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Perinatal Mood and Anxiety Disorders, Stigma, and Social Support among Postpartum Women

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UNIVERSITY OF SAN DIEGO

Hahn School of Nursing and Health Science

DOCTOR OF PHILOSOPHY IN NURSING

Perinatal Mood and Anxiety Disorders, Stigma, and Social Support among

Postpartum Women

by

Ellen K. Fleischman

A dissertation presented to the

FACULTY OF THE HAHN SCHOOL OF NURSING AND HEALTH SCIENCE

UNIVERSITY OF SAN DIEGO

In partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY IN NURSING

May 2019

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UNIVERSITY OF SAN DIEGO

Hahn School of Nursing and Health Science

DOCTOR OF PHILOSOPHY IN NURSING

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DISSERTATION: Perinatal Mood and Anxiety Disorders, Stigma, and Social
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DISSERTATION

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Abstract

Purpose/Aims: The purpose of this descriptive, correlational, cross-sectional study was to examine the relationships among perinatal mood and anxiety disorder (PMAD) symptomatology, select demographics, stigma of mental illness, and social support, among inpatient postpartum women.

Rationale: PMADs affect as many as 21% of childbearing women, yet these disorders are identified and treated less than half the time. There is a gap in the literature regarding the relationships among stigma, social support, and PMADs in postpartum women.

Conceptual Basis/Background: Despite recommendations from professional organizations, screening for PMADs is not consistently completed using a valid, reliable instrument. Stigma contributes to the low rate of identification and treatment. Extant research shows an inverse relationship between high levels of social support and PMADs, possibly mitigating the effects of stigma.

Findings: A sample of 105 participants was divided into a low risk group (Group A) and a high-risk group (Group B) based on a score of ≥ 10 on the Edinburgh Postnatal Depression Scale (EPDS) or the Generalized Anxiety Disorder 7-item (GAD-7) screening instruments. There were significant differences between groups for marital status ($p=.01$) with a higher percentage in Group A who were married and significant differences between groups for stigma ($p=.002$), with higher stigma for Group B participants. Social support measurements were also significantly different between groups ($p<.001$), with higher social support in Group A. Current hospital screening for depression and anxiety as well as thoughts of self-harm identified less patients at risk, highlighting the need to further evaluate the existing screening process.

Implications: This study contributes to the nursing profession by highlighting the prevalence of PMADs, impact on families, ongoing barriers to identification and treatment, and highlights gaps in the existing hospital screening process as compared to screening utilizing valid, reliable instruments and provides the basis for implementing standardized screening in the inpatient setting.

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Dedication

This dissertation is dedicated to several people who were especially supportive and made completing this program possible. Bret Caslavka, has helped me to stay focused on the end goal the past three years and never hesitates to perk me up by telling me how proud he is of me. My parents, Dave and Hisae Reichel, and my brother, John Reichel, have always been my biggest fans when it comes to educational pursuits. My kids Hayley, David, Katie, Lindsey and granddaughters Eleanor and Teagan have been a huge source of support and inspiration, not only with this program, but also in life.

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Chapter 1

Introduction

Perinatal mood and anxiety disorders (PMADs) constitute a global public health problem affecting 10% of pregnant women and 13% of postpartum women worldwide (Mental Health, n.d.). Although data are limited for low- and middle-income countries, rates have been reported to be 2 to 3 times higher in countries with limited resources (United National Population Fund [UNFPA], 2007). Prevalence in the United States is as high as 21% of childbearing women, yet these disorders are identified and treated less than half the time (Wisner et al., 2013, Yawn et al., 2012). With approximately 3.9 million women between the ages of 12 and 50 giving birth in the United States each year, this equates to nearly 81,900 diagnosed with a PMAD and up to 41,000 left untreated (Facts for Features, 2017). There is a significant financial impact to society when mothers suffer from PMADs. Using a pathway or decision modeling approach, Bauer, Knapp, and Parsonage (2016) estimated the lifetime costs of depression and anxiety in the perinatal period at 8,500 pounds per woman, 6.6 billion pounds annually in the United Kingdom, which is equivalent to more than 8 billion United States dollars per year.

Background

Defining PMADs

Psychiatric disorders occurring during pregnancy and up to one year postpartum included under the term PMADs are depression, anxiety, obsessive-compulsive disorder, post-traumatic stress disorder, and psychosis (Gavin et al., 2005). Postpartum “blues” or “baby blues” are experienced by as many as 70% of new mothers and may include symptoms such as crying, irritability, and anxiety. Symptoms of postpartum blues generally last only one to two weeks and resolve without treatment (American Psychiatric Association, 2013). Symptoms lasting more

than several weeks may be attributable to PMADs (Langan & Goodbred, 2016; O'Hara & Wisner, 2014; Schetter & Tanner, 2012).

Factors

The prevalence of PMADs vary in the literature with rates as high as 23%, yet only 16% of those who screen positive receive treatment (Byatt, Biebel, Friedman, Debordes-Jackson, & Ziedonis, 2013; Mayberry, Horowitz, & Declerq, 2007). There are multiple factors contributing to the low rate of identification of mothers with PMADs. One factor is inadequate screening. Several valid, reliable screening instruments are available including the Edinburgh Postnatal Depression Scale (EPDS) which is available in multiple languages (Cox, Holden & Sagovsky, 1987). Anxiety and depression may exist as comorbid conditions; however, the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) does not have a distinct diagnosis for perinatal anxiety, and symptoms of anxiety may be labeled as depression (American Psychiatric Association, 2013). The use of additional screening instruments for anxiety have been explored including the Edinburgh Postpartum Depression Scale -3A (Swalm et al., 2010) and the Generalized Anxiety Disorder (GAD-7) (Spitzer, Kroenke, Williams, & Lowe, 2006), a 7-item scale specifically designed to measure anxiety symptoms. Screening for PMADs at least once during the perinatal period using a standardized, validated instrument was recommended by the American College of Obstetricians and Gynecologists (ACOG, 2015.) This opinion was updated in November 2018 to include a recommendation that obstetric care providers not only screen, but also complete a full assessment of the patient's mood and emotional well-being at the postpartum visit (ACOG, 2018). A 2019 policy statement from the American Academy of Pediatrics (AAP) also recommends that screening be included in well-child visits (Earls,

Yogman, Mattson & Rafferty, 2019). Screening may not be consistently completed, and if it is completed using clinical judgment rather than with a standardized, validated instrument, health care providers may not recognize symptoms (ACOG, 2018; Goodman & Tyler-Viola, 2010).

Stigma is a factor contributing to the low rate of identification of mothers with PMADs. Stigma, or avoiding the label of mental illness, is one reason people choose not to pursue treatment for mental health (Corrigan, 2004; Corrigan, Watson, Warpinski, & Gracia, 2004). Dimensions of stigma have been described as internal/self, external/public, and disclosure stigma, which may affect treatment-seeking behavior in different ways (Corrigan, 2004; Moore, Ayers, & Drey, 2017). Internal stigma is when individuals attach stigma to their own identity. External stigma is the stigma held by the general public. Disclosure stigma is the stigma associated with disclosing symptoms and the expected discrimination associated with disclosure (Moore et al., 2017). One aspect of stigma unique to the perinatal period is the external stigma of being viewed as a bad mother and the internalization of that stigma (internal/self-stigma). Depression can create a sense of failure and guilt further inhibiting mothers from disclosing symptoms (Abrams & Curran, 2011).

While stigma may inhibit women from seeking treatment, social support may be a positive mitigating factor. Higher levels of perceived stress are associated with increased risk of depressive and anxiety symptoms, and higher perceived social support is associated with a decreased risk for depressive symptoms. Interventions to increase social support may help to improve maternal mental health (Schwab-Reese, Schafer & Ashida, 2017). Informal social support from family and friends is associated with increased parental self-efficacy and decreased depressive symptoms (Leahy-Warren, McCarthy, & Corcoran, 2011).

Significance

In addition to affecting large groups of women, untreated PMADs affect the entire family. Mothers may have difficulty concentrating and functioning, may feel hopeless or anxious, may have sleep disturbances, may see changes in appetite and weight, and may become suicidal (Miller, 2002; Schetter & Tanner, 2012). Mothers with PMADs face increased risks of social isolation as a result of feelings of hopelessness (Letourneau et al., 2012). Women experiencing postpartum psychosis have more severe mood disturbances, fluctuating between mania and depression, and may experience delusions and hallucinations. The onset of postpartum psychosis is often sudden, occurring in the first few weeks after delivery (Doucet, Dennis, Letourneau, & Blackmore, 2009). Postpartum psychosis is less prevalent than perinatal depression and anxiety, occurring in one to two cases for every 1,000 births (Munk-Olsen, Laursen, Pedersen, Mors, & Mortensen, 2006).

Expectant and new fathers have an increased risk of depression; approximately 10% of fathers experience depression during the postpartum period with the highest rates in the three to six-month period. There is also an association between maternal and paternal depression (Paulson & Bazemore, 2010). Infants and children of depressed parents are affected by PMADs. Pregnancy-related anxiety is associated with negative birth outcomes including preterm birth, which, in turn, increases the risk of infant mortality and can affect fetal neurodevelopment (Doktorchik et al., 2017; Kramer et al., 2009; Schetter & Tanner, 2012). Parenting practices may be adversely affected by PMADs; depressive symptoms in parents may be negatively associated with positive interactions among parents and infants (Paulson, Dauber & Lieferman, 2006). Maternal depression can negatively affect children's social and emotional development (Junge et

al., 2016). The effects of parental depression can last into young adulthood with a higher risk of depression at age 18 when parents were depressed during the postpartum period (Gutierrez-Galve et al., 2018).

Qualitative research has identified stigma as a common barrier to treatment-seeking for women with postpartum depression (Byatt et al., 2013). There is evidence in the literature supporting the inverse relationship between social support and depressive symptoms; however, there is a gap in the literature regarding the relationships between PMADs, stigma, and social support among postpartum women.

Study Purpose and Aims

The purpose of this descriptive, correlational, cross-sectional study was to examine the relationships among PMAD symptomatology, select demographics, stigma of mental illness, and levels of social support, among inpatient postpartum women.

Research Question 1: Is there a relationship between stigma and PMAD symptomatology?

Research Question 2: Are there differences in the *type* of stigma (external, internal, and disclosure) and PMAD symptomatology, social support, and demographic factors such as age, race/ethnicity, and pregnancy intent?

Research Question 3: What percentage of participants with PMAD symptomatology seek treatment after discharge?

Research Question 4: What is the level of agreement between the current admission screen and the interview screen using the EPDS and GAD-7?

The research questions were addressed through the following aims:

Aim 1. Characterize a sample of inpatient postpartum women participating in mother-infant dyad care.

Aim 2. Examine the relationships among stigma, PMAD symptomatology, social support, and select demographics within a sample of inpatient postpartum women.

Aim 3. Assess treatment-seeking in women with PMAD symptomatology after discharge from the hospital.

Conceptual Framework

Known risk factors for PMADs include a previous history of depression or anxiety and sociodemographic factors, such as low income and unemployment; nonetheless, further study is needed to identify if racial and ethnic factors play a role in the prevalence of PMAD separately from socioeconomic factors (Liu & Tronick, 2013; Mayberry et al., 2007). When a mother experiences a PMAD whether she has depression, anxiety, obsessive-compulsive disorder, post-traumatic stress disorder or a combination thereof, stigma can create a barrier to identification and treatment. Stigma can be internal/self-stigma, external/public stigma, disclosure stigma, or a combination of the categories (Corrigan, 2004). Erving Goffman's (1963) concepts of stigma, Patrick Corrigan's (2004) concepts of public stigma and self-stigma, and Moore and colleagues' (2017) concepts of internal, external, and disclosure stigma will provide underpinnings for this research. In addition, the work of Zimet, Dahlem, Simet, and Farley (1988) in developing the Multidimensional Scale of Perceived Social Support Scale (MSPSS) will provide the basis for examining the role of social support in potentially mitigating the stigma of mental illness. High levels of social support are inversely correlated with depressive symptoms and may help to mitigate the stigma of mental illness (Webster, Nicholas, Velacott, Cridland, & Fawcett, 2011).

The inverse relationship between high levels of social support on depressive symptoms has been documented in the literature; however, there is a gap in the literature regarding the relationships among PMADs, stigma, and social support. This study will help to clarify these relationships and the decision to seek treatment in a diverse sample of postpartum women (See Figure 1). Understanding the inter-relationships among these variables will facilitate understanding of how to mitigate the effects of stigma.

