PROVIDING POSTPARTUM DEPRESSION RESOURCES AT A LOCAL WIC AGENCY

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The Supervisory Committee certifies that this ***disquisition*** complies with North Dakota State University's regulations and meets the accepted standards for the degree of

DOCTOR OF NURSING PRACTICE

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ABSTRACT

Postpartum depression (PPD) is a significant mental illness that impacts 12.5% of all postpartum women. In women with low-income, the prevalence increases to 25% and 40-60% of low-income, adolescent mothers report depressive symptoms. Postpartum depression also presents a significant early risk to healthy child development and the bond between mother and child. Symptoms of PPD can present as soon as 2 weeks postpartum and as late as 3 years postpartum. Unfortunately, once delivered, women are typically not assessed by a medical provider until 6 weeks postpartum. Therefore, targeting additional opportunities for PPD education in low-income women may play a role in the early detection and treatment of PPD.

The purpose of the practice improvement project (PIP) was to increase knowledge of PPD and provide community resources for low-income pregnant and postpartum mothers presenting to the Grand Forks, North Dakota Women, Infant, and Children (WIC) office. An evidence-based, professional, and focus population-reviewed PPD education packet, inclusive of a list of local mental health resources, was created and distributed to women that presented to the WIC office in their last trimester of pregnancy up to 6 months postpartum.

The developed packet included signs and symptoms of PPD, helpful strategies, local resources, screening tools, treatment, and emergency numbers. The packet was reviewed by a multidisciplinary team consisting of medical providers who had experience caring for women, children, and mental health patients along with local postpartum mothers (N=10). All packet reviewers agreed that the packet contained information that was accurate, pertinent, and comprehensive and that they would distribute in their own communities. The packet was distributed by WIC staff to eligible participants. Participants who received the packet were asked to complete a voluntary survey that evaluated packet effectiveness. Eight of ten eligible women

accepted the packet. Of participants that accepted the packet, two returned the survey. The two packet recipients who returned the survey reported the packet and list of resources as helpful. Although eligible women participants were few, the project was effective in distributing applicable PPD information and resources that are recommended to continue to be distributed through other venues involving postpartum women.

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DEDICATION

I would like to dedicate my dissertation to my husband Mike, my son Samuel, and our growing family.

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LIST OF ABBREVIATIONS

AANP.....American Academy of Nurse Practitioners

AAP.....American Academy of Pediatrics

ACOG .....American College of Obstetricians and Gynecologists

CBT.....Cognitive Behavioral Therapy

CDC .....Centers for Disease Control and Prevention

CINAHL .....Cumulative Index to Nursing and Allied Health Literature

CMS .....Centers for Medicare and Medicaid Services

DSM 5.....Diagnostic and Statistical Manual of Mental Disorders

EPDS.....Edinburgh Postnatal Depression Scale

HPA.....Hypothalamus-Pituitary-Adrenal

IRB.....Institutional Review Board

ITO.....Indian Tribal Organization

KFF .....Kaiser Family Foundation

ND.....North Dakota

NDRI.....Norepinephrine-Dopamine Reuptake Inhibitor

NDSU.....North Dakota State University

OBGYN .....Obstetric/Gynecologist

ODPHP .....Office of Disease Prevention and Health Promotion

PCP .....Primary Care Provider

PIP.....Practice Improvement Project

PHQ-9 .....Patient Health Questionnaire 9

PPD .....Postpartum Depression

PRAMS	Pregnancy Risk Assessment Monitoring System
REALM-Short Form	Rapid Estimate of Adult Literacy in Medicine Short Form
RCT	Randomized Control Trial
SES	Socioeconomic Status
SMOG	Simple Measure of Gobbledygook
SNAP	Supplemental Nutrition Assistance Program
SNRI	Serotonin Norepinephrine Reuptake Inhibitor
SSRI	Selective Serotonin Reuptake Inhibitor
TANF	Temporary Assistance for Needy Families
TCA	Tricyclic Antidepressant
USDA	U.S. Department of Agriculture
USPSTF	US Preventative Services Task Force
WIC	The Special Supplemental Nutrition Program for Women, Infants, and Children
WCV	Well Child Visit

CHAPTER 1: INTRODUCTION

Background and Significance

Women typically expect the days and months after giving birth to be full of bonding and bliss. However, for certain women, the postpartum period may be filled with feelings of depression and anxiety which may impair bonding with their new child. The American College of Obstetricians and Gynecologists (ACOG, 2019) defines PPD as having "intense feelings of sadness, anxiety, or despair that prevent them [women] from being able to do their daily tasks" (para 8). PPD timing occurs anywhere from 1-3 weeks following childbirth to up to 3 years after childbirth (Putnick et al., 2020). Infants of mothers suffering from untreated PPD may suffer consequences as well, including problems with cognitive, behavior, and emotional functioning as well as potential medical disorders later in life (Slomian et al., 2019).

After a woman is discharged from the hospital following childbirth, she is typically scheduled to see her primary care provider (PCP) or her obstetric/gynecologist (OBGYN) provider approximately 6 weeks postpartum. The appointment often is the last pregnancy related visit. In a 2021 Kaiser Family Foundation (KFF) report detailing a study of 3,661 women ages 18-64, the authors found that women ages 18-25, uninsured women, and low-income women (as defined by <200% federal poverty levels) were less likely to have visited a doctor than those ages 25 and up, those not low-income, and those with insurance (Long et al., 2021). Uninsured women, low-income women, and women in poorer health were also less likely to have a recent appointment with their healthcare provider. When women of the above demographics become pregnant and subsequently deliver, the opportunities for PPD education and screening are limited. Therefore, additional opportunities to provide education and resources to low-income women at risk for PPD are warranted.

One in eight postpartum women, or 12.5%, will experience a major depressive episode (Centers for Disease Control and Prevention [CDC], 2019; Putnick et al., 2020). In women with low-income, the prevalence doubles to 25% and 40-60% of adolescent mothers with low-income report depressive symptoms (Earls et al, 2019). Despite the prevalence of depression, women are often reluctant to seek help for PPD symptoms due to stigma of psychiatric illness and barriers to available treatment options such as financial or logistic barriers (Pooler et al., 2013). Health care providers of women at risk for PPD are in a unique position to decrease the perceptions a postpartum woman may have about PPD and decrease the number of barriers experienced.

The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM 5) specifies that peripartum depression emerges during the 4 weeks after delivery; however the window may be too restrictive as trajectories of depressive symptoms vary widely (Sharma & Mazmanian, 2014). In a study that assessed PPD trajectories, 8.2% of women assessed (*N*=4,866) had low levels of depressive symptoms at 4 months postpartum that increased up to 36 months postpartum (Putnick et al., 2020). Therefore, the typical PPD evaluation at 6 weeks postpartum may not thoroughly discover women who may experience PPD at different time intervals.

The increasing evidence on the detrimental effects of PPD have led various organizations to provide recommendations about PPD. The Department of Health and Human Services and Centers for Medicare & Medicaid Services (CMS) recognize that maternal depression is a "serious and widespread condition that not only affects the mother but may have a lasting detrimental impact on the child's health" (Wachino, 2016, para. 2). Additionally, as of 2019, the US Preventative Services Task Force (USPSTF, 2019) provides a B recommendation that clinicians counsel or refer pregnant and postpartum women who are at increased risk of

depression to counseling services. Therefore, health care providers who care for both women and children may benefit from providing PPD education.

Problem Statement

As low-income women are more at risk for developing PPD than women of the general public, targeted PPD education is necessary. Typically, PPD screening occurs at the mother's 6-week postpartum visit. Unfortunately, PPD may begin to cause significant morbidity prior to and after the 6-week appointment. Because women who receive benefits through WIC may present at any time during the pregnancy and postpartum period, the WIC office is an ideal venue to offer education and resources about PPD. Through education and distribution of resources, recognition of PPD may occur sooner and decrease the effects that PPD may have in both mothers and infants.

Purpose

Recognizing the potential gap in care for PPD, the purpose of the PIP was to increase knowledge of PPD and provide information on community resources for low-income pregnant and postpartum women presenting to the Grand Forks, ND WIC office.

Project Objectives

1. Create an evidence-based, professional and focus population reviewed, informational and educational packet about PPD inclusive of a list of area mental health resources for pregnant and postpartum women receiving services at WIC in Grand Forks, ND in February 2022.
2. Develop a process to offer all eligible pregnant and postpartum women attending in-person WIC appointment during a 4-week period in January-February 2022 the PPD educational packet including a local mental health resource list.

3. Fifty percent of packet recipients will complete and return the voluntary surveys included with the packets and rate the packet contents favorably in regards to usefulness and value.

CHAPTER 2: LITERATURE REVIEW

A literature search was conducted to review evidence about a) the pathophysiology of PPD, b) symptoms of PPD c) spectrum of PPD, d) PPD and infant outcomes, e) screening for PPD, f) PPD treatment, g) screening barriers, h) PPD and socioeconomic status (SES), i) WIC Program, and j) health literacy. English, free, full-text, peer-reviewed papers published from 2010-2020 were accessed by using electronic databases. Articles not available for full-text review were accessed through interlibrary loan. The literature review included sources from Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed Central, EBSCOhost and Google Scholar. Keywords included "Postpartum depression," "Postpartum depression pathophysiology," "Postpartum depression AND anxiety disorders," "Postpartum depression AND baby blues," "Postpartum depression AND infant development," "Postpartum depression AND mortality," "phq-9 AND postpartum depression," "Postpartum depression AND socioeconomic status," "WIC enrollment" and "Health literacy" were searched.

Pathophysiology

Although PPD is well known, the pathophysiology is complex and not fully ascertained. The roles of hormones, genetics, and immune function may play a role (Stewart & Vigod, 2019). Biomarkers have been proposed as identifiers for patients at risk for developing PPD, including neuroendocrine, epigenetics, and neuroinflammatory. However, many of the biomarkers have not been replicated across studies, possibly due to the heterogeneity (i.e., timing of symptom onset, history of adverse life events) in the postpartum patient population (Payne & Maguire, 2019). The identified biomarkers may not individually cause PPD but may be connected to and contribute to the onset of PPD. Determining the hormonal factors that may cause PPD can be challenging due to the neuroendocrine changes that occur during the postpartum period.

The postpartum period is initiated by a dramatic change in the levels of hormones. However, in postpartum women, there are no consistent changes in hormones, kinetics of hormone withdrawal after pregnancy, or fluctuations of hormones that may be definitively associated with PPD (Payne & Maguire, 2019). The inconsistency may be due to the inherent variability in patient population. Furthermore, withdrawal from the increased levels of estradiol and progesterone increased depressive symptoms only in women who had a history of PPD. Estrogen signaling also affects the Hypothalamus-Pituitary-Adrenal (HPA) axis function which may cause dysregulation of stress hormone levels HPA axis dysfunction may also be linked in the underlying neuropathology of PPD. Levels of cortisol, adrenocorticotropic hormone, and corticotrophin-releasing hormone may be altered in women suffering from PPD. Additionally, adverse life events are known to alter the HPA axis function contributing to an increased vulnerability to mood disorders. Therefore, patients with a history of adverse life events may be at an increased risk of PPD.

The hormone oxytocin has a role in regulating mood, stress, lactation, and has been implicated in the development of PPD (Payne & Maguire, 2019). Low levels of oxytocin may predict the severity of symptoms of PPD. However, low oxytocin levels may only predict PPD symptoms in patients with a history of depression. Further, oxytocin's role in lactation and breastfeeding difficulties may be associated with PPD.

Allopregnanolone, the neuroactive metabolite of progesterone, has been researched as a potential treatment for PPD (Payne & Maguire, 2019). Allopregnanolone has been shown to wield anxiolytic and antidepressant effects. Furthermore, alterations in allopregnanolone levels have been linked to PPD. Allopregnanolone levels are discussed in detail in the Treatment of Postpartum Depression section of the paper.

Symptoms of Postpartum Depression

Symptoms of PPD often go unrecognized as changes in sleep, appetite, and libido may be attributed to normal postpartum changes (ACOG, 2018). According to the CDC (2020b), symptoms of PPD vary in severity and number of symptoms experienced. Symptoms may include crying more often than usual, feelings of anger, withdrawal from loved ones, feeling numb or disconnected from the baby, worrying about hurting the baby, and/or feeling guilty or doubting the ability to mother and care for the baby. Subsequently, feelings, such as anger, disconnect, or doubt, may result in an increased sense of guilt and/or isolation.

Symptoms of PPD can begin to occur as early as 2 weeks postpartum and typically peak within the first 4 months following delivery (Bass III & Bauer, 2018). However, not all women will experience similar trajectories. A recent study by Putnick et al. (2020) followed a large cohort of women (N = 4,866) who had given birth. Postpartum women were screened for depression using an abridged 5-item Edinburgh Postnatal Depression Scale (EPDS) when their infants were 4, 12, 24, and 36 months of age. The EPDS-5 has been used to screen for symptoms of depression in pregnant and postpartum women and correlates strongly with the full EPDS. Items in the EPDS-5 are scored from 0 (no, never) to 3 (yes, most of the time) and the items were calculated to form a total score of depressive symptoms (range of 0-15). The authors identified four longitudinal trajectories. The largest group (n=3,637; 74.7%) were mothers with low-stable depression. The mothers with low-stable depression began with low levels of depressive symptoms, as assessed by the EPDS-5 score, at 4 months and remained low through 36 months. The low-increasing depression group (n=398; 8.2%) exhibited low EPDS-5 scores at 4 months postpartum and EPDS-5 scores increased as the study continued, up to 36 months. The medium-decreasing depression group (n=613;12.6%) began with higher EPDS-5 scores which abated

over time. Lastly, the high-persistent depression group (*n*=218;4.5%) had the highest EPDS-5 scores symptoms at 4 months and although symptoms decreased as time progressed, scores remained higher than other groups through 36 months. Putnick et al. (2020) deduced that postpartum women may not present with elevated depression symptoms initially but may develop symptoms later in the postpartum period. Therefore, assessing mothers once during the postpartum period may not adequately screen for or diagnose PPD.

Spectrum of Postpartum Depression

The severity of symptoms of PPD may vary among postpartum women. Postpartum blues and postpartum psychosis are part of the spectrum of disorders related to PPD (Bass III & Bauer, 2018). An estimated 80% of mothers will experience symptoms of postpartum blues (Olin et al., 2017). Symptoms of postpartum blues (also known as baby blues) include anxiety, crying, decreased appetite, exhaustion, loss of interest in usual activities, mood swings, sadness, sleeping problems, and worrying. Typically, symptoms of postpartum blues are much milder and transient and begin about 2-3 days postpartum and resolve within 1-2 weeks following delivery. Postpartum blues do not impair maternal function and mothers can be treated with emotional support.

Postpartum psychosis may affect 1-2 per 1,000 postpartum women (Osborne, 2018). Postpartum psychosis is a severe mental illness that is characterized by psychotic symptoms. The onset occurs suddenly and typically occurs within the first 2 weeks postpartum. Early warning symptoms include insomnia, anxiety, irritability, or fluctuation in mood. Clinical features of postpartum psychosis include waxing and waning of consciousness, disorganization, confusion, depersonalization, and bizarre delusions. Postpartum psychosis constitutes a psychiatric emergency that requires treatment in an inpatient setting.

