Implementation of a Risk Factor Screening Tool for Early Detection of Postpartum Depression in the Prenatal Setting

by

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A DNP PROJECT

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DNP PROJECT APPROVAL FORM

Submitted by Christy A. Jeffcoat, MSN, RN in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice and accepted on behalf of the Faculty of the School of Graduate Studies by the DNP project committee.

We, the undersigned members of the Graduate Faculty of The University of Alabama in Huntsville, certify that we have advised and/or supervised the candidate on the work described in this DNP project. We further certify that we have reviewed the DNP project manuscript and approve it in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice.

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ABSTRACT
The School of Graduate Studies
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Title: Implementation of a Risk Factor Screening Tool for Early Detection of Postpartum Depression in the Prenatal Setting

Postpartum depression (PPD) is a mental health condition affecting approximately 10-20% of pregnant women in the United States (Wilkinson, Anderson, & Wheeler, 2017). PPD is often underdiagnosed and undertreated, leading to negative neonatal and maternal outcomes. Early detection of PPD in the prenatal setting is crucial for the promotion of maternal and neonatal health. Barriers have been identified with low incidence of prenatal screening, including lack of experience, education, or skill by the health care provider, standard of care policies per facility that do not incorporate routine PPD screening in the prenatal period, and compliance by staff administering screening tools (Legere et al., 2017; Wilkerson et al., 2016).

The aim of the practice improvement project is to increase identification of pregnant women at risk for developing PPD early in the prenatal setting. The purpose of this practice improvement project is to implement a PPD screening tool, the Postpartum Depression Predictors Inventory-Revised (PDPI-R), at the second or third trimester prenatal visit to identify pregnant women at risk for developing PPD in an OB/GYN office setting in a Southeastern city. The screening tool consists of 10 prenatal risk factors associated with PPD, including prenatal depression, life stress, social support, prenatal anxiety, marital satisfaction, previous history of depression, self-esteem, socioeconomic status, marital status, and unplanned/unwanted pregnancy (Beck, 2002). Identification of risk factors for PPD indicate only the risk of developing PPD in the postpartum period, allowing for identification of specific interventions to improve the patient outcomes.

The practice improvement project was implemented December 2019 and was evaluated after a four-week implementation period. Pre-implementation data collection consisted of chart review for pregnant women, ages 19-45, seen by one OB/GYN physician in the prenatal setting at their second or third trimester visit during the previous four weeks of the start of the implementation phase. Chart audits revealed the number of patients seen by the provider that were eligible for screening, number of patients screened for PPD, number of patients identified as high risk for developing PPD without use of the PDPR-R tool, and number of patients with a history of mental health illness. Prisoners, adolescents, and first trimester visit patients were excluded. Post-implementation data analysis revealed the number of patient eligible to receive the tool, number of patients that were administered the PDPI-R screening tool, number of patients that declined the tool, number of patients identified as high risk for developing PPD, and the highest prevalent risk factors. The results of the study revealed a 15% increase in the number of patients identified as high risk for developing PPD with the use of a screening tool in the

prenatal setting. Inconsistencies in administration of the PDPR-R tool were identified and recommendations were made.

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TABLE OF CONTENTS

Implementation of a Screening Tool for Early Detection of Postpartum Depression in the Prenatal Setting

Postpartum depression (PPD) is a mental health condition affecting women that can lead to detrimental effects for the mother, infant, and family unit if left undiagnosed. PPD affects 10-20% of women living in the United States (Wilkinson, Anderson, & Wheeler, 2017). Evans, Phillipi, & Gee (2015) report prevalence rates of PPD symptoms were found to be higher among African American and Hispanic race, lower socioeconomic class, adolescent mothers, primigravids, and/or experienced a high-risk pregnancy, with rates ranging from 21% to 60%. No standard of care for routine screening has been established in the United States, despite recommendations from leading experts in maternal and neonatal care. The U.S. Preventative Services Task Force supports the need for routine prenatal screening for PPD in the promotion of maternal and infant health (U.S. Preventative Services Task Force, 2015). The Maternal and Child Health Bureau and the U.S. Department of Health and Human Services have identified the need to support programs and screening in efforts to reduce incidence of PPD in the promotion of maternal and neonatal health. The American College of Obstetrics and Gynecology (2016) recommends screenings patients at least once in the prenatal period for depression and anxiety. Although all women are considered high risk for developing PPD in the postpartum period, specific risk factors are associated with its occurrence, which will be discussed in this paper. The importance of early detection and primary prevention through early screening, maternal and neonatal negative outcomes, and barriers associated with identification of signs of PPD will be addressed within the paper. The impact of postpartum depression on nursing will be discussed, as well as future nursing education and research.

Background and Significance

PPD is considered the leading cause of major depressive disorders in women of childbearing age, which may result in postpartum psychosis is left untreated (Woody, Ferrari, Siskind, Whiteford, & Harris, 2017). PPD is characterized by signs and symptoms of severe mood swings, uncontrollable crying, irritability, suicidal ideations, fear, confusion, anger, sadness, and infant detachment (Wilkinson et al., 2017). PPD is not always associated with previous history of mental illness, and some women may not volunteer their symptoms for fear of stigma associated with mental illness and pregnancy (Patel et al., 2012).

Baby Blues

PPD is often difficult to diagnose in the immediate postpartum period, as the symptoms are similar to what is historically referred to as the "baby blues." Symptoms include crying and tearfulness, feelings of being overwhelmed by motherhood, and uncertainty over caregiving. Postpartum blues is not considered a form of depression and gradually subsides. This time of adjustment revolves around pregnancy hormone withdraw, and is greatly affected by acute sleep deprivation and fatigue.

Postpartum Depression Symptoms

PPD symptoms, however, persist beyond the first two weeks postpartum. Fluctuations in emotions due to the stress of labor, delivery of the infant, lifestyle change, and adjustment to caring for the neonate, often occur in the first two weeks after delivery, and is considered a normal finding due to hormonal changes occurring in the body after delivery of the infant, affecting 50% -80% of women postpartum (Santoro & Peabody, 2010). Obsessive thoughts regarding the infant are also symptoms associated with PPD, but do not include infanticide.

Postpartum Psychosis

Postpartum psychosis involves rapid onset feelings of confusion, disorganized thoughts, hallucinations, agitation, bizarre behavior and apparent delirium, infanticide and suicide, constituting a medical emergency and requiring immediate intervention (Marder, 2014). Patients with a previous diagnosis of bipolar disorder at are at greater risk for experiencing postpartum psychosis episodes (Wesseloo et al., 2016).

Identification of the Problem

Low incidence of prenatal screening for PPD can be attributed to several factors, including knowledge deficits and skill related to the recognition of symptoms of PPD by the clinician, perceived lack of time by the clinician, lack of screening, and the patient's willingness to reveal their experiences and symptoms of PPD. Kalina (2015) reported that over 50% of women experiencing PPD are left untreated due to lack of detection through early screening. During the prenatal period, not all women experience symptoms of prenatal depression, although other predictors can be identified that increase the risk of PPD in the postnatal period. Symptoms can be missed in the postnatal period simply because the mother's focus is often on the infant, as well as missed appointments due to adjustments in daily routines with the new infant in the home. A practice improvement project was designed to address the problem of low incidence of screening for PPD. The aim of the practice improvement project is to increase identification of pregnant women at risk for developing postpartum depression early in the prenatal setting through a primary prevention model.

Objectives were identified to aid in the evaluation of outcomes for this practice improvement project. The first research objective identified is to increase office staff knowledge on the significance of PPD, causes, symptoms, and the need for prevention through early screening in the prenatal period. The second identified research outcome includes achievement

goal of 100% compliance in administration of the PDPI-R screening tool. The final research objective identified is increasing the number of patients identified as high risk through early identification via administration of the PDPI-R screening tool.

PICOT

PICOT question: In pregnant women (P), how does prenatal screening for postpartum depression (I) compared with no prenatal screening for postpartum depression (C), affect the identification of patients at risk for developing postpartum depression in the postpartum period (O) within a four-week time frame (T)?

Statement of the Problem

In efforts to reduce the incidence of PPD and negative outcomes associated with untreated postpartum depression, routine screening in the prenatal period should be initiated by trained clinicians. Reducing vulnerability to postpartum depression can be achieved through primary prevention methods, such as early screening. Early recognition of PPD in the prenatal setting by the healthcare team will ensure subsequent follow-up treatment and monitoring of PPD in the immediate postpartum period, thus delays in treatment will be avoided, resulting in reduced incidence of poor maternal and neonatal outcomes. Kruper & Wichman (2017), suggest early screening for psychological conditions allows for detection of relevant clinical manifestations associated with postpartum depression and appropriate coordination of treatment plans. Primary prevention allows for identification of those patients at risk through implementation of a standard screening tool, increases awareness, facilitates engagement of preventative tools and resources, and offers reliable treatment options. Early screening reduces

the severity and duration of symptoms of PPD and allows for opportunities for open dialog, thus reducing the stigma for patients. Screening instruments are utilized as tools for early detection. Patients identified as high risk should be referred to a mental health professional trained in perinatal mood disorders for clinical assessment and evaluation, diagnosis, and establishment of treatment plans.

Risk Factors Associated with Postpartum Depression

All pregnant women are at risk for developing postpartum depression and may development it anytime during the first postpartum year (Beck, 2001). Beck (2001), a leading theorist and nursing researcher in postpartum depression, identified thirteen significant risk factors associated with postpartum depression, including prenatal depression, childcare stress, life stress, social support, prenatal anxiety, marital satisfaction, history of previous depression, infant temperament, maternity blues, self-esteem, socioeconomic status, marital status, and unplanned/unwanted pregnancy (Beck, 2002). Early screening for risk factors or predictors can reduce the likelihood of development of PPD by initiation of early prevention and treatment methods. Patients with a history of depression or history of depression in previous pregnancies are at greater risk for developing PPD (Patel et al., 2012). Risk factors, when identified by the clinician, can promote better maternal and neonatal outcomes through early implementation of interventions and follow-up care.

Negative Outcomes Associated with Postpartum Depression

Maternal mental health conditions during and after pregnancy have been associated with negative perinatal outcomes, such as low birth weight, poor cognitive and developmental delays, poor social skills, and psychological disorders (Accortt, Cheadle, & Schetter, 2014). Pregnant

women with depression may engage in at-risk behaviors, such as smoking and substance abuse, placing them at greater risk for preterm birth. Prenatal depression is also associated with pregnancy complications, such as gestational hypertension, pre-eclampsia, gestational diabetes, and other Perinatal Mood and Anxiety Disorders (PMADs). Negative long-term neonatal outcomes have been identified, including difficulty with social interaction, poor cognitive development, difficulty managing stress, and abuse and neglect. Maternal-infant attachment may be hindered, leading to life-long problems with emotional bonding and positive social interaction. A study completed by Paris, Bolton, and Weinberg (2009), reported that women with high suicidality experienced greater difficulty with severe mood swings, cognitive distortions, and severe postpartum symptomology, as well as decreased perceived self-esteem, poor infant attachment, and were less sensitive to their infant's cues. PPD can also lead to postpartum psychosis if left untreated, in which the patient may experience suicidal ideations or infanticide. Prevention through early detection is crucial in the promotion of maternal and neonatal health.

Barriers to Screening for Postpartum Depression

The lack of a standard of care for routine PPD screening and the lack of mandated screening protocols has resulted in low incidence of PPD screening and has been identified as a barrier in PPD screening. Routine screening for PPD has not been mandated by each state across the U.S., lowering the incidence of routine screening. Although the Patient Protection and Affordable Care Act of 2010 requires routine screening coverage by insurance carriers, not every state mandates routine screening. Only two states, Illinois and New Jersey, have instituted mandates regarding routine PPD screening and insurance coverage for maternal health treatment.

The ability of the health care provider to accurately recognize signs and symptoms of

PPD has identified as a barrier in the screening process for PPD. Often PPD is underdiagnosed simply because women are not asked about symptoms despite numerous prenatal and postnatal visits to the health care provider (Clemmons, Driscoll, & Beck, 2004). Clinicians must maintain ongoing education for professional development to refine skills necessary to meet competencies in maternal health.

Compliance by nurses in administration of screening tools has also been identified as a barrier in the screening process for PPD. Although health care providers and clinicians may have an understanding of the importance of PPD screening, compliance in accurately screening each patient remains a problem. The length of time for interaction with the patient during the patient visit, or perceived ability to complete screening by the nurse in a timely manner during the patient visit contribute to the lack of compliance by the health care provider or nurse, thus lowering the incidence of screening for PPD.

Evidence of the Problem

National

Approximately 10-20% of women in the United States are diagnosed with postpartum depression, reaching upwards to 40-60% of women living in poverty (Kralj, 2014). Under the Patient Protection and Affordable Care Act of 2010, federal regulations require insurance companies to offer payment for preventative screening for PPD and provide grants to offset the cost of managing PPD care (Santoro & Peabody, 2010). As there is no standard of care for PPD screening in the U.S., the U.S. Preventative Services Task Force supports the need for routine screening of pregnant women. Federal programs, such as the U.S. Department of Health and Human Services and the Maternal and Child Health Bureau, have established health care priorities for maternal health populations across the U.S. that support screening for PPD. The

American College of Obstetricians and Gynecologists (2015) recommended that routine postpartum detection screening should be completed at least once in the prenatal setting and OB/GYN staff is responsible for initiating follow-up and treatment.