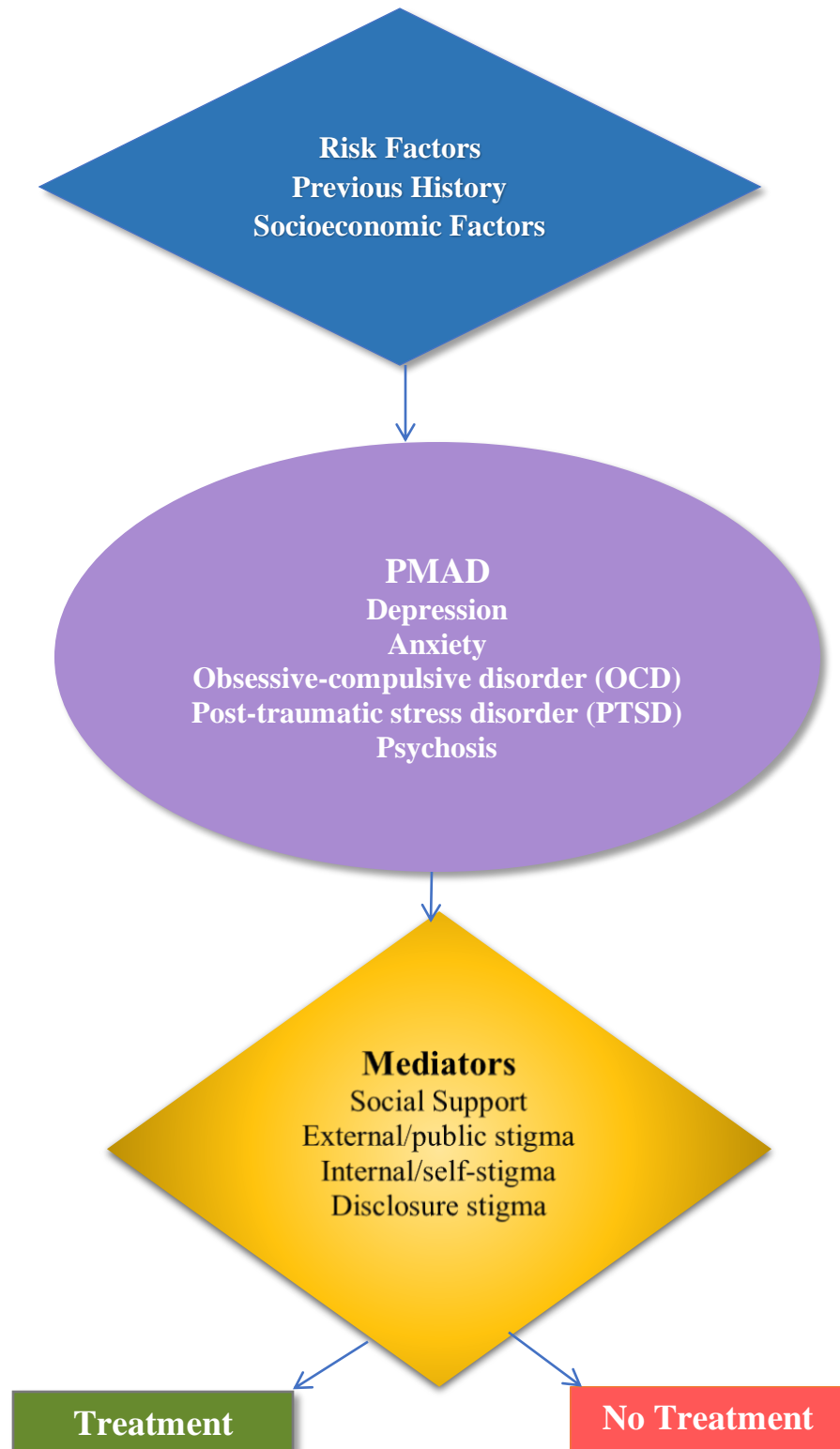


Figure 1: Research Conceptual Framework

Chapter 2

Review of Literature

Prevalence

The prevalence of PMADs vary in the literature as a result of differences in the timing of screening, instrument used, and cut point selected to classify depressive disorders. A large, national cross-sectional study was conducted to review the differences in rates and severity of depressive symptoms in four postpartum cohorts (0-6 months, 7-12 months, 13-18 months, and 19-24 months) using the EPDS. Mild depression ranged from 11%-15.1%, with no statistically significant difference across the cohorts. Moderate to severe depression ranged from 17.1-23.1% (Mayberry et al., 2007).

A 2013 period prevalence study of 10,000 postpartum women was conducted to examine the timing of onset, prevalence, intensity of self-harm ideation, and specific primary and secondary PMAD disorders. Mothers were screened during the hospital stay using the EPDS, and home visits were completed for 826 women with a score of 10 or higher on the EPDS for a diagnostic assessment. Depression was identified in 21.9% of participants in the first year postpartum; 66.1% of patients diagnosed with PMADs had a comorbid diagnosis of depression and anxiety and 5.6% had a primary diagnosis of anxiety disorder. Bipolar disorder was diagnosed in 22.6% of patients with depressive symptoms, which is significant because patients with bipolar disorder may be misdiagnosed with unipolar depression and improperly treated (Wisner et al., 2013). Strengths of this study include the large, heterogeneous sample, psychiatric diagnosis through home visits, analysis of the onset of symptoms, and the breakdown of psychiatric diagnoses. Prevalence was not obtained for women with postpartum psychosis in this study presumably because it is less common. Postpartum psychosis occurs in approximately 1-2

cases per 1,000 births and is generally seen in the first couple of weeks after delivery, coinciding with hormonal changes. Women with a history of bipolar disorder or a family history of bipolar disorder are at increased risk for developing postpartum psychosis (Sit, Rothschild, & Wisner, 2006).

Etiology and Risk Factors

The etiology of PMADs is multi-faceted and not well-understood. Genetic, biological, and environmental factors have been associated with PMADs. In a review of 17,912 phenotype records aggregated from a 19-country psychiatry consortium, latent class analyses were applied with two tiers: tier one assessed heterogeneity in subjects with data from the EPDS and tier two consisted of cases with postpartum depression. There were 6,556 cases in tier one and 4,245 in tier two. Three classes were established for both tiers with class 1 having the least severe symptoms (mean EPDS score 10.5), class 2 (mean EPDS score 14.8), and class 3 (mean EPDS score 20.1). It was determined that postpartum depression appears to have several clear phenotypes. In addition, increased rates of history of anxiety and mood disorders were found in the class 3 group, those with the most severe symptoms, supporting previous research on the strength of previous history as a risk factor for PMADs (PACT Consortium, 2015). Corwin, Kohen, Jarrett, and Stafford (2010) reviewed the genetic components of postpartum depression and concluded that although genetic polymorphisms may be linked to an increased risk of postpartum depression, the genes associated with PMADs would need to be identified, as well as the interactions between these genes, in order to identify a genetic risk profile.

Biological models focus on the rise of reproductive and stress hormones in pregnancy and the abrupt decrease at delivery, triggering depressive symptoms in women with a genetic or biological vulnerability (Yim, Tanner, Guardino, Hahn-Holbrook, & Schetter, 2015). In a study

of 16 healthy 22-45-year-old women with regular menstrual cycles who were at least one year past any recent childbirth, Bloch et al. (2000) divided the women into two groups. One group had a history of postpartum depression without a history of nonpuerperal depression. The second group had no history of current or previous mental illness. In the baseline phase, participants received injections of a gonadotropin-releasing hormone analog to create a hypogonadal condition. In the addback phase, hormones were added back and in the withdrawal phase, medications were replaced with placebo, which induced a dramatic drop in reproductive hormone levels. Subjects received psychometric assessment during the study. Analysis of variance with repeated measures indicated that there were significant differences in phases and groups. Participants with a history of postpartum depression had a significant increase in symptom severity during the withdrawal phase with a mean score 6.3 ± 3.8 on the EPDS as compared to 0.3 ± 0.5 for the low risk group ($p < .01$), indicating a differential response to the abrupt decrease in hormones in women participants with a history of postpartum depression. This study established the existence of a hormone-sensitive phenotype for postpartum depression.

Psychological models studying the etiology of PMADs focus on socioeconomic factors, stressors, and interpersonal relationships. Factors such as age, education level, employment status, income, and parity have been associated with increased risk for PMADs. A cross-sectional screening study of 1,359 postpartum women using the EPDS was conducted to examine the differences in depressive symptoms and associated factors. The highest depression rates were found in the youngest age group (18-24 years): 16.4% for mild depression and 29.9% for moderate to severe depression. Participants in the lowest income bracket had the highest depression rates compared to other income groups: 18.9% for mild depression and 31% for

moderate to severe depression. Lower education levels, higher parity, and unemployment were positively correlated with depression rates. A multivariate analysis indicated income, age, education, and parity were independently correlated with a score of 13 or higher on the EPDS, indicating moderate-to-severe depression symptoms (Mayberry et al., 2007).

A key risk factor for perinatal depression and anxiety is a previous history of depression or anxiety. In a prospective cohort study of pregnancy outcomes and maternal and child health, 1,662 women completed a questionnaire eliciting history of depression and EPDS scores during pregnancy and 6 months postpartum. The greatest risk factor for antepartum depression was a history of depression ($OR=4.07$, 95% CI: 3.76, 4.40). The greatest risk factor for postpartum depression was depressive symptoms during pregnancy ($OR= 6.78$, 95% CI: 4.07, 11.31) or a history of depression prior to pregnancy (Rich-Edwards et al., 2006). Similar findings were found in a meta-analysis of 57 studies in which the greatest risk factor identified was a history of depression (Langan & Goodbred, 2016).

Unintentional pregnancy has been identified as a risk factor for PMADs. In a prospective cohort study, 2,128 women were screened for depressive symptoms using the EPDS during pregnancy, and 1,278 of the participants completed the EPDS at 6 months postpartum. Demographic information was collected via interview and survey. A cutoff score of 12 was used to identify probable depression. A total of 9% of antepartum patients scored >12 on the EPDS ($n=155$), and 8% ($n=101$) scored >12 in the postpartum period. This study modeled sociodemographic predictors of depressive symptoms in the antepartum and postpartum periods. Findings included a more than two-fold increase in association between unintended pregnancy and risk for depressive symptoms during pregnancy ($OR=2.31$ 95% CI: 1.29, 4.16). When the researchers reran the model at 6 months postpartum with women who did not have a history of

depression, a weaker association was identified ($OR=1.89$, 95% CI: .85, 4.20) indicating the influence of a history of depression. Because there was an increased risk for depression in participants with unintended pregnancy and no history, unintended pregnancy may be an independent risk factor (Rich-Edwards et al., 2006). In a review of data from the National Survey of Family Growth (NSFG), Finer and Zolna (2016) analyzed rates of unintended pregnancy from 2008 to 2011. Of the 6.1 million pregnancies in the United States in 2011, 45% (2.8 million) were unintended. An inverse relationship was identified among income and educational level and unintended pregnancy. This study did not examine relationships between unintended pregnancy and PMAD.

A cross-sectional study of 8,916 mothers was conducted to review the public health impact of depression, prevalence, sociodemographic, and other factors. Utilizing data from the National Epidemiological Survey of Alcohol and Related Conditions, findings indicated depression was highly associated with socioeconomic factors, and depressed mothers faced more challenges, for instance, unemployment, poverty, single parenting, and financial difficulties. Young mothers, those with low education or income levels, unemployed, or divorced or separated, had higher rates of depression. Models predicting depression indicated higher rates of depression related to age 18-24 ($OR=1.38$, 95% CI: 1.02, 1.85), education less than high school ($OR=1.65$, 95% CI: 1.16, 2.36), lowest quartile income <\$20,000 ($OR=1.53$, 95% CI: 1.09, 2.15), unemployed ($OR=3.27$, 95% CI: 2.50, 4.28), and divorced or separated ($OR=1.87$, 95% CI: 1.47, 2.39) (Ertel, Rich-Edwards, & Koenen, 2011).

Mothers of preterm and critically ill infants are at increased risk for depression and anxiety. In a study that was a subset of a prospective, longitudinal study of 69 mothers and their very low birth weight (VLBW) infants in an urban academic center in the United States,

psychological distress and psychological history were recorded along with demographic information and infant outcome variables. Questionnaires were administered at two time intervals: T1—two to four weeks after delivery and T2—a mean interval of 14.8 days prior to discharge. From T1 to T2, 65.5% of participants met criteria for at least one domain of distress such as depressive symptoms, anxiety, or post-traumatic stress. Multiple regression analysis indicated that being single and/or being in a relationship but not living together were associated with higher depressive symptomatology at T1 (Greene et al., 2015).

The increased depression and anxiety risk was demonstrated in a cohort study in Hamburg, Germany of 230 families, 111 with very low birthweight infants (VLBW) and 119 with term infants. The families were prospectively followed and were administered the EPDS, Beck Depression Inventory (BDI) and structured clinical interview. With a reference of EPDS ≥ 13 , parents with VLBW infants had a 5.1 times higher risk for postpartum depression than term infants ($OR=5.1$, 95% CI: 2.24, 11.80) (Helle et al., 2015). Similarly, a cohort of 73 mothers of preterm infants was administered the EPDS and the State-Trait Anxiety Inventory (STAI); 20% of mothers had depressive symptoms and 43% had moderate to severe anxiety (Rogers, Kidokoro, Wallendorf, & Inder, 2013).

Racial and Ethnic Factors

Risk factors for PMADs have been well-studied, however the variation in prevalence by race and ethnicity is unclear. Liu and Tronick (2013) reviewed birth certificate data and data from the New York City (NYC) Pregnancy Risk Assessment Monitoring System (PRAMS), a population-based survey of postpartum women. The goal of PRAMS was to monitor behavior and experiences of mothers in the antepartum, intrapartum, and postpartum periods. A random sampling of 180 mothers who had given birth in the previous two to four months answered

several questions related to depression and questions about income, stressful events during pregnancy, whether the pregnancy was planned, and level of social support. The outcome variable for the study was a diagnosis of depression. Information about race, ethnicity, and country of origin was obtained from birth certificate data. This study found Asian/Pacific Islander women had the highest postpartum depression rates followed by Hispanics and African Americans; however, after adjusting for sociodemographic factors, these differences were either less pronounced or eliminated. A finding in this study was that African Americans and Hispanics with lower socioeconomic status were less likely to be diagnosed than White and Asian participants, indicating that further study is needed regarding the process of diagnosing women in lower socioeconomic groups.

In a review of an ongoing longitudinal study of a diverse group of women receiving prenatal care at a university-based hospital clinic in Washington state, 1,997 women completed at least one questionnaire at a clinic visit related to depression and anxiety using the Patient Health Questionnaire short form (PHQ-15) (Kroenke, Spitzer & Williams, 2002). The PHQ-15 measures 15 physical symptoms related to mental disorders, health behaviors, sociodemographic factors, and psychosocial factors. The objective was to examine racial and ethnic differences in the prevalence of prenatal depression in a community-based sample of pregnant women. In this sample, 5.1% reported depression with the highest rates in Blacks and Asian/Pacific Islanders as compared to non-Hispanic White women. Study findings included African American women (AOR=2.93, 95% CI: 1.38, 6.18) and Asian/Pacific Islander women (AOR=2.14, 95% CI: 1.02, 4.52) had higher odds of antepartum depression after controlling for sociodemographic, psychiatric, behavioral, and other factors (Gavin et al., 2011). Further study on racial and ethnic

differences related to PMAD is needed to clarify factors associated with differences in depression prevalence.

