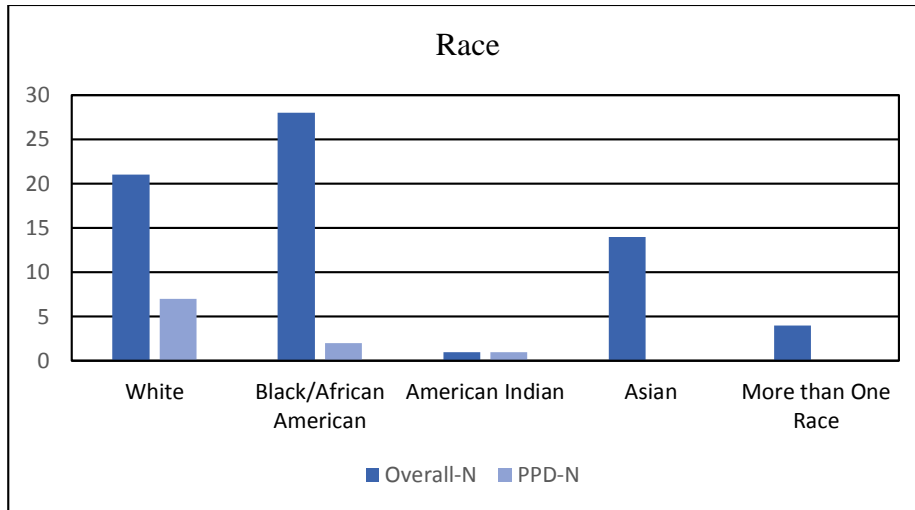


Figure 7: Racial Groups Post-implementation

A noteworthy finding during evaluation of racial groups was the incidence of postpartum depression among the American Indian population seen during both time periods. Although the overall number of American Indian patients seen was small (three pre-implementation and one post-implementation), there was a high diagnostic rate among this population. During the pre-implementation period, two out of the three (66%) American Indian population seen were diagnosed with postpartum depression. During the post-implementation period, the one American Indian patient seen, was also diagnosed with postpartum depression.

Figure 8 illustrates the primary languages spoken by the patients seen in the post-implementation period. Among the Black/African American patients seen in the post-implementation period, eight (29%) of the 28 patients seen, spoke English as their primary language. Among the remaining Black/African American patients, chart review identified 17 (61%) patients who spoke Somali as their primary language. There were also patients who spoke Krahn (1), Swahili (1), Kurundi (3), Arabic (2) and Dinka (1). Chart review found of the 14 Asian patients seen and 12 (86%) of them spoke Nepali as a primary language, and two (14%) spoke Arabic. Arabic was also spoken by five (24%) of the patients in the white population.

Among the white population, there were three (14%) who spoke Bosnian, two (10%) who spoke Kurdish, and 11 (52%) who spoke English as a primary language.

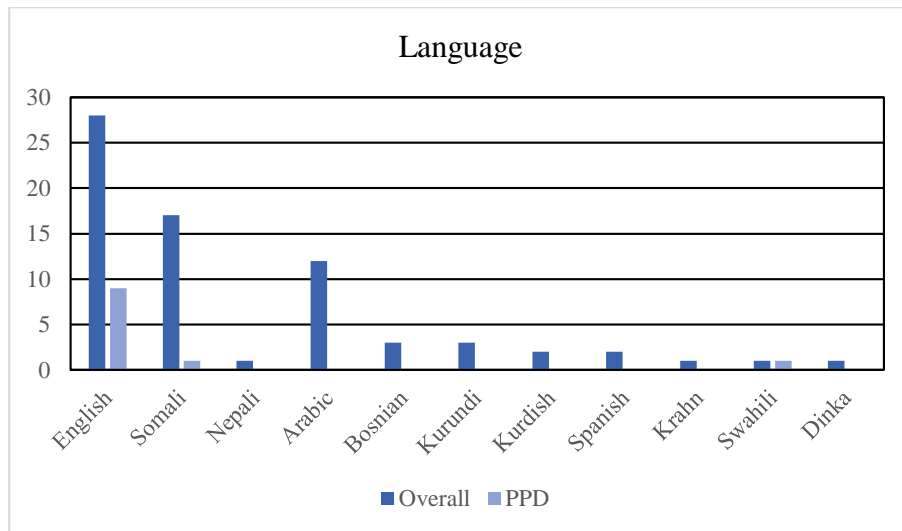


Figure 8: Primary Spoken Language Post-implementation

Lastly, marital status was divided into single, married, separated, and divorced. Figure 9 represents the pre-implementation patient’s marital statuses for both the total patients seen and those diagnosed with postpartum depression. Overall, 28 (62%) patients seen were married, which represented the largest group. The next largest group was single (36%). There was only one patient identified as divorced with none of the patients seen being separated. Among the patients diagnosed with postpartum depression two women were single, which represented the largest group at 50%, while one patient was married, and one was divorced.

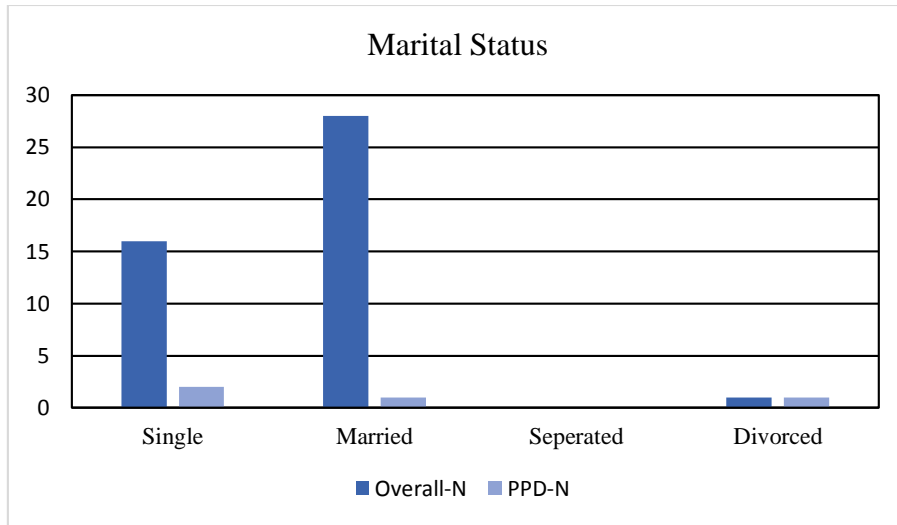


Figure 9: Marital Status Pre-implementation

Figure 10 represents the patients' marital status for both total patients seen and those diagnosed with postpartum depression during the post-implementation period.

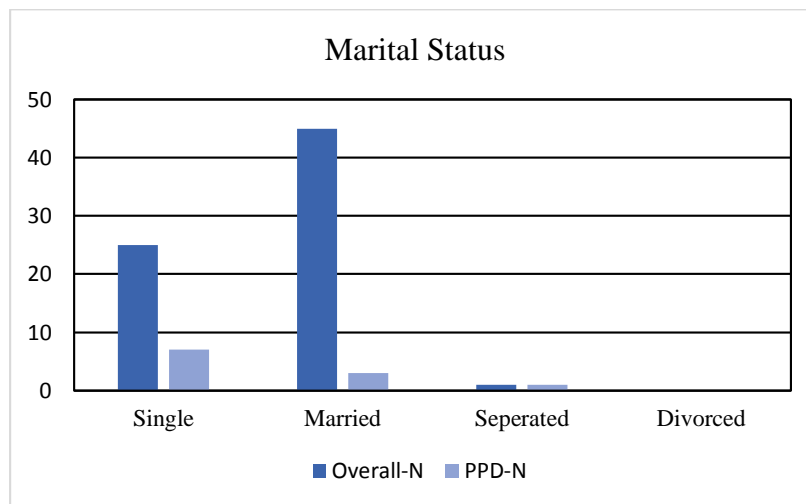


Figure 10: Marital Status Post-implementation

Overall, 45 (63%) patients seen were married, representing the largest group, similar to the pre-implementation subgroup. The next largest group was single (35%), also in close correlation to the pre-implementation subgroup. There was one patient identified as separated, who also was diagnosed with postpartum depression and no patients in the post-implementation group were divorced. Among the patients diagnosed with postpartum depression, single women had the

largest representation (63%). Evaluation of findings between the two implementation subgroups revealed the correlation of a higher incidence of postpartum depression related to being single and separated/divorced, which is similar to risk factors found in literature review (Strat, Dubertrat, & Foll, 2011).

Depression and obstetrical history

During data collection and evaluation, the author analyzed whether or not the patients diagnosed with postpartum depression had a history of depression, as well as if it was their first pregnancy and live birth. Figure 11 demonstrates the data related to overall history of depression and gravida (number of pregnancies)/parity (number of live births) on all 45 patients seen pre-implementation compared to those diagnosed with postpartum depression pre-implementation. Of the four patients diagnosed with postpartum depression pre-implementation, one (25%) had a history of depression in the past, and for three (75%), this was her first episode of depression. There was no difference between having their first live birth versus this being a second live birth or more, in relation to the prevalence of postpartum depression among the pre-implementation subgroup.

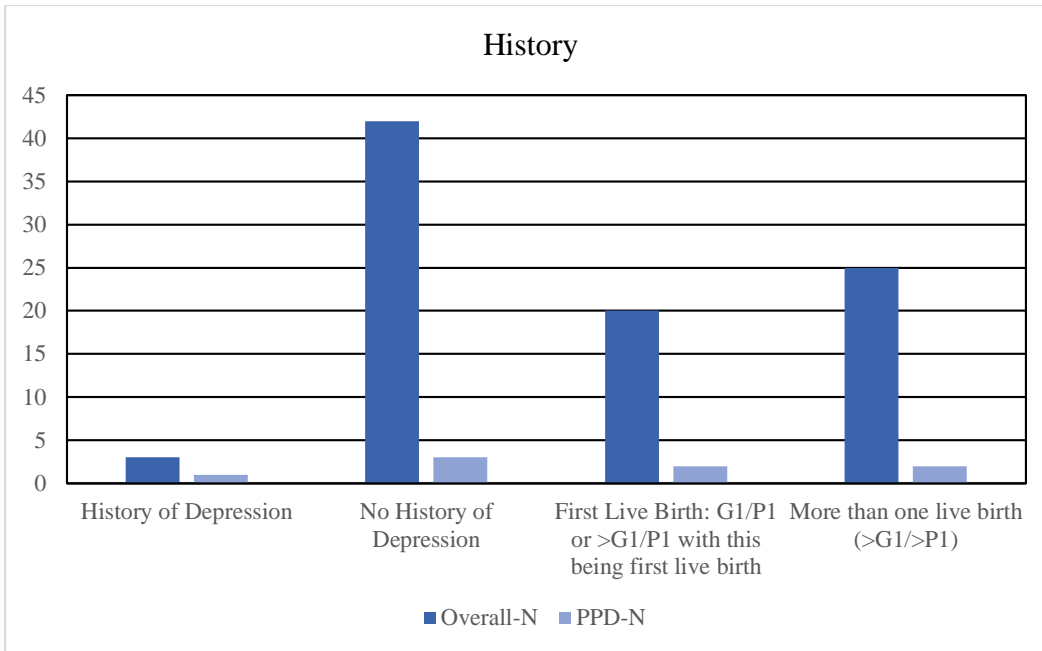


Figure 11: Depression and Obstetrical History Pre-implementation

To be consistent during data collection and evaluation, the author analyzed depression and obstetrical history during the post-implementation period as well. Figure 12 demonstrates the data related to overall history of depression and gravida (number of pregnancies)/parity (number of live births) on all 71 patients seen post-implementation compared to the 11 patients diagnosed with postpartum depression post-implementation. Of the eleven patients diagnosed with postpartum depression, seven (67%) of them had a history of depression, once again a strong correlation. In the post-implementation group only one patient diagnosed with postpartum depression was a first-time mother, all the other patients identified with PPD (10) had experienced a live birth prior to this pregnancy.