Local/State

New Jersey was the first state to require routine postpartum depression screening in physician offices, including OB/GYN facilities, pediatrics, and primary care (Wilkinson et al., 2017). Farr, Denk, Dahms, & Dietz (2014), concluded that in the state of New Jersey, prenatal and inpatient screening and education was effective and resulted in more patients being screened for postpartum depression. State mandates should be made by policymakers in efforts to increase incidence of routine screening in the prenatal period, thus decreasing costs for management of PPD care. In 2004, the Illinois Medicaid system began to reimbursement for clinicians for PPD screening, resulting in an increased incidence in routine screening practices (Santoro & Peabody, 2010). In 2016, the Provisional Report from the National Division of Health Statistics indicated that in South Carolina, 57, 334 births were recorded, and of those, 72% were reported as having prenatal care beginning in the first trimester (National Center for Health Statistics, 2017). There is currently no standard of care for postpartum screening in South Carolina. Given high percentages of patients receiving prenatal care in the first trimester in SC, routine prenatal screening could positively affect maternal and fetal outcomes within the population.

Significance for Nursing

Maternal and neonatal nurses play an important role in the identification and management of perinatal mood disorders. In the prenatal setting, nurses establish trusting relationships with pregnant women as they are seen by office staff frequently during pregnancy. Routine prenatal visits offer opportunities for nurses to promote open dialog and communication with patients that

may be experiencing pregnancy related stressors. This is an important time for the nurse to employ PPD prevention methods and treatment modalities that will foster better maternal and neonatal outcomes under the direction of the overseeing provider. Early recognition through prenatal screening for risk factors will promote healthy outcomes, which can be nurse driven.

Review of Evidence

A review of literature was conducted to reveal evidence-based practice research for early screening and detection of risk factors associated with postpartum depression. The literature review was first conducted using three of 24 nursing databases, including CINAHL, ScienceDirect, and Ovid. Key words utilized were postpartum depression, postpartum depression screening, postpartum depression theory, postpartum depression in nursing, prenatal depression, prenatal depression screening, and postpartum depression in the United States. Key word search for postpartum depression via CINAHL yielded 4,707 articles. Filters were applied for years 2011-2017 and narrowed to English articles only, yielding 2,170 articles. Articles were selected on areas of interest, such as compliance, barriers, and standard of care. Postpartum depression in nursing via CINAHL yielded just 35 results, while key words postpartum depression screening yielded 117 with the same filter. Key words postpartum depression theory was searched via CINAHL without filters. The search resulted in 11 articles. These articles were exclusively utilized for research conducted on nurse theorist, Cheryl Beck, DNSc, CNM, FAAN. Key words prenatal depression via CINAHL search yielded 129 articles, while prenatal depression screening yielded 4 articles. Key words postpartum depression in the United States via CINAHL yielded 34 articles. Articles were selected based on author, theory, utilization of the PDPI-R tool, barriers, PPD education, neonatal outcomes, and prevalence of PPD.

ScienceDirect generated a larger number of articles with various key words in comparison to CINAHL. Key words postpartum depression yielded 17, 928 articles. Filters were then applied, including English. Years of publication was an added filter. 2018 yielded 84 articles; 2017 yielded 1,130; 2016 yielded 1,079, and 2015 yielded 987 articles. Postpartum depression in nursing yielded 4,425 articles. Publication years limited to the last 5 years resulted in 1, 574 articles. Key word screening was added as a filter, which then resulted in 271 articles. Articles where then selected based on author, theory, maternal and neonatal outcomes, barriers to screening, and utilization of the PDPI-R tool.

Ovid generated the least number of relevant articles when keyword postpartum depression was searched. 120 articles were found initially. When adding the keyword screening and a filter of articles within the last 5 years, 494 articles were generated. Of these, articles were selected based on compliance and neonatal outcomes. Prenatal depression search revealed 435 articles within the last 5 years. Keyword postpartum depression theory revealed 116 articles published within the last 5 years. Keyword postpartum depression in nursing yielded the most articles within the Ovid database with 9, 495 articles within the last 5 years. Articles were then selected based on relevance to PPD prenatal screening, author, PPD theory, barriers to screening, neonatal outcomes, and utilization of the PDPI-R tool.

Risk Factors

Literature reveals significant research conducted on specific risk factors associated with the development of postpartum depression. Beck (2002), conducted a meta-analysis of studies completed during the 1990's, which resulted in the updated revised version of the PDPI. Thirteen risk factors identified by Beck (2002), are included in the PDPI-R screening tool. These risk

factors are assessed during the administration of the PDPI-R and serve as predictors of an increased probability of development of PPD in the postnatal period. Prevention of PPD can be achieved with early detection. Santoro and Peabody (2010) report that prenatal depression is the number one risk factor associated with the development of PPD. Childcare stress has been identified as a predictor of PPD, which can involve difficulties the mother experiences with managing care, as well as any health conditions the infant may have. Traumatic or stressful life events contribute to the overall life stress the mother may be experiencing. These life-changing events may not necessarily be perceived as all negative events by the mother, though increase her level of stress. Another predictor of PPD is social support, which is the perceived emotional care from family members, mate, and friends (Beck, 2002). Beck also describes prenatal anxiety as a risk factor for PPD, which can impact the mother at any stage during her pregnancy and involves apprehensive emotions and feelings about perceived threats to well-being. Marital satisfaction during pregnancy is assessed concerning the patient's perception of communication, attention, mutual respect, and well-being (Beck, 2002). The mother's history of previous PPD, as well as the temperament of the infant and the mother's ability to manage care of the infant is assessed as a risk factor. Presence of maternity blues is considered a normal phenomenon, generally lasting the first two weeks in the postnatal period in which the mother may experience anxiety, tearfulness, irritability, and mood swings, though is also identified as a risk factor for PPD. The mother's perceived self-worth and self-esteem can directly impact the mother's perceived ability to manage care of the infant and confidence level. Socioeconomic status and marital status are also risk factors associated with PPD. The level of education, financial ability or constraints, occupation, and degree of income, as well as marital status, whether divorced, unmarried,

widowed, or married, are assessed. The final risk factor assessed with the PDPI-R is unplanned or unwanted pregnancy.

A longitudinal cohort study completed by Leung, Letourneau, Giesbrecht, Ntanda, & Hart (2017), revealed that predictors of PPD in women included low socioeconomic status, low household income, low social support, smoking, high prenatal depressive symptoms, and a high number of stressful life events. The purpose of the study was to determine PPD predictors at three months postpartum by comparing depressed couples with couples with one parent with depressive symptoms. The study also revealed that fathers experienced PPD predictors similar to those of the mothers, including low household income, low social support, smoking, and high prenatal depressive symptoms.

A meta-analysis conducted by O'Hare & Swain (1996), reported predictors of postpartum depression were past history of depressive symptoms, negative perceived marital relationships, low social support, low socioeconomic status, and stressful life events. This quantitative meta-analysis was conducted to determine the effects of risk factors during pregnancy for postpartum depression. The authors reported the results of the study mirrored previous research on risk factor for PPD.

Negative Outcomes

Untreated and undiagnosed PPD can lead to detrimental effects on maternal and neonatal outcomes. Chaudron, Szilagyi, Campbell, Mounts, & McInerny (2007) reported that children exposed to maternal mental health conditions are adversely affected either by direct means or indirect means. Direct means may include impaired attachment, abuse, and neglect. Indirect means include missed well-child appointments, cessation of breastfeeding, and lack of

compliance with car seat safety measures. Direct and indirect effects of PPD result in life-long difficulties for the infant.

Untreated PPD also impacts health care costs in a variety of ways. Earl (2010) reported that "PPD leads to increased costs of medical care, inappropriate medical care, child abuse and neglect, discontinuation of breastfeeding, family dysfunction, and adversely affects early brain development" (p.1033). Kruper & Wichman (2017), conclude that maternal mental health disorders are directly linked to poor neonatal outcomes. Kruper & Wichman also report that untreated mental disorders in pregnant women negatively affect adherence to prenatal care, thus increase cost due to increased need for healthcare, as well as increase morbidity and mortality.

Earl (2010) also reported that PPD affects the maternal-infant relationship, creating an environment that adversely effects the infant's brain development, leading to impaired social interaction and delays in development. Early maternal-infant attachment is crucial in the development of cognitive abilities and well-being of the infant.

Spooner, Rastle, & Elmore (2012), suggest that quality prenatal social support structures, including network resources, have a direct impact on maternal & neonatal outcomes. Early identification of social and family support systems allows an opportunity for clinicians to properly intervene. Prevention strategies in the prenatal period can be implemented to decrease the development and progression of PPD in the postnatal period.

Barriers

Establishment of routine prenatal screening for PPD in the prenatal setting is necessary for early recognition and development of prevention strategies in the patient's plan of care. As only one state in the U.S. has initiated mandatory routine screening as a standard of care for maternal health, it is vital for all states to follow suit, requiring mandatory screening for PPD.

Screening is a crucial component in detection of those patients at risk. A study completed by O'Connor, Rossom, Henninger, Groom, & Burda (2016), supports the need for early detection of postpartum depression through routine screening, which may reduce depressive symptoms and prevalence of depression in the population.

In the women's health arena, clinicians must be vigilant in demonstrating best practices in alignment with current evidence-based practice guidelines. Recognition depends not only on skill and education specific to PPD by the health care provider, but also awareness during contact with the patient. PPD symptoms can be missed during postpartum visits or well-baby checkups due missed appointments or focus on the baby (Lind, Richter, Craft, & Shapiro, 2015). PPD is a complex condition that requires accurate assessment skills and knowledge for the recognition and monitoring of PPD. A study completed by Legere et al. (2017) suggests that "there is a need for initial education and ongoing professional development to improve the knowledge of perinatal depression, identification and intervention skills of health-care professionals caring for perinatal women at risk" (p.13).

Compliance by clinicians in the administration of PPD screening tools is also considered a barrier in identification of patients at risk for developing PPD. Psaros, Geller, Sciscione, & Bonacquisti (2010), completed a study regarding frequency in utilization of PPD screening tools among physicians, nurses, and midwives. The study reported that of those who did not routinely screen patients, 15% stated they had intended to use a screening tool, but did not due to time constraints.

Upon completion of a synthesis of literature on the risk factors of PPD, negative maternal and neonatal outcomes, and barriers to early PPD screening, it was determined that early detection of PPD through routine screening in the prenatal setting would increase the incidence

of PPD screening, thus improving patient safety and outcomes. A practice improvement project, aimed at increasing the number of patients identified as at-risk for developing PPD in the prenatal period, was developed. A valid and reliable screening tool was selected for administration in the project, proven to be appropriate for the prenatal setting.

Conceptual Framework

Nursing theoretical frameworks provide the foundation for applied knowledge in evidence-based practice and practice improvement projects. Nursing professionals utilize nursing theory to provide a foundation to build patient a centered plan of care. To narrow the focus of the conceptual framework for the project with a focus on PPD, Teetering on the Edge Theory of Postpartum Depression was selected.

Teetering on the Edge Theory of Postpartum Depression

Dr. Cheryl Beck, middle-range theorist, developed Teetering on the Edge Theory of Postpartum Depression. Her conceptual theory model has been utilized for the identification of pregnant women at risk for developing PPD. The theory provides a foundation for application of nursing knowledge in supporting women in varying stages of PPD. Beck describes four stages of PPD within the structure of her theory: encountering terror, dying of self, struggling to survive, and regaining control, all of which encompass loss of control (Marsh, 2013). During assessment of the patient, the nurse can utilize his or her nursing judgement to appropriately make associations with patient symptoms and the stages of PPD. Through proper recognition of the stages of PPD by the clinician, intervention can be implemented to provide treatment options and support. Patients with a previous history of PPD, or patients experiencing depressive symptoms in the prenatal period, must be monitored closely. During the implementation phase of the project, education will be provided for staff on the four stages of PPD. Focused attention of the

importance of awareness, recognition of symptoms and behaviors congruent with PPD, and support for the patient, will be provided.

Model of Motivational Design

During the implementation of the project, educational sessions with office clinicians, and proper administration of the screening tool for PPD, the DNP role integrates adult learning theory, application and nursing practice. It is important to apply an adult learning theory for inclusion as a foundational nursing theory. The DNP nurse educator must assess the learning styles of the learner in attempts to provide an effective learning environment. In 1987, John Keller, and instructional theorist, developed a Model for Motivational Design, in which he focused on four essential human behavioral aspects that must be engaged by the learner during the learning process (Gatti-Petito et al., 2013). The four aspects include attention, which spurs the learner's interest; relevance, which the learner can associate previously learned knowledge; confidence, which builds as the learner acquires new knowledge; and satisfaction, which can be an intrinsic reaction to learning (Gatti-Petito et al., 2013). While the DNP educator is apt in application of theoretical concepts and theory, application of Keller's Model of Motivational Design will enhance the learners experience and retention of knowledge and concepts in the educational session. The DNP educator can encourage and promote learning through strategies and teaching techniques that incorporate the student's active participation, such as role play, demonstration with error correction, and opportunities for feedback.