Adverse Outcomes

PMADs affect mothers, fathers, infants, children, and ultimately, society. Mothers with PMADs may have depressed mood, anhedonia, appetite and weight changes, sleep disturbances, agitation, fatigue, difficulty concentrating, and suicidal ideation (American Psychiatric Association [APA], 2013). Women experiencing postpartum psychosis, a less common and more severe mental illness, occurring in 1-2 cases for every 1,000 deliveries, have more severe mood disturbances, fluctuating between mania and depression, and experience delusions and hallucinations (Doucet et al., 2009). Suicide is one of the leading causes of death in the perinatal period (Palladino, Singh, Campbell, Flynn, & Gold, 2011).

Fathers are at increased risk for depression in the perinatal period, which may be explained in part by maternal depression. In a meta-analysis of 43 studies that documented depression in fathers between the first trimester of their partner's pregnancy and the first year postpartum, 10% of fathers experienced prenatal and postpartum depression with the highest rates at the three to six-month postpartum period. Paternal depression was positively correlated with maternal depression (Paulson & Bazemore, 2010). Another aspect of paternal depression may be related to stress. Parents of babies admitted to neonatal intensive care (NICU) faced increased stress. In an observational, longitudinal design study, fathers of infants admitted to the NICU with an expected length of at least three weeks completed questionnaires at four time points: on admission through 2 weeks (T1), 3 weeks from admission (T2), at discharge (T3), and 2 months after discharge (T4). The Parental Stress Scale (PSS) (Berry & Jones, 1995) was used to measure stress and the EPDS was used to measure depression symptoms. At the T1 time

period, 11.8% of fathers had high stress levels as defined by $PSS \geq 43$, which decreased to 7.6% at discharge (T3) and increased to 12.6% at T4. A decrease in major symptoms of depression as defined by $EPDS \geq 13$ was noted from 16.3% at T1, which decreased to 2% at T4. Although symptoms of depression decreased, depressive symptoms and high levels of stress persisted in some fathers across all measured time points. This study utilized a convenience sample and did not collect information about pre-existing stress or history of depression. (Cyr-Alves, Macken, & Hyrkas, 2018).

There are many ways in which PMADs affect infants and children including negative birth outcomes and parenting practices affecting their social and emotional development. Anxiety during pregnancy has been associated with preterm birth, the leading cause of infant mortality globally (World Health Organization, 2017). A multicenter prospective cohort study of 5,337 women who gave birth in Montreal, Canada over a period of five years was conducted to study stressors and measures of psychological distress. Pregnancy-related anxiety was independently associated with increased spontaneous preterm birth after controlling for medical and obstetric risk (Kramer et al., 2009). The All our Babies (AOB) cohort study in Calgary, Alberta, Canada included 3,388 pregnant women who completed questionnaires at 17-24 weeks and 34-36 weeks of pregnancy. Anxiety was measured using the Spielberger State Anxiety Scale (Spielberger, 2010) and depression was measured using the EPDS. Chronic stress was measured once at 17-24 weeks of pregnancy using the Perceived Stress Scale (PSS) (Cohen, Kamarck, & Mermelstein, 1983). Findings included that women with an increase in anxiety during pregnancy had higher odds of preterm birth as compared to the women who had decreased anxiety during pregnancy ($OR=2.7$, 95% CI 1.28, 5.69; $p=.009$). Women with consistently low or high anxiety did not have significantly greater odds of preterm birth. A

significant relationship was not found between increased depression scores during pregnancy and preterm birth (Doktorchik et al., 2017).

Anxiety in pregnancy has also been linked to adverse infant development and malnutrition. A prospective cohort study of 160 infants of depressed mothers and 160 infants of mothers who were not depressed was conducted to examine the impact of maternal depression on infant malnutrition and illness. Infants were weighed and measured at three different intervals in the first year and mothers' mental status was reassessed at the same intervals. The study found a significant relative risk of the infants being underweight (RR=4.0; 95% CI: 2.1-7.7) at 6 months of age and (RR= 2.6; 95% CI: 1.7-4.1) at 12 months of age when the mother was depressed. The association between maternal depression and relative risk of underweight for infants was significant after adjusting for confounders such as birth weight and socioeconomic status (Rahman, Iqbal, Bunn, Lovel, & Harrington, 2004).

The negative birth outcomes associated with PMADs may be mitigated through preventative programs. In a randomized control trial studying the preventive effects of a parenthood program, a sample of 399 couples was enrolled in a study if they were expecting their first baby, were cohabitating or married, and were at least 18 years old. The couples were randomly assigned to an intervention or control group. The intervention group attended nine classes on a number of skills including communication and conflict resolution. Stress and mental health status were measured via the Center for Epidemiological Scale (CES-D) (Radloff, 1977), and the State-Trait Anxiety Inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). After delivery, data were collected on birth weight and birth date. One of the study findings was the intervention appeared to buffer against the negative effects of financial stress, anxiety, and depression on birth weight (Feinberg et al., 2016).

Parenting practices can be adversely affected by PMADs. In a review of data from the Early Childhood Longitudinal Study of 5,089 two-parent families, depressive symptoms were assessed using a short form of the Center for Epidemiological Studies Depression Scale (CESD) (Radloff, 1977). Interviews provided information on interactions among parents and infants. Depression was identified in 14% of mothers and 10% of fathers and depressive symptoms were negatively associated with positive interactions among parents and infants. When parents were depressed, they spent less time reading or telling stories to their infants (Paulson et al., 2006).

Maternal depression can affect children's social and emotional development. In a longitudinal cohort study of 3,752 women in Oslo, Norway, study participants were given the EPDS during pregnancy, at 8 weeks postpartum, and 2 years after delivery. Emotional development in the children was assessed using the Ages and Stages Questionnaire: Social-Emotional (ASQ:SE) (Squires, Bricker, & Twombly, 2002) as well as parent questionnaires about the children's behavior. Depressive symptoms during pregnancy or during the postpartum period were independently associated with social and emotional problems in children as compared to the children of mothers who were not depressed. The Adjusted Odds Ratio for children's social and emotional problems 2 years after birth (adjusted for social support, current, and perinatal depression), was 3.4; 95% CI 1.4-8.0, $p=.01$ during pregnancy, 3.8; 95% CI 1.7-8.6, $p=.01$ at 8 weeks postpartum, and 3.7; 95% CI 1.3-10.1, $p=.01$ at both occasions (Junge et al., 2016).

Parental depression can have lasting effects on children. A prospective longitudinal cohort study of 3,176 father and child pairs in the United Kingdom found that children of fathers who were depressed during the postpartum period had an increased risk of depression at age 18 with a higher risk in female children after adjusting for paternal education and age .053; 95%

CI .02-.09, $p=.004$. The authors state this was explained by the indirect associations of maternal depression at 8 months postpartum (Gutierrez-Galve et al., 2018).

Factors Affecting Identification and Treatment

Screening

One of the factors contributing to the low rate of identification of women with PMADs is a lack of consistent screening. Screening for depression at least once during the perinatal period for depression and anxiety symptoms utilizing a standardized validated instrument is recommended by the American College of Obstetricians and Gynecologists (ACOG). The Committee Opinion Number 630 previously published in 2015 was updated in November 2018 as Committee Opinion Number 757 to add that a full assessment of a patient's mood and emotional well-being be conducted for each patient (ACOG, 2018).

The American Academy of Pediatrics (AAP) published a report in 2010 recommending screening for perinatal depression in pediatric primary care at one, two, four, and six month well-baby visits (Earls, 2010). Pediatricians are in a unique position to help identify PMADs since mothers typically have regular contact with pediatric care providers in the first year of a baby's life. A 2013 survey of AAP members indicated that less than half of pediatricians were screening mothers. A 2019 AAP policy statement reinforced the recommendation that screening be included in well-child visits and recommended that pediatricians be provided with training and continuing medical education programs regarding perinatal screening and referral (Earls et al., 2019).

A literature review of articles published between 2003 and 2013 regarding physician attitudes towards perinatal depression screening included 11 research studies in the United States. The screening practices of pediatricians, obstetrician/gynecologists, and family

practitioners were reviewed. Screening was perceived to be the role of 75%-90% of physicians; however, 55% reported that they never, sometimes, often, or always completed screening. Clinical judgment was the most common screening method; a screening tool was used by 7% of pediatricians and 36% of obstetricians. (Evans, Phillippi, & Gee, 2015).

The feasibility of screening was demonstrated in a prospective cohort study in a Midwestern urban pediatric outpatient clinic. New mothers were routinely screened for PMADs at their 2-month and 4-month well-child visit using the EPDS, and a 6-month screening was added. In addition to the EPDS, a survey was administered regarding the feasibility of adding a 6-month screening. At the 6-month point, 43 participants were screened; six had scores ≥ 10 indicating that they were at risk and of these six, two had not previously been identified. The survey indicated more than half of the respondents agreed the additional screening would not be a waste of time (Emerson, Matthews, & Struwe, 2018). This study not only included a small sample, it also reviewed the feasibility of *adding* additional screening to a practice that already had screening in place at well-child visits and may not be representative for pediatric practices which have not yet implemented screening.

While screening in pediatric practices may be feasible, it may not occur consistently. In a descriptive, cross-sectional design study, more than 80% of the 98 pediatric physicians and advanced practice nurses surveyed agreed they were responsible for recognizing maternal depression, yet only 7% used a screening questionnaire. Barriers to screening included inadequate time, medical problems of the child being more pressing, mothers reluctant to accept diagnosis, and incomplete knowledge of providers to diagnose or counsel (Connelly, Baker, Hazen, & Muggenborg, 2007).

The gap in screening for PMADs was demonstrated in a study conducted in a large, urban teaching hospital in Boston, Massachusetts. A convenience sample of 491 women was screened using the EPDS and the anxiety components of the Patient Health Questionnaire (PHQ) (Spitzer, Kroenke & Williams, 1999) during the third trimester of pregnancy and again at 6 weeks after delivery. The questionnaire mailed to participants at 6 weeks postpartum included additional questions about stress and use of psychotropic medications. These data were correlated with information from medical records regarding psychiatric symptoms, diagnoses, treatments, and referrals to psychiatric services. Of the participants, 113 women (23%) screened positive for anxiety or depressive symptoms prenatally but only 46 (41%) of these participants' medical records included documentation of symptoms or diagnoses. Of these 46 women, only 17 (37%) had documentation of mental health treatment. In the postpartum portion of the study, 299 women (61%) completed the questionnaire and 51 (17%) screened positive for anxiety or depressive symptoms. Of these 51 women, 15 (29.4%) had documentation of symptoms or diagnoses in the medical record, and 13 (87%) had documentation of mental health treatment. By comparing anxiety and depression symptoms in the antepartum and postpartum periods with medical record documentation, this study identified a gap between self-reported symptoms and identification of PMADs (Goodman & Tyler-Viola, 2010).

Patients may not be averse to being screened. In a mail survey of 168 women in the first year postpartum, Walker, Murphey, and Xie (2016) reviewed discussions between patients and providers on topics such as behavioral and psychological health and acceptability of mental health screening. Just over 48% of participants indicated that behavior or psychosocial health topics were not discussed in any health care visits during the year after giving birth. More than 94% indicated they would welcome or not mind completing a questionnaire about depression on

a computer or tablet at a women's health visit. The majority of participants (92%) indicated they were comfortable answering similar questions during a pediatric health visit.

If screening is completed only once during the perinatal period or at a time when symptoms are not present, patients at risk may be missed. The objective of a retrospective cohort study in Camden, New Jersey was to determine if screening once using the EPDS is enough and whether screening once within 96 hours after delivery is predictive of a later EPDS score done at the outpatient postpartum visit. The majority of studies utilizing the EPDS have been conducted in the outpatient setting. This study screened patients in the hospital using the EPDS and again at 2 and 8 weeks postpartum as per usual practice. Further evaluation was conducted for EPDS scores ≥ 10 or for suicidal ideation. Inpatient EPDS scores were compared with outpatient EPDS scores for 256 participants and three groups were identified based on EPDS scores. The low risk group had EPDS scores < 10 , borderline risk was 10-13, and high risk was ≥ 14 . The final sample size was 205 after cases were excluded such as when two EPDS scores were not available or if they were completed outside the study interval. Delivery and outpatient records were reviewed. The majority of participants (92%) fell in the low risk group, 5.4% were in the borderline group, and 2.4% were in the high-risk group. In comparing EPDS scores between the three time periods (inpatient, first outpatient, second outpatient), low risk participants had a 92.7% probability of continuing to be low risk. Participants with worsening EPDS scores had a significant difference in previous history of mental illness ($p=.003$) and fetal anomaly ($p=.05$) as compared to those whose EPDS scores were unchanged or improved (Knights, Salvatore, Simpkins, Hunter & Khandelwal, 2016). This study supports the need to screen women more than once during the perinatal period, and screening during the hospital stay by nurses may be an effective way to identify patients at risk so they can be referred to resources.

Stigma

A significant factor contributing to the low rate of identification of women with PMADs is stigma. The Surgeon General's 1999 report found in addition to stigma impacting a person's acknowledgement of a mental illness, stigma also affects seeking treatment and staying in treatment (Office of the Surgeon General, 1999). Avoiding the label of mental illness is one reason why people choose not to pursue treatment for mental health (Corrigan, 2004). Erving Goffman (1963) in his seminal work described stigma as a discrediting attribute that makes a person different from others, reducing the person in our minds to someone who is tainted and discounted. Goffman's conceptualization of stigma is that it effectively inhibits an individual from being fully accepted by society.