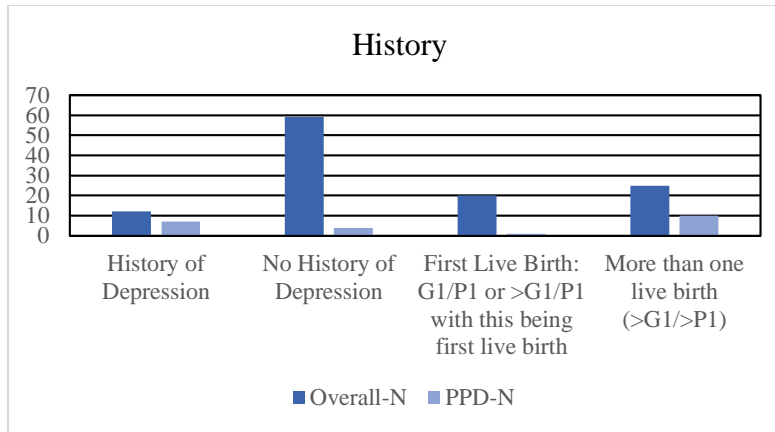


Figure 12: Depression and Obstetrical History Post-implementation

Objective two: Increase the treatment rates among the OB/GYN providers for postpartum depression through use of either non-pharmacologic and/or pharmacologic treatment

Treatment rates were evaluated based on non-pharmacologic and pharmacologic treatment during the pre-implementation and post-implementation periods. Results of the evaluation found two of the four (50%) patients diagnosed during the pre-implementation phase received either non-pharmacological and/or pharmacologic treatment after diagnosis and two declined treatment. Ten out of the eleven (91%) patients diagnosed with postpartum depression post-implementation, received either non-pharmacological and/or pharmacologic treatment after diagnosis. Results of the treatment rates are broken down based on referrals to mental health counseling and medications prescribed.

Output: Number of referrals for mental health counseling

During the pre-implementation period, there was limited resources for mental health counseling at the Community Clinic. They had one mental health provider from a collaborating mental health agency see patients once a week at the facility. Due to the limited availability, patients would often have to wait up to a month to be seen after diagnosis of postpartum depression, placing the patient at risk for further mental health decompensation. The addition of

the Mental Health CNS on staff at the Community Clinic was fulfilled in September 2014, right before project implementation.

In-depth chart review revealed mental health counseling was ordered for three out of the four patients (75%) diagnosed with postpartum depression during the pre-implementation period. All three referrals were placed to community mental health agencies or treatment centers outside the Community Clinic. Of the three mental health counseling referrals ordered, two patients attended their therapy and one patient did not, signifying a 66% treatment rate for mental health counseling during the pre-implementation period.

During the post-implementation period, data collection found eight out of the 11 (73%) patients diagnosed with postpartum depression were referred for mental health counseling by the provider. Six of the eight referrals (75%) were to the Mental Health CNS at the Community Clinic. The two patients referred outside of the Community Clinic, did so because they were already established at an outside agency.

Of the eight mental health referrals ordered, two patients did not attend the scheduled appointment and one failed to schedule an appointment altogether. Taking the three failed appointments into account, shows a 62.5% successful mental health counseling treatment rate. Rates for mental health counseling treatment orders and visits actually decreased from pre-implementation to post-implementation if we compare the rates by percentage. Unfortunately, due to the small data set, statistical significance is unable to be determined.

Output: Number of patients receiving medication treatment for depression

Medication management with anti-depressants was ordered for two of the four patients (50%) diagnosed during the pre-implementation period. One of the two patients received a medication prescription for Effexor (venlafaxine) from an outside agency, and one received a

medication prescription for Celexa (citalopram) at the Community Clinic. During the post-implementation period, eight of the 11 (73%) patients diagnosed with postpartum depression received prescriptions for an anti-depressant medication. Three of the patients received prescriptions for Celexa (citalopram), three received prescriptions for Zoloft (sertraline), and one received a prescription for Paxil (paroxetine) due to a recent history of panic attacks. Two medication profiles were missing from data collection.

Objective three: Increase treatment compliance and patient outcomes, by performing follow-up assessments, via nurse phone-calls at two days and two weeks after diagnosis, as well as an office visit with the provider four weeks after initiating treatment, or sooner if patient's condition dictates

Output: Number of follow-up phone calls completed at two days and two weeks after diagnosis

The process of follow-up phone calls by a nurse two days and two weeks after diagnosis was implemented to help increase treatment compliance and assess patients for further decompensation related to depression. During the pre-implementation period, there were no follow-up phone calls completed since it was not part of the Community Clinic's policies. Data collection focused on the follow-up methods post-implementation.

Chart review for the post-implementation period found inconsistencies with follow-up phone calls related to the timeframe and/or completion of calls. Overall, six follow-up phone calls were placed to the patients for follow-up. There were no phone calls placed at two days nor two weeks post-diagnosis, which were part of the project plan. If phone calls were placed at two days and two weeks to all eleven patients diagnosed with postpartum depression, a total of 22 phone calls potentially could have been placed. The percentage of six phone calls out of a

possible 22 calls shows a completion rate of (27%). Of the phone calls placed, two were called eight days after diagnosis, one was called nine days after diagnosis, and two were called six weeks after diagnosis.

The information assessed during the phone calls was also inconsistent. Use of the scripted phone notes was not implemented as planned. The inconsistency could be related to who was placing the calls. Phone calls were completed by various providers including the Mental Health CNS, an RN working with the CNS, a nurse midwife, and an OB/GYN staff nurse. Two of the six calls (33%) did incorporate information consistent with the scripted notes, such as scheduling of appointments, medication compliance, and assessment of patient status.

Output: Number of follow-up visits completed at four-to-six weeks after diagnosis with provider

The results of the number of follow-up visits completed at four-to-six weeks was more consistent with the project plan compared to the follow-up phone calls. Out of the eleven patients diagnosed with postpartum depression, eight (73%) of them had orders for a four-to-six week follow-up with a provider at the Community Clinic. Four of the eight (50%) were seen at one month post-diagnosis, one was seen two weeks post-diagnosis, and one was seen two months post-diagnosis. Two of the eight did not show up for follow-up appointments and were called by clinic staff to reschedule with unsuccessful attempts.

Chapter Five discussed the findings from evaluation and data collection of the project by examining the extent each objective was achieved and the impact the practice improvement project had to the Community Clinic practice. Identification of key facilitators that made each objective achievable and barriers inhibiting achievement of the objective, will be examined during the interpretation of results process in Chapter Six: Discussion and Recommendations.

CHAPTER SIX: DISCUSSION AND RECOMMENDATIONS

Discussion and recommendations related to the practice improvement project results will be addressed in Chapter Six. Meaning will be applied to the result findings specific to the project by relating the results to the theoretical framework. After interpretation of the results is discussed, further discussion identifying key facilitators that made each objective achievable, along with any limitations inhibiting achievement of the objective, will also be discussed. Lastly, specific recommendations related to continuation of the project and revisions for future use will be included. Future use of the project in other settings along with dissemination plans will finalize the chapter and clinical dissertation.

Interpretation of Results

Objective 1: Increase the percentage of detection of patients with postpartum depression through screening using the PHQ-2 at the four-to-six week and six month postpartum healthcare encounters

As mentioned during the literature review, postpartum depression affects 7-22% of women during the first year after giving birth, with the most common finding being 13%. The findings from the practice improvement project of 15% diagnostic rate, correlate with the national average. Seven of the 11 patients diagnosed during the post-implementation period had positive PHQ-2 scores. The sensitivity of the PHQ-2 in diagnosing postpartum depression during the post-implementation period was 64%. As noted in the literature review, the PHQ-2 had high sensitivities (80%–93%) in a cross sectional study of women during pregnancy and in the postpartum period (Chae et al., 2012). Chae et al. repeated the study and found a sensitivity of 100% for the PHQ-2 compared to the EPDS as the reference standard, which is consistent with the findings of the original study performed by Bennett et al, (2012).

The PHQ-2 sensitivity shown in the practice improvement project is notably less than the sensitivities found in literature review. The difference found between the project and literature could be related to the small sample size of the project data. Discrepancy could also be due to the higher population of various ethnic groups seen at the Community Clinic: One of the four patients who screened negative for depression, but was diagnosed during her visit was of Somali ethnicity. She was seen at two months postpartum, and after answering no to the PHQ-2 questions, when her healthcare provider further assessed her, she did confide she was “feeling down.” Although she was feeling down, she did not want any treatment at the time. She was reassessed in one month in the clinic by the provider and was doing better. Noted in literature review, Somalia-born adults reported the highest levels of stigma related to identifying depression (Henning-Smith et al., 2013). Having a cultural difference in willingness to admit to emotional problems can lead to underreporting of symptoms of depression. This can be especially true when using the PHQ-2 since many of their symptoms are physical compared to emotional or mental.

It is also important to consider who administered the screening tool, as they can play a role in the effectiveness of the screening questions. If the nurse who roomed the patient quickly read through the questions in a hurried manner, the patient may answer no to the two PHQ-2 questions to oblige the nurse and speed up the process. The quality of the relationship between the nurse and the woman in her care is central to effective screening for postpartum depression among refugee and immigrant women (Tobin et al., 2014). Consistent with Papeau’s Theory of Interpersonal Relations, the woman needs to feel comfortable with the process of screening to answer the questions honestly. If she feels rushed during the intake process it may affect how she respond. Since the immigrant patient may feel more comfortable with the primary care

provider, she may have screened negatively on the PHQ-2, but may be willing to open up more to the health care provider during the exam, thus a possible explanation for the discordance related to the PHQ-2 sensitivity in the practice improvement project.

Two of the four patients who screened negative on the PHQ-2, but were diagnosed with postpartum depression, had a significant history of depression. One patient was already being seen by their own mental health provider for treatment. The other patient was on medications prior to pregnancy, was off of them during the pregnancy, and restarted again after delivery. They may have answered no to the screening questions since they were already getting treatment from an outside agency, and did not feel they were any worse than before.