Methodology

The practice improvement project was implemented in an OB/GYN physician office setting in South Carolina. A needs assessment was completed by the principle investigator in collaboration with the office Clinical Coordinator and RN staff. It was confirmed that routine

screening for PPD was not included in the care of patients within the practice. No screening tool was used in practice by the providers nor the nursing staff. During the patient interview by the RN during the patients second trimester visit (approximately 13 weeks gestation), it was revealed that patients were not routinely asked about their mental health by the nursing staff. The OB/GYN office is owned by a county hospital network, consisting of five OB/GYN physicians. One physician has been identified as the author's collaborative partner and mentor. The Practice Manager and Clinical Coordinator (RN) assisted in collaboration with the project. The initial meeting with the office staff revealed open communication and the proposed project was well received. An overview of the project was presented, including components of the educational session, administration of the tool, timeframe of completion, and level of commitment and involvement of the staff.

Instruments and Education

Concluding a literature review on varying screening tools for PPD, a valid and reliable screening tool was selected. The Postpartum Depression Predictors Inventory-Revised screening tool is a 32-item scale with 13 subscales representing risk factors of PPD. The tool includes 10 predictors specific to prenatal factors and 3 postnatal factors. The 10 prenatal factors include marital status, socioeconomic status, self-esteem, prenatal depression, prenatal anxiety, unwanted/unplanned pregnancy, history of previous depression, social support from husband/mate, family and friends, marital satisfaction, and life stresses (Youn & Jeong, 2011). As indicated by Youn & Jeong (2011), the PDPI-R is appropriate for administration during the prenatal setting.

Postpartum Depression Predictor Inventory-Revised

Explicit written permission was received by the author and developer of the PDPI-R screening tool. The tool was published in the public domain and written permission was not deemed necessary, as described by the author, Dr. Cheryl Beck. Written permission will be included as an appendix.

Validity and reliability.

A study completed by Youn & Jeong (2011), tested predictive reliability of the PDPI-R via a descriptive cross-sectional design study revealing good predictive validity and ".927 for the full version. The sensitivity and specificity were 87.3% and 85.1%, respectively, at a cutoff point of 9.5 for the full version, and 91.5% and 66.1%, respectively, at a cutoff point of 5.5 for the prenatal version" (p. 214). A study completed by Oppo et al. (2008) tested the validity and reliability of the PDPI-R and concluded that "the Prenatal and Full Version of the PDPI-R predicted accurately 80.3% and 882.2% of PPD. The prenatal PDPI-R yielded sensitivity of .72 and specificity of .74 and a cut-off score of 4.5, while the Full Version yielded .83. The PDPI-R is a useful and valid screener for PPD" (S259). The literature also reveals another study completed by Oppo et al. (2009), concluding "The prenatal version of the PDPI-R administered at two different time points during pregnancy predicted accurately 72.6% and 78.2% of PPD and the full version administered at the 1st month after delivery predicted 83.4% of PPD. The cutoffs identified were 3.5 for the prenatal version and 5.5 for the full version. The PDPI-R is a useful and a valid screening tool for PPD" (p.239).

Based on validity and the structure of the PDPI-R, the tool was selected as an appropriate tool to be utilized in the project for the prenatal period. The tool was deemed useful in the prenatal setting and should be administered by a trained clinician, in which the tool also provides

guide questions for the clinician for optimal clarity for the patient during administration. The tool should be administered in an appropriate setting by the clinician which fosters open communication and safety for sharing of emotions and experiences.

Postpartum Depression Staff Education

Educational training was conducted to include the physician, registered nurses responsible for administering the tool, and the medical assistant to establish a united front in the significance of postpartum depression, as well as a culture of caring for pregnant women at risk for developing postpartum depression. A lunch-and-learn was provided by the principle investigator during the educational session. The educational session concluded after 30 minutes. Participants were asked to attend the educational session and complete an evaluation to validate learning and perception of the educational session experience. The educational session was provided in two sessions to reinforce accurate understanding of the implementation process and to identify areas of uncertainty for staff. Resources utilized included PowerPoint for visual learners, the PDPI-R document, role play with demonstration, and additional time for open dialog was provided to encourage and promote motivational learning. Staff was receptive to learning and actively participated in the educational session.

Staff Education for Administration of Tool

The office registered nurse was responsible for administering the tool. During the second or third trimester prenatal visit, the registered will administer the PDPI-R screening tool with the subject for identification of risk factors associated with PPD. Specific training was provided during the training session, including proper administration of the PDPI-R tool and guide questions for the 10 prenatal predictors that clinicians can utilize to promote open dialog with the patient. Training on administration of the tool was included in the educational session.

Administration of the tool was completed in the patient room, and privacy was provided to foster a safe, calm environment for open communication and accurate documentation. If the subject scores a minimum of 10.5 on the screening tool, an indication can be asserted that the subject is at high risk for developing postpartum depression (Beck, 2002). During the educational session for the administration of the tool, the registered nurse was trained on properly flagging the chart via EPIC, the electronic health record (EHR) in use within the organization. This provided a means to alert the physician of the high-risk score. The nurse was also instructed on proper documentation of the administration of the tool and high or low risk score. The nurse was also instructed on interpreting the patient score via instructions provided by Dr. Cheryl Beck's PDPI-R tool. The PDPI-R tool and patient consent form was provided in paper and pen format by the principle investigator. The nurse was trained to provide a copy of the patient consent form to the patient upon agreement to accept the screening tool. The tool was administered and scored by the nurse. The score was documented in the EHR as an encounter note by the nurse. All high-risk scores were documented as an encounter note. To alert the physician of a high-risk score, the nurse documented a task note, which prompted the physician to respond with orders. The physician then ordered follow up treatment to return for additional office visit with the physician or ordered a referral to counseling with a licensed professional. The registered nurse was trained to respond to all physician responses with accuracy to ensure follow-up treatment was implemented.

Institutional Review Board Approval

The Institutional Review Board (IRB) at the University of Alabama Huntsville (UAH) is committed to protected the rights and privacy of all human subjects participating in research projects in relation to enrolled student involvement. In compliance with Federal Government

regulations and guidelines exhibited in the Title 45 of the Code of Federal Regulations, Part 46, the UAH requires all research projects involving human subjects be subject to approval from the IRB department. IRB approval provides an assurance that research projects produced are in strict compliance with the regulations and policies of the Federal Government, thus providing safety and confidentiality to human subjects, minimal risk has been as established in relation to the benefit of the project, subjects are adequately informed and consent is voluntary, and the project excludes vulnerable populations. IRB approval was obtained on November 28, 2018. See Appendix XXXX. See Appendix XXX for informed consent document.

Implementation

The aim of this practice improvement project is to implement the Postpartum Depression Predictor Inventory-Revised (PDPI-R) screening tool for identification of patients at risk for developing PPD early in second or third trimester of pregnancy. The tool was administered by the registered nurse to each pregnant patient during the second or third trimester prenatal visit for a four-week period. The instrument was provided to the office staff by the Principal Investigator in paper and pencil format. The tool was administered in the privacy of the patient room with only the patient and the registered nurse present. All family members were escorted to the family waiting area upon agreement with the patient. The patient was informed the tool will be administered and consent documentation was obtained by the registered nurse. The patient was given a copy of the signed consent form. Documentation of administration of the tool was documented by the nurse regardless of risk score. All high-risk scores were reported to the physician via the EHR through a task note. The physician responded with orders. The physician was then notified of the score, including high-risk scores and the patient was seen by the physician on the same day. No patients presented with suicidal ideations. A plan was in place to

address this issue. Patients who present with suicidal or homicidal thoughts were referred to the hospital for urgent psychiatric treatment by the physician. Those patients flagged as high risk were referred for a consult with a licensed professional for mental health counseling. Immediate follow-up for intervention was initiated by the registered nurse upon in compliance with the physician order.

Data Collection

In accordance with the Health Insurance Portability and Accountability Act (HIPPA) regulations and policies in place at Lexington Women's Care Sandhills, the principle investigator of the project was in full awareness of HIPPA regulations and acted in strict compliance with patient confidentiality during chart audits and only information obtained was for the completion of the Data Collection tool. Data was collected via chart review four weeks prior to implementation of the screening tool. Charts were reviewed via the Electronic Medical Record (EMR). A Data Collection tool was developed by the principle investigator of the project. See Appendix D for the Data Collection document. Search criteria included pregnant females in the second or third trimester of pregnancy, ages 19-49, and not of a vulnerable population. Vulnerable patient populations were excluded from the chart review, including patients under the age of 19 and incarcerated patients. Patient identifiers were excluded from the Data Collection document. A further search filter was added to obtain previous history of a mental health disorder. Chart reviews included the number of patients identified as high-risk without administration of a screening tool in the prenatal period. At the conclusion of the implementation period, data was collected via chart review to include the number of patients seen by the provider during the second or third trimester visit, the number of patients that was administered the PDPI-R tool, number of patients that were identified as high risk for developing postpartum depression,

and the number of patients with a previous history of mental health disease. The post-implementation chart review included the same filters as the pre-implementation chart review. The Data Collection tool was also utilized for chart review documentation during the post-implementation phase. For patients who scored high-risk on the PDPI-R tool, information was obtained from the chart review regarding appropriate steps taken by the nursing staff, including reporting of the PDPI-R score to the physician the day of the administration of the tool, proper documentation of the score in the chart, and information regarding intervention, such as referral to social worker for mental health counseling.

Evaluation

The evaluation process of the project included a comparison analysis. The variables included the number of patients in the second or third trimester seen by the physician, ages 19-49, number of patients that were administered the PDPI-R tool, and the number of patients identified as high-risk for developing PPD based on a high- risk score. Comparison was made on the two different groups, including those who met the criteria in the pre-implementation period and those seen in the post-implementation period. The data was then evaluated to establish a percentage representing the number of patients at risk for developing PPD. Project objectives were identified early in this paper. The research objective number one involved increasing office staff knowledge on the significance of PPD, causes, symptoms, and the need for prevention through early screening. This outcome was evaluated based on the number of staff members that completed the educational session training and evaluation form. The research objective number two involved achievement goal of 100% compliance in administration of the PDPI-R screening tool. This outcome was evaluated based on the total number of patients seen by the physician in the second or third trimester, ages 19-49, and the total number of patients seen by the physician

in the second or third trimester in which administration of the PDPI-R tool was validated. The research objective number three involved the increased number of patients identified as high risk through early identification via administration of the PDPI-R screening tool. At completion of the project, pre-implementation data collection on the number of patients identified as high risk for developing PPD was compared to the post-implementation data collection on the number of patients identified as high-risk for developing PPD.

Objective number one.

1. **Increase office staff knowledge on the significance of PPD, causes, symptoms, and the need for prevention through early screening in the prenatal period**.

The evaluation method used for objective number one involved analysis of the number office clinicians that completed the educational session training and the number of office clinicians that completed the Post Test with 100% accuracy, validating competency in proper administration of the PDPI-R tool. The educational sessions were provided by the principle investigator in two thirty-minute lunch & learn sessions. For clinicians who did not score 100% on the Post Test, additional training was required. Four clinicians completed training session number one. Four clinicians completed training session number two. For educational training session number one, four clinicians completed the Post Test with 100% accuracy, validating competency in proper administration of the PDPI-R tool. For educational training session number two, four clinicians completed the Post Test with 100% accuracy, validating competency in proper administration of the PDPI-R tool.

Objective number two.

2. Achievement goal of 100% compliance in administration of the PDPI-R screening tool.

Evaluation of research objective number two was determined in the post-implementation phase of the project after administration of the PDPI-R tool was enforced for 100% compliance by the office clinicians. The evaluation method involved analysis of the total number of eligible patients seen, that met the criteria and the total number of patients seen in which administration of the PDPI-R tool could be validated via the chart review.

Objective number three.

3. Increasing the number of patients identified as high risk through early identification via administration of the PDPI-R screening tool.

Research objective number three involved an increase in the number of patients identified as high-risk for developing PPD. Evaluation was determined in the post-implementation data collection through comparison analysis of the total number of patients seen in the pre-implementation phase of the project who met the criteria and the total number of patients seen in the post-implementation phase of the project who met the criteria and was administered the PDPI-R tool. The numbers were compared to reveal if the implementation of the PDPI-R increased the number of patients identified as high risk in the second trimester of pregnancy.

Results: Presentation of Findings

After completion of the practice improvement project, a comparison analysis was performed to reveal the outcomes of the research objectives defined within the project as met or not met. Each research objective was systematically approached and results are as follow.

Objective number one.

1. **Increase office staff knowledge on the significance of PPD, causes, symptoms, and the need for prevention through early screening in the prenatal period.**

Of the number of office clinicians identified as participants in the project improvement project, all participants completed the Educational Training Sessions. 100% completed the Post Test with 100% mastery to validate competency. All participants completed the Educational Session Evaluation form to provide feedback on the Principle Investigator's training performance and perception of the Educational Session experience. Research objective number one was met at 100%.