Building on Goffman's work, Corrigan (2004) described stigma as an experience of two interdependent concepts: public stigma and self-stigma. Public stigma is the stigma directed by the general population and self-stigma is the internalization of these thoughts, beliefs, behaviors, attitudes, and stereotypes associated with a particular group. Moore et al. (2017) measured three aspects of stigma in the development of the City Mental Illness Stigma Scale (City MISS) (Moore et al., 2017): internal stigma, perceived external stigma, and disclosure stigma. A convenience sample of 279 women, recruited via PMAD-related websites and social media, completed the City MISS and Internalized Stigma of Mental Illness Scale (ISMI) (Boyd, Otilingam, & Grajales, 2003). The internal stigma subscale was developed to describe the association between internal stigma and a mother's feelings of inadequacy. The external stigma subscale measures the stigma a mother perceives others think about mothers with mental health issues. The disclosure stigma subscale measures the expected discrimination if symptoms were disclosed. Internal reliability for the City MISS total scale and subscales were as follows:

Cronbach's alphas of .84, .81, .86, and .85 respectively. The City MISS is the first instrument designed to measure the stigma experienced by women with PMADs.

Disclosure is an aspect of stigma that may inhibit women from being identified and treated. Dennis and Chung-Lee (2006) found in a qualitative, systematic review, a common barrier to help-seeking was an inability to disclose symptoms further hindered by social pressures and the label of mental illness. Disclosure stigma may be related to treatment-avoidance and in some cases pertains to a fear of having to discontinue breastfeeding. Mothers may avoid treatment as a result of potential contraindication between breastfeeding and psychotropic medications. A convenience sample of 509 pregnant women, in the last trimester of pregnancy, completed a questionnaire regarding treatment modalities for depression, attitudes toward depression treatment, and perceived barriers. Ninety-two percent responded they would participate in therapy if they needed help. Only 35% stated they would take medication. Most women reported they would not take psychotropic medication while pregnant (66%) or lactating (64%). This study supports the concern mothers with PMADs face when wanting to continue to breastfeed their infants (Goodman, 2009).

Continuing breastfeeding may be protective for depression and anxiety symptoms. In a prospective cohort study conducted in Norway, researchers studied the relationship among breastfeeding cessation, depression, and anxiety symptoms. The cohort of 42,225 participants from the Norwegian Mother and Child Cohort Study was assessed at 17 weeks' gestation, 30 weeks' gestation, and 6 months postpartum. This study supported earlier findings that breastfeeding is associated with reduced depression and anxiety symptoms. Women with prenatal anxiety and depression were more likely to have increased anxiety and depression after breastfeeding cessation (Ystrom, 2012).

Literature exists regarding the prevalence of PMADs and the impact on the family; nonetheless, few quantitative studies were found reporting the relationship between PMADs and stigma. In a descriptive study of 509 women in the last trimester of pregnancy, participants completed the EPDS, a questionnaire on treatment preferences for depression or anxiety, and a survey on barriers to obtaining professional help. The top perceived barrier to obtaining help for depression or anxiety was time (64.7%), followed by stigma (42.5%) (Goodman, 2009). The focus of this study was on treatment preferences and did not explore the relationships between stigma and PMADs in depth.

Qualitative studies have identified several themes related to PMAD and stigma. Stigma was a theme in the grounded theory focus group study conducted by Byatt et al. (2013) examining barriers to identifying postpartum depression in pediatric settings. The theme was *ambivalence about screening due to concerns about stigma and losing parental rights*. Abrams and Curran (2011) interviewed low income mothers with infants 12 months or younger in the Women, Infant, and Children (WIC) federal nutrition program in two cities. One of the central constructs identified was depression creates a sense of failure and mothers attached a “bad mother” stigma to themselves. Not only is there the external stigma of being viewed as a bad mother, there is also the internalization of that stigma and a sense of failure and guilt. Women in this population face the double stigma of depression and poverty.

Social Support

While stigma may inhibit women from seeking treatment, social support may be a positive mitigating factor. In a prospective cohort study, 222 postpartum women completed the EPDS, the Maternity Social Support Scale (MSSS) (Webster et al., 2000), and the World Health Organization Quality of Life assessment (World Health Organization, 1995) questionnaire 6

weeks after delivery. A cutoff ≥ 10 for the EPDS indicates probable depressive symptoms and in this study, 47 (21.8%) scored ≥ 10 on the EPDS. Women with a score ≥ 10 were contacted by telephone for further follow up. The highest possible score for the MSSS is 30 with higher scores indicative of higher levels of social support. Women with scores 0-24 on the MSSS had a mean score of 9.41 on the EPDS; in contrast, women with MSSS scores > 24 had a mean score of 6.74 on the EPDS indicating a statistically significant ($p=.0007$) inverse relationship between social support and depressive symptoms (Webster et al., 2011).

A descriptive, correlational study was conducted to examine the relationships among social support, maternal parental self-efficacy, and depression in first-time mothers in a maternity unit in the Republic of Ireland. Four hundred and ten mothers completed questionnaires at 6 weeks postpartum including the EPDS and the Perceived Maternal Parental Self-Efficacy Scale (Barnes & Adamson-Macedo, 2007), an instrument measuring functional social support and structural social support. Family and friends were identified as the main source of social support (mean 4.94, *SD* 1.8). The study identified a statistically significant correlation between social support and maternal prenatal self-efficacy ($r=0.21$, $p<.001$) and statistically significant negative correlations between social support and EPDS scores ($p<.001$). This study supports the association among informal social support (family and friends) and parental self-efficacy as well as the inverse relationship between social support and postpartum depression (Leahy-Warren et al., 2011).

Summary

The etiology of PMADs is multifactorial and any approach to studying PMAD must incorporate quantification of several risk factors to include history of depression, young age, low education level and income, high parity, and low social support (Langan & Goodbred,

2016). There are adverse outcomes affecting the entire family as a result of PMADs including sleep disturbances and suicidal ideation in mothers, pre-term birth and adverse development in infants, and depression in partners (Miller, 2002; Wisner, Parry, & Piontek, 2002). Screening and stigma are factors affecting the identification and treatment of women with PMAD; in contrast, social support can be a positive mitigating factor (Byatt et al., 2013; Goodman & Tyler-Viola, 2010; Webster et al., 2011). There is a gap in the literature regarding relationships among PMADs, stigma, and social support in postpartum women.

Chapter 3

Methodology

The purpose of this study was to examine the relationships among select patient characteristics, self-report of depressive symptoms, social support, and stigma of mental illness in inpatient postpartum women. This chapter provides the research methodology including study aims, research design, sample and sampling, instruments, data collection procedures, data analysis, and protection of human subjects.

The research questions for this study include:

Research Question 1: Is there a relationship between stigma and PMAD symptomatology?

Research Question 2: Are there differences in the *type* of stigma (external, internal, and disclosure) and PMAD symptomatology, social support, and demographic factors such as age, race/ethnicity, and pregnancy intent?

Research Question 3: What percentage of participants with PMAD symptomatology seek treatment after discharge?

Research Question 4: What is the level of agreement between the current admission screen and the interview screen using the EPDS and GAD-7?

The research questions were addressed through the following aims:

Aim 1. Characterize a cohort of inpatient postpartum women participating in mother-infant dyad care.

Aim 2. Examine the relationships among stigma, PMAD symptomatology, social support, and select demographics within a sample of inpatient postpartum women.

Aim 3. Assess treatment-seeking in women with PMAD symptomatology after discharge from the hospital.

Study Design

A descriptive cross-sectional correlational design was used in this study. The rationale for this study design is, although much is known about the prevalence of and risk factors for PMADs, the literature lacks consistency of findings related to the relationships among PMADs, stigma, and social support in postpartum women. This study will provide an opportunity to better understand the relationship among these variables in a diverse sample of postpartum women.

Sample and Sampling Plan

A purposive sample of inpatient postpartum mothers who gave birth between July 2018 and August 2018 at a 208-bed free-standing women's community hospital located in a large southern California metropolitan area was recruited and enrolled. The patient population in this hospital is diverse with approximately 44% non-Hispanic White, 19% Hispanic, 10% Asian, 5% African American, 0.2% Native American, and approximately 21% other. Inclusion criteria: minimum of 24 hours post-delivery to ensure participants were adequately recovered from delivery with infants in dyad care and English or Spanish speaking. Languages chosen were based on the availability of bilingual Research Assistants (RA). Exclusion criteria: mothers whose babies were in Neonatal Intensive Care or at the local children's hospital. This exclusion was established because of the increased risk for depression and anxiety in mothers with preterm and very low birth weight infants (Helle et al., 2015; Rogers et al., 2013).

Power Analysis. The greater the variability in the population, the higher the risk a larger sample is needed to capture the full variation in the sample (Polit, 2010; Polit & Beck, 2012). This study included nine independent variables to be tested within a bivariate logistic regression model. There is no recognized power calculation for logistic regression but a general rule to ensure adequate cell size in the contingency tables is a minimum of 20 cases for each independent variable, or 180 mothers. This was considered to be sufficient to detect a moderate standardized Effect Size ($d = 0.32$) using a two-tailed significance test with a power of .80 and a significance level of .05 (Cohen, 1988; Polit & Beck, 2012).

Procedures

Recruitment and Enrollment Strategies

Fliers recruiting patients for the study were distributed to postpartum nursing staff at shift huddles to introduce the study (Appendix A). A brief explanation of the study was provided to nurses so they could answer basic questions about the study. Each day of data collection, the Principal Investigator (PI) reviewed the list of potential patients and screened them for inclusion. The PI or bilingual RA then invited them to participate, obtained informed consent (Appendix B), and provided subjects with the survey study packet including resources for follow-up and instruments for self-scoring after discharge.

The survey packet was comprised of four de-identified standardized measures and a demographic survey including age, race/ethnicity, marital status, parity, pregnancy intent, language, type of delivery, and history of mental illness. It was estimated the study instruments would take participants no more than 15 minutes to complete. After obtaining informed consent and reviewing the survey packet, the PI or RA returned at a

pre-arranged time to collect the packets. If a participant responded positively to question #10 on the EPDS, “The thought of harming myself has occurred to me,” the participant was visited by a social worker to determine if further follow-up was needed. Participants were given the option of providing their phone number for additional resources after discharge and those who scored 10 or higher on the EPDS or GAD-7 were contacted by the PI approximately one month after discharge to identify (or assess) if they obtained further evaluation and treatment. In acknowledgment of their time, a \$10 gift card was provided to participants and a copy summary of the study results was made available to participants if they asked to receive one.

Ethical Considerations

The proposed investigation was reviewed and the Institutional Review Board (IRB) of the participating hospital and the University of San Diego provided study oversight. Informed consent was obtained through an introductory letter attached to the study instruments. Participation in the study was voluntary. Precautions were taken to protect patient privacy in accordance with the Health Insurance Portability and Accountability Act (HIPPA). Subject-level data were recorded using only a study ID number and no personal identifying information. All study data were accessible only by the investigator. During the investigation period, all printed materials were kept in a secure, locked office, accessible only by the PI.

Variables and Operational Definitions

Variables included demographic variables, study variables, and an outcome variable.

Demographic Variables

Data were collected on potential covariates including age, race/ethnicity, primary language, marital status, parity, whether the pregnancy was planned or unplanned, type of delivery, and mental health history. Although the correlations between race, ethnicity and PMADs may be more a result of sociodemographic factors, race/ethnicity and primary language were included in the demographic survey. Young age, lower education levels, single parenthood, high parity, unintended pregnancy, and mental health history are associated with an increased risk of PMADs; therefore, these factors were also included in the demographic survey. Age was measured in years. Race/ethnicity was measured by the following classifications: White, Black, Hispanic, Asian/Pacific Islander, and Multi-ethnic. Primary language was measured as English, Spanish, or other (write in). Marital status was measured as married, single living with the father of the baby, and single not living with the father of the baby. Parity was measured by the number of previous live births. Intention for pregnancy was measured as yes for planned pregnancy, no for unplanned pregnancy. Although evidence regarding a relationship between type of delivery and risk for PMADs was not identified in the literature, type of delivery was included and was measured as vaginal, planned Cesarean section, or unplanned Cesarean section. Mental health history was measured as history of depression, anxiety, both depression and anxiety, other mental health diagnosis, or no history/no answer.

Depression

Depressive symptomology was measured by the EPDS, a 10-question screening instrument, asking the participant to rate how she had been feeling the previous

seven days. Responses were scored on a scale from 0-3. The scores were totaled and ranged from 0 to 30 with a higher score indicating greater depressive symptomatology. A score identification of possible depression and anxiety was based on a pre-determined cut-off score. Cox and colleagues, who developed the EPDS, found a cut score of 12 or greater identified more than 80% of mothers with a major depressive disorder (Cox et al., 1987). A systematic review of validation studies identified the most commonly used cut-off scores of 9-10 for possible depression, 12-13 and higher for probable depression (Gibson, Mc Kenzie-McHarg, Shakespeare, Price, & Gray, 2009).

Reliability and validity studies by the developers of the EPDS identified sensitivity 86%, specificity 78%, and positive predictive value 73%. The alpha reliability was .87 (Cox et al., 1987). The EPDS is publicly available and has been extensively validated across multiple community, culturally, and ethnically diverse populations and may be administered in Spanish or English (Alvarado-Esquivel, Sifuentes-Alvarez, Salas-Martinez, & Martinez-Garcia, 2006). The EPDS has been translated into many languages. In this sample the Cronbach alpha was $\alpha = .81$.

Anxiety

Anxiety symptomatology was measured using the GAD-7 (Spitzer et al., 2006), a 7-item screen, asking the participant to rate emotions over the previous two weeks on a 4-point Likert scale. Responses are scored on a scale of 0 to 3 and total possible scores ranged from 0-21 with higher scores indicating greater anxiety symptomatology.

Reliability for the GAD-7 was established by the instrument developers with Cronbach's alpha=.92 and test-retest reliability was 0.83. Convergent validity with the Beck Anxiety Inventory was demonstrated ($r=.72$). Level of Anxiety Severity GAD-7 Scale scores were

established with scores of 0-4 associated with minimal anxiety, 5-9 mild anxiety, 10-14 moderate anxiety, and 15-21 severe anxiety (Spitzer et al., 2006). A random sample of 965 patients in family practice and internal medicine clinics were given the GAD-7 followed by structured interviews with a clinical psychologist or senior psychiatric social worker. The study found 89% of patients who scored ≥ 10 were diagnosed with Generalized Anxiety Disorder (GAD) and 82% of participants who scored < 10 did not have GAD (Spitzer et al., 2006). The GAD-7 has been translated into multiple languages and is publicly available. In this sample the Cronbach alpha was $\alpha = .91$.