Chart review was unable to determine if the one positive PHQ-2 score was actually assessed for depression, which leads interpretation of the results in two possible directions when evaluating specificity. If the patient did get diagnosed with depression, there would have been no false positive PHQ-2 scores identified in the data collection, indicating 100% specificity. If the patient was not diagnosed with depression after clinical assessment, the results would have indicated 98% specificity. The literature review found the specificity of the PHQ-2 to be 75-86% for postpartum depression. Specificity of the screening tool was shown to be notably higher than the specificities found in literature review. As mentioned above, the difference found between the project and literature is likely due to the small sample size of the project data with statistical significance unable to be determined.

Screening schedule

Since postpartum depression can occur anytime during the first year after giving birth, having the screenings done at all encounter's during the first year, along with a scheduled four-to-six week and six month screening visit, facilitated more means to detect postpartum

depression. Chart review identified diagnosis occurred at various time periods from delivery. Among the patients diagnosed during the post-implementation period, diagnosis was seen at two weeks, four weeks, six weeks, two months, three months, and seven months.

The findings from the project were consistent with research found in literature review. Literature review found the optimal time to screen for postpartum depression is between two weeks and six months after delivery (Pearlstein et al., 2009). Often times, the peak risk is at two and six months after delivery (Pearlstein et al., 2009). The risk of PPD at two months postpartum was found to be 5.7%, and 5.6% at six months postpartum (Patel et al., 2012). McQueen et al., found the onset of depression most frequently occurred within the first few weeks or months after delivery (2008). However, for some mothers, the onset of depressive symptoms occurred after twelve weeks and others much later between six and twelve months (McQueen et al., 2008).

A key facilitator of success to the screenings was the placement of the PHQ-2 screening tool into the EMR “Postpartum Visit” flow sheet. Having the tool in place, allowed for ease of administration of the tool with patients at every encounter. It was noted that the original plan of screening patients only at the four-to-six week and six month scheduled postpartum visits, unintentionally changed to include screening at any other ancillary visits the patient encountered during the first year postpartum. When the nurse rooms a patient for any visit during the postpartum period, they use the same template to input patient data for each encounter. The postpartum office visit template was used for all ancillary visits, and since the PHQ-2 was added to the postpartum office visit template, screening was performed more frequently than the project plan anticipated. Ancillary visits included cesarean delivery follow-up, birth control counseling, IUD insertion, and other postpartum complications such as poor incision healing and vaginal dryness.

The increased detection of postpartum depression, through routine screening, was crucial. A mother who experiences postpartum depression is not only affected herself, but potential for negative effects on infant development are present. In the Maternal Role Attainment Theory, *maternal role attainment* is defined as the “process in which the mother achieves competence in the role and integrates the mothering behaviors into an established role set, so that she is comfortable with her identity as mother” (Mercer, 1985, p. 198). If a woman experiences postpartum depression, it can inhibit maternal competency and development into the role of being a mother. As shown in the theory diagram, maternal depression is part of the microsystem which affects relationships between mother and child, which can affect child outcomes of cognitive/mental development, behavior/attachment, and health.

Demographics: Age, race, marital status

Mercer also identified several variables associated with maternal role attainment such as age, marital status, role conflict, and role strain can influence maternal role attainment (Mercer, 1985). An important part of evaluation was to identify specific patient populations, seen at the Community Clinic, who are at risk for developing postpartum depression. Literature review identified several risk factors related to postpartum depression, based on psychosocial, socioeconomic and past medical problems. Risk factors assessed during project evaluation included younger age (<20 years), ethnicity, not being married, and a personal history of mental illness.

Results of the project related to patient age, did correspond to the literature regarding patients <20 years old to be a greater risk for developing postpartum depression. Out of the five 18-20 year old patients seen, two (40%) of them were diagnosed with postpartum depression post-implementation. The finding is significant considering, the greatest number of patients

diagnosed were in the 26-30 year old group. There was a total of 22 patients assessed in the 26-30 year old subgroup, and four were diagnosed. Even though the number was highest overall, the percentage of diagnosis was only 5.5% among the 26-30 year old group.

Results found in regards to race were also noteworthy. Pearlstein et al., found a patient's immigrant status was a risk factor for postpartum depression development (2009). Often time, patients who are immigrants and other cultural ethnicities, such as American Indian, are of a lower socio-economic class in the U.S. placing them at an even higher risk for postpartum depression. Sixty-nine percent of the patients overall, during the pre- and post-implementation period, who were seen at the Community Clinic were of an ethnic background other than white. The Community Clinic sees a high percentage of patients of lower socioeconomic status due to the clinic's sliding scale payment system and qualification to see patients covered under the Medicaid program.

The two racial groups with the highest incidence of diagnosis were patients in the White and American Indian subgroups. Of the 36 patients seen, pre-and post-implementation, in the White subgroup, nine (25%) of them were diagnosed with postpartum depression. There were four patients seen in the American Indian subgroup during the pre- and post-implementation period. Of the four seen, three (75%) of them were diagnosed with postpartum depression. Further literature review post-implementation found similar study results. A cross-sectional analysis of 8916 mothers in the U.S., from 2001–2002, were studied during the *National Epidemiologic Survey of Alcohol and Related Conditions* (Ertel, Rich-Edwards, & Koenen, 2011). The survey studied demographics related to postpartum depression and found White and Native American women to have the highest incidence of postpartum depression at (11.46% and 18.17% respectively) (Ertel et al., 2011). Having an awareness of the racial findings should alert

providers at the Community Clinic to pay close attention to signs and symptoms especially among the White and American Indian populations.

Since the Community Clinic does see a large population of immigrants from war-torn countries, a notable finding was the patients from Somalia and Nepal had lower rates of identified depression from screening. A couple of theories exist to explain the under-detection of depression among these populations. From Henning-Smith et al.'s study, they found Somalia-born respondents were younger, but more likely to be married (2013). Having increased social support may contribute to better outcomes. An even greater factor identified was Somalia-born respondents reported more embarrassment (nearly 24%) about seeing a mental health provider than did US-born Black and White respondents (Henning-Smith et al., 2013).

Somali respondents reported that they would be "very embarrassed" if their friends knew that they were seeking health care for a mental health problem (Henning-Smith et al., 2013). This could be an issue especially if the Community Clinic uses family or friends as interpreters during the appointment. On the other hand, since many immigrants come from countries with a history of conflict, the patients may have a different frame of reference. Life in the United States may be better mentally compared with their past living conditions, thus leading to less identification of depressive symptoms (Henning-Smith et al., 2013).

A study by Tobin, Napoli, & Wood-Gauthier found similar results related to refugee women having low identification of postpartum depression (2014). Even though the immigrant women at the Community Clinic and the study clinic represented in New England experienced significant stressors and low socioeconomic status related to PPD risk, their screening scores did not correlate to the risk factors. Having a low correlation of risk factors to positive screening among the immigrant population leads to the question about the validity of the tool for this

population. How the tool was administered by interview may have impacted the scores as women who do not speak English as a first language may have little conceptual understanding of postpartum depression (Tobin et al., 2014).

Another consistency found during evaluation related to the literature, was the higher incidence of postpartum depression among single, separated, and divorced mothers. The results showed 22% of single women and 100% of the divorced/separated women were diagnosed with postpartum depression over the pre-and post-implementation period. This is a substantial finding considering only 5% of married women were identified with postpartum depression. *Mercer's Maternal Role Attainment Theory*, explained in the theoretical framework, a positive mother/father relationship is an important component for women when adjusting to motherhood. Not all single woman are in an unsupportive relationship with the father, but often times single women end up raising a child on their own or with limited support.

Depression and obstetrical history

When identifying risk for depression it is also important to consider the patient's medical and obstetrical history. Providers who are informed of a patient's history of depression and/or postpartum depression should be more aware of possible signs and symptoms of depression during the postpartum period, since patients with a history of depression have been found to be at higher risk for developing depression during the postpartum period. As mentioned above, "It is estimated that one in five women in the US will develop clinical depression at some point in their life, with the risk peaking during child bearing years. Approximately 45 to 65% of women have their first episode of depression during the first postpartum year" (Sulik, 2012).

A personal history of depression and postpartum depression places any individual at a 50% risk for another depressive episode later in life, which is no different for a postpartum

woman. Results related to a personal history of depression, from the practice improvement project are consistent with the literature, especially among the post-implementation group. As mentioned in the results chapter, seven (67%) of the eleven patients diagnosed with postpartum depression, had a history of depression. It is important for providers to be aware of and address past history of depression during the postpartum period, before detrimental effects can take place. Paying close attention to the patient's depression history, can facilitate scheduling more frequent follow-up and screening as needed.

There was not much data in literature differentiating postpartum depression among first-time (primiparous) mothers and mother's with more than one child (multiparous). The author wanted to investigate whether or not being a first-time mother presented a higher incidence of postpartum depression. The results found in the project did not demonstrate a higher incidence among first-time mothers, in fact, the results showed just the opposite. Of the 40 primiparous patients seen during the pre-and post-implementation period, three (7%) were diagnosed with postpartum depression. In contrast, there were 50 multiparous women seen during the pre-and post-implementation period, and 10 (20%) of them were diagnosed with postpartum depression.

One assumption related to the higher incidence of postpartum depression among the multiparous women could be related to experience. An identified barrier in literature review, was patient lack of recognition for depression. Often times primiparous women do not recognize signs and symptoms of depression and think what they are feeling is not uncommon. Having a history of postpartum depression with a previous pregnancy is another assumption differentiating the multiparous depression rates. Since 45-65% of women have their first episode of depression during the postpartum period, women who have had a baby in the past, may have experienced the depression in the past, making them more proactive in identification and treatment.

Objective two: Increase the treatment rates among the OB/GYN providers for postpartum depression through use of either non-pharmacologic and/or pharmacologic treatment

The addition of the mental health CNS to the clinic site was a key facilitator to achieving the objective. Chart review discovered all patients diagnosed with postpartum depression during the post-implementation period, who were new to mental health counseling, were referred to the on-site CNS and were able to be evaluated within one-to-two weeks. Having the CNS on site also helped eliminate some of the transportation barriers the patients experienced when they had to receive counseling in different areas of the community, which may have been unfamiliar to them. An on-site mental health CNS also provided better professional collaboration between providers and the mental health staff, which ultimately enables better patient outcomes. The nurse working with the CNS, was a facilitator in getting patients scheduled. She called patients to assess them by phone after a referral was placed, and was able to schedule an appointment with them at that time.

Addition of the mental health CNS correlates with recommendations from TRIPPD, ACOG, and SIGN mentioned in the project design. According to TRIPPD study, a key to success was having universal postpartum depression screening accompanied by on-site depression management in the primary care setting. The study found improved maternal outcomes at 12 months postpartum and with the addition of the CNS to the Community Clinic site, the same results likely will occur there as well. Peplau's Theory of Interpersonal Relations is incorporated at the Community Clinic by having the CNS on-site. Consistent care will assist in developing a positive nurse-patient relationship. When a patient learns to trust the nurse caring for them, they are able to open up and discover new strategies for coping with the new maternal role and the depression they are experiencing.