Objective number two.

2. **Achievement goal of 100% compliance in administration of the PDPI-R screening tool.**

After the post-implementation chart review, data collection revealed that during the implementation period, 63 eligible patients were identified that met the criteria. Of those, 41 patients had been administered the PDPI-R tool. Of the 63 eligible patients, three had not been administered the tool. 18 patients declined to participate. Research objective number two was partially met: 4.8 % (3 pts) were not offered the tool due to perceived time constraints, 28.6% (18 pts) declined, 65.1% (41) accepted the tool.

Objective number three.

3. **Increasing the number of patients identified as high risk through early identification via administration of the PDPI-R screening tool.**

The final research objective was evaluated during the post-implementation phase of the practice improvement project. Analysis of the data collection revealed that 119 eligible patients was seen during the pre-implementation phase. Of those, zero patients were identified as high-risk for developing PPD. Data revealed that 19 of those patients had a previous history of a

mental health disorder. Two of those 19 received follow-up care. 117 patients of the eligible patients did not receive any PPD screening or follow-up treatment.

Analysis of the data collection revealed that 63 patients were seen that met the criteria for inclusion during the post-implementation phase. Of those, six patients were identified as high-risk with administration of the PDPI-R tool. In comparison, data collection revealed that 15% of patients were identified as high-risk with administration of the PDPI-R tool. Research objective three was met.

Limitations

A limitation identified with the construct of the practice improvement project was the length of the implementation period. The methodology of the design included a four-week pre-implementation and implementation period in which data collection through chart review was conducted. Thus, the sample size was limited to the number of patients within the short window of four-weeks. The implementation period was also conducted during a holiday season which impacted the number of patients seen in the office and the number of days the physician had to accommodate patients in the office.

A second limitation identified with the practice improvement project was compliance of the nursing staff to administer the tool to each patient seen at the second trimester. Education on the importance of 100% compliance during the implementation period was integrated into the staff educational sessions, although it was discovered during the chart review of the implementation period that three patients were not administered the tool due to perceived lack of time to administer the tool by the nursing staff.

Recommendations

The initial data analysis results of the practice improvement project proved that the project implementation was successful in increasing the number of patients identified as at risk for developing PPD. The primary prevention model for early detection was properly executed and objective numbers one and three were met successfully. Objective number two was partially met. In efforts to decrease the number of women diagnosed with PPD in the postnatal period, it is recommended that prenatal screening be implemented in the OB/GYN office setting. Routine screening will increase the number of patients identified as high risk, thus follow-up treatment and care can be provided.

Recommendations on future projects with similar design include improving analytical data results by increasing the length of the implementation period. A longer implementation period will yield a larger sample size, thus improving validity of the project results. In efforts to increase the sample size of the project, it is also recommended that the sample size could be increased with utilization of more than one physician patient group.

A second recommendation for future projects is to incorporate more education for staff on the importance of 100% compliance in administration of the tool during the implementation period. Visual demonstration of the steps involved in proper placement of the PDPI-R document within the designated nursing department may increase the compliance rate of staff as well.

A final recommendation would be for integration of the PDPI-R within the Electronic Health Record (EHR) for improvement in staff compliance. A hard stop could be incorporated into the EHR that would ultimately force staff to administer the tool for specific patients based on the reason for their visit. This hard stop would be integrated into the EHR by the Information Technology department within the facility and staff education would be provided. This recommendation is made to increase staff compliance and ease of use for the clinician.

Professional Journal Selection

Birth: Issues in Perinatal Care was selected as the professional journal for manuscript submission post completion of the project based on content of previous accepted manuscripts for publication and target audience of the journal.

Scope of the Journal

This journal is written for and by maternal and neonatal health care professionals practicing and caring for childbearing women, infants, and families. Birth: Issues in Perinatal Care issues peer-reviewed articles with focus on women's health, and is appropriate for Labor and Delivery nurses, neonatal nurses, midwives, physicians, public health workers, doulas, lactation consultants, childbirth educators, and other caregivers and policymakers in perinatal care (International Academy of Nursing Editors, 2017).

Aim of the Journal

According to the International Academy of Nursing Editors (2017), *Birth* has identified the aim of the journal, which includes publishing original, well-designed, peer-reviewed research on issues in pregnancy and childbirth. The journal indicates the importance of evidence-based research in changing clinical practices and seeks to present a forum for discussing current issues in maternal and newborn care. *Birth* is dedicated to providing articles on topics of major importance in perinatal care and analysis of birth experiences of low-risk women.

Implementation of a Risk Factor Screening Tool for Early Detection of Postpartum Depression in the Prenatal Setting

Implementation of a Risk Factor Screening Tool for Early Detection of Postpartum Depression in the Prenatal Setting

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Abstract

Background: Postpartum depression (PPD) is a mental health condition affecting approximately 10-20% of pregnant women in the United States (Wilkinson, Anderson, & Wheeler, 2017). PPD is often underdiagnosed and undertreated, leading to negative neonatal and maternal outcomes. The aim of this practice improvement project is to implement the Postpartum Depression Predictor Inventory-Revised (PDPI-R) screening tool for identification of patients at risk for developing PPD early in second or third trimester of pregnancy.

Objective number one: increase office staff knowledge on the significance of PPD, causes, and symptoms. Objective number two: 100% compliance in administration of the PDPI-R screening tool. Objective number: increase the number of patients identified as high risk with use of screening tool.

Methods: The project was implemented over a four-week period in an OB/GYN office in a southeastern state. Pre-implementation chart review was completed to reveal the number of patients identified as high-risk for PPD in the prenatal setting without use of a screening tool. Post-implementation chart review completed to reveal number of patients identified as high-risk with use of the Postpartum Depression Predictor Inventory-Revised screening tool.

Results: Pre-implementation data analysis concluded 119 patients met criteria for screening. Of those, 117 did not receive screening. Nineteen patients had a history of mental health disorder, received follow-up care. Post-implementation data revealed 61 patients eligible, 41 screened, 18 declined screening, 3 were not offered screening, and six screened high-risk.

Conclusion: 15% increase in the number of patients identified as high-risk with the use of the screening tool.

Postpartum depression (PPD) is a mental health condition affecting women that can lead to detrimental effects for the mother, infant, and family unit if left undiagnosed. PPD affects 10-20% of women living in the United States (Wilkinson, Anderson, & Wheeler, 2017). Evans, Phillipi, & Gee (2015) report prevalence rates of PPD symptoms were found to be higher among African American and Hispanic race, lower socioeconomic class, adolescent mothers, primigravids, and/or experienced a high-risk pregnancy, with rates ranging from 21% to 60%. No standard of care for routine screening has been established in the United States, despite recommendations from leading experts in maternal and neonatal care. The U.S. Preventative Services Task Force supports the need for routine prenatal screening for PPD in the promotion of maternal and infant health (U.S. Preventative Services Task Force, 2015). The Maternal and Child Health Bureau and the U.S. Department of Health and Human Services have identified the need to support programs and screening in efforts to reduce incidence of PPD in the promotion of maternal and neonatal health. The American College of Obstetrics and Gynecology (2016) recommends screenings patients at least once in the prenatal period for depression and anxiety. Although all women are considered high risk for developing PPD in the postpartum period, specific risk factors are associated with its occurrence, which will be discussed in this paper. The importance of early detection and primary prevention through early screening, maternal and neonatal negative outcomes, and barriers associated with identification of signs of PPD will be addressed within the paper.

Background and Significance

PPD is considered the leading cause of major depressive disorders in women of childbearing age, which may result in postpartum psychosis is left untreated (Woody, Ferrari, Siskind, Whiteford, & Harris, 2017). PPD is characterized by signs and symptoms of severe

mood swings, uncontrollable crying, irritability, suicidal ideations, fear, confusion, anger, sadness, and infant detachment (Wilkinson et al., 2017).

Baby Blues

PPD is often difficult to diagnose in the immediate postpartum period, as the symptoms are similar to what is historically referred to as the "baby blues." Symptoms include crying and tearfulness, feelings of being overwhelmed by motherhood, and uncertainty over caregiving. Postpartum blues is not considered a form of depression and gradually subsides.

Postpartum Depression Symptoms

PPD symptoms, however, persist beyond the first two weeks postpartum. Fluctuations in emotions due to the stress of labor, delivery of the infant, lifestyle change, and adjustment to caring for the neonate, often occur in the first two weeks after delivery, and is considered a normal finding due to hormonal changes occurring in the body after delivery of the infant, affecting 50% -80% of women postpartum (Santoro & Peabody, 2010). Obsessive thoughts regarding the infant are also symptoms associated with PPD, but do not include infanticide.

Postpartum Psychosis

Postpartum psychosis involves rapid onset feelings of confusion, disorganized thoughts, hallucinations, agitation, bizarre behavior and apparent delirium, infanticide and suicide, constituting a medical emergency and requiring immediate intervention (Marder, 2014). Patients with a previous diagnosis of bipolar disorder at are at greater risk for experiencing postpartum psychosis episodes (Wesseloo et al., 2016).

Identification of the Problem

Low incidence of prenatal screening for PPD can be attributed to several factors, including knowledge deficits and skill related to the recognition of symptoms of PPD by the clinician, perceived lack of time by the clinician, lack of screening, and the patient's willingness to reveal their experiences and symptoms of PPD. Kalina (2015) reported that over 50% of women experiencing PPD are left untreated due to lack of detection through early screening. During the prenatal period, not all women experience symptoms of prenatal depression, although other predictors can be identified that increase the risk of PPD in the postnatal period. Symptoms can be missed in the postnatal period simply because the mother's focus is often on the infant, as well as missed appointments due to adjustments in daily routines with the new infant in the home. A practice improvement project was designed to address the problem of low incidence of screening for PPD. The aim of the practice improvement project is to increase identification of pregnant women at risk for developing postpartum depression early in the prenatal setting through a primary prevention model.

Objectives were identified to aid in the evaluation of outcomes for this practice improvement project. The first research objective identified is to increase office staff knowledge on the significance of PPD, causes, symptoms, and the need for prevention through early screening in the prenatal period. The second identified research outcome includes achievement goal of 100% compliance in administration of the PDPI-R screening tool. The final research objective identified is increasing the number of patients identified as high risk through early identification via administration of the PDPI-R screening tool.

Significance for Nursing

Maternal and neonatal nurses play an important role in the identification and management of perinatal mood disorders. In the prenatal setting, nurses establish trusting relationships with

pregnant women as they are seen by office staff frequently during pregnancy. Routine prenatal visits offer opportunities for nurses to promote open dialog and communication with patients that may be experiencing pregnancy related stressors. This is an important time for the nurse to employ PPD prevention methods and treatment modalities that will foster better maternal and neonatal outcomes under the direction of the overseeing provider. Early recognition through prenatal screening for risk factors will promote healthy outcomes, which can be nurse driven.

Statement of the Problem

In efforts to reduce the incidence of PPD and negative outcomes associated with untreated postpartum depression, routine screening in the prenatal period should be initiated by trained clinicians. Reducing vulnerability to postpartum depression can be achieved through primary prevention methods, such as early screening. Early recognition of PPD in the prenatal setting by the healthcare team will ensure subsequent follow-up treatment and monitoring of PPD in the immediate postpartum period, thus delays in treatment will be avoided, resulting in reduced incidence of poor maternal and neonatal outcomes. Kruper & Wichman (2017), suggest early screening for psychological conditions allows for detection of relevant clinical manifestations associated with postpartum depression and appropriate coordination of treatment plans. Primary prevention allows for identification of those patients at risk through implementation of a standard screening tool, increases awareness, facilitates engagement of preventative tools and resources, and offers reliable treatment options. Early screening reduces the severity and duration of symptoms of PPD and allows for opportunities for open dialog, thus reducing the stigma for patients. Screening instruments are utilized as tools for early detection. Patients identified as high risk should be referred to a mental health professional trained in

perinatal mood disorders for clinical assessment and evaluation, diagnosis, and establishment of treatment plans.

Evidence of the Problem

National

Approximately 10-20% of women in the United States are diagnosed with postpartum depression, reaching upwards to 40-60% of women living in poverty (Kralj, 2014). Under the Patient Protection and Affordable Care Act of 2010, federal regulations require insurance companies to offer payment for preventative screening for PPD and provide grants to offset the cost of managing PPD care (Santoro & Peabody, 2010). As there is no standard of care for PPD screening in the U.S., the U.S. Preventative Services Task Force supports the need for routine screening of pregnant women. Federal programs, such as the U.S. Department of Health and Human Services and the Maternal and Child Health Bureau, have established health care priorities for maternal health populations across the U.S. that support screening for PPD. The American College of Obstetricians and Gynecologists (2015) recommended that routine postpartum detection screening should be completed at least once in the prenatal setting and OB/GYN staff is responsible for initiating follow-up and treatment.