Stigma

Stigma of mental illness was measured by the City MISS, an instrument designed to measure the stigma specific to PMAD. This is a new instrument first described and published by Moore and colleagues in 2017. Scale items were derived directly from women's experiences of stigma in the literature. The instrument is a 15-item, 4-point Likert scale through which participants rate questions from strongly disagree to strongly agree. Scores range from 1, indicating lower stigmatizing beliefs, to 15, indicating higher stigmatizing beliefs. The City MISS instrument is composed of three subscales measuring three aspects of stigma: internal stigma, perceived external stigma, and disclosure stigma. Internal stigma is the internalization of beliefs that a mother with mental illness will be thought of as a bad mother. There are five items in the internal stigma subscale; for example, "I can't cope as well as I'd like with my baby." Perceived external stigma is what the participant believes others think about a mother's ability to fulfill their role as a mother when they have psychological issues. The subscale contains six items; for example, "People think mothers with psychological problems are

abnormal.” Disclosure stigma is the stigma related to expected discrimination if the participant discloses mental illness to others. There are four items in the disclosure subscale; for example, “I worry that if I told a health care provider about my psychological problems, my baby would be taken away.” Cutoff scores have not yet been designated for this instrument or the subscales to delineate low, moderate, or high levels of perinatal mental illness stigma. Psychometrics indicate the internal consistencies for the subscales are adequate: $\alpha = 0.84$ for total scale, $\alpha = 0.86$ for perceived external stigma, $\alpha = 0.81$ for internal stigma, and $\alpha = 0.85$ for disclosure stigma (Moore et al., 2017). The City MISS is not yet available in languages other than English and was utilized by permission from the developers. In this sample the Cronbach alpha was $\alpha = .88$.

Social Support

Social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS). Zimet and colleagues (1988) first published this 12-item, 7-point Likert scale instrument in 1988. It is designed to measure perceptions of support from family, friends, and a significant other. According to the instrument developers, a mean total score ranging from 1-2.9 indicates low support, 3-5 indicates moderate support, and 5.1-7 indicates high support (Zimet et al., 1988). The instrument has three subscales corresponding with the three areas of support. Cronbach’s alpha scores are as follows: 0.88 for the total scale, 0.91 for the significant other subscale, 0.87 for the family subscale, and 0.85 for the friends subscale. The MSPSS has been translated into many languages and is publicly available. In this sample the Cronbach alpha was $\alpha = .94$.

Treatment Seeking Definition

Positive treatment-seeking after discharge was defined by this researcher as having scheduled or attended mental health treatment including postpartum depression or anxiety support group or seeing a mental health professional such as a psychiatrist, psychologist, or therapist.

Admission Screening Variables

A report generated from admission screening questions was used to evaluate the level of agreement between the current admission screen and interview screen using the EPDS and GAD-7. Admission screening questions were as follows: 1) Do you have a history of depression, anxiety, or another mental health diagnosis? 2) During your pregnancy, have you felt depressed or anxious to a degree that seemed unusual? 3) In the recent past, have you had any thoughts of harming yourself or others?

Table 1.

Variables and operational definitions

Variables	Operational Definition
Age (categorical)	Age in years, 18 or older
Race/ethnicity (categorical)	Self-identifies as White, Black, Hispanic, Asian/Pacific Islander, Multi-ethnic
Marital status (categorical)	Married, Cohabiting, Unpartnered
Parity (categorical)	Primipara or multipara
Primary language (categorical)	Self-identifies as English, Spanish, Other
Planned or unplanned pregnancy (categorical)	Pregnancy was planned, desired versus pregnancy was not planned, was unexpected

EPDS	Depressive symptoms 0-30 possible
(categorical for Group A <10, Group B ≥10)	0-8 low probability of depression/anxiety 9-10 moderate/possible depression/anxiety >12 high/probable depression/anxiety
GAD-7	Anxiety symptoms 0-21 possible
(categorical for Group A <10, Group B ≥10)	0-4 minimal anxiety 5-9 mild anxiety 10-14 moderate anxiety 15-21 severe anxiety
MSPSS score (continuous)	7-point Likert scale=1 (very strongly disagree) to 7 (very strongly agree)
MISS score (continuous)	4-point Likert scale = 1 (strongly disagree) to 4 (strongly agree)
Treatment seeking	Yes – scheduled, planned, or ongoing support group, visit with a mental health professional No- no follow up planned

Data Analysis Plan

Descriptive and inferential statistics were used in this study. All study variables were examined for normality, missing values, and outliers. Summary statistics were calculated including frequencies for categorical variables and means with standard deviations (SD) for continuous variables. Bivariate associations were examined with *chi-squared* analysis for categorical variables and correlations for continuous variables. A correlation matrix was constructed to identify the potential for multicollinearity. Variables significant at $p < .05$ in the bivariate analysis were considered for entry into a

logistic regression model to identify factors that increase the likelihood of treatment-seeking for participants identified as being at high probability of depression or anxiety.

Chapter IV

Results

The purpose of this study was to examine the relationships among PMAD symptomatology, select demographics, stigma of mental illness, and social support among a sample of postpartum women on a mother-infant dyad care unit. The results presented in this chapter include a descriptive profile of the sample followed by results related to the specific aims and research questions.

Aim 1. Characterize a cohort of inpatient postpartum women participating in mother-infant dyad care.

Aim 2. Examine the relationships among stigma, PMAD symptomatology, social support, and select demographics among a cohort of inpatient postpartum women.

Aim 3. Assess treatment seeking in women with PMAD symptomatology after discharge from the hospital.

Participants

Aim 1. Characterize a cohort of inpatient postpartum women participating in mother-infant dyad care.

A convenience sample of 105 English and Spanish speaking women was recruited and enrolled from a Southern California woman's specialty hospital postpartum unit, between July 2018 and August 2018. Mothers had given birth 24 or more hours prior to recruitment. Mothers were not included if they were separated from their infants. Study instruments were administered in English and Spanish based on the individual's stated primary language in the electronic medical record and participant preference. A bilingual, bicultural RA consented Spanish-speaking participants.

The demographic characteristics of the sample are summarized in Table 2. Comparisons were made between those scoring <10 on the EPDS or GAD-7, referred to as Group A, and those scoring ≥ 10 on the EPDS or GAD-7, referred to as Group B. The mean age (and SD) for the combined group was 30.8 ± 5.02 (range 18-46). Mean years of education were 15.2 ± 3.2 (range 0-23), and mean previous births were 1 ± 1.06 (range 0-4). Groups A and B were similar in terms of ethnicity and primary language with 46% of participants in Group A and 43.8% in Group B self-identified as Hispanic; English was the primary language (73.6% in Group A, 75% in Group B). None of these differences were statistically significant. Pregnancy was planned for 72.8% of the groups combined with slightly higher rates (74.7%) in Group A as compared to 62.5% in Group B. Less than half (46.5%) of both groups combined had planned or unplanned Cesarean sections with higher rates in Group B (68.8%) as compared to Group A (42.5%). A higher percentage of participants in Group A were married (73.6%) compared to Group B (50%); 4.6% of Group A was single and not living with the father of the baby compared to 25% of Group B ($p=.01$). Although there were significant differences between groups for marital status, there were no significant differences for language, ethnicity, planned pregnancy, or type of delivery. Regarding prior history of depression and anxiety, 36% of participants reported some mental health history ($n=33$); however, because the demographic survey did not include an option for no history, it is not possible to determine the number of participants with no history as compared to those who did not answer the question. The sample size for Group B was small ($n=16$), limiting sufficient power, thus a logistic regression was not conducted.

Table 2

Demographics

Characteristic	Mean Group A (\pm SD)	Mean Group B (\pm SD)	Range	Total Mean (\pm SD)	F- Statistic	<i>P</i> -value
Age	30.8 \pm 5.1	30.4 \pm 4.8	18-46	30.8 \pm 5.02	0.05	0.82
Years Education	15.4 \pm 2.9	14.4 \pm 4.7	0-23	15.2 \pm 3.2	1.51	0.22
Previous births	1.02 \pm 1.0	.88 \pm 1.2	0-4	1 \pm 1.06	0.26	0.61
Language					<i>Chi</i> - squared 0.26	<i>P</i> -value 1.00
English	64 (73.6%)	12 (75%)		76 (70%)		
Spanish	18(20.7%)	3(18.8%)		21(19.1%)		
Other	5(5.7%)	1(6.3%)		6(6.4%)		
Race/Ethnicity					3.2	0.48
Hispanic	40 (46%)	7 (43.8%)		47 (43.6%)		
Black	3 (3.4%)	1 (6.3%)		4 (3.6%)		
White	28 (32.2%)	6 (37.5%)		34 (30.9%)		
Asian	10 (11.5%)	0(0%)		10 (10%)		
Multi-ethnic	6 (6.9%)	2(12.5%)		8(7.3%)		
Marital Status					6.95	0.01
Married	64 (73.6%)	8 (50%)		72 (69.9%)		
Single, living with father of the baby	19 (21.8%)	4 (25%)		23 (22.3%)		
Single, not living with father of the baby	4 (4.6%)	4 (25%)		8 (7.71%)		
Pregnancy					1.38	0.35
Planned	65 (74.7%)	10 (62.5%)		75 (72.8%)		
No planned	20 (23%)	6 (37.5%)		26 (25.2%)		
Missing	2 (2.3%)	0		2(1.9%)		
Type of delivery					4.42	0.10
Vaginal	50 (57.5%)	5 (31.3%)		55 (53.3%)		
Planned C section	21 (24.1%)	5 (31.3%)		26 (25.2%)		

Unplanned C section	16 (18.4%)	6 (37.5%)	22 (21.3%)
Mental health history			
Depression	3	0	3
Anxiety	11	4	15
Both depression and anxiety	6	5	11
Other (i.e. bipolar)	3	1	4
No answer	53	6	59

Aim 2. Examine the relationships among stigma, PMAD symptomatology, social support, and select demographics among a sample of inpatient postpartum women.

As described in Table 3, the mean EPDS score for the combined group in this study was 4.7 ± 3.9 , and the mean GAD-7 score was 3.9 ± 4.2 . The mean total score on the City MISS was $1.5 \pm .4$, and the scores on the three subscales were as follows: internal stigma (IS) $1.1 \pm .2$, external stigma (ES) $1.9 \pm .7$, and disclosure stigma (DS) $1.4 \pm .7$. The mean MSPSS score was $6.4 \pm .9$ indicating overall high support. Mean scores for the subscales were $6.6 \pm .9$ for the significant other subscale, 6.3 ± 1.1 for the family subscale, and 6.2 ± 1.3 for the friends subscale.

The total sample consisted of 105 participants; missing values resulted in an analysis sample of 103. Participants were separated into two groups: 87 (85%) scored <10 on the EPDS or GAD-7 Group A; 16 (15%) scored 10 or higher on either the EPDS or GAD-7 Group B. Significant differences between groups were noted for all study instruments' summary scores and subscales: EPDS, GAD-7, City MISS, City Internal subscale, City External subscale, City Disclosure subscale, MSPSS, MSPSS Significant

Other subscale, MSPSS Family subscale, MSPSS Friends subscale. The EPDS and GAD-7 scores were significantly higher in Group B than Group A indicating higher depression and anxiety symptomatology ($p<.001$). The overall City MISS score was significantly higher in Group B than Group A ($p=.002$) indicating higher overall stigma in the group with higher depression and anxiety symptomatology. Scores on all three City MISS subscales were significantly higher for Group B than Group A indicating higher levels of internal stigma ($p<.001$), external stigma ($p=.03$), and disclosure stigma ($p=.02$). Overall MSPSS score was significantly lower in Group B indicating lower overall social support in the group with higher depression and anxiety symptomatology ($p<.001$). The scores on all three MSPSS subscales were significantly lower in Group B: significant other subscale ($p=.003$), family subscale ($p=.03$), and friends subscale ($p=.02$) indicating lower levels of social support from all three categories in the group with higher depression and anxiety symptomatology.

Table 3

Means and Standard Deviations

Characteristic	Total group mean (SD)	Range	Mean (SD) Group A	Mean (SD) Group B	F statistic	P-value
EPDS	4.7±3.9	0-21	3.57±2.4	11±4.6	91.2	<.001
GAD-7	3.9±4.2	0-21	2.7±2.4	10.5±5.7	83.5	<.001
City MISS	1.5±.4	1-15	1.5±.4	1.84±.4	10.2	.002
City MISS IS subscale	1.1±.2	1-2	1.1±.1	1.3±.3	21.1	<.001
City MISS ES subscale	1.9±.7	1-4	1.86±.7	2.3±.7	5.0	.03

Disclosure stigma (DS)	1.4±.7	1-3	1.39±.6	1.8±.7	5.9	.02
MSPSS	6.4±.9	1-7	6.54±.89	5.64±.9	13.5	<.001
MSPSS Significant Other subscale	6.6±.9	1-7	6.74±.87	6.04±.8	8.9	.003
MSPSS Family subscale	6.3±1.1	1-7	6.49±1.03	5.6±1.2	9.4	.003
MSPSS Friends subscale	6.2±1.3	1-7	6.38±1.14	5.3±1.8	10.3	.002

Correlations among demographic variables are presented in Table 4. Significant positive correlations were found between years of education and age ($r = .28, p = .01$), previous births ($r = .27, p = .01$), and total MSPSS score ($r = .32, p = .01$), respectively. Significant positive correlations for study variables are presented in Table 5 and were as follows: EPDS and IS ($r = .55, p = .01$), ES ($r = .34, p = .01$), and DS ($r = .23, p = .01$) indicating a higher level of all three dimensions of stigma with higher depression and anxiety symptomatology. Significant correlations were found between EPDS and GAD-7 ($r = .67, p = .01$) supporting the close relationship between depression and anxiety found in the literature. Significant correlations were found between EPDS and total MISS score ($r = .40, p = .01$), indicating a higher level of perinatal mental illness stigma with higher depressive symptomatology. Significant correlations between EPDS and age, level of education, and previous births were not found in this study. Similarly, relationships between EPDS and ethnicity, language, marital status, planned pregnancy, and type of delivery were not significant.