Women with PPD may be at risk for co-morbid psychiatric disorders. A study completed by Miller et al. (2015) contacted women at 2-6 weeks postpartum and asked the women to complete self-reported mental health screens for depression, anxiety, and obsessive-compulsive disorder. The authors found that the postpartum women with depression had significantly higher scores on the anxiety and obsessive-compulsive disorder scales compared to postpartum women who screen negative for depression. In women who screen positive for PPD, 19.9% also had comorbid anxiety symptoms compared to 1.3% of women who screened negative for depression. Similarly, postpartum women with depression were also more likely to report symptoms of obsessive-compulsive disorder than women without depression (25.7% vs 8.4%). Depression associated with obsessive compulsive symptoms continued at the 6-month postpartum screen; 16.7% of women with depression continued to also screen positive for obsessive compulsive symptoms. However, the study found no difference in anxiety scores between those with and without depression at 6-months postpartum. The authors concluded that the interaction between PPD symptoms and anxiety suggest that women with PPD are particularly vulnerable to anxiety symptoms immediately postpartum. Furthermore, symptoms of anxiety dissolved over time and by 6 months postpartum, there were no significant differences between women with PPD symptoms and those without. In contrast, one in every five women with PPD were still experiencing obsessive compulsive symptoms at 6 months. Understanding the complexity of the symptoms experienced with PPD can help providers with providing quality care.

Infant Outcomes and Postpartum Depression

Maternal depression presents a significant early risk to healthy child development and the bond between mother and child (Bass III & Bauer, 2018). Infants of mothers with PPD may be at risk for child neglect and suffer from devastating effects such as poor cognitive functioning,

emotional maladjustment, and future psychiatric disorders (Slomian et al., 2019). Infants of mothers who have PPD are also at increased risk of early cessation of breastfeeding and may receive fewer preventative services (i.e., vaccinations) (USPSTF, 2019).

Netsi et al. (2018) studied the differing levels of PPD persistence and severity in mothers and the long-term outcomes in their children. The authors found that children of mothers with persistent PPD of moderate (OR 3.04; 95% CI, 2.10-4.38) or marked severity (OR 2.84; 95% CI, 1.71-4.71) were at higher risk of behavioral problems at 3.5 years of age compared to children of women with PPD that was nonpersistent at any level of severity. Compared with the children of women with an EPDS score of less than 13 points in the postnatal year, children of women with persistent and severe depression were at a higher risk for all three adverse child outcomes (behavior problems OR, 4.84 [95% CI, 2.94-7.98]; lower mathematics grades OR, 2.65 [95% CI, 1.26-5.57]; higher depression rate OR,7.44 [95% CI, 2.89-19.11]). Postpartum women who score greater than 13 are more likely to be suffering from PPD.

The Pregnancy Risk Assessment Monitoring System (PRAMS) is a surveillance project sponsored by the CDC and various state health departments (CDC, 2020a). PRAMS was developed in 1987 as a method to collect state-specific, population-based data on maternal attitudes and experiences before, during, and after pregnancy. Data from PRAMS is used by researchers to investigate issues in the field of reproductive health. Using participants from PRAMS, Wouk et al. (2017) studied the extent to which depression and anxiety symptoms were associated with reduced odds of breastfeeding. Approximately 36.9% versus 51.0% of women with and without PPD symptoms, respectively, were breastfeeding their infant of any amount at 3 months postpartum and 18.3% versus 28.1% were exclusively breastfeeding at 3 months. Results showed that women with PPD symptoms had 0.60 times the odds of any breastfeeding

and 0.58 times the odds of exclusively breastfeeding at 3 months. The authors concluded that PPD and anxiety symptoms were associated with reduced breastfeeding initiation, duration, and intensity. Additionally, postpartum women experiencing depression or anxiety symptoms were less likely to breastfeed and less likely to be exclusively breastfeeding at 3 months postpartum compared to postpartum women who did not report symptoms.

Screening for Postpartum Depression

Currently, ACOG recommends that OBGYNs and other obstetric care providers screen for depression and anxiety symptoms at least once during the perinatal period using a standardized and validated tool (ACOG, 2018). When healthcare professionals assess women for perinatal mood and anxiety disorders, a clinical assessment is more common than use of a screening tool (Long et al., 2019). Several screening instruments have been validated for use during the antepartum and postpartum period that may assist with identifying patients with perinatal depression. The literature review will focus on the EPDS and the Patient Health Questionnaire 9 (PHQ-9) (Cox et al., 1987; Pfizer, 1999).

The EPDS has proven validity for use during pregnancy and the postpartum period (Appendix A) (Cox et al., 1987). The EPDS has been translated into 50 different languages, consists of 10 self-reported questions that are health literacy appropriate, and takes less than five minutes to complete. The EPDS also screens for symptoms of anxiety, which are a prominent feature of perinatal mood disorders. Additionally, the EPDS excludes constitutional symptoms of depression (such as changes in sleep) which can be common in pregnancy and in the postpartum period (ACOG, 2018). While answering the questions, women are asked to rate symptoms over the previous 7 days (Bass III & Bauer, 2018). The items are scored on a 4-point scale with a maximum point value of 30. A score of 10 or greater indicates possible depression. Additionally,

question 10 is a suicidality indicator and constitutes a positive screen if answered affirmatively. Levis et al. (2020) found that using cut-off values of 10 or higher (sensitivity and specificity 85% and 66% respectively) or 13 or higher (sensitivity and specificity 84%, and 95% respectively) detected major depression in pregnant and postpartum women. An EPDS cut-off value of 11 or higher further maximized combined sensitivity and specificity to 81% and 88%, respectively.

The PHQ-9 (Pfizer, 1999[Appendix B]) depression screen tool is the most widely used depression screen globally and has been validated across a wide range of age groups, medical conditions, and clinical settings (Wang et al., 2021). Although the PHQ-9 is not specific for PPD, it is a validated instrument for screening for depression in numerous care settings. The PHQ-9 has nine questions and inquiries about symptoms over the previous 2 weeks that are rated on a 4-point scale. The questions take less than 5 minutes to complete and scores grade symptoms as mild (10-14), moderate (14-19) or severe (20+) (Bass III & Bauer, 2018).

In a literature review conducted Wang et al. (2021) the authors scrutinized studies that used the PHQ-9 versus a standard psychiatric interview and other validated depression screening tools in the perinatal population. The authors also examined the use of the PHQ-9 and EPDS when used in the same studies. The authors found that the PHQ-9 had good diagnostic operating characteristics as a screening for perinatal depression. The PHQ-9's sensitivity, specificity, and area under the curve was like the performance of other well-validated depression screening tools. Additionally, the PHQ-9 performed comparably to the EPDS. The sensitivity and specificity for the PHQ-9 for scores greater than ten was 84% and 81% which was similar to the standard EPDS cutoff score of greater than ten (85% and 84% for sensitivity and specificity, respectively).

Treatment of Postpartum Depression

The management of PPD may require a multidisciplinary approach, including nursing, pharmacology, and psychology. Once the diagnosis of PPD is made and comorbid medical and psychiatric issues are addressed, psychosocial strategies are employed to increase self-care, enhancement of social support systems, and reduction of negative life stressors is warranted for all women (Stewart & Vigod, 2019). Interventions such as aerobic exercise, infant behavior sleep interventions, self-care, and peer/social support may be beneficial. For women with mild symptoms of PPD, peer support and nondirective professional counseling has been shown to be beneficial.

When a woman is experiencing moderately severe PPD, additional treatment strategies may be needed. Buck et al. (2019) performed a systematic review and meta-analysis of 10 randomized control trials (RCT) that examined the effectiveness of psychological therapies (including but not limited to cognitive behavioral therapy [CBT]) for PPD compared with the usual treatment. Usual treatment was defined as the use of antidepressants, a referral to subspecialists, or continuation of preexisting counseling. Placement on a waitlist was used as a control group. Compared with the usual treatment group, patients who received CBT had a reduction in depression symptoms immediately after intervention. At a follow up of a median of 6 months, any psychological intervention had a reduction in depression symptoms compared with the usual treatment. Additionally, a RCT performed by Milgrom et al. (2015) evaluated the timing of improvement in depressed mood in women who randomly received either: 1) specialized CBT for PPD, 2) sertraline, or 3) a combination of both treatment modalities. While symptoms of depression and anxiety were significantly reduced following all three treatments,

CBT monotherapy was found to be superior to both sertraline monotherapy and combination therapy after 12 weeks.

For severe PPD or for PPD that is unresponsive to psychological treatment, pharmacological therapy is commonly prescribed by providers for severe PPD (Stewart & Vigod, 2019). The first-line antidepressant medication for PPD treatment is Selective Serotonin Reuptake Inhibitors (SSRIs). Other antidepressants may be used when a mother has achieved prior remission antenatally with a certain antidepressant or when first-line antidepressants are ineffective or poorly tolerated.

When considering pharmacological treatment for the breastfeeding mother, infant exposure through lactation must be considered (Stewart & Vigod, 2019). Of the infants born in 2015, approximately 83.2% started out breastfeeding (CDC, 2018). Therefore, the provider and the breastfeeding mother should discuss treatment options and come to a shared decision when deciding an appropriate choice of pharmaceutical agent to be used in the breastfeeding mother with PPD to limit infant exposure. Of the SSRIs, sertraline is more favorable as there is little to no breast milk transmission when prescribed at less than 100 mg per dose (Meltzer-Brody & Jones, 2015). Alternatively, the use fluoxetine and citalopram are discouraged due to fluoxetine's long half-life and for the potential for elevated concentrations of citalopram in the breast milk.

When SSRIs are ineffective, women with PPD may need to switch to a different class of antidepressants such as Serotonin Norepinephrine Reuptake Inhibitors (SNRIs) or Tricyclic Antidepressants (TCAs). Of the SNRIs, Venlafaxine and its active metabolites are found in breast milk and metabolite can be found in the plasma of most breastfed infants, however no confirmed drug-related side effects have been found (Sriraman et al., 2015). Bupropion, norepinephrine-dopamine reuptake inhibitor (NDRI) may be undetectable in infant serum or may

cause infant irritability and seizures. Of the TCAs, nortriptyline is generally undetectable in infant serum. The use of doxepin is cautioned due to reports of infant hypotonia, poor feedings, vomiting, and sedation. Typically, the mentioned side effects resolved after discontinuation of nursing.

Approved in March of 2019 to treat PPD, brexanolone is a buffered, isotonic solution of allopregnanolone in sulfobutylether-β-cyclodextrin that is administered intravenously over 60 hours in a supervised medical setting (Scarff, 2019). In a study by Kanes et al. (2017), healthy females aged 18-45 were admitted to an inpatient psychiatry unit for a major depressive episode that began no earlier than the 3rd trimester and no later than 12 weeks following delivery. A score of >20 on the 17-item Hamilton rating scale for depression was required for inclusion. All women received psychotherapy. Four women with severe PPD received brexanolone that was titrated to a dose to reflect third trimester allopregnanolone levels. Two of the women were also taking sertraline during the brexanolone administration (patients were allowed to continue antidepressants if they were taking them for longer than 2 weeks prior and taking a stable dose). Sixty hours after infusion of brexanolone, the mean total Hamilton score had decreased to scores corresponding to symptom remission. Sedation was the most common reported adverse effect while less common adverse effects include infusion site discomfort, pain, or erythema, rash, thyroid stimulating hormone increase, dizziness, flushing, and oropharyngeal pain. All adverse effects were transient and of mild or moderate severity.

Barriers to Screening

Translating clinical recommendations into practice can be problematic and potentially met with resistance. Screening rates for PPD may be low for many reasons. The signs and symptoms of PPD may begin similar to baby blues (Goldin Evans et al., 2015). As discussed, an

estimated 80% of mothers will experience symptoms of baby blues (Olin et al., 2017). Differentiating between baby blues and PPD may be difficult for the practitioner who is unfamiliar with the time trajectories associated with PPD.

Confusion may also be experienced by providers regarding the recommended time to screen for PPD. Currently, ACOG recommends that OBGYNs and other obstetric care providers screen women at least once during the perinatal period for depression and anxiety symptoms and the USPSTF recommends that clinicians provide or refer pregnant or postpartum women who are at increased risk of PPD to counseling services (ACOG, 2018; USPSTF, 2019). In 2019, The American Academy of Pediatrics (AAP) released a policy statement that recommended screening for PPD at the 1-, 2-, 4-, and 6-month well child visit (WCV) (Earls et al., 2019). When reviewing these sources, there may be uncertainty regarding the timing and number of screenings recommended.

A literature review performed by Goldin Evans et al. (2015) investigated the screening practices of physicians who are in frequent contact with postpartum mothers to determine why providers were not routinely screening their patients for PPD. Providers included pediatricians, OBGYNs, and family practice providers. The authors found that nearly two-thirds (63%) of all specialties, two-thirds of pediatricians, and more than one-quarter (28%) of family practice providers found that time constraints was the most common reason not to screen. Inadequate training, skills, or knowledge needed to screen were reported as barriers by one-third of physicians from all specialties, with pediatricians (60%) being the most likely to report such barriers. Other barriers included inadequate mental health services, liability issues, financial disincentives, perception of treatment as ineffective, and the opinion that the mother did not want to discuss PPD symptoms with the provider. Pediatricians were the least likely to screen for PPD

and more likely to use their own clinical judgement to detect PPD (80%) rather than using a validated screening instrument compared to 65% of OBGYNs.

Postpartum Depression and Socioeconomic Status

Twelve and a half percent of postpartum women will experience a major depressive episode (CDC, 2019). However, the risk of PPD greatly increases with certain risk factors. In women with low-income, the prevalence is estimated to be 25% and 40-60% of adolescent mothers with low-income report depressive symptoms (Earls et al, 2019). Low socioeconomic status (SES) is often associated with lack of social support, younger age, and absence of spousal financial and social support (Goyal et al., 2010). Furthermore, women with lower SES are less likely to have adequate access to mental health services, less likely to visit a health provider for care, and less likely to report depressive symptoms to health care providers (Goyal et al., 2010; Long et al., 2021).

In a quantitative secondary analysis conducted by Goyal et al. (2010), SES was examined as a potential risk factor for depressive symptoms in late pregnancy and the early postpartum period. Mothers eligible for the study included partnered women expecting their first child, age 18 or older, willing to participate, and able to read and write English. Sociodemographic information collected included age, race, ethnicity, education, employment, and household income were obtained. The sample divided into two groups based on monthly household income: less than $3,000 and greater than $3,000. The cutoff used corresponded to approximately 200% of the federal poverty level for a three-person family. Results from the Goyal et al. (2010) study suggest that partnered women (but not married) with socioeconomic risk factors for depression (low monthly income, less than a college education, unmarried, and unemployed) for depression were nearly 11 times more likely to develop PPD than other first-time mothers with no risk

factors. At risk women were more likely to report depressive symptoms in the 3rd trimester than high-income women (35% vs 17%) while similar levels of depressive symptoms were reported at 1 month postpartum (28% vs 29%). However, at 2 and 3 months postpartum, the low-income group was reporting significantly more depressive symptoms than the high-income group (21% vs 12% and 25% vs 9%). Thus, health professionals who are in contact with pregnant and postpartum women considered as low SES should integrate PPD education and offer resources throughout the course of pregnancy and throughout the postpartum period.

Guintivano et al. (2018), conducted a systematic review of risk factors for PPD. The authors found that low SES is a significant contributor to PPD risk. Indicators of low SES in the United States include qualifying for programs such as WIC and Supplemental Nutrition Assistance Program (SNAP). Pooler et al. (2013) studied the prevalence and correlates of PPD symptoms among women with a recent live birth and who were eligible for WIC. The authors conducted a secondary analysis of the PRAMS results, which was a collaborative effort of the CDC and state health departments. The PRAMS questionnaire was mailed to new mothers approximately two to six months postpartum. The authors found that WIC participants were at significantly higher risk for PPD symptoms than ineligible women. Of the participating WIC participants, 19.8% in the PRAMS study experienced symptoms of PPD compared to 16.3% of eligible but non-participating women, and 6.8% of ineligible women. Several risk factors, including intimate partner violence, past-year homelessness, and unemployment were also associated with higher rates of PPD symptoms among all WIC eligible women. Results of the study emphasize the increased risk that WIC enrollees encounter, as well as the opportunity that is presented. Health and social service providers are in an exceptional position to play a significant role in providing resources and helping low-income women. The authors name the

WIC agency as an ideal venue for providing PPD resources for reasons including the length of time the agency is in contact with women, the position in the community, and the relationship the agency builds with mothers.