Local/State

New Jersey was the first state to require routine postpartum depression screening in physician offices, including OB/GYN facilities, pediatrics, and primary care (Wilkinson et al., 2017). Farr, Denk, Dahms, & Dietz (2014), concluded that in the state of New Jersey, prenatal and inpatient screening and education was effective and resulted in more patients being screened for postpartum depression. State mandates should be made by policymakers in efforts to increase incidence of routine screening in the prenatal period, thus decreasing costs for management of

PPD care. In 2004, the Illinois Medicaid system began to reimbursement for clinicians for PPD screening, resulting in an increased incidence in routine screening practices (Santoro & Peabody, 2010). In 2016, the Provisional Report from the National Division of Health Statistics indicated that in South Carolina, 57, 334 births were recorded, and of those, 72% were reported as having prenatal care beginning in the first trimester (National Center for Health Statistics, 2017). There is currently no standard of care for postpartum screening in South Carolina.

Conceptual Framework

Nursing theoretical frameworks provide the foundation for applied knowledge in evidence-based practice and practice improvement projects. Nursing professionals utilize nursing theory to provide a foundation to build patient a centered plan of care. To narrow the focus of the conceptual framework for the project with a focus on PPD, Teetering on the Edge Theory of Postpartum Depression was selected.

Teetering on the Edge Theory of Postpartum Depression

Dr. Cheryl Beck, middle-range theorist, developed Teetering on the Edge Theory of Postpartum Depression. Her conceptual theory model has been utilized for the identification of pregnant women at risk for developing PPD. The theory provides a foundation for application of nursing knowledge in supporting women in varying stages of PPD. Beck describes four stages of PPD within the structure of her theory: encountering terror, dying of self, struggling to survive, and regaining control, all of which encompass loss of control (Marsh, 2013).

Methodology

The practice improvement project was implemented in an OB/GYN physician office setting in South Carolina. A needs assessment was completed by the principle investigator in collaboration with the office Clinical Coordinator and RN staff. It was confirmed that routine

screening for PPD was not included in the care of patients within the practice. No screening tool was used in practice by the providers nor the nursing staff.

Instrument

The Postpartum Depression Predictors Inventory-Revised (PDPI-R) screening tool is a 32-item scale with 13 subscales representing risk factors of PPD, which was selected for the project. The tool includes 10 predictors specific to prenatal factors and 3 postnatal factors. The 10 prenatal factors include marital status, socioeconomic status, self-esteem, prenatal depression, prenatal anxiety, unwanted/unplanned pregnancy, history of previous depression, social support from husband/mate, family and friends, marital satisfaction, and life stresses (Youn & Jeong, 2011).

Postpartum Depression Staff Education

Educational training was conducted to include the physician, registered nurses responsible for administering the tool, and the medical assistant to establish a united front in the significance of postpartum depression, as well as a culture of caring for pregnant women at risk for developing postpartum depression. A lunch-and-learn was provided by the principle investigator during the educational session. The educational session concluded after 30 minutes. Participants were asked to attend the educational session and complete an evaluation to validate learning and perception of the educational session experience. The educational session was provided in two sessions to reinforce accurate understanding of the implementation process and to identify areas of uncertainty for staff. Resources utilized included PowerPoint for visual learners, the PDPI-R document, role play with demonstration, and additional time for open dialog was provided to encourage and promote motivational learning. Staff was receptive to learning and actively participated in the educational session.

Staff Education for Administration of Tool

The office registered nurse was responsible for administering the tool. During the second or third trimester prenatal visit, the registered will administer the PDPI-R screening tool with the subject for identification of risk factors associated with PPD. Specific training was provided during the training session, including proper administration of the PDPI-R tool and guide questions for the 10 prenatal predictors that clinicians can utilize to promote open dialog with the patient. Training on administration of the tool was included in the educational session. Administration of the tool was completed in the patient room, and privacy was provided to foster a safe, calm environment for open communication and accurate documentation. If the subject scores a minimum of 10.5 on the screening tool, an indication can be asserted that the subject is at high risk for developing postpartum depression (Beck, 2002). During the educational session for the administration of the tool, the registered nurse was trained on properly flagging the chart via EPIC, the electronic health record (EHR) in use within the organization. This provided a means to alert the physician of the high-risk score. The nurse was also instructed on proper documentation of the administration of the tool and high or low risk score. The nurse was also instructed on interpreting the patient score via instructions provided by Dr. Cheryl Beck's PDPI-R tool. The PDPI-R tool and patient consent form was provided in paper and pen format by the principle investigator. The nurse was trained to provide a copy of the patient consent form to the patient upon agreement to accept the screening tool. The tool was administered and scored by the nurse. The score was documented in the EHR as an encounter note by the nurse. All high-risk scores were documented as an encounter note. To alert the physician of a high-risk score, the nurse documented a task note, which prompted the physician to respond with orders. The physician then ordered follow up treatment to return for additional office visit with the physician

or ordered a referral to counseling with a licensed professional. The registered nurse was trained to respond to all physician responses with accuracy to ensure follow-up treatment was implemented.

Data Collection

In accordance with the Health Insurance Portability and Accountability Act (HIPPA) regulations and policies within the host organization, the principle investigator of the project was in full awareness of HIPPA regulations and acted in strict compliance with patient confidentiality during chart audits and only information obtained was for the completion of the Data Collection tool. Data was collected via chart review four weeks prior to implementation of the screening tool. Charts were reviewed via the Electronic Medical Record (EMR). A Data Collection tool was developed by the principle investigator of the project. See Appendix D for the Data Collection document. Search criteria included pregnant females in the second or third trimester of pregnancy, ages 19-49, and not of a vulnerable population. Vulnerable patient populations were excluded from the chart review, including patients under the age of 19 and incarcerated patients. Patient identifiers were excluded from the Data Collection document. A further search filter was added to obtain previous history of a mental health disorder. Chart reviews included the number of patients identified as high-risk without administration of a screening tool in the prenatal period. At the conclusion of the implementation period, data was collected via chart review to include the number of patients seen by the provider during the second or third trimester visit, the number of patients that was administered the PDPI-R tool, number of patients that were identified as high risk for developing postpartum depression, and the number of patients with a previous history of mental health disease. The post-implementation chart review included the same filters as the pre-implementation chart review. The Data Collection tool was also utilized

for chart review documentation during the post-implementation phase. For patients who scored high-risk on the PDPI-R tool, information was obtained from the chart review regarding appropriate steps taken by the nursing staff, including reporting of the PDPI-R score to the physician the day of the administration of the tool, proper documentation of the score in the chart, and information regarding intervention, such as referral to social worker for mental health counseling.

Results: Presentation of Findings

After completion of the practice improvement project, a comparison analysis was performed to reveal the outcomes of the research objectives defined within the project as met or not met. Each research objective was systematically approached and results are as follow.

Objective number one.

Of the number of office clinicians identified as participants in the project improvement project, all participants completed the Educational Training Sessions. 100% completed the Post Test with 100% mastery to validate competency. All participants completed the Educational Session Evaluation form to provide feedback on the Principle Investigator's training performance and perception of the Educational Session experience. Research objective number one was met at 100%.

Objective number two.

After the post-implementation chart review, data collection revealed that during the implementation period, 63 eligible patients were identified that met the criteria. Of those, 41 patients had been administered the PDPI-R tool. Of the 63 eligible patients, three had not been administered the tool. 18 patients declined to participate. Research objective number two was

partially met: 4.8 % (3 pts) were not offered the tool due to perceived time constraints, 28.6% (18 pts) declined, 65.1% (41) accepted the tool.

Objective number three.

The final research objective was evaluated during the post-implementation phase of the practice improvement project. Analysis of the data collection revealed that 119 eligible patients was seen during the pre-implementation phase. Of those, zero patients were identified as high-risk for developing PPD. Data revealed that 19 of those patients had a previous history of a mental health disorder. Two of those 19 received follow-up care. 117 patients of the eligible patients did not receive any PPD screening or follow-up treatment.

Analysis of the data collection revealed that 63 patients were seen that met the criteria for inclusion during the post-implementation phase. Of those, six patients were identified as high-risk with administration of the PDPI-R tool. In comparison, data collection revealed that 15% of patients were identified as high-risk with administration of the PDPI-R tool. Research objective three was met.

Limitations

A limitation identified with the construct of the practice improvement project was the length of the implementation period. The methodology of the design included a four-week pre-implementation and implementation period in which data collection through chart review was conducted. Thus, the sample size was limited to the number of patients within the short window of four-weeks. The implementation period was also conducted during a holiday season which impacted the number of patients seen in the office and the number of days the physician had to accommodate patients in the office.

A second limitation identified with the practice improvement project was compliance of the nursing staff to administer the tool to each patient seen at the second trimester. Education on the importance of 100% compliance during the implementation period was integrated into the staff educational sessions, although it was discovered during the chart review of the implementation period that three patients were not administered the tool due to perceived lack of time to administer the tool by the nursing staff.

Conclusions and Recommendations

The initial data analysis results of the practice improvement project proved that the project implementation was successful in increasing the number of patients identified as at risk for developing PPD. The primary prevention model for early detection was properly executed and objective numbers one and three were met successfully. Objective number two was partially met. In efforts to decrease the number of women diagnosed with PPD in the postnatal period, it is recommended that prenatal screening be implemented in the OB/GYN office setting. Routine screening will increase the number of patients identified as high risk, thus follow-up treatment and care can be provided.

Recommendations on future projects with similar design include improving analytical data results by increasing the length of the implementation period. A longer implementation period will yield a larger sample size, thus improving validity of the project results. In efforts to increase the sample size of the project, it is also recommended that the sample size could be increased with utilization of more than one physician patient group.

A second recommendation for future projects is to incorporate more education for staff on the importance of 100% compliance in administration of the tool during the implementation

period. Visual demonstration of the steps involved in proper placement of the PDPI-R document within the designated nursing department may increase the compliance rate of staff as well.

A final recommendation would be for integration of the PDPI-R within the Electronic Health Record (EHR) for improvement in staff compliance. A hard stop could be incorporated into the EHR that would ultimately force staff to administer the tool for specific patients based on the reason for their visit. This hard stop would be integrated into the EHR by the Information Technology department within the facility and staff education would be provided. This recommendation is made to increase staff compliance and ease of use for the clinician.

References

Accortt, E., Cheadle, A., & Schetter, C. (2014). Prenatal depression and adverse birth outcomes: An updated systematic review. *Maternal Child Health Journal, 19* (6), 1306-37

American College of Obstetricians and Gynecologists (ACOG). (2015). Committee on Obstetric Practice Screening for perinatal depression. Committee Opinion No. 630. American College of Obstetricians and Gynecologists. *Obstetrics & Gynecology, 125*, 1268-1711

Beck, C. (2001). Predictors of postpartum depression: An update. *Nursing Research, 50* (5), 275-285

Beck, C. (2002). Revision of the postpartum depression predictors inventory. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 31*, 394–402. doi:10.1111/j.1552-6909.2002.tb00061.x

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. Pregnancy Risk Assessment Monitoring System [online]. 2014. [accessed Jul 06, 2017]. URL: https://nccd.cdc.gov/pramstat/

Chaudron, L., Szilagyi, P., Campbell, A., Mounts, K., McInerny. (2007). Legal and ethical considerations: Risks and benefits of postpartum depression screening at well-child visits. *Pediatrics, 119* (1), 123-128

Clemmons, D., Driscoll, J., & Beck, C. (2004). Postpartum depression. *Maternal Child Nursing, 5*, 180-181

Farr, S., Denk, C., Dahms, E., & Deitz, P. (2014). Evaluating universal education and screening for postpartum depression using population-based data. *Journal of Women's Health, 23*, 657-663, DOI: 10.1089/jwh.2013.4586

Earl, M. (2010). Clinical report—Incorporating recognition and management of perinatal and postpartum depression into pediatric practice. American Academy of Pediatrics. *Pediatrics Journal, 126* (5), 1032-1039

Evans, M., Phillipi, S., & Gee, R. (2015). Examining the screening practices of physicians for postpartum depression: Implications for improving health outcomes. *Women's Health Issues, 25* (6), 703-710

Gatti-Petito, J., Lakatos, B., Bradley, H., Cook, L., Haight, I., & Karl, C. (2013). Clinical scholarship and adult learning theory: A role for the DNP in nursing education. *Nursing Education Perspectives (National League for Nursing)*, *34* (4), 273-276

International Academy of Nursing Editors. (2017). Directory of Nursing Journals. Nurse Author & Editor. https://nursingeditors.com/journals-directory/journals-directory-o-p-q/

Lasiuk, G. & Ferguson, L. (2005). From practice to midrange theory and back again: Beck's theory of postpartum depression. *Advances in Nursing Science, 28* (2), 127-136

Legere, L., Wallace, K., Bowen, A., McQueen, K., Montgomery, P., & Evans, M. (2017). Approaches to health-care provider education and professional development in perinatal depression: A systematic review. *BMC Pregnancy and Childbirth, 17* doi:https://doi.org/10.1186/s12884-017-1431-4

Leung, B., Letourneau, N., Giesbrecht, G., Ntanda, H., & Hart, M. (2017). Predictors of postpartum depression in partnered mothers and fathers from a longitudinal cohort. *Community Mental Health Journal, 53* (4), 420-431. doi:10.1007/s10597-016-0060-0

Lind, A., Richter, S., Craft, C., & Shapiro, A. (2017). Implementation of routine postpartum depression screening and care initiation across a multispecialty health care organization: An 18-month retrospective analysis. *Maternal & Child Health Journal*, *21* (6), 1234-1239. doi:10.1007/s10995-017-2264-5

Long, V. (2010). Adaptation of a best practice model for recognition and treatment of postpartum depression in a private obstetrics practice (Order No. 3403481). Available from ProQuest Central; ProQuest Dissertations & Theses Global. (500056690). Retrieved from https://search-proquest-com.contentproxy.phoenix.edu/docview/500056690?accountid=35812

Lasiuk, G. & Ferguson, L. (2005). From practice to midrange theory and back again: Beck's theory of postpartum depression. *Advances in Nursing Science, 28* (2), 127-136

Kalina, E. (2015, January). Standardized postpartum depression screening and treatment. *Standardized Postpartum Depression Screening & Treatment*, 121 p.