Table 4

Correlations for Demographic Variables

Variables	Age	Ed	Prev births	EPDS	GAD	City MISS	Internal stigma	Ext stigma	Discls. stigma	MSPSS
Age		.28**	-.004	.02	-.04	.06	.13	.06	.01	-.02
Yrs of ed	.28**		-.27**	-.06	.04	-.05	.11	-.06	-.06	.32**
Prev births	-.004	-.27**		-.11	-.034	-.06	-.15	.03	-.16	.06

**=correlation is significant at the 0.01 level (two-tailed)

Table 5

Correlations for Study Variables

Variables	Age	Ed	Prev births	EPDS	GAD	City MISS	Int. stigma	Ext stigma	Discls stigma	MSPSS
Total EPDS	.02	-.06	-.11		.67**	.40**	.55**	.34**	.23*	-.28**
Total GAD-7	-.04	.04	-.034	.67**		.42**	.40**	.38**	.23*	-.27**
Total City MISS	.06	-.05	-.06	.40**	.42**		.44**	.92**	.76**	-.18
Internal stigma subscale	.13	.11	-.15	.55**	.40**	.44**		.29**	.26**	-.21*
External stigma subscale	.06	-.06	.03	.34**	.38**	.92**	.29*		.47**	-.08
Disclosure subscale	.005	-.06	-.16	.23*	.23*	.76**	.26**	.47**		-.24*
Total MSPSS	-.02	.32**	.06	-.28**	-.27**	-.18	-.21*	-.08	-.24*	

**=correlation is significant at the 0.01 level (two-tailed)

Aim 3. Assess treatment seeking in women with PMAD symptomatology after discharge from the hospital.

A cut point of 10 was chosen for both instruments to indicate possible depression or anxiety. A score of 10 or greater is an indication of possible depression, and a positive response to Question 10 on the EPDS is indicative of possible suicidal thoughts (Cox et al., 1987). A cut point of 10 on the GAD-7 is used to represent a moderate level of anxiety (Spitzer et al., 2006). Of the 16 participants who scored ≥ 10 on the EPDS or GAD-7, four had a positive response by answering “hardly ever” to Question 10 on the EPDS. All denied current thoughts of self-harm or suicidal ideation when visited by a social worker. Of the 12 who scored 10 or higher on the EPDS, three also scored 10 or higher on the GAD-7 indicating possible coexistence of depression and anxiety. Four participants scored 10 or higher on the GAD-7 but did not have a score ≥ 10 on the EPDS, possibly indicating anxiety without depression.

Treatment seeking information is listed in Table 6. Providing a phone number was voluntary and 6 of the 16 with scores ≥ 10 on either instrument chose not to provide a phone number. Ten participants provided phone numbers and follow-up information was obtained for six. Four did not answer the telephone after three or more attempts or had a non-working phone number. Of the six who were reached by telephone, four (66%) responded negatively to treatment-seeking. One with a score of 16 on the GAD-7 requested information about the hospital’s free PMADs support group. Two stated they were doing well, did not report depressive symptoms, and were not seeking treatment. These two participants had lower scores on the EPDS and low scores on the GAD-7, 11 and 12 respectively. One stated she had a previous history of PMAD and expressed

interested in treatment; however, she did not return phone calls made by the social worker for referrals. Two participants (33%) responded positively to treatment-seeking; they were either in treatment or had visits with health professionals scheduled. The sample size for treatment-seeking follow-up was very small and it was not possible to contact all 16 study participants with PMAD; 33% were seeking treatment, and 66% had not sought treatment at the time of the phone call.

Table 6

Treatment-Seeking Follow-Up

ID	EPDS	GAD-7	City MISS	MSPSS	Reached by phone?	Sought Tx Y/N	Comments
6	7	16	2.66	4.75	Y	N	Interested in support group
7	12	5	1.05	5.83	N		
11	18	21	2.06	4.58	Y	Y	
30	5	13	1.73	5.66	N		
34	11	6	1.6	6.66	N		
38	11	7	Missing	5.33	Y	N	No symptoms
44	13	4	1.6	5.41	N		
50	21	21	2.0	7.0	N		Seen by Social Worker in hospital
51	10	8	1.86	4.5	N		
53	10	9	1.66	5.83	N		
55	11	7	2.2	5.33	Y	Y	Appt scheduled
63	15	14	2.2	5.33	Y	N	Phone contact, referred to Social Worker
73	8	14	1.73	6.75	N		No answer x3
85	12	5	2.2	6.5	Y	N	No symptoms

15S	10	4	1.73	4.08	N	No answer x3
18S	2	14	1.4	6.58	N	Number not reachable

An additional finding was related to comparisons between a report with screening results pulled from the electronic medical record during the study period and screening from study instruments. Admission screening questions included the following:

- 1) Are you worried about taking care of yourself and/or your baby when you are discharged home and would you like to discuss this with someone?
- 2) Do you have any history of depression, anxiety, or another mental health diagnosis?
- 3) During your pregnancy, have you felt depressed or anxious to a degree that seemed unusual?
- 4) In the recent past, have you had any thoughts of harming yourself or others?

When the case data were examined for the period of this study (July 27, 2018 to August 30, 2018), the results indicated 16% reported a history of depression, anxiety, or other mental health diagnosis. Regarding depressive symptomatology during pregnancy, 5% of the cases reported feeling depressed or anxious to a degree that seemed unusual during the pregnancy. Thoughts of self-harm were expressed by 0.8% of the cases. In this study, participant data was not matched with the patients included in this report; however, it is noteworthy that admission screening resulted in lower positive responses to depression and anxiety screening. More than one third (36%) of study participants reported a history of depression, anxiety, or other mental health diagnosis and 15% of participants scored 10 or higher on the EPDS or GAD-7 indicating depression or anxiety symptomatology. Although participants denied current thoughts of self-harm when visited by a social worker, 3.8% of study participants indicated they had a history of

thoughts of self-harm. These findings, although exploratory, support the need to utilize standardized screening instruments.

Summary

In comparing Group A (those scoring <10 on the EPDS or GAD-7) and Group B (those scoring ≥ 10), there were no significant differences in age, years of education, previous births, language, ethnicity, planned pregnancy, or type of delivery. Because the demographic survey did not include an option to indicate that they did not have a history of depression, anxiety, or other mental health diagnosis, a comparison cannot be made regarding mental health history. Significant differences were noted between groups regarding marital status with more participants in Group A being married while Group B participants were more likely to be single. Significant positive correlations were found among groups for all study instruments and subscales: EPDS, GAD-7, City MISS, City Internal subscale, City External subscale, City Disclosure subscale, MSPSS, MSPSS Significant Other subscale, MSPSS Family subscale, and MSPSS Friends subscale. In the post-discharge follow-up with patients with high depression and anxiety symptomatology, six were reached by telephone approximately one month after discharge and 33% sought mental health treatment while 66% had not sought mental health treatment. The current hospital admission screening identified less positive screens for history of depression, anxiety, and other mental health history, as well as less positive screens for thoughts of self-harm as compared to the study instruments, supporting the need for standardized screening instruments.

Chapter V

Discussion of Findings

The purpose of this study was to examine the relationships among demographic factors, stigma of mental illness, levels of social support, PMAD symptomatology, and treatment-seeking in a sample of postpartum women in a women's community hospital. Additionally, a comparison was made between the hospital's existing admission depression and anxiety screening during the study time period and results from study instruments. Goffman's (1963) and Corrigan's (2004) concepts of stigma provided underpinnings for this research. The work of Zimet and colleagues (1988) regarding the role of social support in potentially mitigating the effects of stigma provided an additional framework for this study. In this chapter, a discussion of the findings and implications for nursing practice, education, research, and policy are presented.

Study Summary

Data were collected from a purposive sample of 105 inpatient postpartum mothers who gave birth between July 2018 and August 2018 in a 208-bed free-standing women's community hospital located in a large Southern California metropolitan area. The mean age for the combined group was 30.7 ± 5.02 (range 18-46). Mean years of education were 15.22 ± 3.2 and mean previous births was 1 ± 1.06 . Comparisons were made between those scoring <10 on the EPDS or GAD-7, referred to as Group A, and those scoring ≥ 10 on the EPDS or GAD-7, referred to as Group B. Groups A and B were similar in terms of ethnicity and primary language with 46% of participants in Group A and 43.8% in Group B self-identified as Hispanic, followed by 32.2% White in Group A and 37.5% White in Group B. English was the primary language for 73.6% in Group A, and 75% in Group B.

Approximately two thirds of the 105 participants (69.9%) were married; a higher percentage of participants in Group A were married (73.6%) as compared to Group B (50%). This difference was significant ($p=.01$) and an association between unpartnered status and depression has been supported in the literature (Ertel et al., 2011).

There were no significant differences between Group A and Group B in terms of age, education, previous births, language, ethnicity, type of delivery, or planned pregnancy. Pregnancy was planned for 72.8% of the groups combined with slightly higher rates (74.7%) in Group A, as compared to 62.5% in Group B ($p=.35$). An increased risk of depression with unintended pregnancy has been supported in the literature; however, this difference may not have been observed in this study as a result of the sample size (Rich-Edwards et al., 2006). Regarding prior history of depression and anxiety, 36% of total participants reported some mental health history, 64% reported no history or no answer. Because it was not possible to determine if no answer indicated no history or simply no answer, a comparison between groups for history of depression, anxiety, or other mental health diagnosis was not conducted.

The prevalence of total participants scoring ≥ 10 on the EPDS (15%) was consistent with rates reported in the literature of 11-21.9% (Mayberry et al., 2007; Wisner et al., 2013). Significant differences were found between Group A and Group B for total EPDS score *and* GAD-7 score ($p<.001$) supporting the frequent comorbid relationship between depression and anxiety identified in the literature (Wisner et al., 2013). Significant differences were found between groups for the total City MISS score ($p=.002$) as well as the three subscales: internal subscale ($p<.001$), external subscale, $p=.03$) and disclosure subscale ($p=.02$). Significant positive correlations were also found between

EPDS and GAD-7 ($p=.01$) and between all three City stigma subscales: IS ($p=.01$), ES ($p=.01$), and DS ($p=.05$). Mean scores for the total MSPSS Scale, MSPSS Significant Other Subscale, MSPSS Family Subscale, and MSPSS Friends Subscale scores were significantly different between Group A and Group B, with p values $<.001$, $.003$, $.003$, and $.002$ respectively supporting existing literature on the variation in social support with depressive symptomatology; higher rates of depression are associated with lower levels of social support (Webster et al., 2011). A number of relations among demographic variables, depressive symptomatology, stigma, and social support were not significant. For example, relations among demographic variables and the internal and disclosure stigma subscales and between EPDS and age, level of education, previous births, ethnicity, language, marital status, planned pregnancy, and type of delivery were not significant. Similarly, relations between EPDS and ethnicity, language, marital status, planned pregnancy, and type of delivery were not significant.

Telephone follow up one month after discharge indicated that 33% of participants in Group B sought mental health treatment; whereas, 66% in this group had not sought treatment. The current hospital screening process identified fewer patients at risk for depression, anxiety and self-harm; the process identified 16% with a history of depression, anxiety, or other mental health diagnosis, 5% feeling depressed or anxious to a degree that seemed unusual, and 0.8% with thoughts of self-harm. This was in contrast to the study findings of 36% with a history of depression, anxiety, or other mental health diagnosis, 15% with PMAD symptomatology, and 3.8% of participants with thoughts of self-harm. These differences support the need for screening utilizing a validated

instrument as recommended by the American College of Obstetricians and Gynecologists (ACOG, 2015).

Nursing Implications

Nursing Practice

The findings of this study add to the body of literature describing the relationships among depression and anxiety, stigma, and social support. It was notable that the existing screening process identified far fewer patients than the study screening instruments supporting existing literature on the benefits of utilizing valid and reliable screening instruments (ACOG, 2018, Evans et al., 2015). Further examination is needed regarding the current hospital admission screening process including the timing of screening, whether the questions are asked when family members are in the room, and the way the screening is approached. Hospital nurses play a key role as members of the inter-professional team by screening patients for PMADs. Patients should be screened in private, in a non-judgmental way, when they are not in pain with active labor, and with a standardized, validated instrument. The ideal instrument will have been validated with inpatient postpartum women from diverse cultures. When at-risk patients are identified, nurses are well-suited to educate them on the signs, symptoms, and referral resources for PMADs and refer them to additional resources such as in-house social workers and outpatient counseling. Because screening may not occur after discharge or it may not be conducted in accordance with symptoms, screening and education during the inpatient stay may be very beneficial. Nurses can help familiarize all patients with signs, symptoms, and resources for PMADs.

Education

Nurses and other health professionals may benefit from ongoing education regarding PMAD risk factors, screening methodology, referral resources, as well as the relationships between depression, anxiety, stigma, and social support. Investigators on the United States Preventive Services Task Force reviewed 50 studies on interventions to decrease the risk of depression during pregnancy and the postpartum period. One of the key findings is that counseling can help prevent depression in women at increased risk (O'Connor, Senger, Henninger, Coppola, & Gaynes, 2019). With a greater understanding of the relationships between depression, anxiety, stigma, and social support, when patients are identified at risk for PMAD nurses can help to address the stigma of mental illness, help to ensure patients have adequate social support, and refer them to appropriate resources.