The medication resource list was utilized as an aid for prescribing safe medications by one provider at the Community Clinic. When a provider uses a resource, such as the “Anti-depressant Medications and Breastfeeding Table” (Appendix G), they are more likely to treat the patient with a medication that has not only been proven to be effective, but also been shown to have the highest safety profile for breastfeeding and possible future pregnancies (ACOG, 2008). Even though the medication list can be a valuable resource for providers, it is still important to consider patient-specific needs and attributes in the decision-making process. One consideration is related to possible future pregnancies. For instance, paroxetine (Paxil) is considered a first-line agent with breast-feeding since there is no drug detected in infant serum, but during pregnancy it is considered a category D (use during pregnancy should only be in life-threatening emergencies when no safer drug is available). ACOG recommends avoiding use in pregnancy due to an increased risk of cardiovascular defects in infants when taken during pregnancy (McKean, 2013). Fluoxetine (Prozac) is just the opposite. Along with sertraline (Zoloft), fluoxetine (Prozac) is one of best-studied anti-depressants and is considered generally safe for use in pregnancy. But with breastfeeding, agents with lower excretion into breast milk may be preferred over fluoxetine, especially while nursing a newborn or preterm infant. The breastfed infant should be monitored for behavioral side effects such as colic, fussiness, or sedation and for adequate weight gain (Davanzo et al., 2011).

Data was not found during chart review regarding breastfeeding status. Since breastfeeding is an important consideration when prescribing medications to postpartum women, it would be ideal to know which of the patients were breastfeeding and compare the breastfeeding status to the medication choice. Having an explanation for why providers chose certain medications that are not first-line in postpartum depression, i.e. Celexa, is beyond the

scope of the practice improvement project, since the writer was not involved in the patient visit and there was no explanation in the patient chart. Ideally it would be beneficial to understand the decision-making reasoning for the decision, such as if it worked for the patient in the past, but unfortunately, the data was not available for evaluation. The medication resource table could be a key facilitator for safer prescribing practices among breastfeeding and the potential of future pregnancies, but further education regarding the use of the list and importance for patient and infant safety should be addressed again with the providers at the stakeholder meeting, as two of the providers did not use it consistently.

Although overall treatment rates did increase from 50% pre-implementation to 91% post-implementation, several barriers were found in achieving even higher treatment rates. The greatest barrier related to failed treatment was patient non-compliance, which is consistent with barriers to treatment in the pre-implementation period. An intervention designed to address patient non-compliance with treatment is discussed in the next section related to follow-up phone calls and visits.

Objective three: Increase treatment compliance and patient outcomes, by performing follow-up assessments, via nurse phone-calls at two days and two weeks after diagnosis, as well as an office visit with the provider four weeks after initiating treatment, or sooner if patient's condition dictates

Of all three objectives evaluated, success of objective three was found to have the most inconsistency and variance, especially with the two day and two week follow-up phone calls. No phone calls were placed two days post diagnosis and only three calls were placed between two days and two weeks. The information assessed during the phone calls was also inconsistent. Use of the scripted phone notes was not implemented as planned.

The inconsistency with the follow-up phone call process could be related to who was placing the calls. Phone calls were completed by various providers including the Mental Health CNS, an RN working with the CNS, a nurse midwife, and an OB/GYN staff nurse. Two of the six calls (33%) did incorporate information consistent with the scripted notes, such as scheduling of appointments, medication compliance, and assessment of patient status. These two calls were initiated by the nurse midwife involved in the project design. Since she was familiar with the project design and goals, follow-up calls initiated by her followed the plan closely. The CNS and her RN were not involved with the project design, plan, or implementation, since they started at the clinic when the implementation started in September.

The results of the number of follow-up visits completed at four-to-six weeks was more consistent with the project plan compared to the follow-up phone calls. Out of the eleven patients diagnosed with postpartum depression, eight (73%) of them had orders for a four-to-six week follow-up with a provider at the Community Clinic. Four of the eight (50%) were seen at one month post-diagnosis, one was seen two weeks post-diagnosis, and one was seen two months post-diagnosis. Two of the eight did not show up for follow-up appointments and were called by clinic staff to reschedule with unsuccessful attempts.

Provider and staff awareness regarding the importance of follow-up shortly after diagnosis is a key facilitator towards achieving the objective. The awareness was discussed multiple times during the project planning and design stages with staff nurses and providers. The staff's desire to have better patient outcomes is a facilitator and further supports Peplau's Theory of Interpersonal Relations. When a nurse wants to help their patient and feels a connection to the patient, a better patient outcome can occur.

The key facilitator for achieving a higher follow-up rate is provider awareness of the importance of follow-up, and instructing patients before they leave the clinic to schedule an appointment in one month for follow-up. The Community Clinic also has a system in place to send appointment reminder phone calls prior to the visit date to help visit attendance compliance. Being proactive with scheduling before the patient leaves, helps eliminate forgetting to call and schedule independently.

Limitations

A limitation to project evaluation was the time period of evaluation. Unfortunately, as mentioned previously, time constraints only allowed for a three month pre- and post-implementation evaluation. Due to the short time-frame, data collection included a smaller sample size, which inhibited the ability to determine statistical significance.

The short time-frame also affected proper evaluation of the effectiveness of scheduled screening at six months postpartum. Since the project was designed to include scheduling women at six months postpartum for a depression screening appointment, six months from project implementation would be in March 2015, which is after the first evaluation. If the clinic could have called the postpartum patients who delivered six months prior to implementation, it would have provided an opportunity to have a more accurate evaluation on the effectiveness of screening at six months. Unfortunately, due to clinic staffing shortage, patients who delivered six months prior to project implementation, after March 2014, were not contacted to start the screening at six months, thus making the evaluation for this component of the project incomplete.

The second limitation during project implementation was inconsistency in the process of follow-up phone calls. Even though staff were educated and given scripts for the phone calls, the

scripts were only found to be used twice. The script was going to be saved in the EMR as a quick-text note for all the nurses and providers to use. A quick-text note is a pre-written note generated and saved in the EMR. When charting, a person can type in just a few letters, assigned to the note during the development of the quick-text, and the whole note will generate with blanks to be filled in related to the patient responses. The notes were developed to facilitate continuity of follow-up phone calls while also addressing the important issues related to treatment compliance and patient condition.

Inconsistency in the follow-up phone calls was related to a provider knowledge deficit and lack of nursing personnel during the implementation period. The clinic has a full-time phone nurse, who was going to assume the responsibilities of the follow-up phone calls with patients diagnosed with postpartum depression. Unfortunately, the phone nurse had to take a medical leave of absence during the entire implementation period. Since there was no one hired to fill her position temporarily, her duties were divided among the rest of the nursing staff and phone calls got missed.

The last limitation noted was patient's non-compliance with answering phone calls as well as not attending scheduled appointments. On several charts, especially the charts of patients who had been non-compliant in attending the mental health counseling appointments, calls were placed to the patient, but they did not answer. The clinic has a policy in which they attempt two phone calls with messages and after the second attempt, they no longer try to contact them. Patients have the right to choose if they want to receive medical care and treatment. In some cases, patients have to work and cannot get time off to attend the appointments. Other times, patients start to feel better and do not see a reason for follow-up.

Recommendations

Initial results of the practice improvement project are very promising. Having a standardized screening process in place for use on all postpartum patients facilitated 100% screening for postpartum depression and a higher detection of depression among postpartum women at the Community Clinic. To continue to meet the unique needs of postpartum mothers, it is recommended the Community Clinic continue the process of screening at every healthcare encounter during the first postpartum year by using the PHQ-2 screening tool. Since the Community Clinic has other departments in the facility who also see postpartum women on a more regular basis, it is recommended to expand the postpartum depression screening process to other primary care areas such as Family Medicine and Internal Medicine.

A recommendation is also made to continue to schedule women for a six month postpartum screening exam and perform a chart audit in June 2015 to determine significance and effectiveness. Having the scheduled six month screening will allow further detection of postpartum depression among otherwise healthy women who may not seek medical care at the clinic for another matter. Seeing the rise in detection mostly among patients seen at four-to-six weeks is promising. As noted in literature review, an increase in the prevalence of postpartum depression has been found to rise between six and nine months as well.

Another recommendation is to re-educate the healthcare providers and staff regarding the inconsistencies found with follow-up phone calls, follow-up visits, and use of the PHQ-9 screening tool if a patient screens positive on the PHQ-2 test. It would be ideal to have the PHQ-9 screening tool automatically generated in the EMR if a PHQ-2 is positive. Having it automatically generated into the EMR would prompt the rooming nurse to complete it, and allow the provider to further assess the severity of depressive symptoms the patient is experiencing.

Since the three month initial implementation period had several staffing changes with the phone nurse on medical leave as well as the addition of the mental health CNS and nurse, reviewing the process again with all members of the healthcare team would be very beneficial to smooth out the process. During the meeting staff can brainstorm and problem-solve to develop the most consistent and feasible approach to follow-up.

Implications for Practice

Standardized postpartum depression screening has been shown to be an effective means for detection of depression throughout the literature and from results of the practice improvement project. Routine screening using a validated screening tool, such as the PHQ-2, allows for earlier treatment interventions to avoid the detrimental effects postpartum depression has on both mother and child. Since many healthcare providers, in the primary care setting, see women at some point during the first year postpartum, it is imperative they are aware of the signs and symptoms of depression, and follow recommendations to screen using the quick screening tool at every healthcare encounter.

Dissemination of the project and results obtained from the practice improvement project is planned via two poster presentations at North Dakota State University and Sanford Health in May 2015. A stakeholder meeting at the Community Clinic with healthcare providers, nursing staff, administration, and information technology staff will be held by April 2015 to review project results and future recommendations. An executive summary of the practice improvement project can be found as Appendix J.

Implications for Future Research

As noted in the TRIPPD study having an on-site behavioral health specialist available for psychological counseling increases success of all depression treatment. Therefore, it is

recommended to expand mental health services in the primary care setting. Due to the shortage of mental health providers, advanced practice nurses, such as nurse practitioners and clinical nurse specialists, can help fill the gaps in practice. Future research can investigate the effectiveness of APRN's as mental health providers in primary care settings.

Another recommendation for future research is related to race/ethnicity and identification of depressive symptoms. Henning-Smith et al., found there were limited studies related exclusively to immigrants from Africa and depression self-identification (Henning-Smith, Shippee, McAlpine, Hardeman, & Farah, 2013). The results from the practice improvement project demonstrated a low percentage of postpartum depression detection among Black/African American and Asian patients at the Community Clinic. Considering the large population of Somali and Nepali immigrants the Community Clinic serves, having greater knowledge related to barriers for screening and identification among this population is imperative.