Kralj, H. (2014). Creating pathways of care: A multidisciplinary approach to increasing screening and treatment of postpartum depression within a rural health clinic. *Creating Pathways of Care*, 117

Kruper, A. & Wichman, C. (2017). Integrated perinatal mental health care. Psychiatric Annals, 47 (7), 368-373

Marder, S. (2014). Postpartum psychosis: Epidemiology, clinical manifestations, assessment, and diagnosis. Retrieved from http://www.uptodate.com/contents/postpartum-psychosis-epidemiology-clinical-manifestations-assessment-anddiagnosis?source=search_result&search=postpartum+psychosis &selectedTitle=1~10.

Marsh, J. (2013). A middle range theory of postpartum depression: Analysis and application. *International Journal of Childbirth Education*, *28* (4), 50-54

O'Connor, E., Rossom, R. C., Henninger, M., Groom, H. C., & Burda, B. U. (2016). Primary care screening for and treatment of depression in pregnant and postpartum women: Evidence report and systematic review for the US Preventive Services Task Force. *JAMA: Journal of The American Medical Association, 315* (4), 388-406. doi:10.1001/jama.2015.18948

O'Hare, M., & Swain, A. (1996). Rates and risk of postpartum depression: A meta-analysis. *International Review of Psychiatry, 8* (1)

Oppo, A., Mauri, M., Rucci, P., Banti, S., Borri, C., Rambelli, C., . . . Cassano, G. B. (2008). The predictive validity of postpartum depression predictors inventory-revised (PDPI-R). results from the PND-RESCU study. European Psychiatry, 23, S259-S259. doi:10.1016/j.eurpsy.2008.01.516

Oppo, A., Mauri, M., Rucci, P., Banti, S., Borri, C., Rambelli, C., . . . Cassano, G. B. (2008). The predictive validity of postpartum depression predictors inventory-revised (PDPI-R). results from the PND-RESCU study. *European Psychiatry, 23*, S259-S259. doi:10.1016/j.eurpsy.2008.01.516

Paris, R., Bolton, R., & Weinberg, M. (2009). Postpartum depression, suicidality, and mother-infant interactions. *Archives of Women's Mental Health*, 12 (5), 309-321. doi:10.1007/s00737-009-0105-2

Patel, M., Bailey, R., Jabeen, S., Ali, S., Barker, N., & Osiezagha, K. (2012). Postpartum depression: A review. *Journal of Health Care for the Poor and Underserved, 23* (2), 534-42. doi:http://dx.doi.org.contentproxy.phoenix.edu/10.1353/hpu.2012.0037

Psaros, C., Geller, P., Sciscione, A., & Bonacquisti, A. (2010). Screening practices for postpartum depression among various health care providers. *Journal of Reproductive Medicine, 55* (11-12), 477-484.

Santoro, K., & Peabody, H. (2010). Identifying and treating maternal depression: Strategies & considerations for health plans (NIHCM Issue Brief June 2010). Available: http://nihcm.org/pdf/FINAL_MaternalDepression6-7.pdf.

Spooner, S., Rastle, M., & Elmore, K. (2012). Maternal depression screening during prenatal and postpartum care at a Navy and Marine Corps military treatment facility. *Military Medicine, 177* (10), 1208-1211

U.S. Preventive Services Task Force. (2015). Draft recommendation statement: depression in adults: Screening. http://www.uspreventiveservicestaskforce.org/Page/Document/draft-recommendation-statement115/ depression-in-adults-screening1

Wesseloo, R., Kamperman, A., Munk-Olsen, T., Pop, V., Kushner, S., & Bergink, V. (2016). Risk of postpartum relapse in bipolar disorder and postpartum psychosis: A systematic review and meta-analysis. *American Journal of Psychiatry, 173* (2), 117-127. doi:10.1176/appi.ajp.2015.15010124

Woody, A., Ferrari, A., Siskind, D., Whiteford, H., & Harris, M. (2017). A systematic review and meta-regression of the prevalence and incidence of perinatal depression. *Journal of Affective Disorders, 219,* 86-92 https://doi.org/10.1016/j.jad.2017.05.003

Wilkinson, A., Anderson, S., & Wheeler, S. (2017). Screening for and treating postpartum depression and psychosis: A cost-effectiveness analysis. *Maternal & Child Health Journal, 21* (4), 903-914. doi:10.1007/s10995-016-2192-9

Youn, J. & Jeong, I. (2011). Predictive validity of the Postpartum Depression Predictors Inventory-Revised. *Asian Nursing Research, 5*, 210-215

Tables

Table 1. Postpartum Depression Predictor Inventory-Revised (2002).

TABLE 1
Postpartum Depression Predictors Inventory (PDPI)-Revised and Guide Questions for Its Use

During Pregnancy		
Marital Status	Check One	
1. Single	0	
2. Married/cohabitating	0	
3. Separated	0	
4. Divorced	0	
5. Widowed	0	
6. Partnered	0	
Socioeconomic status		
Low	0	
Middle	0	
High	0	
Self-esteem	Yes	No
Do you feel good about yourself as a person?	0	0
Do you feel worthwhile?	0	0
Do you feel you have a number of good qualities as a person?	0	0
Prenatal depression		
1. Have you felt depressed during your pregnancy?	0	0
If yes, when and how long have you been feeling this way?		
If yes, how mild or severe would you consider your depression?		
Prenatal anxiety		
Have you been feeling anxious during your pregnancy?	0	0
If yes, how long have you been feeling this way?		
Unplanned/unwanted pregnancy		
Was the pregnancy planned?	0	0
Is the pregnancy unwanted?	0	0
History of previous depression		
1. Before this pregnancy, have you ever been depressed?	0	0
If yes, when did you experience this depression?		
If yes, have you been under a physician's care for this past depression?	0	0
If yes, did the physician prescribe any medication for your depression?	0	0
Social support		
1. Do you feel you receive adequate emotional support from your partner?	0	0
2. Do you feel you receive adequate instrumental support from your partner (e.g., help with household chores or babysitting)?	0	0
3. Do you feel you can rely on your partner when you need help?	0	0
4. Do you feel you can confide in your partner? (repeat same questions for family and again for friends)	0	0
Marital satisfaction		
1. Are you satisfied with your marriage (or living arrangement)?	0	0
2. Are you currently experiencing any marital problems?	0	0
3. Are things going well between you and your partner?	0	0

TABLE 1
Continued

Life stress	Yes	No
1. Are you currently experiencing any stressful events in your life such as:		
financial problems	0	0
marital problems	0	0
death in the family	0	0
serious illness in the family	0	0
moving	0	0
unemployment	0	0
job change	0	0
After delivery, add the following items		
Child care stress		
1. Is your infant experiencing any health problems?	0	0
2. Are you having problems with your baby feeding?	0	0
3. Are you having problems with your baby sleeping?	0	0
Infant temperament		
1. Would you consider your baby irritable or fussy?	0	0
2. Does your baby cry a lot?	0	0
3. Is your baby difficult to console or soothe?	0	0
Maternity blues		
1. Did you experience a brief period of tearfulness and mood swings during the 1st week after delivery?	0	0

COMMENTS:

_____

_____

_____

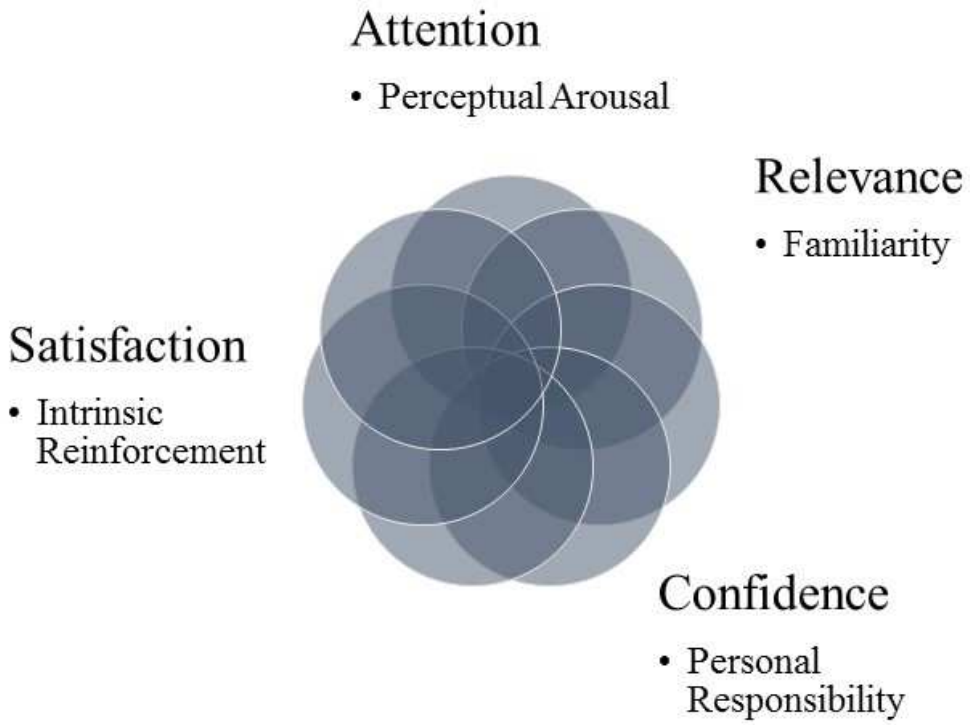
Figures

Figure 1. Beck's 4 Stage Process of Postpartum Depression Encompassing Loss of control

A Middle Range Theory of Postpartum Depression

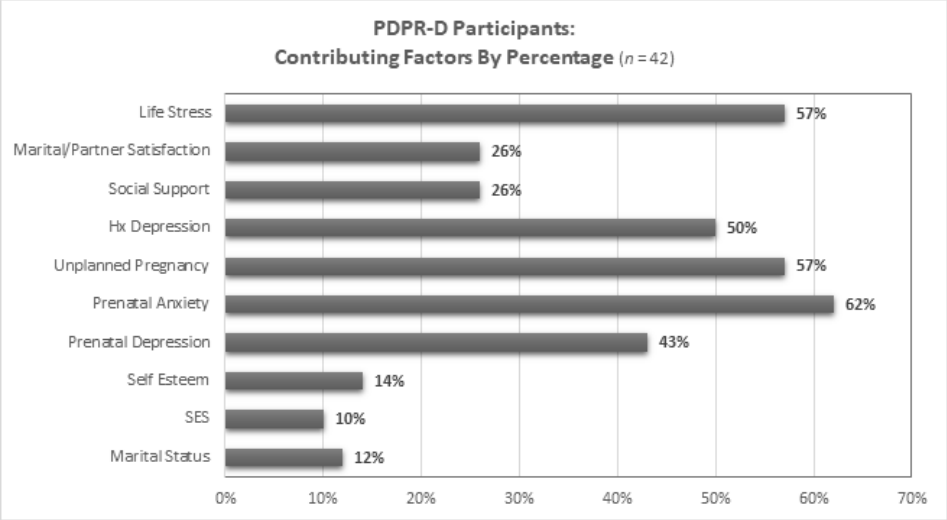
Dr. Cheryl Beck, Teetering on the Edge Theory of Postpartum Depression (2002)

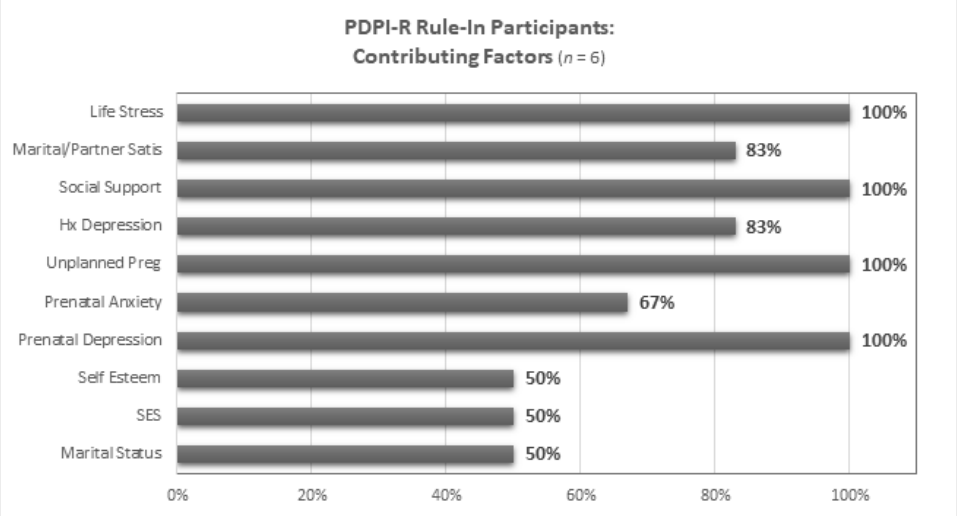
Figure 2. Adaptation of the Model of Motivational Design (Gatti-Petito et al., 2013).