Woman, Infant, and Children Program

WIC is a federal grant program that provides supplemental nutritious foods, nutrition education and counseling, and health screenings and referrals to eligible women, infants, and children (U.S. Department of Agriculture Food and Nutrition Services [USDA], 2013). Originally a pilot program in 1972, WIC was permanently established in 1974 (Kline et al., 2020). Each year, congress authorizes a specific amount of funds for the WIC program (USDA, 2013). For the fiscal year of 2018, congress allotted $6.18 billion dollars for the WIC program. WIC operates in all 50 state health departments, 34 Indian Tribal Organizations (ITO), the District of Columbia, and five territories (Northern Mariana, American Samoa, Guam, Puerto Rico, and the Virgin Islands). Operations take place through 1,900 local agencies in 10,000 clinic sites. Nearly 46,000 stores are authorized to accept WIC vouchers (USDA, 2012). In North Dakota (ND), there were 13,326 residents who participated in WIC (0.2% of the population) with 21 local agencies (Kline et al., 2020).

In April of 2018, 7.8 million women, infants, and children participated in WIC (Kline et al., 2020). 53% of those participants were children, 23.8% were infants, and 23.2% were women. Of enrollees, 8.6% were pregnant, 8.0% were breastfeeding, and 6.6% were postpartum. Women were more likely to belong to the 18-34 age group (84.6%), while 2.5% were aged 17 years or younger, and 12.8% were 35 years or older. Of WIC participants, 58.8% were reported as White (divided in 29.7% as Hispanic/Latino and 29.1% as Non-Hispanic/Latino), 21.5% as Black, 8.9% as American Indian, 3.8% as Asian, and 0.8% as Pacific Islander.

Certain eligibility requirements must be met to qualify for WIC benefits. The requirements are divided into the following categories: Categorical, Residential, Income, and Nutrition Risk (USDA, 2020). Eligible categories include women who are currently pregnant and up to the first 6 weeks after pregnancy, women up to 1 year postpartum if breastfeeding or up to 6 months postpartum if not breastfeeding, infants up to age 1, and children up to age 5.

To meet the residential requirement, applicants must live in the state in which they apply for WIC benefits (USDA, 2020). In areas where WIC is administered by an ITO, applicants must meet residency requirements that are established by the ITO. There is no requirement for time the applicant must live in the state prior to applying for WIC benefits.

Applicants seeking to apply for WIC benefits must have an income that is at or below an income level or standard set by the state agency (USDA, 2020). The state agency's income standard must be above 100% of the federal poverty guidelines but no more than 185%. The federal poverty guidelines are issued each year by the Department of Health and Human Services. The average annual income of WIC households in 2018 was $19,355 (Kline et al., 2020). Certain applicants may also be automatically income-eligible based on their participation in certain programs. These applicants include individuals that are eligible to receive SNAP, Medicaid, or Temporary Assistance for Needy Families (TANF), if certain family members are eligible to receive Medicaid or TANF, or if individuals are eligible to participate in certain other state-administered programs (USDA, 2020). Of WIC participants, 80.1% also receive benefits from at least one of the three previously mentioned federal programs (Kline et al., 2020).

To be considered a nutrition risk, applicants must be evaluated by a health professional such as a health care provider, nurse, or nutritionist (USDA, 2020). Evaluation can be completed in the WIC office at no cost, or the information can be obtained from the applicant's health care

provider. At minimum, a height and weight are recorded at the visit. A hemoglobin and/or hematocrit is also tested in infants older than nine months. To be considered a nutrition risk, individuals must have certain medical diagnosis or dietary based conditions. Women were commonly assigned the nutritional risk of *high weight-for-height*, which includes overweight and obesity nutritional risk criteria (Kline et al., 2020). Children were most frequently assigned the nutritional risk of *inappropriate nutrition practices* and *high weight-for-height*. Compared to children in the general U.S. population, children who participate in WIC are more likely to be anemic. Additionally, breastfeeding initiation rates were lower among infant WIC participants than infants in the overall U.S. population.

Health Literacy

When providing a patient with education about their health, assessing health literacy is necessary to provide clear instructions and education. When the education and instructions are not clear, effects can range from mild to very serious. The term *health literacy* can be defined "as an individual's ability to find, process, and comprehend the basic health information necessary to act on medical instructions and make decisions about one's health." (Agency for Healthcare Research and Quality, 2019a). Health literacy is a complex interaction between the individual patient and the health care system itself and often involves social, cultural, and educational factors.

Many factors can influence an individual's health literacy, including living in poverty, education, race/ethnicity, age, and disability (Office of Disease Prevention and Health Promotion [ODPHP], 2021). Uninsured and publicly insured individuals are at higher risk of having low health literacy. However, health literacy is not only the result of individual capabilities, but also the demands and complexities of the health care system itself. Other factors that impact health

literacy include the patient's receipt of appropriate written health materials, ability to accurately interpret written health-related information, and the ability to communicate with providers. Furthermore, health literacy can vary with an individual's mental or emotional state, illness, and life stressors (Agency for Healthcare Research and Quality, 2019a).

A 2003 nationally representative survey of health literacy found that of 19,000 adults assessed, a slight majority of respondents had intermediate health literacy (53%), 12% had proficient health literacy, 22% had basic health literacy, and 14% had below basic health literacy (Kutner et al., 2006). Imoisili et al. (2017), studied 175 English speaking participants whose health literacy study was measured by the Rapid Estimate of Adult Literacy in Medicine Short Form (REALM-Short Form). Patient education materials were measured using the Simple Measure of Gobbledygook (SMOG) grade, which applies an objective formula based on the number of polysyllabic words, and the Flesch-Kincaid grade, which is a tool to assess readability. When the REALM-Short Form was applied, 43.4% of participants had health literacy levels greater than a ninth-grade level, 37.7% of participants had between a seventh and eighth grade level, and 17.1% of participants had below a sixth-grade level. By SMOG, the average readability grade-level of their patient education materials was 9.7 and 7.25 for standard and easy-to-read materials, respectively. The Flesh-Kincaid assessment graded readability for standard and easy-to-read materials at 6.98 and 4.5, respectively. The authors reported that although easy-to-read patient education materials were written at a middle school level, this was still potentially too high for almost 20% of patients.

Health care providers can and should establish an environment where communication and health information is provided in a clear and easy to understand manner. Information should be simplified, basic, and at a fourth to sixth grade reading level (Agency for Healthcare Research

and Quality, 2019a). Communication from health care providers should be completed in plain language with visual cues, such as models, pictures, or videos. When communicating with patients, providers should listen carefully without interruptions and use words the patient uses to describe their health or illness. To evaluate comprehension, health care providers can use a teach-back method to confirm the information provided was understood. To use teach-back, providers ask the patient to repeat the information that was provided back to them. Lastly, providers should create a shame-free environment. Patients may not be forthright with their ability to understand information and may be embarrassed or ashamed to admit the lack of understanding to medical providers. By creating an environment that is focused on patient safety and understanding, providers may avoid potential serious errors and provide more effective quality care.

Theoretical Framework

The theoretical framework chosen for the PIP is based on Ramona Mercer's process of Maternal Role Attainment. Maternal role attainment is defined as the process in which the mother achieves competency in the role of motherhood and incorporates mothering behaviors into the established role so that she may be comfortable in her role as a mother (Mercer, 1985). Mercer identified four stages of maternal role attainment. The first stage, the anticipatory stage, occurs during pregnancy, as the women develops new thoughts and ideas about becoming a mother as she seeks out role models (Cabrera, 2018; Mercer, 1985). The formal stage begins with the birth of the newborn, with the mother learning how to provide care. In the formal stage, the woman's behaviors are largely influenced by the expectations of others. The informal stage occurs as the mother reflects on past experiences and personal values and focuses on being a mother. Lastly, the personal stage is where maternal role attainment is accomplished, and the

mother feels confident in her abilities and role. A breakdown in any of the concepts or stages may affect subsequent concepts such as the mother-child bond, infant development, and maternal identity or delay future stages such as providing infant care or feeling confident in their role as a mother. PPD presents a significant risk to infant development and the mother-child bond as well as causing the potential to cause additional psychiatric illnesses (Bass III & Bauer, 2018; Miller et al., 2015). By applying the Maternal Role Attainment Theory to the PIP, intervention in the form of resources and education can be applied to prevent the breakdown in the stages and promote the role of maternal attainment.

CHAPTER 3: METHODS

Overall Project Design

The Iowa Model of Research-Based Practice to Promote Quality Care (Appendix C) was utilized in the development assessment of the PIP. Developed in the 1990's by a team of nurses from the University of Iowa Hospitals and Clinics and College of Nursing (Buckwalter et al., 2017), The Iowa Model is based on the Diffusion of Innovations theory and is an outgrowth of the Quality Assurance Model Using Research. In 2017, the model was revised to become The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care. The Iowa Model is a resource that provides guidance for nurses and clinicians in making decisions about clinical and administrative practices that will affect outcomes in healthcare (Melnyk & Fineout-Overholt, 2019). The model assists clinicians through the evidence-based practice process and includes feedback loops. The Iowa Model was chosen to provide guidance on the steps of incorporating research in potential future practice. Permission to use The Iowa model was obtained from the University of Iowa Hospitals and Clinics (Appendix D).

Setting

The project setting was the WIC agency in Grand Forks, ND. Based on the most recent ND census in 2010, the population of Grand Forks is 52,838 (United States Census Bureau, n.d.). Of Grand Forks residents, 68.5% are between the ages of 18 and 65. Of the 52,838 residents living in Grand Forks, 48% of those are female. Also, 95.1% of persons 25 years and older have a high school degree. Of those under age 65, 7.5% do not have health insurance. The median household income (in 2019 dollars) was $50,076. Of the Grand Forks population, 18.5% lives in poverty.

In 2020, 557 women in Grand Forks County were served at the Grand Forks WIC office. Staff at the WIC agency include dieticians, nutritionists, lactation consultants, WIC certifiers, and a breastfeeding peer counselor. At the initial WIC appointment, women typically present to the office and receive education on infant feeding and breastfeeding, healthy foods, and information on referrals to other services. The initial WIC appointment varies among women, as some women present during pregnancy while others present during the postpartum period. The subsequent appointments are typically conducted by phone. Prior to the COVID-19 pandemic, children's weight and measurements were taken every 6 months. Currently, the office relies on PCP's office measurements.

Focus Population and Recruitment

Participants consisted of pregnant and postpartum women meeting eligibility criteria and attending in-person WIC appointments during the 4-week period from January 7th to February 7th. Inclusion criteria included women in their 3rd trimester and up to 6 months postpartum, over the age of 18, English speaking, who presented for an initial WIC appointment during the project dates. A distribution process was developed, defined in writing, and presented to WIC employees that detailed eligibility criteria, consent, distribution, and tracking (Appendix E). Eligible women were presented project information and a consent (Appendix F). Consenting women were provided with the aforementioned packet of PPD education (Appendix G), mental health resources, and a voluntary packet evaluation survey (Appendix H), as well as an addressed, stamped envelope in which to return the voluntary survey.

Evidence Based Practice Model

The Iowa Model of Research-Based Practice to Promote Quality Care was used to guide project implementation. The first step of the Iowa Model is the identification of triggering issues

(Buckwalter et al., 2017). As discussed in chapter one, 25% of low income women have PPD and 40-60% of low-income, adolescent mothers report depressive symptoms (Earls, et al., 2019). Women are typically screened for PPD at the 6-week postpartum visit. To address the care gap, a purpose statement was created (step two of the Iowa Model). The purpose of the PIP was to increase knowledge of PPD and provide mental health resources for low-income pregnant and postpartum mothers presenting to the Grand Forks, ND WIC office.

Step three of the Iowa Model was accomplished by the creation of a clinical dissertation committee. The clinical dissertation committee was formed to assist the co-investigator with research, proposal of study, and project guidance. Upon implementation of the PIP, the project team additionally included WIC supervisory, reception, and provider staff.

Step four included a thorough literature review conducted by the co-investigator to assemble, appraise, and synthesize the body of evidence. Topics explored comprised PPD pathophysiology, symptoms, epidemiology, spectrum, screening, barriers to screening, and the effects on mother, family, and infant. Additional topics included SES, health literacy, and WIC purpose and services. At the conclusion of the literature review, there was sufficient research to continue with intervention implementation.

Step five of the Iowa Model was accomplished by designing and piloting a practice change. Project intervention began after Institutional Review Board (IRB) approval. The first objective was to create a PPD education packet and list of mental health resources available to women with potential or actual PPD. A survey tool was created by the co-investigator to assess the packet. Multiple perspectives were sought from a convenience sample, first from medical professionals with a background in the care of women, children, and mental health patients. Additionally, a convenience sample of postpartum mothers were asked to review the packet from

a patient perspective. A Likert-scale survey with seven questions and space for comments was given to reviewers (Appendix J). The second objective was the development and implementation of a process to distribute the packets, with a goal of offering all eligible participants a packet with 90% accepting a packet. The third objective was, of the women who received the packet, they found the packet educational, useful, and a valuable resource.

Step six of the Iowa Model is pending via further evaluation. Step six was achieved by integration and continuation of the practice change. At the completion of the study, results were made available to key stakeholders and members of the implementation site. Internally, dissemination of results was performed in the form of a final clinical dissertation defense.

IRB Approval

North Dakota State University (NDSU) IRB application and approval preceded project implementation. An exempt status for the PIP was granted by the NDSU IRB on November 9, 2021 (Appendix I). The Director of the Grand Forks WIC verbally approved implementation of the project. The WIC organization does not require a separate review process.

Evaluation

Objective One

Two PPD education packets were created by the coinvestigator. One infographic was used with permission from Postpartum Support International and was used as Packet 3 (Postpartum Support International, 2021). Components of the packets included background information on PPD, signs and symptoms of PPD, helpful strategies, local resources, treatment, screening tools, and emergency numbers. The three different styles of the packet were utilized to offer a variation in format and content delivery. Packet styles included a packet with images, a packet free from images, and the infographic from Postpartum Support International.

Packet Review

To evaluate the accuracy and readability of the packets, the author created a survey with Likert-scale questions (Appendix J). Reviewers included medical providers and postpartum mothers. The medical providers were either currently practicing and/or in the academia setting. A total of seven medical providers evaluated the packets. The medical providers consisted of three doctorate prepared nurse practitioners, one masters prepared nurse practitioner, one physician associate, one physician, and one licensed counselor. The medical provider reviewers had expertise in the physical and/or psychological care of women, children, and mental health patients. In addition to the seven medical providers, three local postpartum mothers also evaluated the packet. The postpartum mothers ranged from 8 months postpartum to 17 months postpartum. One postpartum mother self-reported a history of depression prior to pregnancy but did not report a history of PPD. The survey used to evaluate the packets was a three-point Likert scale that asked the reviewer to either "disagree", "neither agree or disagree", or "agree" with the evaluation statement with the option for write in comments. Seven statements were included in the scale. The statements assessed for packet accuracy, pertinence, health literacy, sufficiency of information, appropriate amount of information, evaluation of the resources listed, and whether the reviewer felt comfortable sharing a similar packet with their community. Reviewers were able to comment with suggestions, improvements, or additions they recommended for the packet as well as resources to add or subtract. The reviewers were also asked to choose a preferred packet. After review and synthesis of the reviewer's surveys, the final packet was created with applicable edits made (Appendix G). Each document written or chosen for the packet was assessed by the co-investigator for readability using a Flesch-Kincaid calculator tools with the goal of having a Flesch-Kincaid readability of sixth grade or below.