Henning-Smith et al. conducted a study to examine mental health among Somalia-born Black adults compared with US-born Black and White adults (2013). During the study, they examined the roles of stigma, discrimination, and symptomatology among Somalia-born Black adults. The research suggested some Somali immigrants may be reluctant to admit to mental health problems experience shame, guilt, or even suicidal ideation in response to experiencing mental illness (Henning-Smith et al., 2013). Research has shown Black Americans demonstrated lower rates of depression compared to White Americans, and despite having a low socioeconomic status some immigrants had better health outcomes than more advantaged groups (Henning-Smith et al., 2013). Somalia-born immigrants also often have physical symptoms related to depression instead of mental ailments (Henning-Smith et al., 2013). Being aware of

somatic complaints can help prompt a provider to further investigate any issues a postpartum woman may be having during her transition into motherhood.

Continuing with the project design, future research should be continued at the Community Clinic and in general regarding the most optimal screening times during the first year postpartum. Once screening times are established, it would be interesting to determine if scheduling postpartum women for routine screening, such as at six months postpartum, facilitates more detection and treatment for postpartum depression. It would also be of interest to determine a postpartum patient's willingness to go to the clinic for a screening visit at a separate later time in the first year.

REFERENCES

- American College of Obstetricians and Gynecologists, District II/NY. (2008). *Perinatal depression screening: Tools for obstetrician-gynecologists* [Tool Kit]. Retrieved from <http://www.acog.org/-/media/Districts/District-II/PDFs/DepressionToolKit.pdf?la=en>
- Beck, C. T., Gable, R. K., Sakala, C., & Declercq, E. R. (2011, September/October). Postpartum depressive symptomatology: Results from a two-stage US national survey. *Journal of Midwifery & Women's Health, 56*(5), 427-435. doi:10.1111/j.1542-2011.2011.00090
- Center for Medicaid and CHIP Services. (2012, December 3). *CMCS informational bulletin: Coverage and service design opportunities for individuals with mental illness and substance use disorders* [Press release]. Retrieved from The Center for Medicaid and CHIP Services website: <http://medicaid.gov/Federal-Policy-Guidance/Downloads/CIB-12-03-12.pdf>
- Chae, S. Y., Chae, M. H., Tyndall, A., Ramirez, M. R., & Winter, R. O. (2012, November-December). Can we effectively use the two-item PHQ-2 to screen for postpartum depression? *Family Medicine, 44*, 698-703. Retrieved from <http://www.stfm.org/fmhub/fm2012/November/Sung698.pdf>
- Chaudron, L. H., Szlagyi, P. G., Tang, W., Anson, E., Talbot, N. L., Wadkins, H. I.,...Wisner, K. L. (2010, February 15). Accuracy of depression screening tools for identifying postpartum depression among urban mothers. *Journal of the American Academy of Pediatrics, 125*, e609-e617. doi:10.1542/peds.2008-3261
- Chisholm-Burns, M. A., Schwinghammer, T. L., Wells, B. G., Malone, P. M., Kolesar, J. M., & DiPiro, J. T. (Eds.). (2010). Major depressive disorders. *Pharmacotherapy: principles & practice* (2nd ed., pp. 653-668). New York: McGraw-Hill.

- Davanzo, R., Copertino, M., DeCunto, A., Minen, F., & Amaddeo, A. (2011). Antidepressant drugs and breastfeeding: A review of the literature. *Breastfeeding Medicine*, 6(2), 89--98. <http://dx.doi.org/10.1089/bfm.2010.0019>
- Ertel, K. A., Rich-Edwards, J. W., & Koenen, K. C. (2011, November 1). Maternal depression in the United States: Nationally representative rates and risks. *Journal of Women's Health*, 20, 1609-1617. <http://dx.doi.org/10.1089/jwh.2010.2657>
- Fitelson, K., Kim, S., Baker, A., & Leight, K. (2010, December 23). Treatment of postpartum depression: clinical, psychological and pharmacological options. *International Journal of Women's Health*, 2011(3), 1-14. <http://dx.doi.org/10.2147/IJWH.S6938>
- Gibson, J., McKenzie-McHarg, K., Shakespeare, J., Price, J., & Gray, R. (2009). A systematic review of studies validating the Edinburgh Postnatal Depression Scale in antepartum and postpartum women. *Acta Psychiatrica Scandinavica*, 119, 350-364. doi:10.1111/j.1600-0447.2009.01363.x
- Gjerdengen, D., Crow, S., McGovern, P., Miner, M., & Center, B. (2011). Changes in depressive symptoms over 0–9 months postpartum. *Journal of Women's Health*, 20(3), 381-386. doi: 10.1089=jwh.2010.2355
- Goyal, D., Gay, C., & Lee, K. A. (2010, March-April). How much does low socioeconomic status increase the risk of prenatal and postpartum depressive symptoms in first-time mothers? *Women's Health Issues*, 20(2), 96-104. <http://dx.doi.org/10.1016/j.whi.2009.11.003>

Henning-Smith, K., Shippee, T. P., McAlpine, D., Hardeman, R., & Farah, F. (2013, May 1).

Stigma, discrimination, or symptomatology differences in self-reported mental health between US-born and Somalia-born black Americans. *American Journal of Public Health, 103*, 861-867. <http://dx.doi.org/10.2105/AJPH.2012.301184>

Ji, S., Long, Q., Newport, J., Na, H., Knight, B., Zach, E. B., ... Stowe, Z. M. (2011, February).

Validity of depression rating scales during pregnancy and the postpartum period: Impact of trimester and parity. *Journal of Psychiatric Residency, 45*(2), 213-219.
doi:10.1016/j.jpsychires.2010.05.017

Kendall-Tackett, K. (2010, Fall). Four research findings that will change what we think about perinatal depression. *Journal of Perinatal Education, 19*(4), 7-9. doi:

10.1624/105812410X530875

Kroenke, K., Spitzer, R. L., Williams, J. B., & Lowe, B. (2010, July-August). The patient health questionnaire somatic, anxiety, and depressive symptom scales: a systematic review.

General Hospital Psychiatry, 32(4), 345-359.

<http://dx.doi.org/10.1016/j.genhosppsych.2010.03.006>

Liberto, T. L. (2012, March/April). Screening for depression and help-seeking in postpartum women during well-baby pediatric visits: An integrated review. *Journal of Pediatric Health Care, 26*(2), 109-117. doi:10.1016/j.pedhc.2010.06.012

doi:10.1016/j.pedhc.2010.06.012

McKean, M. (2013, March). Psychiatric care during pregnancy and postpartum part I: Diagnosis and management of mood disorders. *Psychopharm Review, 48*(3), 17-23.

<http://dx.doi.org/10.1097/01.PSYPHR.0000428766.86387.f4>

- McQueen, K., Montgomery, P., Lapon-Gracon, S., Evans, M., & Hunter, J. (2008, March/April). Evidence-based recommendations for depressive symptoms in postpartum women. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 37(2), 127-136.
doi:10.1111/j.1552-6909.2008.00215.x
- Meltzer-Brody, S. (2010). New insights into perinatal depression: pathogenesis and treatment during pregnancy and postpartum. *Dialogues in clinical neuroscience*, 13(1), 89-100.
Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3181972/>
- Mercer, R. (1985). The process of maternal role attainment over the first year. *Nursing Research*, 34, 198-204.
- Mitchell, A. J., & Coyne, J. (2008, November). Screening for postnatal depression: barriers to success. *BJOG An International Journal of Obstetrics and Gynaecology*, 116, 11-14.
<http://dx.doi.org/10.1111/j.1471-0528.2008.01834>.
- Moran, K. (2014). Developing the scholarly project. In K. Moran, R. Burson, & D. Conrad (Eds.), *The doctor of nursing practice scholarly project* (pp. 113-140). Burlington, MA: Jones and Bartlett Learning.
- National Institute for Healthcare Management. (2010, June). Identifying and treating maternal depression: strategies and considerations for health plans. *NIHCM Issue Brief*, 1-27.
Retrieved from http://nihcm.org/pdf/FINAL_MaternalDepression6-7.pdf
- Neiman, S., Carter, S., Van Sell, S., & Kindred, C. (2010, July-September). Best practice guidelines for the nurse practitioner regarding screening, prevention, and management of postpartum depression. *Critical Care Nurse Quarterly*, 33(3), 212-218.
<http://dx.doi.org/10.1097/CNQ.0b013e3181e65f86>

- O'Hara, M. W. (2009, December 1). Postpartum depression: What we know. *Journal of Clinical Psychology, 65*, 1258-1269. doi:10.1002/jclp.20644
- O'Hara, M. W., & McCabe, J. E. (2013). Postpartum depression: current status and future directions. *Annual Review of Clinical Psychology, 9*, 379-407.
<http://dx.doi.org/10.1146/annurev-clinpsy-050212-185612>
- Patel, M., Bailey, R. K., Jabeen, S., Ali, S., Barker, N. C., & Osiezagha, K. (2012, May). Postpartum depression: A review. *Journal of Health Care for the Poor and Underserved, 23*(2), 534-542. <http://dx.doi.org/10.1353/hpu.2012.0037>
- Pearlstein, T., Howard, M., Salisbury, A., & Zlotnick, C. (2009, April). Postpartum depression. *American Journal of Obstetrics & Gynecology, 357*-364. doi:10.1016/j.ajog.2008.11.033
- Peplau, H. E. (1992, January 1). Interpersonal relations: A theoretical framework for application in nursing practice. *Nursing Science Quarterly, 5*(1), 13-17.
doi:10.1177/089431849200500106
- Rouen, P. (2014). Aligning design, method, and evaluation with the clinical question. In K. Moran, R. Burson, & D. Conrad (Eds.), *The doctor of nursing practice scholarly project* (pp. 331-346). Burlington, MA: Jones and Bartlett Learning.
- Scottish Intercollegiate Guidelines Network. (2012). *Postnatal depression and puerperal psychosis. A national clinical guideline*. [Publication SIGN-60]. Retrieved from National Guideline Clearinghouse:
<http://www.guideline.gov/content.aspx?id=36811&search=postpartum#Section420>
- Strat, Y. L., Dubertrat, C., & Foll, B. L. (2011). Prevalence and correlates of major depressive episode in pregnant and postpartum women in the United States. *Journal of Affective Disorders, 135*. doi:10.1016/j.jad.2011.07.004

- Sulik, T. (2012). *Postpartum depression: what every healthcare provider should know*. Paper presented at the Meeting with Primary Care Providers at Sanford Health Fargo, Fargo, ND.
- Tobin, C., Napoli, P. D., & Wood-Gauthier, M. (2014). Recognition of risk factors for postpartum depression in refugee and immigrant women: Are current screening practices adequate. *Journal of Immigrant Minority Health*. <http://dx.doi.org/10.1007/s10903-014-0041-8>
- Yawn, B., Dietrich, A. J., Wollan, P., Bertram, S., Graham, D., Huff, J.,...Pace, W. D. (2012, July/August). TRIPPD: a practice-based network effectiveness study of postpartum depression screening and management. *Annals of Family Medicine*, *10*(4), 320-329. doi:10.1370/afm.1418
- Yawn, B., Pace, W., Wollan, P. C., Bertram, S., Kurland, M., Graham, D., & Dietrich, A. (2009, September-October). Concordance of Edinburgh postnatal depression scale (EPDS) and patient health questionnaire (PHQ-9) to assess increased risk of depression among Postpartum Women. *The Journal of the American Board of Family Medicine*, *22*, 483-491. doi:10.3122/jabfm.2009.05.080155

APPENDIX A: EDINBURGH POSTNATAL DEPRESSION SCALE

The EPDS was developed for screening postpartum women in outpatient, home visiting settings, or at the 6–8 week postpartum examination. It has been utilized among numerous populations including U.S. women and Spanish speaking women in other countries. The EPDS consists of 10 questions. The test can usually be completed in less than 5 minutes. Responses are scored 0, 1, 2, or 3 according to increased severity of the symptom. Items marked with an asterisk (*) are reverse scored (i.e., 3, 2, 1, and 0). The total score is determined by adding together the scores for each of the 10 items. Validation studies have utilized various threshold scores in determining which women were positive and in need of referral. Cut-off scores ranged from 9 to 13 points. Therefore, to err on safety's side, a woman scoring 9 or more points or indicating any suicidal ideation – that is she scores 1 or higher on question #10 – should be referred immediately for follow-up. Even if a woman scores less than 9, if the clinician feels the client is suffering from depression, an appropriate referral should be made. The EPDS is only a screening tool. It does not diagnose depression – that is done by appropriately licensed health care personnel. Users may reproduce the scale without permission providing the copyright is respected by quoting the names of the authors, title and the source of the paper in all reproduced copies.

EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)

J. L. Cox, J.M. Holden, R. Sagovsky

From: *British Journal of Psychiatry* (1987), 150, 782-786.

Instructions for Users

1. The mother is asked to underline 1 of 4 possible responses that comes the closest to how she has been feeling the previous 7 days.
2. All 10 items must be completed.
3. Care should be taken to avoid the possibility of the mother discussing her answers with others.
4. The mother should complete the scale herself, unless she has limited English or has difficulty with reading.

Name:

Date:

Address:

Baby's

Age:

As you have recently had a baby, we would like to know how you are feeling. Please UNDERLINE the answer which comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today.

Here is an example, already completed.

I have felt happy:

Yes, all the
time

Yes, most of the
time

No, not very often

No, not at all

This would mean: "I have felt happy most of the time" during the past week. Please complete the other questions in the same way.

In the past 7 days:

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, 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, quite often
 - 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

APPENDIX B: PATIENT HEALTH QUESTIONNAIRE-9

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)

Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues, with an educational grant from Pfizer Inc. No permission required to reproduce, translate, display or distribute.

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(Use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + _____ + _____ + _____
=Total Score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult
at all

Somewhat
difficult

Very
difficult

Extremely
difficult

APPENDIX C: PATIENT HEALTH QUESTIONNAIRE-2

PHQ-2 Screening for Depression

Quick Screen

A quick way of screening patients for depression is to ask patients these two questions:

During the past month, have you often been bothered by:

1. Little interest or pleasure in doing things?

Yes

No

2. Feeling down, depressed or hopeless?

Yes

No

If the patient's response to *both* questions is "**no**", the screen is negative.

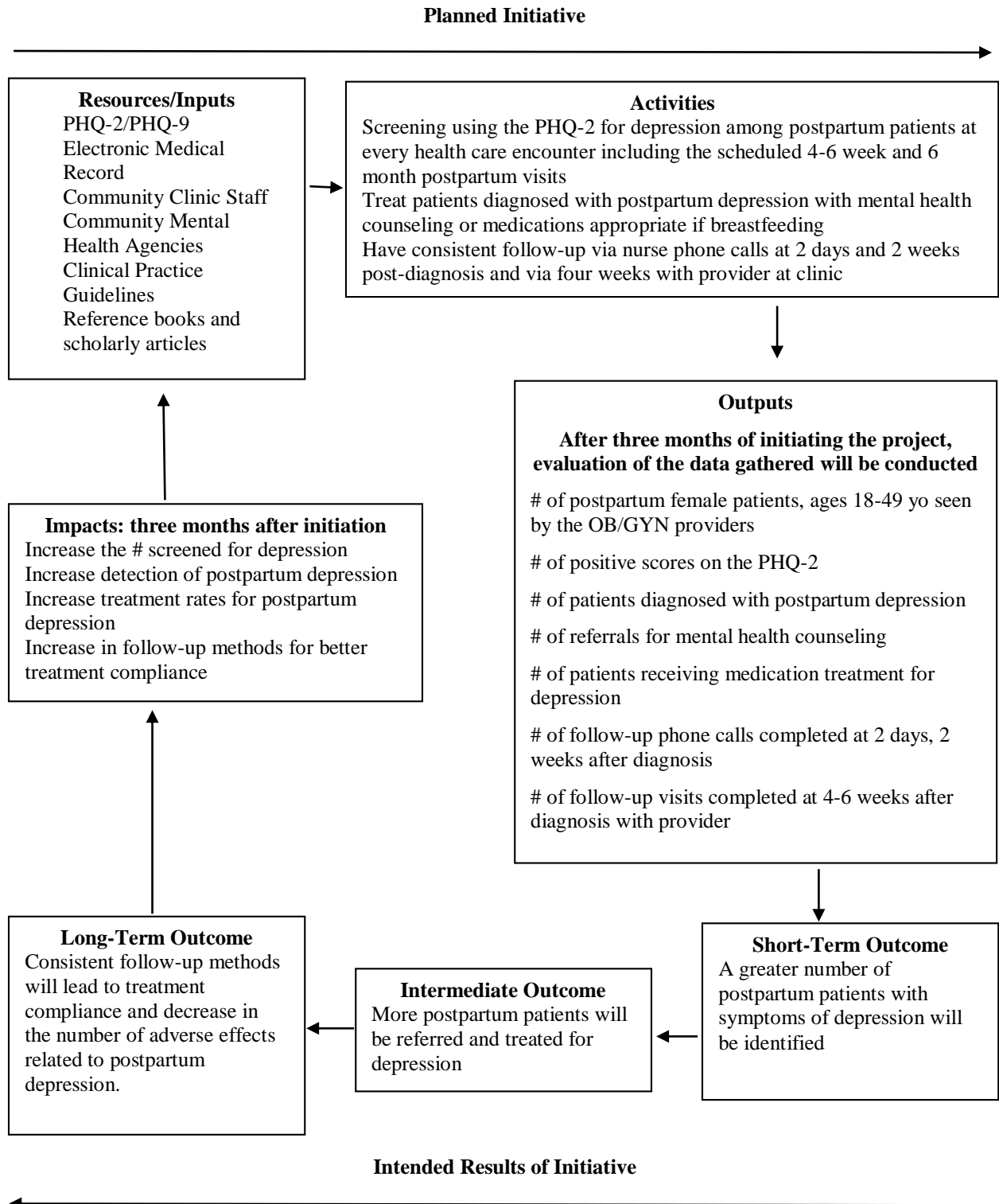
If the patient responded "**yes**" to *either* question, consider asking more detailed questions or using PHQ-9 patient questionnaire.

Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues, with an educational grant from Pfizer Inc.

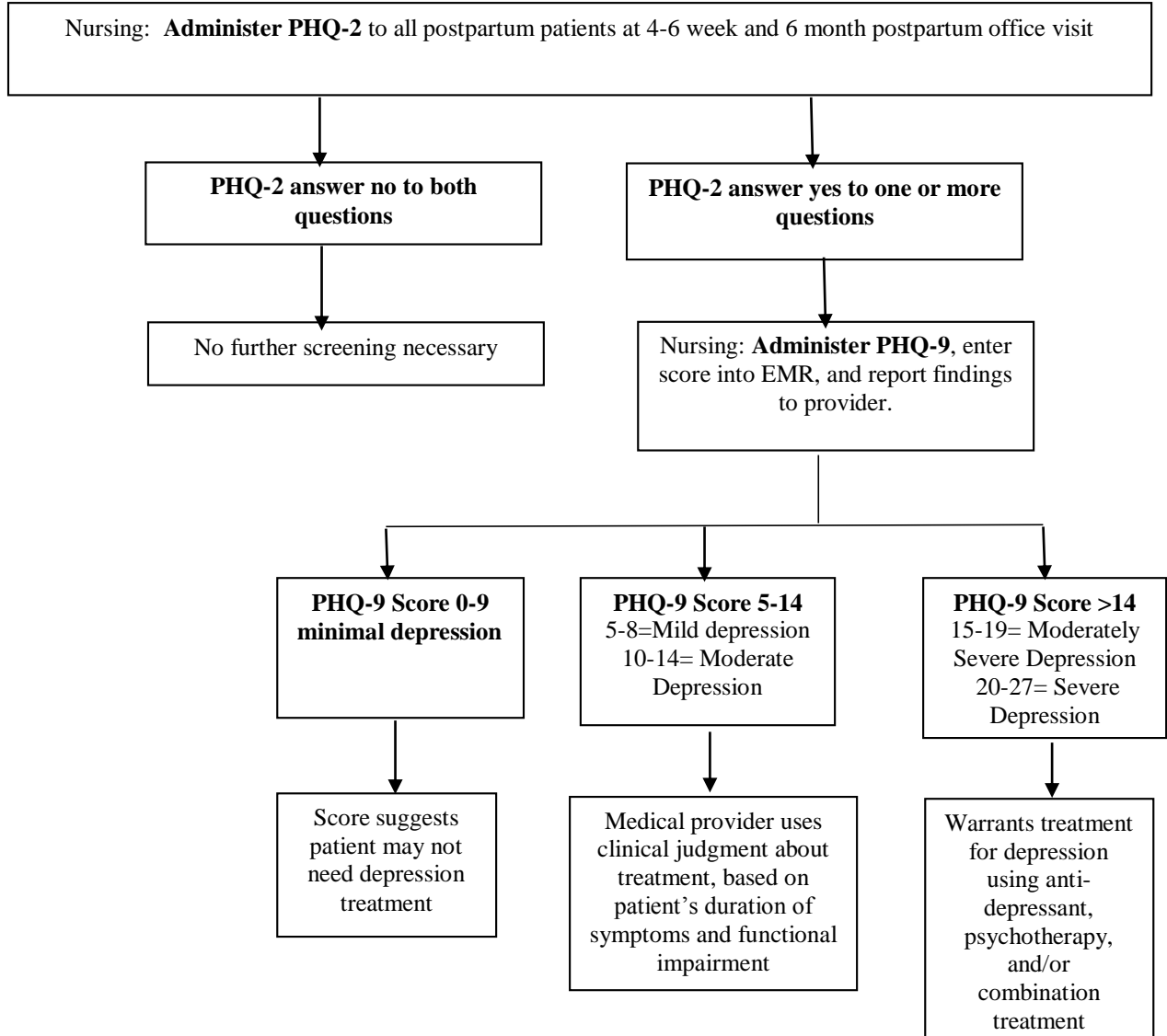
No permission required to reproduce, translate, display or distribute.