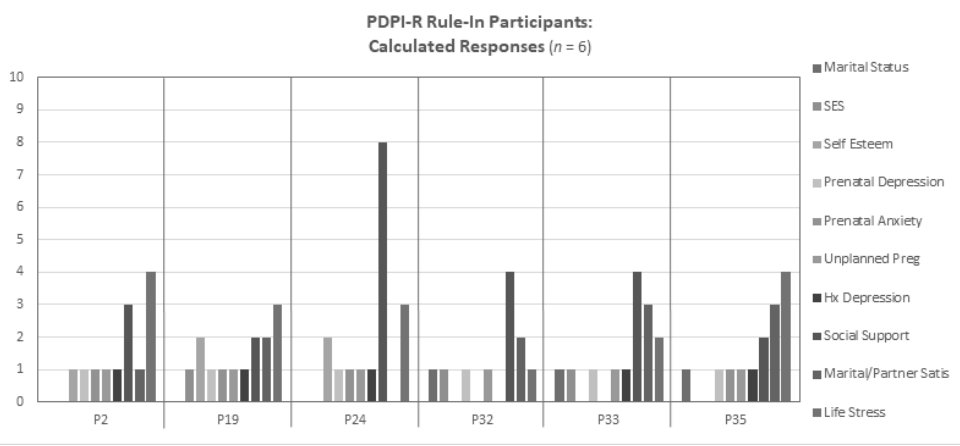


Appendices

Appendix A. Research Outcomes







Appendix B. IRB Approval

THE UNIVERSITY OF
ALABAMA IN HUNTSVILLE

November 28th 2018

☒ Expedited (see pg 2)
☐ Exempted (see pg 3)
☐ Full Review
☐ Extension of Approval

Christy Jeffcoat
Department of Nursing
University of Alabama in Huntsville

Dear Mrs. Jeffcoat,

The UAH Institutional Review Board of Human Subjects Committee has reviewed your proposal, *Implementation of a Risk Factor Screening Tool for Early Detection of Postpartum Depression in the Perinatal Setting*, and found it meets the necessary criteria for approval. Your proposal seems to be in compliance with this institutions Federal Wide Assurance (FWA) 00019998 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46).

Please note that this approval is good for one year from the date on this letter. If data collection continues past this period, you are responsible for processing a renewal application a minimum of 60 days prior to the expiration date.

No changes are to be made to the approved protocol without prior review and approval from the UAH IRB. All changes (e.g. a change in procedure, number of subjects, personnel, study locations, new recruitment materials, study instruments, etc) must be prospectively reviewed and approved by the IRB before they are implemented. You should report any unanticipated problems involving risks to the participants or others to the IRB Chair.

If you have any questions regarding the IRB's decision, please contact me.

Sincerely,

Bruce Stallsmith
IRB Chair
Professor, Biological Sciences

OFFICE OF THE VICE PRESIDENT FOR RESEARCH
Von Braun Research Hall M-17 Huntsville, AL 35899 T 256.824.6100 F 256.824.6783

Expedited:

☐ Clinical studies of drugs and medical devices only when condition (a) or (b) is met. (a) Research on drugs for which an investigational new drug application (21 CFR Part 312) is not required. (Note: Research on marketed drugs that significantly increases the risks or decreases the acceptability of the risks associated with the use of the product is not eligible for expedited review. (b) Research on medical devices for which (i) an investigational device exemption application (21 CFR Part 812) is not required; or (ii) the medical device is cleared/approved for marketing and the medical device is being used in accordance with its cleared/approved labeling.

☐ Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture as follows: (a) from healthy, nonpregnant adults who weigh at least 110 pounds. For these subjects, the amounts drawn may not exceed 550 ml in an 8 week period and collection may not occur more frequently than 2 times per week; or (b) from other adults and children, considering the age, weight, and health of the subjects, the collection procedure, the amount of blood to be collected, and the frequency with which it will be collected. For these subjects, the amount drawn may not exceed the lesser of 50 ml or 3 ml per kg in an 8 week period and collection may not occur more frequently than 2 times per week.

☐ Prospective collection of biological specimens for research purposes by noninvasive means. Examples: (a) hair and nail clippings in a nondisfiguring manner; (b) deciduous teeth at time of exfoliation or if routine patient care indicates a need for extraction; (c) permanent teeth if routine patient care indicates a need for extraction; (d) excreta and external secretions (including sweat); (e) uncannulated saliva collected either in an unstimulated fashion or stimulated by chewing gumbase or wax or by applying a dilute citric solution to the tongue; (f) placenta removed at delivery; (g) amniotic fluid obtained at the time of rupture of the membrane prior to or during labor; (h) supra and subgingival dental plaque and calculus, provided the collection procedure is not more invasive than routine prophylactic scaling of the teeth and the process is accomplished in accordance with accepted prophylactic techniques; (i) mucosal and skin cells collected by buccal scraping or swab, skin swab, or mouth washings; (j) sputum collected after saline mist nebulization.

☐ Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies of cleared medical devices for new indications).

☐ Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for nonresearch purposes (such as medical treatment or diagnosis).

☐ Collection of data from voice, video, digital, or image recordings made for research purposes.

☒ 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.

Exempt

☐ Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (a) research on regular and special education instructional strategies, or (b) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods. The research is not FDA regulated and does not involve prisoners as participants.

☐ Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interviews, or observation of public behavior [1] in which information is obtained in a manner that human subjects cannot be identified directly or through identifiers linked to the subjects and any disclosure of the human subject's responses outside the research would NOT place the subjects at risk of criminal or civil liability or be damaging to the subject's financial standing, employability, or reputation. The research is not FDA regulated and does not involve prisoners as participants.

☐ Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement) survey procedures, interview procedures, or observation of public behavior if (a) the human subjects are elected or appointed public officials or candidates for public office, or (b) Federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter. The research is not FDA regulated and does not involve prisoners as participants.

☐ Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. The research is not FDA regulated and does not involve prisoners as participants.

☐ Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs;(iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs. The protocol will be conducted pursuant to specific federal statutory authority; has no statutory requirement for IRB review; does not involve significant physical invasions or intrusions upon the privacy interests of the participant; has authorization or concurrent by the funding agency and does not involve prisoners as participants.

☐ Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture. The research does not involve prisoners as participants.

[1] Surveys, interviews, or observation of public behavior involving children cannot be exempt.

OFFICE OF THE VICE PRESIDENT FOR RESEARCH
Von Braun Research Hall M-17 Huntsville, AL 35899 T 256.824.6100 F 256.824.6783

Appendix C

Educational Training Session Evaluation

This form is to be completed by the participant to evaluate the educational session and the instructor performance.

SESSION TITLE: Postpartum Depression Screening

SESSION DATE:

PRESENTER: Christy Jeffcoat, MSN, RN

1. Please rate the degree to which the following objectives of this series/lecture were met (5=Completely; 4=to a high degree; 3=moderately; 2=minimally; 1=not at all)

Upon completion of this program, I will be able to:

Describe the characteristics of postpartum depression.

5 4 3 2 1

Identify risk factors associated with postpartum depression.

5 4 3 2 1

Describe phases of the Teetering on the Edge Theory.

5 4 3 2 1

Identify the importance of postpartum depression screening.

5 4 3 2 1

Interpret the Postpartum Depression Predictor Inventory-Revised screening tool.

5 4 3 2 1

Describe steps in the administration of the PDPI-R instrument.

5 4 3 2 1

For questions below: 5=Strongly Agree; 4=Agree; 3=Neutral; 2=Disagree; 1=Strongly Disagree

2. I acquired new skills or knowledge in relation to topic discussed.

5 4 3 2 1

3. The lecture description was accurate.

5 4 3 2 1

4. The teaching format/length was suitable to content.

5 4 3 2 1

5. The teaching level was appropriate to audience.

5 4 3 2 1

6. The quality of the facilities was adequate for learning.

5 4 3 2 1

7. Presenter for this session:

Excellent Good Fair Poor

Expressed ideas clearly.

4 3 2 1

Presented useful examples.

4 3 2 1

Thoroughness of content.

4 3 2 1

Speaking/teaching ability.

4 3 2 1

Effectiveness of audiovisual aids.

4 3 2 1

Responsiveness to questions.

4 3 2 1

Handouts were useful.

4 3 2 1

Comments or suggestions:

Appendix D

Educational Session: Postpartum Depression Screening Post Test

This document is intended for completion by the participant with 100% accuracy to validate competency in postpartum depression screening.

1. Symptoms of postpartum depression include all of the following, except:

    a. Irritability
    b. Overwhelming sadness
    c. Edema of the lower extremities
    d. Anger

2. Risk factors associated with development of postpartum depression include all of the following except:

    a. Marital status
    b. Socioeconomic status
    c. Hypertension
    d. Unplanned/unwanted pregnancy

3. The first step in prevention of postpartum depression is identification of those patients at risk for developing postpartum depression.

    a. True
    b. False

4. Teetering on the Edge Theory of Postpartum Depression addresses stages of postpartum depression:

    a. Encountering Terror
    b. Dying of Self

c. Struggling to Survive
d. Regaining Control
e. All of the above

5. Clinicians play an important role in the identification and recognition of risk factors associated with postpartum depression as a means of prevention.

a. True
b. False

6. The Postpartum Depression Predictor Inventory-Revised (PDPI-R) is a screening tool that identifies 20 risk factors associated with postpartum depression.

a. True
b. False

7. Administration of the PDPI-R tool should be completed in the:

a. Hallway
b. Check-in desk
c. Exam room
d. Check-out desk

8. Administration of the PDPI-R tool requires patient consent.

a. True
b. False

9. Administration of the PDPI-R tool should be completed in private by the clinician and the patient.

a. True
b. False

10. It is the clinician's responsibility to report the PDPI-R score to the physician on the same day of administration of the tool, document the score in the patient chart, flag the patient chart with blue tape for high-risk score, and place the PDPI-R document in the designated box at the nurse's station.

a. True
b. False

Appendix E

Data Collection Form

Practice Improvement Project

EMR Audit #

Age?

Second trimester (13-27 weeks gestation)

Documentation of administration of the PDPI-R tool by staff?

PDPI-R Score:

Physician notification of PDPI-R score same day?

Follow-up treatment? Referral to social worker or mental health counselor?

Additional resources?

Appendix F

Student Rotation Affiliation Agreement
Between
Lexington County Health Services District, Inc. d/b/a Lexington Medical Center
And
The University of Alabama in Huntsville

This Agreement is made and entered into as of August 20, 2018 through August 19, 2022 between Lexington County Health Services District, Inc. d/b/a Lexington Medical Center (hereinafter "Facility") and The Board of Trustees of The University of Alabama, a public educational and constitutional instrumentality of the State of Alabama, incorporated by statute, for and on behalf of The University of Alabama in Huntsville (hereinafter "School").

WHEREAS, the Facility provides patient care without discrimination of age, disability, handicap, color, sex, religion, national origin, pregnancy or source of payment and provides clinical and general education in affiliations with institutions of higher education, and

WHEREAS, the School admits qualified students regardless of age, disability, handicap, race, sex, color, religion, pregnancy or national origin and provides equal educational opportunity for all students admitted, and

WHEREAS, the Facility offers training experiences for Nursing, Allied Health, Hospital Administration and other professionals, and

WHEREAS, both the School and Facility desire to assure an adequate supply of qualified Nursing, Allied Health, Hospital Administration and other professional personnel,

Now, therefore, the School and Facility agree as follows:

I. General Information

A. The course of instruction for the student rotation experience will cover a period of time mutually agreed upon between the School and Facility. The beginning dates and length of experience shall be mutually agreed upon in writing before the beginning of the student rotation experience.

B. The number of students eligible to participate in the student rotation experience will be mutually determined by the parties and may be altered by mutual agreement.

C. In the assignment of students, it is agreed by both the School and Facility that there shall be no discrimination on the basis of age, handicap, disability, race, national origin, pregnancy, religion, or sex.

D. Students or instructors (hereinafter "participants") who become ill while at the Facility may be provided initial medical or emergency treatment at the Facility at the participant's expense.

II. Responsibilities of the School

The School shall:

A. Be responsible for teaching students of the School and informing the Facility staff of the objectives of the desired learning experience.

B. Reserved.

C. Work cooperatively with the Facility's designated representatives in planning the students' learning experience, including the selection of patients for those students and instructors participating in direct patient care.

D. Submit a final written roster of names of the participating students and instructors to the Facility at least one week prior to the beginning of the student rotation experience. The School shall provide written notice to the Facility immediately upon any changes regarding students or instructors.