Objective Two

To meet the second objective, a process to offer all eligible pregnant and postpartum women attending in-person WIC appointments during a 4-week period in January of 2022 to February of 2022 the PPD education packets was developed. The initial WIC meeting is typically done in the office with subsequent visits being completed by phone. WIC policy prohibits release of participant names or phone numbers to persons outside of the WIC organization. Therefore, WIC employee(s) recorded the number of women meeting eligibility criteria (women presenting for their initial WIC appointment, women in their 3rd trimester of pregnancy and up to 6 months postpartum, women over the age of 18, and women whose primary language is English) and the number of participants who agreed to participate. After consent, WIC employees presented the participants with a folder that contained an informed consent, the PPD education packet, a list of local mental health resources, and a voluntary evaluation survey with a pre-stamped envelope. The co-investigator conducted an in-person meeting with WIC staff and multiple email correspondences occurred with the WIC supervisor prior to project implementation to define the distribution process. A binder was provided to WIC employees that detailed eligibility criteria and distribution instructions (Appendix E) along with contact information for the co-investigator for questions. Included in the binder was a tracking form to assist with data collection (Appendix E). After the implementation process began, the co-investigator communicated with the WIC staff weekly in the form of email correspondence. From the data collected, frequency reporting was performed to determine the percentage of eligible participants who accepted the PPD education packet.

Objective Three

A voluntary survey was included in the folder along with a pre-stamped envelope for packet evaluation and comments regarding PPD (Appendix H). After acceptance of the PPD education packet, participants were asked to complete a survey about the PPD education packets helpfulness, current concerns about PPD, comfortability contacting their PCP about PPD, the usefulness of the PPD education packet, and if additional information on PPD was needed. If packet recipients requested additional information about PPD, they were asked to provide an email or mailing address for response by the co-investigator.

Data Collection

A copy of the PPD packet and copies of the data collection sheets were stored on the coinvestigator's personal, password protected laptop. Hard copies were shredded once they were stored on the coinvestigator's personal laptop. Any data collected for the purpose of analysis was stored on the co-investigators password protected laptop and as a file on One Drive that was accessible by only the investigator and co-investigator. Once all information was transferred to electronic form, the nonelectronic documents were shredded.

Timeline

The tentative timeline for the project was as follows:

- February 2021
    - Complete Chapter 1 and 2
- August 2021
    - Complete Chapter 3
- October 2021
    - Proposal meeting

    - Approval by Dissertation Committee
- October- November 2021
    - IBR approval
    - Implement intervention
    - Data collection, analysis, and evaluation
- February 2022
    - Project completion
    - Complete data analysis and evaluation
- March 2022
    - Dissertation Defense meeting
    - Edit dissertation and submit to School of Nursing Chair and Assistant Dean
    - Edit dissertation and submit to NDSU Graduate School
    - Dissemination
- April 2022
- May 2022
    - Poster Presentation at NDSU

Resources

Personal

Several resources were required to implement and complete the PIP. Resources included travel, time commitment, office supplies, laptop, and cost of packet creation and content.

Budget

The financial expenses associated with the project were minimal and were covered by the co-investigator. Estimated expenditures included:

- $100 or less for packets, including paper, paper folders, and printing expenses.
- $30 or less for travel to and from the WIC office and other locations as needed for project completion.

CHAPTER 4: RESULTS

The primary purpose of the PIP was to provide educational information on PPD and community PPD and mental health resources for low-income pregnant and postpartum women presenting to Grand Forks, ND WIC office. The educational packet included information on PPD risk factors, signs/symptoms, diagnosis, treatment, and available resources. Three packets were reviewed by seven medical providers and three postpartum mothers. The medical provider reviewers had expertise in the physical and/or mental health care of women and children. Additionally, postpartum women, 8 months postpartum to 17 months postpartum, reviewed the packets. Packet evaluation occurred over 6 weeks. The reviewers evaluated the packet for accuracy, pertinence, health literacy, sufficiency of information, appropriate amount of information, evaluation of the resources listed, and whether the reviewer felt comfortable sharing a similar packet with their community. The reviewers were asked to choose a preferred packet. After a review and synthesis of reviewer evaluations, a single packet was chosen, and the applicable edits made. Twenty copies of the PPD education packet were given to the WIC office staff to distribute to eligible and consenting participants meeting established criteria over 4 weeks. Each packet contained a survey (Appendix H) as well as a pre-addressed envelope.

Objective One Results

To review, objective one entailed the creation of an evidence-based, professional and focus population PPD education packet with mental health resources for pregnant and postpartum women receiving services at WIC in Grand Forks, ND. The development process for the educational packet involved a thorough review of evidence-based literature followed by a review conducted by medical providers and postpartum women. In total, three PPD education packets were reviewed. Packet 1 was nine pages in length and included images and icons to

augment content delivery and provided a “patient friendly” format. Packet 1 had a Flesch-Kincaid reading level of 7.1. Packet 2 contained identical content as Packet 1, without a majority of the images and icons, reducing the content to eight pages. The intent of Packet 2 was to provide a more condensed, simplified packet. The Flesch-Kincaid reading level of Packet 2 was 6.9. Packet 3 content was selected from the Postpartum Support International website (Postpartum Support International, 2021) and distributed to packet reviewers. Distribution and reproduction consent was obtained from the author if Packet 3 was chosen by packet reviewers for distribution (Appendix K). Packet 3 was one page in length and included a basic description of PPD including other perinatal mood and anxiety disorders, symptoms, risk factors, and treatment options. Because Packet 3 was an infographic not created by the co-investigator, the Flesch-Kincaid level was not able to be calculated.

Packet Review

A convenience sample of 10 packet reviewers (seven medical providers and three postpartum mothers) reviewed the three PPD education packets and completed the review survey (Appendix J). Specific demographic data was not obtained from each reviewer as the information was irrelevant to the development of the educational packet. The reviewer’s feedback is summarized in Table 1. Packet recommendations are summarized in Table 2. Reviewer free-text responses follow Table 2. Packet 1 (Appendix E) was chosen as the preferred packet by all reviewers. Minor revisions were then made to Packet 1 based on reviewer recommendations and further research. The final PPD education packet had a Flesch-Kincaid reading level of 7.1.

Table 1

Summary of Reviewer Responses (N=10)

	Disagree	Neither Agree nor Disagree	Agree
The packet contains accurate information on postpartum depression			10
The packet has pertinent information on postpartum women			10
The packet contents are written at a literacy level appropriate for most women of childbearing age in North Dakota or Minnesota			10
The amount of information enclosed in the packet is sufficient			10
The amount and type of information is excessive or overwhelming	7	2	1
The resource list is comprehensive for the Grand Forks area		1	9
I would feel comfortable sharing a similar packet, specific to my community			10

Table 2

Summary of Reviewer Recommendations

Recommendation Category	Recommendation/Comments
Choice of Packet	Reviewers unanimously chose Packet 1 over the other two packets. Reasons for recommendations include: • Easy to read. • Patient friendly.
Layout and Design	• Treatment page is too busy, Change the color. • Have separate boxes for risk factors. • Simplify the box that includes tips for patient and support person.
Definition/Wording	• Reword definition of PPD. • Reword cause of PPD. • Add reassurance that pharmacologic treatment is safe with breastfeeding. • Include non-gendered terms (example: “birthing people” “new parents.”)
Resources to add	• SAMHSA.gov
Resources to remove	• PHQ-9 and EPDS. There are no instructions on how to score screening forms. Patients might not know how to read the screening form and this may be unnecessary or create unnecessary anxiety.

Reviewer Direct Quotes

- "Great job!"
- "Please get me an extra copy of resources to share with patients."
- "Love it! Can't wait to use it."
- "Print it already. So helpful info!"
- "Great list of resources."
- "Very good!"
- "Great Resources Katie."
- "I appreciated the in-person and online options."
- "I loved how you added what these places offered. Especially some prices. I think that is what deters some women away from help is definitively the cost."

Objective Two Results

Objective two sought to develop a process to offer all eligible pregnant and postpartum women attending in-person WIC appointment the PPD educational packet with mental health resource list. The distribution process was thoroughly explained to WIC employees over email communications and during an in-person meeting prior to implementation. Additionally, written detailed instructions regarding the packet distribution process was provided to WIC staff. The detailed instructions also provided a brief narrative that WIC staff could communicate to eligible participants describing the PIP. WIC staff completed packet distribution over 4 weeks. The co-investigator communicated with WIC staff weekly during the implementation period. During the 4 weeks of implementation, 10 eligible participants presented to the WIC agency on 4 days.

Objective two results fell below the goal. Of the 10 eligible participants, a total of eight participants accepted a packet, resulting in an 80% acceptance rate. Of the participants that accepted a packet, all were in the postpartum period. At the cessation of the implementation period, WIC staff stated participant disinterest in the subject material as a common theme for refusing the PPD education packet.

Objective Three Results

Following distribution, 50% of packet recipients will complete and return the voluntary surveys included with the packets and rate the packet contents favorably in regards to usefulness and value. The third objective was measured by the completion of a voluntary survey that was included with the PPD education packet. Of the eight participants who accepted a PPD education packet, two participants completed the voluntary survey. The survey questions and responses are summarized below.

- When asked if the packet information was reviewed, both survey respondents responded "yes."
- When asked if the information in the folder was helpful, both survey respondents responded "helpful."
- When asked if the survey respondents were concerned that they may have PPD, one survey respondent responded "no" and one survey respondent responded "yes."
- If the survey respondent responded "yes" to question 3, they were asked if they felt comfortable contacting their PCP to discuss how they were feeling. The survey respondent who responded "no" in question 3 responded "not applicable" and the survey respondent who responded "yes" in question 3 responded "comfortable".

- When asked if the survey respondents found the list of community resources helpful, both survey respondents responded “yes.”
- When asked if the survey respondents would contact one or more of the resources listed if they were concerned about PPD, both survey respondents responded “yes.”
- When asked if the survey respondents would like more information on PPD (and if so, what type of information), one survey respondent responded “not at this time.” The other survey respondent did not complete the answer.
- If the survey respondent requested additional information, they were asked to leave their email or mailing address. The survey respondent that did not complete the previous answer did provide their email address for this question. Efforts to reach the survey respondent by email were made by the co-investigator.

CHAPTER 5: DISCUSSION AND RECOMMENDATIONS

Summary

The purpose of the PIP was to increase knowledge of PPD and provide information on community resources for low-income pregnant and postpartum women presenting to the Grand Forks, ND WIC office. In women with low-income, the prevalence of PPD doubles to 25% and 40-60% of adolescent mothers with low-income report depressive symptoms (Earls et al, 2019). Equally concerning are the potential effects PPD may have on the children of mothers suffering from PPD including significant early risk to healthy child development and the developing bond between mother and child (Bass III & Bauer, 2018).

The project included the creation of a PPD education packet that was reviewed and edited based on the recommendations from local medical providers and local postpartum mothers. After creation of the PPD education packet, distribution to pregnant and postpartum participants was conducted at the WIC agency in Grand Forks, ND. Distribution of the packets occurred over 1 month. Below, the results of each objective are discussed and interpreted separately.

Objective One

Objective one involved the creation of a PPD education packet for eligible pregnant and postpartum women. The PPD education contents included information about PPD, risk factors, symptomology, and local resources for evaluation and treatment that was then assembled into an education packet. In total, three PPD education packets were reviewed. After packet creation, packet reviewers (seven medical providers and three postpartum mothers) evaluated the PPD education packets with the use of a survey that was created by the co-investigator. No differences in the responses of the postpartum women was found when comparing to the responses of the medical providers. In-person verbal feedback was held with four of the packet reviewers to

review the packet and survey responses. When creating patient education materials, the CDC (2021) recommends testing education products with the targeted audience and evaluating feedback prior to releasing the education materials to the public. By receiving feedback from representatives of the target audience and informants who are familiar with the target audience, such as postpartum mothers and medical providers, assistance may be provided in a way that helps refine content, identify potential barriers, and feedback on design (McGee, 2021). Feedback from the ten completed surveys helped improve the packet format as well as provided recommendations on content.

Packet Selection

Three PPD education packets were reviewed. The reviewers selected Packet 1 unanimously for reasons such as Packet 1 appeared "patient friendly" and "easy to read". Feedback from one reviewer stated that the format of Packet 2 might be overwhelming for the participant due to its lack of images. Additionally, Packet 3 was not chosen due to reasons such as the packet being too broad and not informative enough. To improve health literacy when utilizing printed materials, Cornett (2018) suggests the use of realistic visuals and graphics appropriate to the learner. To make the printed material easier to read, white space should be utilized with sharp contrast. The CDC recommends the use of clear communication strategies to improve health literacy (2021). Clear communication is accomplished by presenting familiar concepts, words, numbers, and images in a way that makes sense to the people needing the information. For these reasons, Packet 1 was chosen for distribution.

Format and Content

Packet reviewers were able to provide feedback on packet content and packet format by completing the packet survey and by providing comments in the free-text box. Clarifying the

cause of PPD was recommended by one reviewer. While PPD is well known, the cause is not fully established however, the roles of hormones, genetics, and immune function have been thought to play a role (Stewart & Vigod, 2019). Additionally, factors may vary from person to person. The PPD depression packet was edited to reflect the recommendations and current literature.

Two packet reviewers suggested the removal of the PHQ-9 and EPDS screening forms from the PPD education packets. Both reviewers were medical providers. Reasoning behind removal included the belief of the reviewers that participants would not have the knowledge on how to interpret the screening forms and thus create unnecessary anxiety. Removal of the PHQ-9 and EPDS from Packet 1 lowered the Flesch-Kincaid reading level from 7.1 to 6.8. However, the investigator and co-investigator felt the screening forms provided a significant introduction to PPD screening and familiarized the participant with common screening tools and questions used to diagnose PPD. The EPDS has proven validity for use during pregnancy and the postpartum period and takes less than 5 minutes to complete (Cox et al., 1987). The PHQ-9 depression screen is used in multiple care settings and is the most widely used depression screen globally (Pfizer, 1999; Wang et al., 2021). The PHQ-9 also has been validated across a wide range of age groups, medical conditions, and clinical settings. Additionally, both the EPDS and PHQ-9 are available in online format for patients to use independently. Google Health and Mental Health American offer interactive mental health screening forms, including the PHQ-9 and EPDS, that users can complete independently without a clinician interpretation (Google Health, n.d.; Mental Health America, 2020). After completing the selected screening tool, both websites offer recommendations based on the total score calculated. After considering the available use of the PHQ-9 and EPDS in non-clinic settings and the benefit of familiarizing the participant with

common questions asked to diagnose PPD, the PHQ-9 and EPDS screening forms were left in the PPD education packet.

Objective Two

Objective two involved the creation of a process for the PPD education packet distribution with the goal of 90% of eligible participants receiving the packet. Evaluation of objective two was conducted via the data collection completed by WIC staff. Eligible participants were recorded by WIC staff as well as the number of participants who consented to receiving a PPD education packet. After cessation of packet distribution, 80% of eligible participants accepted the PPD education packet, falling short of the objective goal of 90%. The failure to fully attain Objective 1 may not reflect the failure of a successful PIP, but rather the co-investigator's expectation was established too high.