APPENDIX D: LOGIC MODEL

Planning and Evaluating Standardized Depression Screening and Treatment among Postpartum Patients



APPENDIX E: DEPRESSION SCREENING AND TREATMENT ALGORITHM



APPENDIX F: COMMUNITY MENTAL HEALTH AGENCY LIST

Agency	Accepts ND/MN MA	Wait Time for Appointment Scheduling	Offers Postpartum Specific Counseling	Expansion Plans with ACA	Offers Sliding Scale Options
Community Clinic	Yes	Less than one week	No	Yes	Yes
Agency A	No	Less than one week	No	No	Yes Students are free Community members fees start at \$5.
Agency B	Yes	Based on triaging: New client can take 2-3 weeks for intake evaluation, then another 2-3 weeks to receive services	No	Yes	Yes
Agency C	Yes, certain providers	Psychology- 1 month (anyone can refer) Psychiatry- 6 weeks (Need an Agency C provider referral)	One psychologist is PPD specific, but only accepts: BCBS Health Partners Preferred One Tri-Care (no Medicaid)	Yes- varies on provider	No
Agency D	Triage call is free to anyone.		No	No	No
Agency E	Yes-MN only	Varies, but usually within 1 week	No- all therapist perform Cognitive Behavioral Therapy	Some Sanford Plans, but very little	Yes, County residents or any resident in the surrounding clinics

APPENDIX G: ANTI-DEPRESSANTS AND BREASTFEEDING TABLE

First-Line Agents for Breastfeeding	Supporting Data
1. Sertraline (Zoloft)	<ul style="list-style-type: none"> • Should be considered first line as there is no drug detected in infant serum • Hale lactation category L2 (Safer) • Brigg's L-PT (limited human data-potential toxicity)
2. Paroxetine (Paxil) <i>Caution: Should not be used during pregnancy</i>	<ul style="list-style-type: none"> • Should be considered first line as there is no drug detected in infant serum • Hale lactation category L2 (Safer) • Brigg's L-PT (limited human data-potential toxicity)
3. Nortriptyline	<ul style="list-style-type: none"> • Is considered one of the preferred anti-depressants during breast-feeding • Hale lactation category L2 (Safer) • Brigg's L-PT (limited human data-potential toxicity)

Second-Line Agents for Breastfeeding	Supporting Data
1. Escitalopram	<ul style="list-style-type: none"> • Not expected to cause any adverse effects during breastfeeding. Monitor infant for drowsiness if infant is older than two months, exclusively breastfed infants, and in combination with other psychotropic drugs • Hale lactation category L2 (Safer) • Brigg's N-PT (No human data-potential toxicity)
2. Fluvoxamine	<ul style="list-style-type: none"> • Doses of up to 300mg daily produce low levels in breast milk and would not be expected to cause any adverse effects in breastfed infants, especially if the infant is older than 2 months. • Hale lactation category L2 (Safer) • Brigg's L-PT (limited human data-potential toxicity)

3. Despiramine	<ul style="list-style-type: none"> • Use during breastfeeding would usually not be expected to cause any adverse effects in breastfed infants, especially if the infant is older than 2 months. • Hale lactation category L2 (Safer) • Brigg's L-PT (limited human data-potential toxicity)
Second-Line Agents cont'd	Supporting Data
4. Imipramine	<ul style="list-style-type: none"> • Use during breastfeeding would usually not be expected to cause any adverse effects in breastfed infants, especially if the infant is older than 2 months. Other agents may be preferred when large doses are required or while nursing a newborn or preterm infant • Hale lactation category L2 (Safer) • Brigg's L-PT (limited human data-potential toxicity)
5. Amitriptyline	<ul style="list-style-type: none"> • Use during breastfeeding would usually not be expected to cause any adverse effects in breastfed infants, especially if the infant is older than 2 months. Other agents with fewer active metabolites may be preferred when large doses are required or while nursing a newborn or preterm infant. • Hale lactation category L2 (Safer) • Brigg's L-PT (limited human data-potential toxicity)
6. Trazadone	<ul style="list-style-type: none"> • Would not be expected to cause any adverse effects in breastfed infants, especially if the infant is older than 2 months or when doses of 100mg or less are used at bedtime for sleep. • Hale lactation category L2 (Safer) • Brigg's L-PT (limited human data-potential toxicity)

Third-line Agents	Supporting Data
1. Citalopram	<ul style="list-style-type: none"> • Agents with lower excretion into breast milk may be preferred, especially while nursing a newborn or preterm infant. The breastfed infant should be monitored for behavioral side effects such as sedation or fussiness • Hale lactation category L2 (Safer) • Brigg's L-PT (limited human data-potential toxicity)
2. Fluoxetine	<ul style="list-style-type: none"> • Agents with lower excretion into breast milk may be preferred, especially while nursing a newborn or preterm infant. The breastfed infant should be monitored for behavioral side effects such as colic, fussiness, or sedation and for adequate weight gain. • Hale lactation category L2 (Safer) • Brigg's L-PT (limited human data-potential toxicity)
3. Clomipramine	<ul style="list-style-type: none"> • Use during breastfeeding is acceptable but may be less desirable than other tricyclic antidepressants that have been studied more thoroughly • Hale lactation category L2 (Safer) • Brigg's L-PT (limited human data-potential toxicity)

4. Quetiapine	<ul style="list-style-type: none"> Limited information indicates that maternal oral doses of up to 400mg daily produce low levels in milk. Other agents may be preferred, especially while nursing a newborn or preterm infant Hale lactation category L2 (Safer) Brigg's L-PT (limited human data-potential toxicity)
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Third-Line Agents	Supporting Data
5. Mirtazapine	<ul style="list-style-type: none"> Maternal doses of up to 120mg daily produce low levels in milk and would not be expected to cause any adverse effects in breastfed infants, especially if the infant is older than 2 months. Exclusively breastfed infants should be monitored for behavioral side effects and adequate growth if this drug is used during lactation. Hale lactation category L3 (Moderately Safe) Brigg's L-PT (limited human data-potential toxicity)

Fourth-Line Agents	Supporting Data
1. Venlafaxine	<p>Venlafaxine 71,72 L-PT L3</p> <ul style="list-style-type: none"> Breastfed infants, especially newborn or preterm infants, should be monitored for excessive sedation and adequate weight gain. Include measurement of serum to rule-out toxicity. Newborn infants of mothers who took the drug during pregnancy may experience poor neonatal adaptation syndrome Hale lactation category L3 (Moderately Safe) Brigg's L-PT (limited human data-potential toxicity)

2. Duloxetine	<ul style="list-style-type: none"> • An alternate drug that has been better studied may be preferred, especially while nursing a newborn or preterm infant. Monitor the infant for drowsiness, adequate weight gain, and developmental milestones, especially in younger, exclusively breastfed infants and when using combinations of psychotropic drugs. • Hale lactation category L3 (Moderately Safe) • Brigg's L-PT (limited human data-potential toxicity)
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Not Recommended with Breast-feeding due to Limited Data	Supporting Data
1. Protriptyline	<ul style="list-style-type: none"> • There is no published experience with protriptyline during breastfeeding so other agents may be preferred, especially while nursing a newborn or preterm infant. • Hale lactation category NR (Not Recommended) • Brigg's N-PT (No human data-potential toxicity)
2. Trimipramine	<ul style="list-style-type: none"> • Because of the lack of data on use during breastfeeding, other antidepressants are preferred during breastfeeding, especially while nursing a newborn or preterm infant. • Hale lactation category NR (Not Recommended) • Brigg's N-PT (No human data-potential toxicity)

3. Amoxapine	<ul style="list-style-type: none"> Because no information is available on the use of amoxapine during breastfeeding, another drug may be preferred, especially while nursing a newborn or preterm infant. Exclusively breastfed infants should be monitored if this drug is used during lactation, possibly including measurement of serum levels. Hale lactation category L2 (Safer) Brigg's L-PT (limited human data-potential toxicity)
4. Maprotiline	<ul style="list-style-type: none"> Because there is little published experience with maprotiline during breastfeeding, other agents may be preferred, especially while nursing a newborn or preterm infant. Hale lactation category L3 (Moderately Safe) Brigg's L-PT (limited human data-potential toxicity)
5. Tranylcypromine	<ul style="list-style-type: none"> Not Recommended
6. Fenelzine	<ul style="list-style-type: none"> Not Recommended
7. Moclobemide	<ul style="list-style-type: none"> Not Recommended
8. Tranylcypromine	<ul style="list-style-type: none"> Brigg's N-PT (No human data-potential toxicity) Not Recommended because of the lack of data on use during breastfeeding, other antidepressants are preferred during breastfeeding

Contraindicated with Breast-feeding	Supportive Data
1. Lithium	<ul style="list-style-type: none"> Limited data suggest that lithium in milk can adversely affect the infant when its elimination is impaired, as in dehydration or in newborn or premature infants. Hale lactation category L3 (Moderately Safe) Brigg's L-PT (limited human data-potential toxicity)
2. Doxepin	<ul style="list-style-type: none"> Doxepin is a poor choice, and other agents may be preferred, especially while nursing a newborn or preterm

	<p>infant. If doxepin is required by the mother of an older infant, the infant should be monitored carefully for excessive sedation and adequate weight gain.</p> <ul style="list-style-type: none">• Hale lactation category L5 (contraindicated)• Brigg's L-PT (limited human data-potential toxicity)
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Davanzo, R., Copertino, M., DeCunto, A., Minen, F., & Amaddeo, A. (2011). Antidepressant drugs and breastfeeding: A review of the literature. *Breastfeeding Medicine*, 6(2), 89-98.
<http://dx.doi.org/10.1089/bfm.2010.0019>

APPENDIX H: QUICK TEXT NOTE FOR PPD FOLLOW-UP PHONE CALLS

2 Days after diagnostic visit:

“Hello _____, this is _____ a nurse working with _____ at the Community Clinic. Your healthcare provider asked me to call you to see how you are feeling and ask if you have any questions.” (Document questions patient may have and send them to provider.)

Complete PHQ-9 Screening, then enter Quick Text Note- 2DayPPDNote:

- Patient questions addressed:
- Patient (denies/admits to) _____suicide ideations.
 - If admits to suicide ideation, Does patient have a plan? _____
 - (If pt. has a plan, notify Provider right away to address)
- Counseling appointment has been scheduled? (Yes/No/ N/A) _____
 - If yes: Scheduled to attend (when/where/with who)? _____
 - If no: barriers to scheduling? _____
- Medication prescription has been filled and patient has started taking it: (Yes/No/NA) _____
 - If yes: any side effects yet? _____
 - If no: barriers to filling medications? _____

2 Weeks after diagnostic visit:

“Hello _____, this is _____ a nurse working with _____ at the Community Clinic. Your healthcare provider asked me to call you to see how you are feeling and ask if you have any questions.” (Document questions patient may have and send them to provider.)