Limitations

This study has several limitations. The overall sample size was small, and as a result, the size of Group B (EPDS and GAD-7 \geq 10) was small ($n=16$). As a result, there was insufficient power to conduct a logistic regression. The study was also conducted during 1 month in the summer and may not be representative of other periods during the year. The demographic survey did not include an option for patients with no mental health history as compared to participants who did not answer the question. As a result, a statistical comparison could not be made between participants with a mental health history and those without. Providing a phone number for treatment-seeking follow-up was voluntary and because only 10 of the 16 in Group B provided phone numbers, it was not possible to obtain follow-up information regarding treatment seeking from six of the

16. Four participants who provided phone numbers could not be reached further limiting the information that could be obtained about treatment-seeking. Further study is needed regarding the actual treatment of women with PMADs in relation to their ratings of stigma and social support.

The sample was limited to English- and Spanish-speaking patients and may not be representative of individuals from different cultures or who speak other languages. Signs and symptoms of PMADs can appear at any time during the perinatal period and because study instruments were administered approximately 24 hours after delivery, EPDS or GAD-7 scores could be less accurate than if the screening occurred at several intervals during the postpartum period. For example, a participant with a score ≥ 10 on the EPDS could potentially be experiencing transient depressive symptoms, or a participant with a score < 10 could develop symptoms in the weeks and months post-discharge. In addition, both the EPDS and GAD-7 are screening instruments and are not diagnostic; therefore, further evaluation of screened individuals is needed to diagnose depression or anxiety. In the immediate postpartum period there are many interruptions and participants may have been fatigued, thus affecting the ratings on the study instruments. The majority of studies utilizing the EPDS and GAD-7 have been conducted in an outpatient setting, rather than an inpatient one, and more ideal screening instruments for the immediate postpartum period are not yet available.

This study did not examine aspects of stigma and social support in depth and to protect the privacy of participants, personal identifying information was not collected. As a result, participants' medical records were not accessed and answers to admission screening questions were not matched with results from study instruments. To truly

examine the concordance of current admission depressive screen and study instruments, access to participants' medical records would be required.

Despite the noted limitations, this study adds to the body of knowledge regarding risk for PMADs in postpartum patients and further clarifies the relationships among PMAD symptomatology, stigma, and social support. Future research is needed to further understand the relationships among the stigma of mental illness, social support, PMADs, and treatment-seeking in postpartum women as well as more research on the specific dimensions of stigma and interventions to address overcoming barriers to treatment in this patient population.

Conclusion

The perinatal period is a high-risk period during which as much as 21% of women may suffer from PMADs and lead to potential adverse effects on the entire family. The absence or inconsistency of screening and the stigma of mental illness contribute to less than half of women with PMADs being identified and treated. Strong social support may mitigate the effects of stigma and may play a significant role in the identification and treatment of women with PMAD. This study examined the relationships among demographic variables, PMAD symptomatology, stigma, and social support, and shed light on barriers to the identification and treatment of women with PMADs. This study contributes to the nursing profession by highlighting the prevalence of PMADs, impact on families, ongoing barriers to identification and treatment, and by highlighting gaps in the existing hospital screening process as compared to screening utilizing valid, reliable instruments, thereby providing the basis for implementing standardized screening in the inpatient setting.

References

- Abrams, L. S., & Curran, L. (2011). Maternal identify negotiations among low income women with symptoms of postpartum depression. *Qualitative Health Research*, 21(3), 373-385. <http://dx.doi.org/10.1177/1049732310385123>
- American College of Obstetricians and Gynecologists. (2015). Screening for perinatal depression. Retrieved from <http://i2.cdn.turner.com/cnn/2015/images/11/02/acogscreeningopinion2015.pdf>
- American College of Obstetricians and Gynecologists. (2018). Screening for perinatal depression. *Obstetrics & Gynecology*, 132(5), d208-212.
- Alvarado-Esquivel, C., Sifuentes-Alvarez, A., Salas-Martinez, C., & Martinez-Garcia, S. (2006). Validation of the Edinburgh Postpartum Depression Scale in a population of puerperal women in Mexico. *Clinical Practice and Epidemiology in Mental Health*, 2(33), 1-5. <http://dx.doi.org/10.1186/1745-0179-2-33>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Association Publishing.
- Barnes, C. R., & Adamson-Macedo, E. N. (2007). Perceived Maternal Parenting Self-Efficacy (PMP S-E) tool: Development and validation with mothers of hospitalized preterm neonates. *Journal of Advanced Nursing*, 60(5), 550-560.
- Bauer, A., Knapp, & Parsonage, M. (2016). Lifetime costs of perinatal anxiety and depression. *Journal of Affective Disorders*, 192, 83-90. <http://dx.doi.org/10.1016/j.jad.2015.12.005>.
- Berry, J. O. & Jones, W. H. (1995). The parental stress scale: Initial psychometric evidence. *Journal of Social and Personal Relationships*, 12(3), 463-472.

- Bloch, M., Schmidt, P. J., Danaceau, M., Murphy, J., Nieman, L., & Rubinow, D. R. (2000). Effects of gonadal steroids in women with a history of postpartum depression. *American Journal of Psychiatry*, *157*(6), 924-930.
- Boyd, J., Otilingam, P. G., & Grajales, M. (2003). Internalized stigma of mental illness: Psychometric properties of a new measure. *Psychiatry Research*, *121*(1), 31-49. DOI: 10.1016/j.psychres.2003.08.008
- Byatt, N., Biebel, K., Friedman, L., Debordes-Jackson, G., & Ziedonis, D. (2013). Women's perspectives on postpartum depression screening in pediatric settings: a preliminary study. *Archives of Women's Mental Health*, *16*, 429-432. <http://dx.doi.org/10.1007/s00737-013-0369-4>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*, 386-396.
- Connelly, C., Baker, M., Hazen, A., & Muggenborg, M. (2007). Pediatric health care providers' self-reported practices in recognizing and treating maternal depression. *Pediatric Nursing*, *33*(2), 165-172.
- Corrigan, P. (2004). How stigma interferes with mental health care. *American Psychologist*, *59*(7), 614-625. <http://dx.doi.org/10.1037/0003-066X.59.7.614>
- Corrigan, P., Watson, A., Warpinski, A., & Gracia, G. (2004). Stigmatizing attitudes about mental illness and allocation of resources to mental health services. *Community Mental Health Journal*, *40*(4), 297-307.

- Corwin, E. J., Kohen, R., Jarrett, M., & Stafford, B. (2010). The heritability of postpartum depression. *Biological Research for Nursing, 12*(1), 73-83.
<http://dx.doi.org/10.1177/1099800410362112>
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postpartum depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry, 150*, 782-786.
- Cyr-Alves, H., Macken, L., & Hyrkas, K. (2018). Stress and symptoms of depression in fathers of infants admitted to the NICU. *Journal of Obstetric, Gynecologic, & Neonatal Nursing 47*(2), 146-157. <http://dx.doi.org/10.1016/j.jogn.2017.12.006>
- Dennis, C., & Chung-Lee, L. (2006). Postpartum depression help-seeking barriers and maternal treatment preferences: A qualitative systematic review. *Birth, 33*(4), 323-331.
- Doktorchik, C., Premji, S., Slater, D., Williamson, T., Tough, S., & Patten, S. (2017). Patterns of change in anxiety and depression during pregnancy predict preterm birth. *Journal of Affective Disorders, 227*, 71-78.
<http://dx.doi.org/10.1016/j.jad.2017.10.001>
- Doucet, S., Dennis, C., Letourneau, N., & Blackmore, E. R. (2009). Differentiation and clinical implications of postpartum depression and postpartum psychosis. *Journal of Obstetric, Gynecologic, and Neonatal Nursing, 38*(3), 269-279.
<http://dx.doi.org/10.1111/j.1552-6909.2009.01019.x>
- 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. <http://dx.doi.org/10.1542/peds.2018-3259>

- Earls, M. F. (2010). Clinical report - incorporating recognition and management of perinatal and postpartum depression into pediatric practice. *Pediatrics*, *126*(5), 1032-1039. <http://dx.doi.org/10.1542/peds.2010-2348>
- Emerson, M. R., Matthews, T. L., & Struwe, L. (2018). Postpartum depression screening for new mothers at well child visits. *American Journal of Maternal/Child Nursing*, *43*(3), 139-145. <http://dx.doi.org/10.1097/NMC.0000000000000426>
- Ertel, K. A., Rich-Edwards, J. W., & Koenen, K. C. (2011). Maternal depression in the United States: Nationally representative rates and risks. *Journal of Women's Health*, *20*(11), 1609-1617. <http://dx.doi.org/10.1089/jwh.2010.2657>
- Evans, M. G., 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. <http://dx.doi.org/10.1016/j.whi.2015.07.003>
- Facts for features: Mother's day: May 14, 2017. (2017). Retrieved from <https://www.census.gov/newsroom/facts-for-features/2017/cb17-ff09-mothers-day.html>
- Feinberg, M. E., Jones, D. E., Roettger, M. E., Hostetler, M. L., Sakuma, K., Paul, I. M., & Ehrenthal, D. B. (2016). Preventive effects on birth outcomes: Buffering impact of maternal stress, depression, and anxiety. *Maternal Child Health Journal*, *20*(1), 56-65. <http://dx.doi.org/10.1007/s10995-015-1801-3>
- Finer, L. B., & Zolna, M. R. (2016). Declines in unintended pregnancy in the United States, 2008-2011. *The New England Journal of Medicine*, *374*, 843-852. <http://dx.doi.org/10.1056/NEJMsa1506575>

- Gavin, A. R., Melville, J. L., Rue, T., Guo, Y., Dina, K. T., & Katon, W. J. (2011). Racial differences in the prevalence of antenatal depression. *General Hospital Psychiatry, 33*(2), 1-12. <http://dx.doi.org/10.1016/j.genhosppsych.2010.11.012>
- Gavin, N. I., Gaynes, B. N., Lohr, K. N., Meltzer-Brody, S., Gartlehner, G., & Swinson, T. (2005). Perinatal Depression. *Obstetrics & Gynecology, 106*(5), 1071-1083.
- Gibson, J., Mc Kenzie-McHarg, K., Shakespeare, J., Price, J., & Gray, R. (2009). A systematic review of studies validating the Edinburgh Postnatal Depression Scale in antepartum and postpartum women. *Acta Psychiatrica Scandinavica, 119*, 350-364. <http://dx.doi.org/10.1111/j.1600-0447.2009.01363.x>
- Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity*. New York, NY: Simon & Schuster, Inc.
- Goodman, J. H. (2009). Women's attitudes, preferences, and perceived barriers to treatment for perinatal depression. *Birth, 36*(1), 60-69.
- Goodman, J. H., & Tyler-Viola, L. (2010). Detection, treatment, and referral of perinatal depression and anxiety by obstetrical providers. *Journal of Women's Health, 19*(3), 477-490. <http://dx.doi.org/10.1089/jwh.2008.1352>
- Greene, M. M., Rossman, B., Patra, K., Kratovil, A. L., Janes, J. E., & Meier, P. P. (2015). Depressive, anxious and perinatal post-traumatic distress in mothers of very low birth weight infants in the NICU. *Journal of Developmental & Behavioral Pediatrics, 36*(5), 362-370. <http://dx.doi.org/10.1097/DBP.0000000000000174>
- Gutierrez-Galve, L., Stein, A., Hanington, L., Heron, J., Lewis, G., O'Farrelly, C., & Ramchandani, P. G. (2018). Association of maternal and paternal depression in

the postnatal period with offspring depression at age 18 years. *JAMA Psychiatry*, E1-E7. <http://dx.doi.org/10.1001/jamapsychiatry.2018.3667>

- Helle, N., Barkmann, C., Bartz-Seel, J., Diehl, T., Ehrhardt, S., Hedel, A., ... Bindt, C. (2015). Very low birth-weight as a risk factor for postpartum depression four to six weeks postbirth in mothers and fathers: Cross-sectional results from a controlled multicentre cohort study. *Journal of Affective Disorders*, *180*, 154-161. <http://dx.doi.org/10.1016/j.jad.2015.04.001>
- Junge, C., Garthus-Niegel, S., Slinning, K., Polte, C., Simonsen, T. B., & Eberhard-Gran, M. (2016). The impact of perinatal depression on children's social-emotional development: A longitudinal study. *Maternal and Child Health Journal*, *21*(3), 607-615. <http://dx.doi.org/10.1007/s10995-016-2146-2>
- Knights, J. E., Salvatore, M. L., Simpkins, G., Hunter, K., & Khandelwal, M. (2016). In search of best practice for postpartum depression screening: Is once enough? *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *206*, 99-104. <http://dx.doi.org/10.1016/j.ejogrb.2016.08.030>
- Kramer, M. S., Lydon, J., Seguin, L., Goulet, L., Kahn, S. R., McNamara, H., ... Platt, R. W. (2009). Stress pathways to spontaneous preterm birth: The role of stressors, psychological distress, and stress hormones. *American Journal of Epidemiology*, *169*(11), 1319-1329. <http://dx.doi.org/10.1093/aje/kwp061>
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2002). The PHQ 15: Validity of a new measure for evaluating the severity of somatic symptoms. *Psychosomatic Medicine*, *64*(2), 258-266.

- Langan, R. C., & Goodbred, A. J. (2016). Identification and management of peripartum depression. *American Family Physician, 93*(10), 852-858.
- Leahy-Warren, P., McCarthy, G., & Corcoran, P. (2011). First-time mothers: Social support, maternal parental self-efficacy and postnatal depression. *Journal of Clinical Nursing, 21*(3-4), 388-397. <http://dx.doi.org/10.1111/j.1365-2702.2011.03701.x>
- Letourneau, N. L., Dennis, C., Benzies, K., Duffett-Leger, L., Stewart, M., Tryphonopoulos, P. D., ... Watson, W. (2012). Postpartum depression is a family affair: Addressing the impact on mothers, fathers, and children. *Issues in Mental Health Nursing, 33*, 445-457. <http://dx.doi.org/10.3109/01612840.2012.673054I>
- Liu, C. H., & Tronick, E. (2013). Rates and predictors of postpartum depression by race and ethnicity: results from the 2004 to 2007 New York City PRAMS survey (Pregnancy Risk Assessment Monitoring System). *Maternal Child Health, 17*, 1599-1610. <http://dx.doi.org/10.1007/s10995-012-1171-z>
- Mayberry, L. J., Horowitz, J. A., & Declercq, E. (2007). Depression symptoms prevalence and demographic risk factors among U.S. women during the first 2 years postpartum. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 36*, 542-549. <http://dx.doi.org/10.1111/J.1552-6909.2007.00191.x>
- Mental health. (n.d.). Retrieved from https://www.who.int/mental_health/maternal-child/maternal_mental_health/en/
- Miller, L. J. (2002). Postpartum depression. *JAMA, 287*(6), 762-765.