Packet Distribution

In order to ensure timely completion of the dissertation process, the PPD education packet distribution occurred over 1 month. During distribution, eligible participants presented to the WIC office for 4 days out of the 1-month distribution. During the 1-month distribution, 10 eligible participants presented to the WIC office. Of the 10 eligible participants who presented during the 1-month distribution, eight accepted the PPD education packet. Of the eight participants who accepted the PPD education packet, all were in the postpartum period. If the distribution window had occurred over an increased number of months, an increased number of eligible participants could have been recruited. Prior to implementation, the co-investigator could have investigated further and communicated with WIC staff regarding the average amount of clients serviced in a month and the expected number of participants.

When speaking to WIC employees involved with packet distribution, disinterest in the subject matter by participants was stated as the reason for denying the PPD education packet. A toolkit created by CMS offers assistance when making written material for patients (McGee, 2021). In the toolkit, stress is placed on making the written materials "reader centered". However, disclosure is given that there is a possibility that the intended reader may not have interest in being educated at that time or is not interested in the method of education. Other methods, other than written materials, may be utilized to deliver patient education such as podcasts, videos, PowerPoint presentations, posters or charts, models or props, group classes, and trained peer educators (MedlinePlus, 2022).

Objective Three

Of the eight participants who accepted the PPD education packet, two participants returned the voluntary survey. As McGee (2021) emphasizes, feedback from readers of written materials provides significant evaluation of whether the materials were effective. Involving readers with the feedback process allows for easier identification of barriers to the readers' attention, comprehension, and use of the material. Overall success of objective 3 is difficult to determine as only 25% of packet recipients returned the voluntary survey. If the response rate was greater, then the overall packet effectiveness may have been able to be established. Both survey respondents reported reviewing the PPD education packet and finding the packet helpful. One survey respondent did report concerns about PPD however, the respondent reported feeling comfortable speaking with their PCP to discuss how they were feeling. The same survey respondent listed their email address as an option to receive additional PPD information but did not specify what type of information they would prefer. An effort to reach the survey respondent by email was made by the co-investigator but no response was received. Both survey

respondents answered that they found the list of community resources helpful and would contact one of the resources listed if they were concerned about PPD.

Strengths

With the development of the PPD education packet, a multidisciplinary and targeted audience approach was used to review and provide recommendations. Reviewers included medical providers with practice backgrounds in the treatment of women, children, and mental health patients. As a portion of the target recipients, local postpartum mothers were also asked to review the packet. McGee (2021) stresses active participation from the intended audience when developing written material. Additionally, the toolkit suggests asking for assistance from informants who are close contacts with members of the intended audience (McGee, 2021). A multidisciplinary and targeted audience review from the medical providers and postpartum mothers allowed incorporation of numerous perspectives to help create a comprehensive and well-rounded packet. Each reviewer provided valuable insight to the wording, format, and information presented into the PPD education packet.

When seeking packet reviewers and an implementation site, there was stated enthusiasm for the PIP. During a conversation between the co-investigator and a packet reviewer about the PPD education packet, the reviewer voiced the need for a similar education packet to be available for their patient population and asked to distribute the final packet to their patients. The medical provider repeated the statement and request in the packet review comments. In addition to the PPD education packet, the list of local mental health resources was also requested by two medical providers local to Grand Forks, ND. The list of local mental health resources was created by the co-investigator after calling numerous mental health agencies located in Grand Forks, ND. The up-to-date content and details regarding contact information, Medicaid

acceptance, and past experience with treatment of PPD was verbally stated as a positive attribute of the mental health resource list by two providers who reviewed the packet and list as well as the WIC agency. Additionally, WIC employees requested to distribute the PPD education packet and resource list to additional clients not meeting eligibility criteria. Because of the enthusiasm from packet reviewers and the WIC agency, reviewer feedback and WIC agency communications about the project were prompt and informative. In the literature, unmet needs in PPD education and awareness were not only identified by patients but also providers ("The Postpartum Depression", 2018). Providers conveyed the greater need for increased treatment options and increased access to treatments. Providing patients with education materials about PPD was recommended to increase awareness about PPD and ease conversations between providers and patients ("The Postpartum Depression", 2018).

The need for additional mental health services and support for women in the postpartum period has become increasingly evident during the recent COVID-19 epidemic. A study conducted in Poland aimed to identify possible intensification of mental health struggles among postpartum women seeking support through an online PPD prevention program during the beginning of the COVID-19 epidemic (February 2020) (Chrzan-Detkos et al., 2021). Women who were seeking support through the on-line program were able to independently complete the EPDS. A significantly greater severity of PPD symptoms was found among postpartum women at the beginning of the COVID-19 epidemic compared to postpartum women seeking support at a neutral (non-epidemic) period. Multiple recommendations to support mental health in pregnant and postpartum women were provided, including providing education about PPD and providing the women with resources to connect her with support groups and safe options for psychiatric/psychosocial consultation. Education and mental health support can be accomplished

by distributing education materials similar to the PPD education packet and mental health resource list. The authors also suggested providing women with online services where they may independently test the severity of symptoms and receive guidance on treating postpartum health without fear of stigma. Telemedicine services can also be conducted online when the woman prefers to conduct care over distance.

Similarly, increased patient education surrounding depression and associated treatment is also needed. A study by Lopez et al. (2018) examined the relationship between mental health literacy and stigma in Hispanic women with depression. Similar to health literacy, mental health literacy refers specifically to mental health conditions and the beliefs that create stigma surrounding mental health treatment. Enrollments in the study included women with the diagnosis of confirmed depression, women self-identified as Hispanic, and women not currently receiving treatment for depression. The authors found that the more an individual knew about depression and depression symptoms, the less likely they were to experience stigma about utilizing mental health services and the more likely they were to engage with a person who has been treated for depression. Interestingly, the authors found higher education was associated with greater stigma with antidepressant use. Stigma with antidepressant use was reported in all groups studied so may be explained by cultural stigma. The authors concluded by reporting that findings lend support to the concept that disease literacy is an essential component to treatment engagement. During the PIP, anticipatory education was provided to pregnant and postpartum women as a method to increase knowledge of PPD and to provide information on community resources. By increasing knowledge of PPD, less stigma about utilizing mental health services may be experienced by women suffering from PPD.

Limitations

A number of limitations were identified during the PIP. Participants who were considered eligible for the PIP were required to have English as their primary language. However, the study did not assess the participant's health literacy level or whether the participant had the ability to read and/or write English. When following recommendations from the literature, written materials should be created at a fourth to sixth grade level (Agency for Healthcare Research and Quality, 2019a). The PPD education packet was designed with the goal of having a Flesh-Kinkaid reading level of sixth grade or less. The final PPD education packet resulted in a Flesh-Kinkaid 7.1 grade level. Further evaluation into the participant's health literacy level or education level could impact the delivery method and success rate of efficient PPD education. Evaluation of health literacy could be accomplished by having the participant complete a validated assessment of patient health literacy. The use of the REALM-Short Form is a 7-word recognition test that provides clinicians with a quick assessment of health literacy (Agency for Healthcare Research and Quality, 2019b). Participants who accepted the PPD education packet could have been asked to complete the REALM-Short Form to evaluate for health literacy and future adjustments to the PPD education packet could have been made. Additionally, assessments into the participant's preferred learning style could have impacted the delivery of the education and the success of the education (Medline Plus, 2022).

While postpartum mothers were included as reviewers of the packet, the review did not include input from pregnant women or postpartum mothers of low SES. As a direct recipient of the PPD education packet, input from women of low SES input could have provided additional recommendations for packet creation. McGee (2021) highlights the benefits of utilizing feedback from the intended recipients such as enhancing material content, phrasing of the intended

message, identifying culturally sensitive areas, and identifying potential barriers. To reach the intended target audience, the co-investigator of the PIP project could have expanded its packet review to women receiving services at WIC and included them with packet creation and alteration.

Time was also a limitation during the PIP. The original implementation, a pediatric clinic conducting WCV's, dropped out after months of communicating. The target audience at that point did not include participants of low SES but rather postpartum women attending the 2-week WCV and entailed screening for PPD using the EPDS. After being granted permission to implement the PIP at the WIC agency, changes required to meet a new participant population had to be made promptly. Project implementation had to occur over a less than ideal timeline to meet project deadlines as a longer implementation would have been desired. A longer implementation time most likely would have resulted in more participants. Also, a small number of participants were recruited during the 1-month distribution period. During the 1-month distribution, 10 eligible participants presented to the WIC office for 4 days. Of the 10 eligible participants who presented during the 1-month distribution, eight accepted the PPD education packet. To foresee the number of anticipated participants expected, the co-investigator should have discussed with WIC about the average amount of clients serviced per month.

Recommendations

Even though the objectives were partially met, the literature still support the need for PPD resources for patients, healthcare providers, and professionals working with populations at risk for PPD. The COVID-19 epidemic has further increased the need for mental health services and support for postpartum women (Chrzan-Detkos et al., 2021). While the acceptance rate of the PPD packet was below the objective goal, the survey respondents reported that the PPD

education packet was helpful. Medical providers who reviewed the PPD education packet voiced the need for similar resources to have available for patients in their practice. Following the creation of the packet, two medical providers requested a copy of the PPD education packet and resource list to have for their own practice to distribute to pregnant and postpartum women. WIC employees also voiced the need for additional PPD education resources to distribute to clients and requested to continue distributing the PPD education packet after cessation of the project. Additionally, providers in the literature voiced the need for increased PPD education ("The Postpartum Depression", 2018). Having the resources to provide to patients could ease provider barriers when speaking to patients about PPD by having the information and local resources readily available during the visit. A PPD education packet also provides crucial education about PPD to pregnant and postpartum women. Lopez et al. (2018) found that increased knowledge of depression in patients currently diagnosed with depression resulted in less stigma experienced when utilizing mental services and increased engagement with other people being treated for depression. Therefore, having a similar PPD education packet and mental health resource list available in the health care setting could be a great advantage to both health care providers and patients.

An opportunity also exists to deliver the education and resource material in multiple formats. An online format may be preferred by patients due to easy accessibility via phone or computer. Access to the online format could be accomplished with a QR code or a web link. When speaking with WIC employees about a potential online format, WIC employees reported that they distribute education materials via a QR code and reported that it had historically been a successful option to distribute education materials. Chilukuri et al. (2015) evaluated the differences in the use of information and communication technology (such as mobile phones,

text messages, internet, and social network) between racial and ethnic groups. The authors found that among low-income, racially and ethnically diverse pregnant and postpartum women, mobile phones use was common among all racial and ethnic groups. However, disparities were identified in internet, email, and social network use by racial/ethnic groups and limited English language proficiency. The authors suggest that mobile phones do have potentially useful modalities for delivery of health interventions to low-income pregnant and postpartum women, however, interventions requiring web-based apps may have limited use unless alternatives (i.e. paper) and Spanish translations are available.

A systematic review by Sayakhot & Carolan-Olah (2016) investigated ways pregnant and postpartum women used the internet to retrieve pregnancy-related information. Two studies reported that most women had access to the internet and most studies reported that women searched for information at least once a month. The studies included in the systematic review also reported that the majority of women selected the internet as a source of useful and reliable information about their pregnancy. Higher education, married marital status, nulliparous, active employment, and women aged 25-34 years were reportedly more likely to seek information regarding their pregnancy. Health care provides are in a position to guide and provide pregnant and postpartum women with appropriate and accurate information sources on the internet.

Often, the ability to find and use information about pregnancy is influenced not only by health literacy, but by the related concept of e-health literacy, which describes the ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge to a health problem (Arcia et al., 2019). Low levels of e-health literacy, along with inadequate internet access, are significant drivers of disparities among those seeking health information with the use of digital resources. The disparities are apparent among demographic

groups that are disproportionately likely to have low-income. A literature review by Arcia et al. (2019) expounded how low-income pregnant women characterized their digital information needs, the process they take to obtain the information and the barriers and facilitators to meeting the needs. Studied participants listed differing preferences for method of information format, including text, audio, and video. Participants were also very receptive to receiving anticipatory guidance in the form of content forwarded to them by email based on their gestational age. When assessing access to digital resources, a key facilitator for the majority of participants was having high-speed internet access at home. For those without internet access at home, barriers included losing signal, running out of battery power, and limited mobile data. To support pregnant and postpartum women seeking information, the authors conclude that providers can provide resources that are flexible, easily shared with loved ones, and tailored to the characteristics and concerns of the individual. Additionally, women report needing resources that provide anticipatory guidance to satisfy developing information needs.

As discussed, pregnant and postpartum women report using the internet to access health information related to their pregnancy (Arcia et al., 2019;Sayakhot & Carolan-Olah, 2016). However, multiple different formats and delivery methods may need to be utilized to increase access to patient education materials. Swenson and Ghertner (2020) reported that more than one in six people in poverty lack internet access. Additionally, 18% of people below 100% poverty lack access to the internet. The authors also report that people living in nonmetropolitan areas have less access to the internet than those in metropolitan areas. In North Dakota specifically, 21.1-28% of low-income persons do not have internet access in their household. To ensure that each individual participant receives needed or requested education materials, further investigation into each participant's preferred learning format, health literacy status, and culture

can be beneficial (MedlinePlus, 2022). Additionally, different formats for the education format can be useful such as printed materials or brochures, videos, presentations, posters, models, and group classes.

Evaluation of Model and Framework

The Iowa Model of Research-Based Practice to Promote Quality Care (Buckwalter et al., 2017), was used to guide project design and implementation. The step-by-step process and simplified algorithm created a straightforward project course that allowed room for individualization and evaluation. When the project site and implementation plan was altered, the Iowa Model was easy to adapt. During the final steps of integrating and sustaining practice change, the incorporation of change into the system is encouraged. Following the PIP, WIC employees were provided with an electronic and paper copy of the PPD education packet with permission to continue to distribute to WIC clients to facilitate PPD education. A medical provider who reviewed the packet also asked for a copy of the PPD education packet to distribute to her own patient population. Following dissemination of results, the user of the Iowa Model may return to the beginning of the process to identify triggering issues and opportunities. Following the cessation of the PIP, potential alterations in the project were found such as delivering the content via an online format and further adjustment for health literacy level.

The use of Romana Mercer's process of Maternal Role Attainment was utilized for the development of the PIP. By applying the theory of Maternal Role Attainment to the PIP, further stress was placed on full attainment of the maternal role and the prevention of the breakdown of the mother-child bond. As stated by Cabrera (2018), application of the Maternal Role Attainment Theory can be applied to all postpartum mothers to facilitate outcomes in each mother and child. A delay of any stage can impact the acquisition of the maternal role. Benefit can be had from

ongoing education to parents and families during prenatal visits, hospital admissions, and follow-up appointments (Cabrera, 2018). The PIP focused on multiple stages identified in the Maternal Role Attainment. The first stage, the anticipatory stage, occurs during pregnancy as the women develops new thoughts and ideas about becoming a mother as she seeks out role models (Cabrera, 2018; Mercer, 1985). The second stage, the formal stage, begins with the birth of the newborn as the mother learns how to provide care. The informal stage, stage three, occurs as the mother reflects on past experiences and personal values and focuses on being a mother. By distributing the PPD education packets and mental health resources list to pregnant and postpartum women who are in the stages of gathering information and developing new thoughts of motherhood, anticipatory education was provided to attempt to provide prompt identification of PPD symptoms and further morbidity from PPD. Furthermore, by accomplishing the first three stages, the mother can reach the final stage of maternal role attainment and feel confident in her abilities as a mother. By including education and support beyond the delivery, the journey toward a strong maternal identity and optimal child outcomes can be enhanced.