E. Assign to the Facility only those students who have satisfactorily completed the didactic portion of the curriculum.

F. Inform the students that they will be assigned to the Facility solely for the purpose of obtaining an educational experience and will not be considered employees of the Facility for the purposes of compensation benefits, worker's compensation, taxes, or for any other purpose.

G. Shall provide evidence, upon request, of professional liability insurance in the amounts of $1 million per occurrence, $3 million annual aggregate covering participating students and Instructors at the Facility involved in **direct patient care activities**.

H. Provide appropriate documentation, at least ten (10) business days before the Student arrives on-site to participate in direct patient care activities, to Facility which verifies that each Instructor and Student who will participate in a student rotation experience have met all required immunizations, tests and training to include the following:

1. Documented negative Tuberculin Skin Test (TST) – if student or instructor has not been tested within the preceding 12 months they must have a documented negative *two-step* TST. If student or instructor has documented positive TST there must be documented treatment for positive TST or TB (Tuberculosis) disease with chest x-ray showing no evidence of active TB infection within last six months. Thereafter, documentation of annual assessment based on CDC guidelines.

2. Documentation of verification of two MMR (Measles, Mumps, Rubella) vaccinations and two Varicella vaccinations or serologic immune status (titers) for Rubeola, Mumps, Rubella and Varicella.

3. Documentation of a negative 5 panel drug screen with confirmed positives performed by a NIDA certified lab and results reported by a certified MRO prior to the first student rotation experience in their program of study.

4. Documentation of three Hepatitis B vaccinations or a positive serologic immune status performed within six (6) months of dose number 3. As per CDC guidelines, this in no way requires nor encourages repeating or performing HBSAB testing nor additional doses of hepatitis B vaccine. As per CDC guidelines: Post vaccination testing shall be done upon completion of HBV series, between one (1) and two (2) months, and no later than six (6) months after dose #3 of vaccine, many that have been vaccinated as a child do not have post vaccination testing and should be performed only in the event of an exposure or a signed declination for participants in **direct patient care experiences**.

5. Verification of successful completion of OSHA Blood-Borne pathogen training within one year for participants in **direct patient care experiences**.

6. Documentation of vaccination against diphtheria and tetanus within the past ten years for participants in **direct patient care experiences.**

7. Documentation of receipt of influenza vaccination or declination during October to March annually.

I. Provide appropriate documentation, at least ten (10) business days before the Student arrives on-site to participate in direct patient care activities, to Facility which verifies Provide verification to Facility that the following have been completed within 90 days of the first Student Rotation experience in their program of study for each participant. (Students and Instructors):

1. Criminal background check for places of residence for prior seven years.

2. Check of the Sex Offender Registry.

3. Check of the Office of Inspector General.

4. Check of the General Services Administration (GSA) list of excluded individuals/entities.

5. Check of any other registry or records required by law, accredited agency or Facility.

NOTE: Costs of such background checks and the drug screen are not the responsibility of the Facility.

J. The School agrees to notify the Facility if it has actual knowledge or should otherwise be aware that a participant had any arrest and/or criminal charge or conviction filed subsequent to completion of the criminal background check. The School further agrees to notify Facility as soon as possible, but not later than seven (7) calendar days after receiving actual knowledge of such charges or convictions or information that should make University aware of such charge or conviction. Failure to do so may result in the participant's dismissal from the rotation. Failure of the School to notify the Facility of any arrest(s), criminal charge(s), or conviction(s) within seven (7) calendar days after receiving actual knowledge of the arrest(s), charge(s), or conviction(s) or information that should make University aware of such charge or conviction will result in the immediate termination of this Agreement.

K. Convictions of, plea of guilty, plea of nolo contender (no contest), or pending criminal charges involving the following may bar admission to and may be grounds for dismissal from an educational experience at the Facility.

1. Crimes involving violence against a person including, but not limited to: murder, manslaughter, use of deadly force, assault and battery of a high and aggravated nature, assault and battery with intent to kill, sex crimes, abuse of children or the elderly, abduction and robbery.

2. Crimes occurring within five years of application involving the distribution of drugs.

3 Crimes occurring within five years of application involving illegal use or possession of weapons including but not limited to guns, knives, explosives or other dangerous objects.

4. Crimes occurring within five years of application involving dishonesty or moral turpitude including but not limited to fraud, deception, embezzlement or financial exploitation (but not including shoplifting, petit larceny or bad check).

5. Any other crime or pattern of criminal behavior which, in the Facility's opinion, warrants exclusion or dismissal from the student rotation at the Facility.

L. Facility reserves the absolute right, in its sole discretion, to immediately dismiss a participant if Facility discovers or is informed that participant has a history of or is involved in any criminal activity or criminal misconduct.

M. Students are expected to follow reasonable standards of conduct and to observe common sense rules of honesty and safety, as well as to perform in a satisfactory

manner. Facility may terminate a student's educational experience at will with or without cause and with or without notice.

N. Inform Students and Instructors that they must wear their School identification badge while in the Facility in accordance with the "Lewis Blackmon Patient Safety Act of 2005".

O. The School agrees to comply, the extent applicable to School, with all federal, state and local law and regulations and the standards established by certifying bodies and regulatory agencies. The School acknowledges the confidential nature of any medical records of Facility patients, and further agrees to comply, to the extent applicable to School, with the provisions of the Health Insurance Portability and Accountability Act of 1996 (HIPAA), the regulations promulgated under HIPAA, and any state laws and regulations concerning patient confidentiality. Further, the School agrees to inform student participants of their obligation to abide by regulatory agency mandates, HIPAA and Facility's policies, procedures and regulations.

Responsibilities of the Facility

The Facility agrees to:

A. Provide facilities for students of the School in accordance with the educational objectives through planning by the faculty of the School and designated Facility staff.

B. Provide Instructors with copies of Facility's policies, rules, regulations, and procedures that are applicable to Students' and Instructors' participation in the program.

C. Permit Students and Instructors to assist in the provision of patient care to Facility patients for which students have been prepared academically. Facility retains responsibility for the care of its patients/clients and maintains responsibility for administrative and professional supervision of Students insofar as their presence and program assignments affect the operation of the Facility and its care of patients/clients.

D. Maintain standards of care and services that are conducive to sound clinical rotations for Students and that meet regulations of the South Carolina Department of Labor, Licensing, Regulation (LLR) and other certifying agencies.

E. Provide School Instructors and Students with an orientation to Facility.

F. Have Facility policy and procedures available for reference by Instructors and Students.

G. At Facility's discretion, provide an examination of Students suspected of a condition that may be harmful to the patient population for determination as to whether Student will continue on the assigned student rotation.

H. Provide Participants access to Facility computer systems for Participants in accordance with Facility's policies and procedures. Facility will provide orientation for network access systems security and facility HIPAA-specific practices to protect Electronic Protected Health Information (EPHI).

I. Maintain insurance in amounts sufficient to cover its responsibilities under this agreement.

Miscellaneous Provisions

A. The Agreement:

1. May be renewed by mutual written agreement of the parties.

2. May be terminated at any time by either party for any reason by advance written notification to the other party of not less than sixty (60) days of the intent to terminate. Notwithstanding and to the extent possible, any student currently participating in student rotation shall be permitted to complete the rotation despite the notice of termination.

3. May be modified by mutual consent, provided any and all modifications are in writing and signed by officials of the School and the Facility.

4. May, in the event of a breach of the agreement, be immediately terminated without further notice by the non-breaching party if the breaching party fails to cure the breach within 30 days of receipt of written notice of the breach.

5. Neither party may assign its rights or delegate its duties under the Agreement without prior written consent of the other.

6. Is not intended to confer any right or benefit upon or permit enforcement of any provision by anyone other than the parties to this Agreement.

B. Student Records/FERPA. School agrees that for purposes of Family Educational Rights and Privacy Act (FERPA), Facility will be considered an official with a legitimate educational reason to have access to limited personally identifiable information from student records, hereinafter ("Student Information"), as described below. School agrees to provide authorized representatives of Facility limited Student Information and only that which is reasonably necessary for participation in the affiliation. No other Student Information will be provided. Facility acknowledges and agrees that Student Information provided by the School, or others on behalf of the School, that directly relates to any School student, including, but without limitation, academic information (e.g., coursework, grades, degrees earned, performance in other external rotations); professional information, (e.g., licenses obtained, suspension, revocation); training and/or certifications (e.g, CPR, OSHA/Bloodborne pathogen); health information (e.g., Hepatitis, TB Testing); health and other insurance

information and, the results of any criminal background check and/or drug testing/treatment information is Student Information and is protected by FERPA. Facility shall (1) protect the confidentiality of all Student Information; and will not, except with the written consent of the student or as otherwise provided by law, (2) use Student Information for any purpose other than to carry out the purposes of this Agreement; or (3) disclose Student Information except to authorized individuals within its organization who have a legitimate need to know Student Information in order to carry out the purposes of this agreement.

C. Any notice required or permitted to be given by this Agreement shall be given postage paid, first class, registered or certified mail, or by courier, properly addressed to the other Party at the respective address as shown below:

If to Lexington Medical Center: Lexington Medical Center
Attn: President/CEO
2720 Sunset Blvd.
West Columbia, SC 29169

With copies to: Lexington Medical Center
Attn: Legal Department
2720 Sunset Blvd.
West Columbia, SC 29169

If to School: UAH College of Nursing
Attn: Dean
301 Sparkman Drive
Huntsville, AL 35899

All notices hereunder shall be in writing and shall be deemed to have been given on the date received if delivered personally or by recognized overnight delivery service, or three days after the date postmarked if sent by registered or certified mail, return receipt requested, postage prepaid, addressed to such party as set forth herein. Either party may change the address to which to send notices by notifying the other party of such change of address, in writing, in accordance with the foregoing, without formal amendment.

D. Each party shall be responsible for its own acts and omissions and the acts and omissions of its employees, agents, officers, directors, and affiliates within the line and scope of their employment or position. A party shall not be liable for any claims, demands, actions, costs, expenses and liabilities, including reasonable attorneys' fees, which may arise in connection with the failure of the other party or its employees, officers, directors, agents or affiliates to perform any of their obligations under this Agreement. Facility is an agency of the State of South Carolina and does not possess the authority to indemnify any entity; its liability and liability insurance coverage are governed by the South Carolina Tort Claims Act at S.C. Code Ann § 15-78-10, et seq. School is an educational

and constitutional instrumentality of the State of Alabama and likewise cannot agree to indemnify any entity; its liability is governed by the laws of Alabama. This provision shall survive the expiration or termination of this Agreement, regardless of the reason for termination.

E. Neither the waiver by either of the parties hereto of a breach of, or a default under, any of the provisions of this Agreement, nor the failure of either party, on one or more occasions, to enforce any of the provisions of this Agreement or to exercise any right or privilege hereunder, shall thereafter not be construed as a waiver of any subsequent breach or default of a similar nature, or as a waiver of any such provisions, rights, or privileges hereunder.

Failure of either party to insist upon performance of any of the terms or conditions of this Agreement shall not be construed as a waiver of future performance of any such term or condition, and the obligations of either party with respect thereto shall continue in full force and effect.

F. In the event of any dispute arising out of this Agreement, the parties shall use good faith efforts to resolve their differences amicably.

G. This Agreement may be executed in two counterparts, each of which shall be effective as of the Effective Date, and both of which shall constitute one and the same instrument. This Agreement shall be deemed executed by the parties when any one or more counterparts hereof, when taken together, bears the signatures of each of the parties hereto. Any signature to this Agreement that is transmitted by facsimile or other electronic means shall be binding and effective as the original.

H. This Agreement constitutes the entire agreement of the parties concerning the subject matters referred to herein and therein and supersedes all prior agreements and understandings, oral or written, all of which are hereby superseded and terminated.

I. Notwithstanding any provision to the contrary, no default, delay or failure to perform on the part of either party shall be considered a breach of this Agreement if such default, delay or failure to perform is shown to be due entirely to causes beyond reasonable control of the party charged with the default, including, but not limited to, causes such as strikes, lockouts or other labor disputes, riots, civil disturbances, actions or inactions of governmental authorities or suppliers, epidemics, war, embargoes, severe weather, fire, earthquakes, acts of God or the public enemy, nuclear disasters, or default of a common carrier.

J. If any provision of this Agreement is held to be invalid, illegal, unenforceable or otherwise inoperative, the remainder of this Agreement shall remain in full force and effect as if said provision were not included in this Agreement.

K. Nothing herein shall create, nor be deemed to create, a partnership or an agency relationship between the parties and neither party is authorized to act on behalf of the

other unless the other has agreed in advance in writing.

L. Reserved.

School: The Board of Trustees of The University of Alabama, for and on behalf of, The University of Alabama in Huntsville

By: _____
Christine W. Curtis, Ph.D.
Provost and Executive Vice President for Academic Affairs

Date: 8/20/18

Address:

APPROVED BY OFFICE OF COUNSEL
8.20.2018

301 Sparkman Drive, Huntsville, AL 35899
Email: marsha.adams@uah.edu

Facility: Lexington County Health Services District, Inc. d/b/a Lexington Medical Center

By: _____
Vice President

Date: 10/22/18

Address: 2720 Sunset Blvd., West Columbia, SC 29169

Email: _____