- Moore, D., Ayers, S., & Drey, N. (2017). The City MISS: Development of a scale to measure stigma of perinatal mental illness. *Journal of Reproductive and Infant Psychology, 35*(3), 273-285. <http://dx.doi.org/0.1080/02646838.2017.1313967>
- Munk-Olsen, T., Laursen, T. M., Pedersen, C. B., Mors, O., & Mortensen, P. B. (2006). New parents and mental disorders. *JAMA, 296*, 2582-2589.
- O'Connor, E., Senger, C. A., Henninger, M. L., Coppola, E., & Gaynes, B. N. (2019). Interventions to prevent perinatal depression evidence report and systematic review for the US Preventive Services Task Force. *JAMA, 321*(6), 588-601. <http://dx.doi.org/10.1001/jama.2018.20865>
- O'Hara, M. W., & Wisner, K. L. (2014). Perinatal mental illness: Definition, description, and aetiology. *Best Practice & Research Clinical Obstetrics & Gynaecology, 28*(1), 3-12. <http://dx.doi.org/https://doi.org/10.1016/j.bpobgyn.2013.09.002>
- Office of the Surgeon General. (1999). *Mental health: A Report of the surgeon general*. Washington, DC: National Institute of Mental Health. Retrieved from <https://profiles.nlm.nih.gov/ps/retrieve/ResourceMetadata/NNBBHS>
- PACT Consortium. (2015). Heterogeneity of postpartum depression: a latent class analysis. *Lancet Psychiatry, 2*(1), 59-67. [http://dx.doi.org/10.1016/S2215-0366\(14\)00055-8](http://dx.doi.org/10.1016/S2215-0366(14)00055-8)
- Palladino, C. L., Singh, V., Campbell, J., Flynn, H., & Gold, K. (2011). Homicide and suicide during the perinatal period: Findings from the national violent death reporting system. *Obstetrics & Gynecology, 118*(5), 1056-1063. <http://dx.doi.org/10.1097/AOG.0b013294da>

- Paulson, J., & Bazemore, S. (2010). Prenatal and postpartum depression in fathers and its association with maternal depression. *JAMA*, *303*(19), 1961-1969.
- Paulson, J., Dauber, S., & Leiferman, J. (2006). Individual and combined effects of postpartum depression in mothers and fathers on parenting behavior. *Pediatrics*, *118*(2), 659-668.
- Polit, D. F. (2010). *Statistics and data analysis for nursing research* (2nd ed.). Upper Saddle River, NJ: Pearson.
- Polit, D. F., & Beck, C. T. (2012). *Nursing research generating and assessing evidence for nursing practice* (10th ed.). Philadelphia, PA: Wolters Kluwer.
- Radloff, L. S. (1977). The CES-D scale a self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*(3), 385-401.
<http://dx.doi.org/10.1177/014662167700100306>
- Rahman, A., Iqbal, Z., Bunn, J., Lovel, H., & Harrington, R. (2004). Impact of maternal depression on infant nutritional status and illness. *Archives of General Psychiatry*, *61*, 946-952.
- Rich-Edwards, J. W., Kleinman, K., Abrams, A., Harlow, B. L., Mc Laughlin, T., Joffe, H., & Gillman, M. W. (2006). Sociodemographic predictors of antenatal and postpartum depressive symptoms among women in a medical group practice. *Journal of Epidemiology and Community Health*, *60*, 221-227.
<http://dx.doi.org/10.1136/jech.2005.039370>
- Rogers, C. E., Kidokoro, H., Wallendorf, M., & Inder, T. E. (2013). Identifying mothers of very preterm infants at-risk for postpartum depression and anxiety prior to

discharge. *Journal of Perinatology*, 33(3), 171-176.

<http://dx.doi.org/10.1038/jp.2012.75>.

Schetter, C. D., & Tanner, L. (2012). Anxiety, depression and stress in pregnancy:

implications for mothers, children, research, and practice. *Current Opinion in*

Psychiatry, 25(2), 141-148. <http://dx.doi.org/10.1097/YCO.0b013e3283503680>

Schwab-Reese, L. M., Schafer, E. J., & Ashida, S. (2017). Associations of social support

and stress with postpartum maternal mental health symptoms: Main effects,

moderation, and mediation. *Women Health*, 57(6), 723-740.

<http://dx.doi.org/10.1080/03630242.2016.1181140>

Sit, D., Rothschild, A., & Wisner, K. (2006). A review of postpartum psychosis. *Journal*

of Women's Health, 15(4), 352-368. <http://dx.doi.org/10.1089/jwh.2006.15.352>.

Spielberger, C. D. (2010) State-Trait Anxiety Inventory. In I. B. Weiner & E. W.

Craighead (eds.). *The Corsini Encyclopedia of Psychology* (4th ed.). Hoboken,

NJ: John Wiley & Sons. <https://doi.org/10.1002/9780470479216.corpsy0943>

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R. & Jacobs, G. A. (1983).

Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting

Psychologists Press

Spitzer, R. L., Kroenke, K., & Williams, J. B. for the Patient Health Questionnaire

Primary Care Study Group. (1999). Validation and utility of a self-report version

of PRIME-MD: The PHQ primary care study. *JAMA*, 282, 1737-1744.

Spitzer, R. L., Kroenke, K., Williams, J. B., & Lowe, B. (2006). A brief measure for

assessing generalized anxiety disorder. *Archives of Internal Medicine*, 166(10),

1092-1097.

- Squires, J., Bricker, D., & Twombly, E. (2002). *The ASQ:SE user's guide: For the Ages & Stages questionnaires: Social-emotional*. Baltimore, MD: Paul H. Brooks Publishing.
- Swalm, D., Brooks, J., Doherty, D., Nathan, E., & Jacques, A. (2010). Using the Edinburgh postnatal depression scale to screen for perinatal anxiety. *Archives of Women's Mental Health, 13*(6), 515-522. <http://dx.doi.org/10.1007/s00737-010-0170-6>
- United Nations Population Fund. (2007). Maternal mental health and child development in resource-constrained settings. Retrieved from http://apps.who.int/iris/bitstream/10665/70118/1/WHO_RHR_09.24_eng.pdf
- Walker, L. O., Murphey, C. L., & Xie, B. (2016). Missed opportunities for postpartum behavioral and psychological health care and acceptability of screening options. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 45*(5), 614-624. <http://dx.doi.org/10.1016/j.jogn.2016.05.04>
- Webster, J., Linnane, J. W., Dibley, L. M., Hinson, J. K., Starrenburg, S. E., & Roberts, J. A. (2000). Measuring social support in pregnancy: Can it be simple and meaningful? *Birth, 27*(2), 97-101.
- Webster, J., Nicholas, C., Velacott, C., Cridland, N., & Fawcett, L. (2011). Quality of life and depression following childbirth: Impact of social support. *Midwifery, 27*(5), 745-749.
- Wisner, K. L., Parry, B. L., & Piontek, C. M. (2002). Postpartum depression. *New England Journal of Medicine, 347*(3), 194-199.

- Wisner, K., Sit, D., McShea, M., Rizzo, D., Zoretich, R., Hughes, C., ... Hanusa, B. (2013). Onset timing, thoughts of self-harm and diagnoses in postpartum women with screen-positive depression findings. *JAMA Psychiatry, 70*(5), 490-498.
- World Health Organization. (1995). The World Health Organization quality of life assessment (WHOQOL): Position paper from the World Health Organization. *Social Science & Medicine, 41*(10), 1403-1409. [http://dx.doi.org/10.1016/0277-9536\(95\)00112-K](http://dx.doi.org/10.1016/0277-9536(95)00112-K)
- World Health Organization. (2017). Causes of child mortality. Retrieved from http://www.who.int/gho/child_health/mortality/causes/en/
- Yawn, B. P., Dietrich, A. J., Wollan, P., Bertram, S., Graham, D., Huff, J., ... Pace, W. D. (2012). TRIPPD: A practice-based network effectiveness study of postpartum depression screening and management. *Annals of Family Medicine, 10*(4), 320-329. <http://dx.doi.org/10.1370/afm.1418>
- Yim, I. S., Tanner, L. R., Guardino, C. M., Hahn-Holbrook, J., & Schetter, C. D. (2015). Biological and psychosocial predictors of postpartum depression: Systematic review and call for integration. *Annual Review of Clinical Psychology, 11*, 99-137. <http://dx.doi.org/10.1146/annurev-clinpsy-101414-020426>
- Ystrom, E. (2012). Breastfeeding cessation and symptoms of anxiety and depression: A longitudinal cohort study. *BMC Pregnancy and Childbirth, 12*(36), 1-6. Retrieved from <https://bmcpregnancychildbirth.biomedcentral.com/track/pdf/10.1186/1471-2393-12-36?site=bmcpregnancychildbirth.biomedcentral.com>

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment*, 52(1), 30-41.

Appendix A

Study Flyer

Perinatal Mood and Anxiety Disorders (PMAD) Research Study

Studying the relationships between perinatal depression,
anxiety, stigma, and social support

Data collection: July, 2018-~September, 2018



Investigators: Ellen Fleischman, [REDACTED]

Q: Who will be included in the study?

A: English or Spanish speaking postpartum patients. NICU moms, surrogates, and moms with a demise will not be included.

Q: What will the patients be doing in the study?

A: Participants will complete a demographic survey and four survey instruments. Those at risk for depression and anxiety will receive a phone call ~1 month after discharge (d/c).

Q: How much time will it take to participate?

A: Approximately 10-15 minutes, and they will receive a \$10 gift card for their time. Participating is completely voluntary.

Q: Where do completed study packets go?

A: Study investigators will collect completed packets and provide gift cards. If a packet is left after d/c, please call Ellen Fleischman at [REDACTED] or leave packets in envelop on the Manager's board in the charting room

Appendix B

Informed Consent

Study Title: Perinatal Mood and Anxiety Disorders: Impact of Stigma and Social Support on Treatment-Seeking

Dear Patient:

You are being asked to participate in a research study conducted by Ellen K. Fleischman, PhD student at the University of San Diego. The purpose of this study is to answer the following questions: What is the relationship between stigma, perinatal mood and anxiety disorders (focusing on depression and anxiety), and social support? When mothers suffer from these disorders, how do stigma and social support affect the decision to seek treatment for depression and anxiety? Approximately 100 patients on the [REDACTED]

Your participation in this study involves a *one-time* completion of several questionnaires: the 10-question Edinburgh Postnatal Depression Scale (EPDS), 15-question City Mental Illness Stigma Scale (City MISS), 12-question Multidimensional Measure of Perceived Social Support (MSPSS), 7-question Generalized Anxiety Disorder Scale (GAD-7), and a demographic questionnaire. Your participation is expected to last approximately 15-20 minutes. You will be provided with resources related to depression and anxiety in case you would like further information. If your scores on the study instruments indicate you may have some difficulty with depression or anxiety we would like to contact you, with your permission, after discharge, to discuss available resources.

Risks and Benefits: There are no anticipated risks for participating; however, some patients may feel uncomfortable when answering some of the questions on the surveys, as the questions may cause you to reflect on your feelings. However, your participation may be of benefit because the surveys may prompt you to ask some important questions that you might not have thought of previously and provide more information on your overall wellness. We will try to make you as comfortable as possible when you are answering the questions.

Your survey answers will be anonymous and will be identified by a study code known only to you and the investigator. Your individual responses will not be shared with anyone at [REDACTED] other than the investigator. Your individual responses will be aggregated with all other participants in the study. The aggregated data will be analyzed, and results will be shared with the University of San Diego and [REDACTED]. Should you choose to have us contact you after discharge, there will be an option to include your phone number and e-mail address on a separate piece of paper that has your study code. The person making the discharge phone call will not have access to other information about you. Representatives of the [REDACTED] Institutional Review Board (IRB) may review the study at any time, (including your de-identified individual responses), to assure that the study is being carried out appropriately.

You will be compensated for your time with a \$10 gift card upon completion of all surveys. **If you wish to participate, your completion of the surveys will indicate that you have read this consent, have had a chance to ask questions, and that you consent to participate. Your participation in this study is completely voluntary, and if you do not wish to participate, you do not need to do anything further. If you start the surveys and decide not to finish, you can stop at any time. Please complete the attached surveys and return them in the attached envelope, either to the investigator or to your nurse.**

If you have any questions at any time, please feel free to contact Ellen K. Fleischman at



Thank you for your consideration.

Ellen K. Fleischman, MSN, RN, RD, NE-BC



Appendix C
USD Institutional Review Board Approval



Jul 30, 2018 8:58 AM PDT

Ellen Fleischman
Hahn School of Nursing & Health Science

Re: Expedited - Initial - IRB-2018-522, Perinatal Mood and Anxiety Disorders (PMAD): Impact of Stigma and Social Support on Treatment-Seeking.

Dear Ellen Fleischman:

The Institutional Review Board has rendered the decision below for IRB-2018-522, Perinatal Mood and Anxiety Disorders (PMAD): Impact of Stigma and Social Support on Treatment-Seeking.

Decision: Approved

Selected Category: 7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Findings: None

Research Notes:

Internal Notes:

Note: We send IRB correspondence regarding student research to the faculty advisor, who bears the ultimate responsibility for the conduct of the research. We request that the faculty advisor share this correspondence with the student researcher.

The next deadline for submitting project proposals to the Provost's Office for full review is N/A. You may submit a project proposal for expedited or exempt review at any time.

Sincerely,

Dr. Thomas R. Herrinton
Administrator, Institutional Review Board

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