Dissemination

To ensure adequate notification of research findings, dissemination is an essential step of the research process. Following the completion of the PIP, results will be made available to the WIC agency. As requested by WIC staff, an electronic and paper copy of the PPD education packet will also be available for WIC staff to continue to print and distribute to WIC clients. Prior to project completion, an electronic poster presentation was conducted at the North Dakota Nurse Practitioner Association Pharmacology Conference in September of 2021. Dissemination of results will also occur in the form of a poster presentation in the Spring of 2022 at NDSU.

Upon completion and approval, the dissertation will also be published and available on ProQuest Dissertation & Thesis Global for global review.

Implication for Future Practice

The findings from literature accentuate that additional education and mental health resources are needed to provide patient education about PPD and mental health disorders (Chrzan-Detkos et al., 2021; Lopez et al., 2018;"The Postpartum Depression", 2018;). The need not only arises from patients, but medical providers who also state a need for such education materials ("The Postpartum Depression", 2018). A primary focus of nurse practitioner curriculum is health promotion and patient education (American Academy of Nurse Practitioners [AANP], 2022). By having patient education materials readily available, especially for at risk patients, vital information can be provided to patients that may help foster earlier diagnosis and treatment and attempt to prevent significant morbidity.

Postpartum depression is a serious mental health disorder with potential detrimental impacts on both mother and child (ACOG, 2018; Bass III & Bauer, 2018; Miller et al., 2015; Netsi et al., 2018; Osborne, 2018; Slomian et al., 2019; Wouk et al., 2017). A Family Nurse Practitioner provides a wide range of family-focused health care to patients of all ages, including infants, adolescents, adults, and seniors (AANP, 2019). According to the AANP (2021), 88.9% of the Nurse Practitioner population are certified in a primary care area and more than 70.2% of actively practicing Nurse Practitioners are delivering primary care. As a Nurse Practitioner educated to provide care to the family unit, PPD may impact a significant proportion of the Family Nurse Practitioner patient population, including postpartum mothers and infants. Additionally, 78.7% of full-time Nurse Practitioners are caring for Medicaid patients (AANP, 2021). By having the educational resources available for patients, the Family Nurse Practitioner

can provide a positive impact for multiple patient populations. Further evaluation into the patient's health literacy level and preferred method of education can also promote individualized patient care (Medline Plus, 2022).

Conclusion

The prevalence of PPD among certain at-risk populations has been thoroughly discussed throughout the literature. Among low-income women, PPD occurs at a rate of 25% and 40-60% of adolescent low-income mothers report depression symptoms (Earls et al., 2019). Furthermore, women suffering from PPD are often hesitant to seek help due to existing stigma of psychiatric illness and financial or logistic barriers (Pooler et al., 2013). At-risk populations, such as low-income women, was targeted during the PIP to provide important patient education and resources. During packet distribution at the WIC agency, one survey respondent expressed concerns about PPD. The survey respondent also shared that she planned to contact one of the resources listed in the PPD education packet if she was concerned about PPD. By delivering PPD education, inquiring about PPD concerns, and providing community resources, intervention was provided to an at-risk participant when it may not have been otherwise.

The project also alleviated barriers experienced by medical professions. Previously discussed in the literature review, medical providers expressed barriers with PPD screening such as time constraints, inadequate training, skills, knowledge needed to screen, inadequate mental health services, and the opinion that mothers did not want to discuss PPD symptoms (Goldin Evans et al., 2015). Medical providers also state a need for education materials ("The Postpartum Depression", 2018). A medical provider who reviewed the PPD education packet requested a copy of the packet to distribute to her own patient population. Staff at the WIC agency asked to distribute the PPD education packet to non-eligible women presenting to the WIC office during

the packet distribution stage. Following cessation of the project, both the medical provider and the WIC staff were provided with an electronic copy of the PPD education packet and resource list to distribute independently. By providing the imperative education, health care providers who are in contact with at-risk women and their children may provide anticipatory guidance about postpartum depression.

REFERENCES

Agency for Healthcare Research and Quality. (2019, September 7). *Health literacy*. Patient Safety Network. https://psnet.ahrq.gov/primer/health-literacy#

Agency for Healthcare Research and Quality. (2019, November). *Health literacy measurement tools (revised)*. https://www.ahrq.gov/health-literacy/research/tools/index.html#rapid

American Association of Nurse Practitioners. (2019, July 3). *Are you considering a career as a family nurse practitioner?* https://www.aanp.org/news-feed/are-you-considering-a-career-as-a-family-nurse-practitioner#:~:text=An%20FNP%20is%20an%20advanced,%2C%20adolescents%2C%20adults%20and%20seniors.

American Association of Nurse Practitioners. (2021, May). *NP fact sheet*. https://www.aanp.org/about/all-about-nps/np-fact-sheet

American Academy of Nurse Practitioners. (2022). *What's a nurse practitioner (NP)?* https://www.aanp.org/about/all-about-nps/whats-a-nurse-practitioner

Arcia, A., Stonbraker, S., & Assaan Warner, E. R. (2019). Continuing education module-Information needs and information-seeking processes of low-income pregnant women in relation to digital maternity education resources. *The Journal of Perinatal Education*, *28*(3), 151-162. 10.1891/1058-1243.28.3.151

Bass III, P. F., & Bauer, N. S. (2018). Parental postpartum depression: More than "baby blues". *Contemporary Pediatrics*, 35(9). https://www.contemporarypediatrics.com/view/parental-postpartum-depression-more-baby-blues

Buck, K., Zekri, S., Nguyen, L., & Ogar, U. J. (2019). Cognitive behavior therapy for postpartum depression. *American Family Physician*, *100*(4), 244–245. https://www-aafp-org.ezproxy.lib.ndsu.nodak.edu/afp/2019/0815/afp20190815p244.pdf

Buckwalter, K. C., Cullen, L., Hanrahan, K., Kleiber, C., McCarthy, A. M., Rakel, B., Steelman, V., Tripp-Reimer, T., & Tucker, S. (2017). Iowa model of evidence-based practice: Revisions and validation. *Worldviews of Evidence-Based Nursing, 14*(3), 175-182. 10.1111/mvn.12223

Cabrera, J. P. (2018). Maternal Role Attainment Theory: Promoting maternal identity and family health. *International Journal of Childbirth Education, 33*(2), 21–23. https://web.s.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=0&sid=64a29229-8372-4100-82d6-00daa914d08b%40redis

Centers for Disease Control and Prevention. (2018, August 20). *CDC releases 2018 breastfeeding report card*. https://www.cdc.gov/media/releases/2018/p0820-breastfeeding-report-card.html#:~:text=Of%20the%20approximately%204%20million,Control%20and%20Prevention%20(CDC).

Centers for Disease Control and Prevention (2019). *Depression during and after pregnancy.* https://www.cdc.gov/reproductivehealth/features/maternal-depression/index.html

Centers for Disease Control and Prevention. (2020a, February 20). *PRAMS*. https://www.cdc.gov/prams/index.htm

Centers for Disease Control and Prevention. (2020b, May 14). *Depression among women*. https://www.cdc.gov/reproductivehealth/depression/index.htm#post

Centers for Disease Control and Prevention. (2021, May 21). *Talking points about health literacy*. https://www.cdc.gov/healthliteracy/shareinteract/TellOthers.html

Chilukuri, N., West, M., Henderson, J. L., Lawson, S., Ehsanipoor, R., Costigan, K., Polk, S., & Bennett, W. (2015). Information and communication technology use among low-income

pregnant and postpartum women by race and ethnicity: A cross-sectional study. *Journal of Medical Internet Research, 17*(7). 10.2196/jmir.3916

Chrzan-Detkos, M., Walczak-Kozlowska, T., & Lipowska, M. (2021). The need for additional mental health support for women in the postpartum period in the times of epidemic crisis. *BMC Pregnancy and Childbirth, 21*(114), 1-9. https://doi.org/10.1186/s12884-021-03544-8

Cornett, S. (2018). Assessing and addressing health literacy. *The Online Journal of Issues in Nursing, 14*(3). 10.3912/OJIN.Vol1403Man02

Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression: Development of the 10-item Edinburg Postnatal Depression Scale. *British Journal of Psychiatry*, 150, 782-786. https://www.fresno.ucsf.edu/pediatrics/downloads/edinburghscale.pdf

Earls, M. F., Yogman, M. W., Mattson, G., & Rafferty, J. (2019). Incorporating recognition and management of perinatal depression into pediatric practice. *Pediatrics, 143*(1), 1-9. https://doi.org/10.1542/peds.2018-3259

Goldin Evans, M., Phillippi, S., & Gee, R. E. (2015). Examining the screening practices of physicians for postpartum depression: Implications for improving health outcomes. *Women's Health Issues*, *25*(6), 703–710. https://doi.org/10.1016/j.whi.2015.07.003

Google Health. (n.d.) *Helpful mental health self-assessments in search results*. https://health.google/consumers/self-assessments/

Goyal, D., Gay, C., & Lee, K. A. (2010). 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. 10.1016/j.whi.2009.11.003

Guintivano, J., Munuck, T., & Meltzer-Brody, S. (2018). Predictors of postpartum depression: A comprehensive review of the last decade of evidence. *Clinical Obstetric Gynecology, 61*(3), 591-603. 10.1097/GRF.0000000000000368

Imoisili, O. E., Levinsohn, E., Pan, C., Howell, B. A., Streiter, S., & Rosenbaum, J. R. (2017). Discrepancy between patient health literacy levels and readability of patient education materials from an electronic health record. *Health Literacy Research and Practice*, *1*(4), e203-e207. 10.3928/24748307-20170918-01

Kanes, S. J., Colquhoun, H., Doherty, J., Raines, S., Hoffmann, E., Rubinow, D. R., & Meltzer-Brody, S. (2017). Open-label, proof-of-concept study of brexanolone in the treatment of severe postpartum depression. *Human Psychopharmacology: Clinical and Experimental, 32*(2). https://doi.org/10.1002/hup.2576

Kline, N., Thorn, D., Bellows, D., Wroblewska, K., & Wilcox-Cook, E. (2020). *WIC participant and program characteristics 2018 final report.* U.S. Department of Agriculture, Food and Nutrition Service. https://fns-prod.azureedge.net/sites/default/files/resource-files/WICPC2018.pdf

Kutner, M., Greenberg, E., Jin Y., & Paulsen, C. (2006, September 6). *The health literacy of America's adults: Results from the 2003 national assessment of adult literacy.* U.S. Department of Education. https://nces.ed.gov/pubs2006/2006483.pdf

Levis, B., Negeri, Z., Sun, Y., Benedetti, A., & Thombs, B. D. (2020). Accuracy of the Edinburg Postnatal Depression Scale (EPDS) for screening to detect major depression among pregnant and postpartum women: Systematic review and meta-analysis of individual participant data. *British Medical Journal*, *371*(8268), 1–11. https://doi.org/10.1136/bmj.m4022

Long, M. M., Cramer, R. J., Jenkins, J., Bennington, L., & Paulson, J. F. (2019). A systematic review of interventions for healthcare professionals to improve screening and referral for perinatal mood and anxiety disorders. *Archives of Women's Mental Health*, *22*(1), 25–36. https://doi.org/10.1007/s00737-018-0876-4

Long, M., Frederiksen, B., Ranji, U., & Salganicoff, A. (2021, April 21). *Findings from the 2020 KFF women's health survey*. Kaiser Family Foundation. https://www.kff.org/womens-health-policy/issue-brief/womens-health-care-utilization-and-costs-findings-from-the-2020-kff-womens-health-survey/

Lopez, V., Sanchez, K., Killian, M. O., & Eghaneyan, B. H. (2018). Depression screening and education: An examination of mental health literacy and stigma in a sample of Hispanic women. *BMC Public Health*, *18*(646), 1-8. https://doi.org/10.1186/s12889-018-5516-4

McGee, J. (2021, December 1). *Toolkit for making written materials clear and effective.* Centers for Medicare & Medicaid Services. https://www.cms.gov/Outreach-and-Education/Outreach/WrittenMaterialsToolkit

MedlinePlus. (2022, February 18). *Choosing effective patient education materials*. National Library of Medicine. https://medlineplus.gov/ency/patientinstructions/000455.htm

Melnyk, B. M., & Fineout-Overholt, E. (2019). *Evidence-Based Practice in Nursing and Healthcare* (4th ed.). Wolters Kluwer.

Meltzer-Brody, S., & Jones, I. (2015). Optimizing the treatment of mood disorders in the perinatal period. *Dialogues in Clinical Neuroscience*, *17*(2), 207–218. 10.31887/DCNS.2015.17.2/smeltzerbrody

Mental health America. (2020). *Depression test*. https://screening.mhanational.org/screening-tools/depression/

Mercer, R. (1985). The process of maternal role attainment over the first year. *Nursing Research, 34*(4), 198–204.

Milgrom, J., Gemmill, A. W., Erickesen, J., Burrows, G., Buist, A., & Reece, J. (2015). Treatment of postnatal depression with cognitive behavioral therapy, sertraline, and combination therapy: A randomized controlled trial. *Australian & New Zealand Journal of Psychiatry*, *49*(3), 236–245. https://doi.org/10.1177/0004867414565474

Miller, E. S., Hoxha, D., Wisner, K. L., & Gossett, D. R. (2015). The impact of perinatal depression on the evolution of anxiety and obsessive-compulsive symptoms. *Archives of Women's Mental Health*, *18*(3), 457–461. https://doi.org/10.1007/s00737-014-0476-x

Netsi, E., Pearson, R. M., Murray, L., Cooper, P., Craske, M. G., & Stein, A. (2018). Association of persistent and severe postnatal depression with child outcomes. *JAMA Psychiatry, 75*(3), 247–253. https://doi.org/10.1001/jamapsychiatry.2017.4363

Office of Disease Prevention and Health Promotion. (2021, September 14). *Health literacy*. Healthy People.gov. https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-health/interventions-resources/health-literacy

Olin, S. S., McCord, M., Stein, R. E. K., Kerker, B. D., Weiss, D., Hoagwood, K. E., & Horwitz, S. M. (2017). Beyond screening: A stepped care pathway for managing postpartum depression in pediatric settings. *Journal of Women's Health*, *26*(9), 966–975. https://doi.org/10.1089/jwh.2016.6089

Osborne, L. M. (2018). Recognizing and managing postpartum psychosis: A clinical guide for obstetric providers. *Obstetrics and Gynecology Clinics of North America, 45*(3), 455–468. https://doi.org/10.1016/j.ogc,2018.04.005

Payne, J. L., & Maguire, J. (2019). Pathophysiological mechanisms implicated in postpartum depression. *Frontiers in Neuroendocrinology*, *52*, 165–180. https://doi.org/10.1016/j.yfrne.2018.12.001

Pfizer. (1999). *Patient Health Questionnaire (PHQ-9)*. https://www.uspreventiveservicestaskforce.org/Home/GetFileByID/218

Pooler, J., Perry, D. F., & Ghandour, R. M. (2013). Prevalence and risk factors for postpartum depressive symptoms among women enrolled in WIC. *Maternal Child Health Journal*, *17*, 1969-1980. 10.1007/s10995-013-1224-y

Postpartum Support International. (2021). *Education materials* [Infographic]. Postpartum Support International. https://www.postpartum.net/resources/psi-brochure/

Putnick, D. L., Sundaram, R., Bell, E. M., Ghassabian, A., Goldstein, R. B., Robinson, S. L., Vafai, Y., Gilman, S. E., & Yeung, E. (2020). Trajectories of maternal postpartum depressive symptoms. *Pediatrics*, *146*(5), 1–9. https://doi.org/10.1542/peds.2020-0857

Sayakhot, P. & Carolan-Olah, M. (2016). Internet use by pregnant women seeking pregnant-related information: A systematic review. *BMC Pregnancy and Childbirth*, *16*(65), 1-10. 10.1186/s12884-016-0856-5