Complete PHQ-9 Screening, then enter Quick Text Note- 2 WeekPPDNote:

- Patient questions addressed:
- PHQ-9 Screening Score: _____
- Patient (denies/admits to) _____suicide ideations.
 - If admits to suicide ideation, Does patient have a plan? _____
 - (If pt. has a plan, notify Provider right away to address)
- Counseling:
 - Appointment has been scheduled or attended? (Yes/No/ N/A) _____
 - If yes: Scheduled to attend (when/where/with who)? _____
 - If no: barriers to scheduling/attending? _____
- Medication prescription has been filled and patient has started taking it: (Yes/No/NA) _____
 - If yes: any side effects? _____
 - If no: barriers to filling medications? _____

APPENDIX I: INSTITUTIONAL REVIEW BOARD APPROVAL



September 19, 2014

Dr. Norma Kiser-
Larson Department of
Nursing Sudro 222C

IRB Approval of Protocol #PH15034, "Standardized Postpartum Depression Screening and Treatment"
Co-investigator(s) and research team: Emily Jean Kalina

Approval period: 9/19/14 to
9/18/15 Continuing Review Report
Due: 8/1/15

Research site(s): Family HealthCare Funding Agency: n/a
Review Type: Expedited category # 7

IRB approval is based on the revised protocol submission (received 9/18/14).

Additional approval is required:

- o prior to implementation of any changes to the protocol (Protocol Amendment Request Form).
- o for continuation of the project beyond the approval period (Continuing Review/Completion Report Form). A reminder is typically sent 4-6 weeks prior to the expiration date; timely submission of the report is your responsibility. To avoid a lapse in approval, suspension of recruitment, and/or data collection, a report must be received, and the protocol reviewed and approved prior to the expiration date.


A report is required for:

- o any research-related injuries, adverse events, or other unanticipated problems involving risks to participants or others within 72 hours of known occurrence (Report of Unanticipated Problem or Serious Adverse Event Form).
- o any significant new findings that may affect risks to participants.
- o closure of the project (Continuing Review/Completion Report Form).

Research records are subject to random or directed audits at any time to verify compliance with IRB regulations and NDSU policies.

Thank you for cooperating with NDSU IRB procedures, and best wishes for a successful study.

Kristy

Digitally signed by Kristy Shirley


DN: cn=Kristy
Shirley, o=NDSU,
ou=SPA,
email=kristy.shirley@
ndsu.edu, c=US
Date: 2014.09.19
12:01:49 -05'00'

Kristy Shirley, CIP, Research Compliance Administrator

For more information regarding IRB Office submissions and guidelines, please consult www.ndsu.edu/irb.
This Institution has an approved FederalWide Assurance with the Department of Health and Human
Services: FWA00002439.

**INSTITUTIONAL
REVIEW BOARD**

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NDSU is an EO/AA university.

APPENDIX J: EXECUTIVE SUMMARY

In the United States the prevalence of postpartum depression was found to range from 7 to 20%, with 10 to 15% being the most common finding. Up to 50% of the cases of postpartum depression are left undetected and untreated. Untreated postpartum depression can have detrimental effects not only on the mother, but on her infant and other children as well. There is considerable evidence showing postpartum depression affects mother-baby interactions and long term emotional and cognitive development of the baby. It is estimated, one in five women in the US will develop clinical depression at some point in their life, with the risk peaking during child bearing years, making the issue of postpartum depression one that should not be taken lightly.

A practice improvement project was completed at a Community Clinic in a Midwestern City to increase the detection and treatment of depression after a woman gives birth to an infant. The first year after birth is called the postpartum period, thus, depression during this time is called postpartum depression. An approach to help detect if a woman has postpartum depression is use of a depression screening tool at clinic visits. A screening tool is a questionnaire a healthcare provider can give a patient, with questions that can help identify signs and symptoms of depression. The screening tool the Community Clinic used was called the Patient Health Questionnaire-2. The two question tool, assesses both sad mood and inability to experience pleasure from activities usually found enjoyable. If a patient answer yes to one or both of the questions, further clinical assessment should be performed to consider diagnosis.

Background

The U.S. Department of Health and Human Services, Health Resources and Services Administration, and the Maternal and Child Health Bureau identified reducing postpartum depression as a U.S. priority health care need. Depression accounts for the greatest burden

among all mental health problems and by 2020 is expected to become the second most common general health problem. One of the most common barriers in detecting and treating postpartum depression is the low incidence of screening performed at primary care and obstetrical visits during the postpartum period. Many women receive care during this time period from a primary care provider. Primary care is considered obstetrics, pediatrics, family practice, and internal medicine.

There have been reports that many postpartum depression cases were being missed by primary care providers due to the absence of systematic screening. Efforts have focused on improving identification of postpartum depression through the use of a valid screening tool. To increase the potential for early intervention, primary care providers are encouraged to screen mothers using a standard universal screening process with all postpartum patients. The screening process is to be done throughout the first year, not just the four-to-six week follow-up visit.

Translating Research into Practice for Postpartum Depression (TRIPPD) is the first large US-based effectiveness study of screening and follow-up care for postpartum depression that showed any improvement in maternal outcomes at 12 months. The study was based in real-world primary care practices, and most of the postpartum depression care was delivered within the primary care practices. Many women prefer to discuss mental health issues with their primary care provider versus a new behavioral health practitioner. TRIPPD was designed to aid in keeping the evaluation and possible care in the primary care setting. Tools from the study can facilitate primary care based treatment and follow-up.

A key to success found in the TRIPPD study was having universal postpartum depression screening accompanied by on-site depression management in the primary care setting. The study found improved maternal outcomes at 12 months postpartum. Not only did screening increase

the number of women with a diagnosis of postpartum depression, it also improved the outcomes in those women whose postpartum depression was diagnosed. Considering the multiple and long-lasting adverse effects of postpartum depression, these findings suggest there should be efforts made to enhance training or include other clinicians, such as on-site mental health clinicians to improve program success.

Process

The project design was developed based on needs investigated in January, 2014 with the clinic staff, physician, and nurse midwives in the OB/GYN department at a Community Clinic. Information obtained from the evidence-based research study, *Translating Research into Practice for Postpartum Depression (TRIPPD)*, the American Congress of Obstetricians and Gynecologists' (ACOG) *Perinatal Depression Initiative*, and the Scottish Intercollegiate Guidelines Network (SIGN) practice guideline developed in 2012 titled *Management of Perinatal Mood Disorders*, was used as a foundation for the project design. ACOG developed a tool kit for providers, which was used to develop the projects screening process, communication techniques for providers and nursing staff, and treatment recommendations specific to postpartum women who may be breastfeeding or become pregnant while receiving treatment.

During the development phase, the author and a nurse midwife from the clinic collaborated to develop components of the project to address the needs and barriers of the patients and clinic. Components of the project included screening postpartum women at the four-to-six week and six month postpartum visits; developing screening and treatment algorithm, community mental health agency list, and medication with breast-feeding guide to be used as a clinical resource to guide treatment decisions; and creating a feasible follow-up

method for treatment, through follow-up phone calls by nursing staff at two days and two weeks as well as a four-to-six week office visit with the provider.

Data collection included preliminary chart audit to review data on patients seen three months prior to project implementation. Data collection consisted of using the EMR to formulate an audit report and by performing individual chart reviews. Search criteria for the audit report included female patients, between the ages of 18 and 49 years old, who had a visit from June 22, 2014 to September 21, 2014 with one of the three OB/GYN providers. The search narrowed the patients down to those who had been in for a postpartum follow-up appointment based on ICD-9 codes.

After the data set was formulated, additional information was generated into the report and included demographics such as age, race, and ethnicity, as well as, any history of depression on all patients seen. Once the report was generated, the author further investigated, through chart review, the patients' marital status, gravida/parity, and if screening using the PHQ-2 was performed. A second report was generated using the above filters along with adding a current diagnosis of depression.

If a patient was diagnosed with depression during the postpartum period, a more in depth chart review was performed by the author to investigate what treatment was ordered (pharmacologic or non-pharmacologic), along with whether or not follow-up was completed. If follow-up was completed, the author examined when and how it was completed.

Post-implementation data collection was performed three months after project implementation. The data collection process was the same during the post-implementation audit as it was during the pre-implementation audit, except for timeframe used to filter charts. The

post-implementation chart audit included patients seen from September 22, 2014 to December 22, 2014 who had delivered in the past year.

Findings and Conclusions

Detection of postpartum depression increased from 8% pre-implementation of the project to 15% post-implementation. The increase in detection was the most significant finding of the project. After the PHQ-2 screening tool was placed into the electronic medical record, use of the PHQ-2 screening tool was at 100% with every postpartum patient.

Another finding included a 91% treatment rate with mental health counseling and/or medication in the post-implementation period. Addition of a Mental Health Clinical Nurse Specialist (CNS) at the Community Clinic was found to be very beneficial and helped patients receive treatment through counseling much sooner than before. The CNS had a nurse who could contact the patient within a day or two to schedule an appointment and assess their status on the phone.

The one component not found to be successful post-implementation was the follow-up phone calls at two days and two weeks. Staffing issues created inconsistency to when the calls were placed. During the three month initial implementation period, there were several staffing changes. The phone nurse who is responsible for follow-up calls was on a medical leave and there was not one specific person responsible for the process, which led to many phone calls not being placed. The goal of the follow-up phone calls was to address the issue of patient non-compliance with treatment and to assess for worsening of the depression symptoms.

Recommendations for Further Action

To continue to meet the unique needs of postpartum mothers, it is recommended the Community Clinic continues the process of screening at every healthcare encounter during the

first postpartum year by using the PHQ-2 screening tool. Since the Community Clinic has other departments in the facility who also see postpartum women on a more regular basis, it is recommended to expand the postpartum depression screening process to other primary care areas such as Family Medicine and Internal Medicine.

A recommendation is also made to continue to schedule women for a six month postpartum screening exam and perform a chart audit in June 2015 to determine significance and effectiveness. Having the scheduled six month screening will allow further detection of postpartum depression among otherwise healthy women, who may not seek medical care at the clinic for another matter. Seeing the rise in detection mostly among patients seen at four-to-six weeks is promising. As noted in literature review, an increase in the prevalence of postpartum depression has been found to rise between six and nine months as well.

Another recommendation is to re-educate the healthcare providers and staff regarding the inconsistencies found with follow-up phone calls, follow-up visits. Since the three month initial implementation period had several staffing changes with the phone nurse on medical leave, reviewing the process again with all members of the healthcare team would be very beneficial to smooth out the process. During the meeting staff can brainstorm and problem-solve to develop the most consistent and feasible approach to follow-up.

Dissemination of the project and results obtained from the practice improvement project is planned via poster presentation at North Dakota State University in May 2015. A request to submit a journal article to two journals published by Association of Women's Health, Obstetric, & Neonatal Nurses (AWOHNN), "Nursing for Women's Health" and "Journal of Obstetric, Gynecologic, and Neonatal Nursing" will be completed by May 2015. Lastly, a stakeholder meeting at the Community Clinic with healthcare providers, nursing staff, administration, and

information technology staff will be held by April 2015 to review project results and future recommendations.