Scarff, J. R. (2019). Use of Brexanolone for postpartum depression. *Innovations in Clinical Neuroscience*, *16*(11-12), 32–35. https://www-ncbi-nlm-nih-gov.ezproxy.lib.ndsu.nodak.edu/pmc/articles/PMC7006866/pdf/icns_16_11-12_32.pdf

Sharma, V., & Mazmanian, D. (2014). The DSM-5 peripartum specifier: Prospects and pitfalls. *Archives of Women's Mental Health*, *17*(2), 171–173. https://doi.org/10.1007/s00737-013-0406-3

Slomian, J., Honvo, G., Emonts, P., Reginster, J. Y., & Bruyere, O. (2019). Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes. *Women's Health*, *15*, 1–55. https://doi.org/10.1177/1745506519844044

Sriraman, N. K., Melvin, K., & Meltzer-Brody, S. (2015). ABM clinical protocol #18 Use of antidepressants in breastfeeding mothers. *Breastfeeding Medicine*, *10*(6), 290–299. https://doi.org/10.1089/bfm.2015.29002

Stewart, D. E., & Vigod, S. N. (2019). Postpartum depression: Pathophysiology, treatment, and emerging therapeutics. *Annual Review of Medicine*, *70*, 183–196. https://doi.org/10.1146/annurev-med-041217-011106

Swenson, K. & Ghertner, R. (2020, April). *People in low-income households have less access to internet services.* Office of the Assistant Secretary for Planning & Evaluation, U.S. Department of Health & Human Services. https://aspe.hhs.gov/sites/default/files/private/pdf/263601/Internet_Access_Among_Low_Income.pdf

The American College of Obstetricians and Gynecologists. (2018, November). *The Committee Opinion*, *132*(5), e208–e212. https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2018/11/screening-for-perinatal-depression

The American College of Obstetricians and Gynecologists. (2019, November). *Postpartum depression*. https://www.acog.org/patient-resources/faqs/labor-delivery-and-postpartum-care/postpartum-depression

The postpartum depression (PPD) journey: Payer considerations. (2018). *P&T: A Peer-Reviewed Journal for Managed Care & Formulary Management*, *43*(11), 1-18. https://web-p-ebscohost-

com.ezproxy.lib.ndsu.nodak.edu/ehost/pdfviewer/pdfviewer?vid=11&sid=a0b1f0dd-b249-4476-b692-c31583a6ab31%40redis

United States Census Bureau. (n.d.) *Quickfacts Grand Forks city, North Dakota*. https://www.census.gov/quickfacts/grandforkscitynorthdakota

U.S. Department of Agriculture Food and Nutrition Service. (2012, December 28). *WIC and Retail Grocery Stores*. https://www.fns.usda.gov/wic/wic-retail-store-fact-sheet

U.S. Department of Agriculture Food and Nutrition Service. (2013, October 10). *About WIC-WIC at a Glance*. https://www.fns.usda.gov/wic/about-wic-glance

U.S. Department of Agriculture Food and Nutrition Service. (2020, June 19). *WIC Eligibility Requirements*. https://www.fns.usda.gov/wic/wic-eligibility-requirements

U.S. Preventative Services Task Force. (2019). Interventions to prevent perinatal depression. US Preventative Services Task Force recommendation statement. *Journal of the American Medical Association, 321*(6), 580–587. https://doi.org/10.1001/jama.2019.0007

Wachino, V. (2016, May 11). *Maternal depression screening and treatment: A critical role for Medicaid in the care of mothers and children*. Center for Medicaid and CHIP Services. https://www.medicaid.gov/federal-policy-guidance/downloads/cib051116.pdf

Wang, L., Kroenke, K., Stump, T. E., & Monahan, P. O. (2021). Screening for perinatal depression with the Patient Questionnaire depression scale (PHQ-9): A systematic review and meta-analysis. *General Hospital Psychiatry*, *68*(2021), 74–82. https://doi.org/10.1016/j.genhosppsych.2020.12.007

Wouk, K., Stuebe, A. M., & Meltzer-Brody, S. (2017). Postpartum mental health and breastfeeding practices: An analysis using the 2010-2011 Pregnancy Risk Assessment

Monitoring System. *Maternal Child Health Journal*, *21*(3), 636–647.

https://doi.org/10.1007/s10995-016-2150-6

APPENDIX A: EDINBURG POSTNATAL DEPRESSION SCALE

Edinburgh Postnatal Depression Scale[1] (EPDS)

Name: _____ Address: _____

Your Date of Birth: _____ _____

Baby's Date of Birth: _____ Phone: _____

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that 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 — This would mean: "I have felt happy most of the time" during the past week.
☐ No, not very often — Please complete the other questions in the same way.
☐ No, not at all

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, I have been coping as well as ever

*7 I have been so unhappy that I have had difficulty sleeping
   - ☐ Yes, most of the time
   - ☐ Yes, sometimes
   - ☐ Not very often
   - ☐ No, not at all

*8 I have felt sad or miserable
   - ☐ Yes, most of the time
   - ☐ Yes, 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

Administered/Reviewed by _____ Date _____

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

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

APPENDIX B: PATIENT HEALTH QUESTIONNAIRE-9

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME:_____ **DATE:**_____

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 figety 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	0	1	2	3
	add columns		+	+

(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card). TOTAL:

10. 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 _____

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PHQ-9 Patient Depression Questionnaire

For initial diagnosis:

1. Patient completes PHQ-9 Quick Depression Assessment.
2. If there are at least 4 ✓s in the shaded section (including Questions #1 and #2), consider a depressive disorder. Add score to determine severity.

Consider Major Depressive Disorder

- if there are at least 5 ✓s in the shaded section (one of which corresponds to Question #1 or #2)

Consider Other Depressive Disorder

- if there are 2-4 ✓s in the shaded section (one of which corresponds to Question #1 or #2)

Note: Since the questionnaire relies on patient self-report, all responses should be verified by the clinician, and a definitive diagnosis is made on clinical grounds taking into account how well the patient understood the questionnaire, as well as other relevant information from the patient.
Diagnoses of Major Depressive Disorder or Other Depressive Disorder also require impairment of social, occupational, or other important areas of functioning (Question #10) and ruling out normal bereavement, a history of a Manic Episode (Bipolar Disorder), and a physical disorder, medication, or other drug as the biological cause of the depressive symptoms.

To monitor severity over time for newly diagnosed patients or patients in current treatment for depression:

1. Patients may complete questionnaires at baseline and at regular intervals (eg, every 2 weeks) at home and bring them in at their next appointment for scoring or they may complete the questionnaire during each scheduled appointment.
2. Add up ✓s by column. For every ✓: Several days = 1 More than half the days = 2 Nearly every day = 3
3. Add together column scores to get a TOTAL score.
4. Refer to the accompanying **PHQ-9 Scoring Box** to interpret the TOTAL score.
5. Results may be included in patient files to assist you in setting up a treatment goal, determining degree of response, as well as guiding treatment intervention.

Scoring: add up all checked boxes on PHQ-9

For every ✓ Not at all = 0; Several days = 1;
More than half the days = 2; Nearly every day = 3

Interpretation of Total Score

Total Score	Depression Severity
1-4	Minimal depression
5-9	Mild depression
10-14	Moderate depression
15-19	Moderately severe depression
20-27	Severe depression

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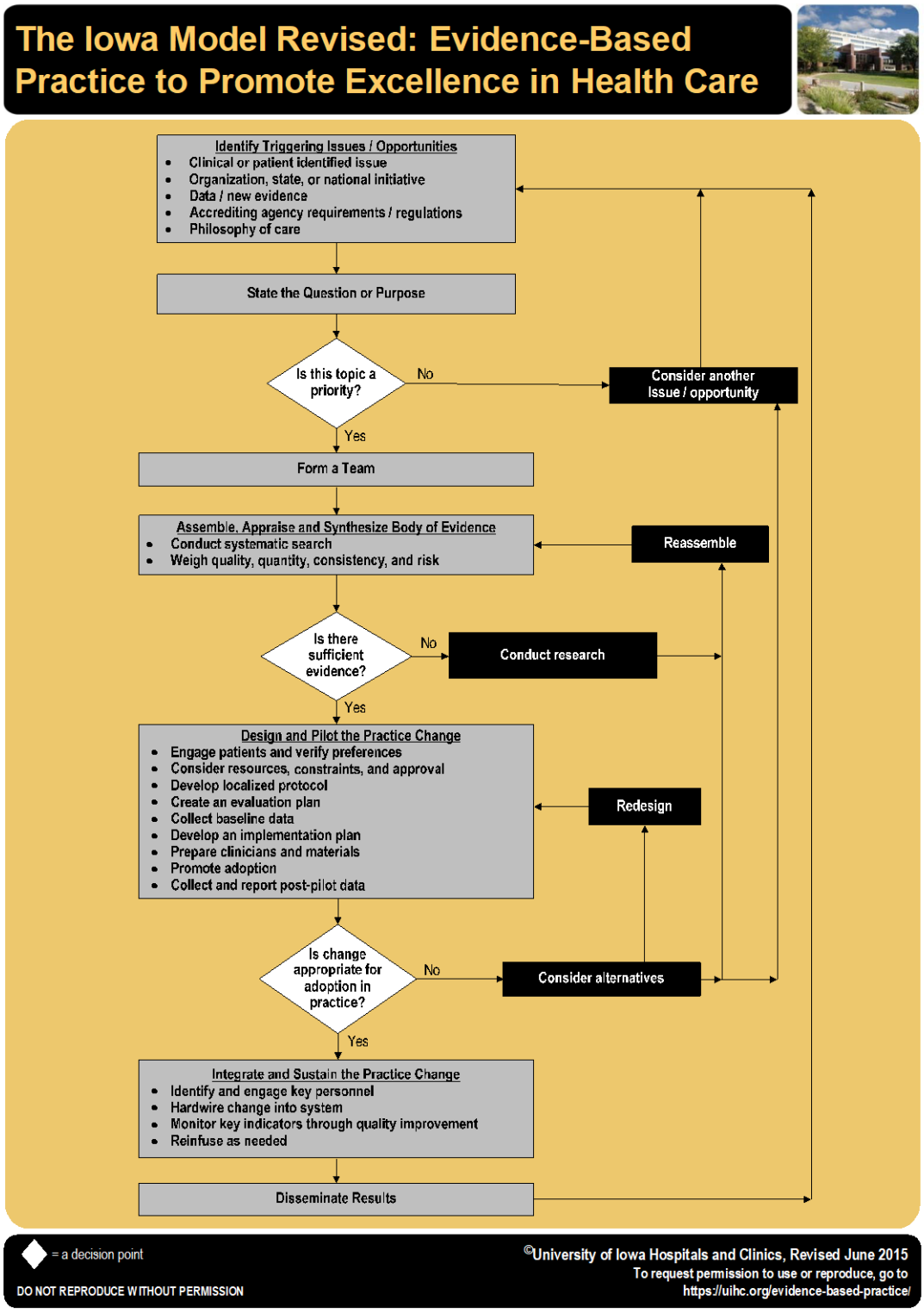
APPENDIX C: THE IOWA MODEL REVISED



APPENDIX D: PERMISSION TO USE IOWA MODEL

Permission to Use The Iowa Model evised: Evidence-Based Practice to Promote Excellence in Health Care

Kimberly Jordan - University of Iowa Hospitals and Clinics <survey-bounce@survey.uiowa.edu>
Tue 1/12/2021 2:39 PM
To: Casey, Katie [redacted]

You have permission, as requested today, to review and/or reproduce *The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care*. Click the link below to open.

The Iowa Model evised (2015)

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Citation: Iowa Model Collaborative. (2017). Iowa model of evidence-based practice: evisions and validation. *Worldviews on Evidence-Based Nursing, 14(3), 175-182. doi:10.1111/wvn.12223*

> In written material, please add the following statement:
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Please contact UIHCNursing esearchandEBP@uiowa.edu or 319-384-9098 with questions.

APPENDIX E: WIC INSTRUCTIONS

Dear WIC staff,

Thank you for agreeing to assist me with my graduate dissertation project. I have created a tip sheet that details that distribution process. I have also created a table to document how many eligible people were offered the packet and how many people accepted the packet. If you have any further questions, please do not hesitate to reach out to me by phone ([redacted]) or email ([redacted]).

Katie Casey RN, DNP Student

Process for Packet Distribution

1. If a person who meets eligibility criteria presents to the office, please mark one tally in the "eligible person" column. Please also date the encounter.

Eligibility Criteria
• Pregnant or postpartum persons presenting for initial WIC appointment • Pregnant persons presenting in their third trimester of pregnancy and up to six months postpartum • Pregnant or postpartum persons over the age of 18 • Persons whose primary language is English

2. When the eligible person checks in, ask the person if they would like to participate in a study being conducted by a graduate student about postpartum depression. The study involves receiving an education packet about postpartum depression and a voluntary evaluation survey that can be mailed in (pre-stamped envelope included).
3. If the person rejects the packet, mark a tally in the "Did not accept packet" column. If the person accepts the education packet, mark a tally in the "Accepts Packet" column. Please place mark if they are prenatal (still pregnant) or postpartum (has delivered their baby). Provide the person with a red colored folder. The folder will include an informed consent form (they does not need to sign or return), the postpartum depression packet, a voluntary post-evaluation survey, and a pre-stamped envelope for them to mail in their survey.

Eligible person presenting for initial WIC appointment	**Eligible person who did not accept a packet**	**Eligible person who accepted packet**	
		Prenatal Appointment	**Postpartum Appointment**
Example: **Date:** 1/05/22 **# of person:** I I I (3 people who presented to office that met eligibility criteria)	I	I	I
Date: **# of eligible people:**			
Date: **# of eligible people:**			
Date: **# of eligible people:**			
Date: **# of eligible people:**			
Date: **# of eligible people:**			
Date: **# of eligible people:**			
Date: **# of eligible people:**			
Date: **# of eligible people:**			
Date: **# of eligible people:**			
Date: **# of eligible people:**			

APPENDIX F: INFORMED CONSENT

North Dakota State University
School of Nursing
1919 N University Dr
NDSU Dept. 2670 PO Box 6050
Fargo, ND 58108-6050
(701)-231-9395

Providing Postpartum Depression Resources at a Local WIC Agency

Dear participant,

My name is Katie Casey. I am a graduate student in the School of Nursing at North Dakota State University and I am conducting a survey to seek feedback on an education packet that I am creating for pregnant and postpartum women who are attending their first WIC appointment. The education packet will contain information on postpartum depression as well as local resources that may help treat postpartum depression. The objective of this research is to create a validated and high-quality education packet and distribute the packet in practice. This survey is being given to you upon acceptance of the education packet.

Participation in the survey is voluntary. You will not incur cost or be provided reimbursement for completing the survey. If you feel uncomfortable in any way while filling out the survey, you have the right to decline to answer any question(s), or to stop taking the survey at any time without consequence. This survey is anonymous. If you choose to participate, do not write your name on the survey. The responses you give in the survey will not influence your current or future employment. The responses will aid in assessing the efficacy of the postpartum depression information that was provided in education packet.

The survey should take about five minutes or less to complete. The survey information will be kept confidential and survey participants will not be identifiable in the survey results. Individual survey information will be combined with the information gathered from other people taking part in the survey and reported in aggregate form only. The survey results will be part of the researchers Doctor of Nursing Practice dissertation at NDSU and may be published in a professional journal. Survey results will be reported in aggregate, and individual responses will not be identifiable.

It is not possible to identify all potential risk in research procedures, but the researcher has taken reasonable safeguards to minimize any known risks.

If you have any questions or concerns about completing the survey or about being in this study, you may contact me at [redacted] or at [redacted] or contact my advisor Dr. Tina Lundeen at [redacted] or [redacted]. You have rights as a research participant. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program at 701-231-8995, toll-free at 1-855-800-6717, by email at ndsu.irb@ndsu.edu, or by email at NDSU HRPP Office, NDSU Dept. 4000, and P.O. Box 6050, Fargo, ND 58108-6050.

Thank you for taking part in the survey,

Sincerely,

Katie Casey, BSN, RN, DNP-Student

APPENDIX G: POSTPARTUM DEPRESSION EDUCATION PACKET

Understanding Postpartum Depression

What is Postpartum Depression?

Postpartum depression is a change in your mood after having a baby. Postpartum Depression will look differently for each person that has it.

- **12.5% of postpartum people will experience Postpartum Depression.**
- **25% of low-income postpartum people will experience Postpartum Depression.**
- **There are many factors that may contribute to postpartum depression and may vary person to person.**

Risk Factors

Having a personal or family history of mental illness	Other stressful life events	Limited family or partner support	Unplanned pregnancy
Having financial problems	Having a baby with health needs	Difficulty with breastfeeding	Having multiples

What Does Postpartum Depression Look Like?

Symptoms are different for everyone. Contact your health care provider if these feelings do not go away after two weeks, get worse, or make it hard to care for yourself or your baby.

If you have thoughts of harming yourself or your baby, ask for help immediately from loved ones, your provider, or call 911*

- Feeling numb or disconnected from baby
- Feeling sad or excessively crying
- Worrying or feeling anxious
- Feelings of guilt or anger
- Doubting the ability to care for your baby
- Increased fatigue or decreased energy
- Eating too much or too little
- Withdrawal from loved ones
- Little interest in activities you used to enjoy

Diagnosis

Your provider may diagnose Postpartum Depression by using a tool like the ones below.

Edinburgh Postnatal Depression Scale[1] (EPDS)

Name: _____ Address: _____

Your Date of Birth: _____ _____

Baby's Date of Birth: _____ Phone: _____

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that 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, I have been coping as well as ever

*7 I have been so unhappy that I have had difficulty sleeping
   - ☐ Yes, most of the time
   - ☐ Yes, sometimes
   - ☐ Not very often
   - ☐ No, not at all

*8 I have felt sad or miserable
   - ☐ Yes, most of the time
   - ☐ Yes, 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

Administered/Reviewed by _____ Date _____

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

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

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME:_____ **DATE:**_____

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 figety 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	0	1	2	3
	add columns		+	+

(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card). TOTAL:

10. 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 _____

A2663B 10-04-2005

Treatment

If you do have Postpartum Depression, there are different ways a health care provider can help.

Counseling

Counseling may help you develop healthier ways to cope with your feelings, solve problems, set goals, and react to stressful situations in a positive way. Counseling also gives you a support person.

Medicine

Your provider may recommend a medicine called an antidepressant. This can be used alone or with counseling. Your provider will talk about possible side effects. Tell your provider if you are breastfeeding. There are safer options to use while breastfeeding.

What You and Your Family/Support System Can Do

What You Can Do:

-Make healthy choices.
Go on a walk, get enough rest, eat healthy, and avoid alcohol.

-Set realistic expectations.
Do what you can and leave the rest.

-Make time for yourself.
Ask for help watching baby. Take time to do something you enjoy.

-Avoid doing this alone.
Talk with your partner, friends, family, or other parents about how you are feeling.

-Ask for help.
Ask others for help with watching baby, help with chores, or for advice.

-Make an appointment with your primary care provider.
It is important to remember that it is not your fault that you are having these feelings. Getting help may be necessary prior to getting better.

What Family/Support System Can Do:

-Check in on you.
Make sure you are eating, sleeping, and taking care of yourself.

-Offer to help.
Can help with dishes, meals, or other kids. Bring over freezer meals before baby is born.

-Give words of encouragement.

-Give you an opportunity to take a break.

-If breastfeeding:
Have support person help with diaper changes or burping.

-If pumping:
Have support person feed baby and wash bottles.

-If formula feeding:
Take turns with feeding and washing bottles.

Resources in Grand Forks, ND

- **Substance Abuse and Mental Health Services Administration**
  - https://www.samhsa.gov/find-help/national-helpline
  - 1-800-662-HELP(4357)
  - Phone hotline with confidential, free, 24-hour-a-day, 365-days-a-year information service
  - Not a counseling service
- **Altru Health System**
  - 860 South Columbia Road
  - https://www.altru.org/services/behavioral-health/
  - 701-780-6697
  - Experience with Postpartum Depression.
  - Telemedicine visits and in person appointments
  - Psychiatry services
  - Accepts Medicaid and select insurances
- **Agassiz Associates**
  - 1407 24th Avenue South
  - https://www.agassizassociates.com/
  - 701-780-6336
  - Experience with Postpartum Depression
  - Telemedicine appointments and in-person appointments
  - Accepts select insurances
- **Assessment and Therapy Associates**
  - 3535 South 31st Street, Suite 201
  - https://www.grandforkstherapy.com/community
  - 701-780-6821
  - Experience with Postpartum Depression
- **Center for Self-Growth and Renewal**
  - 1551 28th Avenue South, Suite C
  - 701-746-4400
  - https://www.selfgrowthandrenewal.com/
- **Drake Counseling**
  - 311 South 4th Street, Suite 106
  - https://www.drakecounselingservices.com/
  - 701-757-3200
  - Addiction Services
- **Family Institute**
  - 2100 South Columbia Road
  - https://www.familyipc.com/

- 701-757-3200
- North Dakota residents may do telemedicine appointments
- Accepts out of pocket payment, select insurances, and Medicaid
- Psychiatrist in Fargo Location

- **Laidlaw Psychological Services**
  - 3301 South 30th Avenue
  - https://www.facebook.com/LaidlawPsychologicalCareService/?ref=page_internal
  - 701-746-9700
  - In person appointments
  - Accepts select insurance and Medicaid
- **Lipp, Carlson, Lommen, and Witucki**
  - 2808 17th Avenue South
  - https://www.lclwpsychologists.com/
  - 701-746-8376
  - Experience with Postpartum Depression
  - Telemedicine appointments
  - Accepts major insurances and Medicaid
- **Northern Prairie Community Clinic**
  - Columbia Hall, Room 1300, 501 North Columbia Road
  - https://und.edu/npcc/
  - 701-777-3746
  - Serves as a training placement for UND graduate students
  - Accepts sliding scale payment, select insurances, and select Medicaid patients
  - Telemedicine appointments and in person visits
- **Rural Psychiatry Associates**
  - 4700 South Washington Street, Suite G
  - https://ruralpsychiatryassociates.com/
  - 701-205-3000
  - Experience with Postpartum Depression
  - Psychiatry services
  - Accepts insurance, self-pay, and Medicaid
  - All visits are telemedicine visits
- **The Village Grand Cities Mall**
  - 1726 South Washington Street, Suite 33A
  - https://www.thevillagefamily.org/request-appointment
  - 701-746-4584
  - Experience with Postpartum Depression
  - Allows self-pay, major insurances and Medicaid
  - North Dakota residents may do telemedicine appointments
- **The Practice Place**
  - 2534 17th Avenue South, Suite E

- https://www.thepracticeplace.us/
- 701-885-4551
- Experience with Postpartum Depression
- Majority of appointments are completed by telemedicine
- Accepts out of pocket pay and Medicaid

- **Phone Apps**
  - **BetterHelp**
    - Cost ranges from $60-$120 per week. Billed every 4 weeks.
    - May exchange messages, chat live, call, or video conference with licensed therapist/licensed counselor
    - May not be covered by insurance
  - **Talkspace Therapy & Counseling**
    - Plans start at $65/week
    - May call, video call, or text with a licensed therapist.
    - May be covered by insurance

References

Centers for Disease Control and Prevention (2019). *Depression during and after pregnancy.* Center for Disease Control and Prevention. https://www.cdc.gov/reproductivehealth/features/maternal-depression/index.html

Centers for Disease Control and Prevention. (2020, May 14). *Depression Among Women*. Center for Disease Control and Prevention. https://www.cdc.gov/reproductivehealth/depression/index.htm#post

Cox, J.L. (1987). Detection of postnatal depression: Development of the 10-item Edinburg Postnatal Depression Scale. *British Journal of Psychiatry*. Retrieved August 28th, 2020, from https://www.fresno.ucsf.edu/pediatrics/downloads/edinburghscale.pdf

Mayo Clinic. (2018). *Postpartum depression.* Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/postpartum-depression/symptoms-causes/syc-20376617

Mayo Clinic. (2018). *Postpartum Depression.* Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/postpartum-depression/diagnosis-treatment/drc-20376623

Pfizer. (1999). *Patient Health Questionnaire (PHQ-9).* https://www.uspreventativeservicestaskforce.org/Home/GetFileByID/218

Putnick, D. L., Sundaram, R., Bell, E. M., Ghassabian, A., Goldstein, R. B., Robinson, S. L., Vafai, Y., Gilman, S. E., & Yeung, E. (2020). Trajectories of maternal postpartum depressive symptoms. *Pediatrics*, *146*(5), 1–9. https://doi.org/10.1542/peds.2020-0857

APPENDIX H: PARTICIPANT SURVEY

1. Have you reviewed the packet information?
   Check only one answer

◯ Yes ◯ No ◯ Do not plan to review

Comments_____

2. Was the information in the folder helpful?
   Check only one answer

◯ Helpful ◯ Somewhat helpful ◯ Not helpful

Comments_____

3. Are you concerned that you may have postpartum depression?
   Check only one answer

◯ Yes ◯ No ◯ Perhaps, I need more information

Comments_____

4. If yes to question 3, do you feel comfortable contacting your primary care provider to discuss how you are feeling?
   Check only one answer

◯ Comfortable ◯ Not comfortable ◯ Not applicable

Comments_____

5. Did you find the list of community resources helpful?
   Check only one answer

◯ Yes ◯ Somewhat ◯ Not applicable

Comments_____

6. If you are concerned about having postpartum depression, will you contact one or more of the resources listed?
   Check only one answer

   ◯ Yes ◯ No ◯ Not applicable

   Comments_____

7. Do you feel that you need more information on postpartum depression? If so, what?

   Comments_____

_____

_____

_____

If you like me to send you more information, please provide an email or address:

_____

APPENDIX I: IRB EXEMPTION

NDSU NORTH DAKOTA STATE UNIVERSITY

11/09/2021

Dr. Tina Marie Lundeen
Nursing

Re: IRB Determination of Exempt Human Subjects Research:
Protocol #IRB0003932, “Providing Postpartum Depression Resources at a Local WIC Agency”

NDSU Co-investigator(s) and research team:

- Tina Marie Lundeen
- Katie Marie Casey

Approval Date: 11/09/2021
Expiration Date: 11/08/2024
Study site(s): Grand Forks, ND WIC agency
Funding Agency:
The above referenced human subjects research project has been determined exempt (category 1,2) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, *Protection of Human Subjects*).

Please also note the following:

- The study must be conducted as described in the approved protocol.
- Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.
- Promptly report adverse events, unanticipated problems involving risks to subjects or others, or protocol deviations related to this project.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.

NDSU has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.

RESEARCH INTEGRITY AND COMPLIANCE
NDSU Dept 4000 | PO Box 6050 | Fargo ND 58108-6050 | ndsu.research@ndsu.edu
Shipping Address: Research 1, 1735 NDSU Research Park Drive, Fargo ND 58102

APPENDIX J: PACKET REVIEWER SURVEY

Question about postpartum depression packet	Disagree	Neither agree or disagree	Agree	Comments
The packet contains accurate information on postpartum depression				
The packet has pertinent information on postpartum women				
The packet contents are written at a literacy level appropriate for most women of childbearing age in North Dakota or Minnesota.				
The amount of information enclosed in this packet is sufficient				
The amount and type of information is excessive or overwhelming				
The resource list is comprehensive for the Grand Forks area				
I would feel comfortable sharing a similar packet, specific to my community.				

List suggestions for improvements or for additions to the packet:

List resources to add or subtract:

APPENDIX K: POSTPARTUM SUPPORT INTERNATIONAL PERMISSION

e: PSI - New Form Submission - Contact Us

Lianne Swanson <psioffice@postpartum.net>
Fri 10/22/2021 11:12 AM
To: Casey, Katie [redacted]

Hi Katie,
You may use our graphics and materials and here is a link to print them out
https://www.postpartum.net/resources/

Lianne Swanson
she/her
Postpartum Support International
Executive Administrator
503-894-9453
www.postpartum.net
psioffice@postpartum.net

Find PSI on Social Media:
Twitter | Facebook | Linked In | You Tube
www.postpartum.net

From: "no-reply@postpartum.net" <no-reply@postpartum.net>
Date: Friday, October 22, 2021 at 4:26 AM
To: <psioffice@postpartum.net>
Subject: PSI - New Form Submission - Contact Us

Name

Katie Casey

Email

[redacted]

Phone

[redacted]

Address

Grand Forks, North Dakota 58201
United States
Map It

Message

Hi. My name is Katie Casey and I am a nurse practitioner student at North Dakota State University in Fargo, ND. Prior to graduation, I must complete a dissertation project. For my dissertation project, I am interested in distributing postpartum depression resources at our local WIC agency. Through my research, I came across your information, infographics, and posters. I am emailing you today to ask permission to distribute your information, infographics, and/or posters. I appreciate the work you have done to bring awareness to postpartum depression and I look forward to hearing from you.

APPENDIX L: EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Providing Postpartum Depression Resources at a Local WIC Agency

Introduction

Postpartum depression (PPD) is a devastating mental health illness that has the potential to cause detrimental effects to both mother and child. In women with low-income, the prevalence increases to 25% and 40-60% of adolescent mothers with low-income report depressive symptoms. Furthermore, women who suffer from PPD may be at risk for additional psychiatric disorders such as anxiety and obsessive compulsive disorder (OCD). Infants of mother are also at risk for behavior problems, lower mathematics grades, and higher rates of their own depression. Unfortunately, women ages 18-25, uninsured women, and low-income are less likely to have visited a doctor than those ages 25 and up, those not low-income, and those with insurance. Therefore, additional opportunities to provide education and resources to low-income women at risk for PPD are warranted. By providing this imperative education, health care providers who are in contact with at-risk women and their children may prevent the above mentioned effects to both mother and child.

Purpose

The purpose of the practice improvement project was to increase knowledge of PPD and provide information on community resources for low-income pregnant and postpartum women presenting to the Grand Forks, ND WIC office.

Project Design

The education and resources were developed through a literature review process and with the assistance of a multidisciplinary and targeted audience approach. Reviewers included health care providers with practice backgrounds in the treatment of women, children, and mental health patients. As a portion of the target recipients, postpartum mothers also reviewed the packet. After the PPD education was created, the packet was distributed to pregnant and postpartum mothers presenting for their initial WIC appointment. Upon acceptance of the packet, participants were asked to complete a brief, voluntary survey to evaluate packet effectiveness.

Results and Conclusion

- With feedback from the medical providers and postpartum women, an evidence-based, PPD education packet inclusive of a list of mental health resources was created.
- 80% of eligible participants at the WIC agency accepted and received the PPD education packet.
- Of the eight participants, two participants completed and returned the voluntary survey. The two survey respondents reported the PPD education packet and resource list as helpful.

Recommendations

- Assess for the participant's health literacy level and preferred learning style to establish an effective delivery method and success rate of efficient PPD education.
- Create different formats of the PPD education packet and packet survey to increase participant accessibility and feedback.