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Natalie Regis

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Postpartum Depression: Educating the Provider and Staff About the Importance of Screening, Referrals, Follow-up and Adherence to the *Maternal Mental Health Safety Bundle* Toolkit

Natalie Regis

A clinical research project submitted to the Graduate Faculty of

JAMES MADISON UNIVERSITY

In

Partial Fulfillment of the Requirements

for the degree of

Doctor of Nursing Practice

School of Nursing

December 2020

FACULTY COMMITTEE:

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Abstract

Background: Postpartum depression (PPD) affects approximately 10%-20% of women after childbirth. PPD is a disabling condition that can have serious health implications on mothers and their infants. Experts estimated that only 50% of women with PPD are diagnosed. Lack of education about screening practices can cause the disorder to go undiagnosed and untreated.

Purpose: The purposes of this quality improvement (QI) project were 1). To increase the provider and staff knowledge about the importance of screening with the implementation of a standardized screening tool 2). To increase PPD screening rates to 100% 3). To increase appropriate referrals to mental health services by 15%. 4). To increase adherence to the *Maternal Mental Health Safety Bundle* toolkit to 80%.

Methods: Using the Rapid Cycle Quality Improvement (RCQI) from the Institute for Healthcare Improvement (IHI) framework, three cycles of the Plan-Do-Study-Act (PDSA) were used to measure and implement an educational intervention. A gap analysis identified a need for change in PPD screening through an examination of retrospective data collection of the Edinburgh Postnatal Depression Scale (EPDS) screening tool. The first cycle initiated the change in clinical practice with the project preparation. The second cycle implemented an educational intervention by surveying the provider and staff on their pre-and post-knowledge about PPD, screening and referral practices, and adherence to the *Maternal Mental Health Safety Bundle* toolkit. The third cycle analyzed data of PPD screening and follow-up and referral rates, pre-and post-surveys from the provider and staff reported knowledge and adherence to the *Maternal Mental Health Safety Bundle* toolkit.

Results: The post-education self-reported knowledge survey indicated improved mean scores for four out of the six survey questions, PPD screening rates increased to 100%, adherence to the safety bundle increased to 100%. There were no referrals and follow-up to be made based on the 100% negative screening rates.

Conclusion: Provider and staff education on PPD screening and adherence to the safety bundle was associated with increased knowledge about the condition, PPD screening rates and adherence to the safety bundle at a private women's health care practice.

Keywords: postpartum depression, education, screening, maternal safety bundle

Introduction

Problem Statement

Postpartum depression (PPD) is classified as one of the most common complications of childbearing (Loudon, Nentin, & Silverman, 2016). According to the Agency for Healthcare Research and Quality (AHRQ) (2016), half of all cases of PPD go undiagnosed and untreated. Because PPD can lead to poor maternal-infant bonding, impaired cognitive, emotional, and language development in children, Loudon et al. (2016) noted that regular screening can help decrease the negative consequences of the disorder and facilitate follow-up care for women who screen positive. PPD standardized screening is not the standard of practice among many providers, therefore, the condition is difficult to diagnose and treat timely (National Institute for Health Care Management [NIHCM], 2010). Evidence suggests that undiagnosed and untreated PPD can have serious adverse health effects on mothers and their infants, resulting in permanent impairment on child development (NIHCM, 2010). The implementation of universal screening with a validated screening tool has shown to be effective in detecting the disorder. This Doctor of Nursing Practice (DNP) project was conducted in a private Obstetrics and Gynecology (Ob/Gyn) clinic in Northern Virginia where inconsistencies in PPD screening were identified through a retrospective chart review of EPDS screening tools.

Gap Analysis

The staff responsible to administer the EPDS screening tool to women at their six-week postpartum visit had a practice gap that included inconsistent PPD screening. The DNP student completed a baseline data collection through a retrospective chart review

from April 2019 to May 2019 that showed 39 women visited the clinic for their six-week postpartum follow-up. Of these, 5 women were not screened, and, in some cases, there was a question about the proper administration of the screening tool based on the diversity of the patient population. This DNP project aimed to close the gap by educating the provider and staff about the importance and proper administration of PPD screening, which in turn, will help increase screening and referral rates. The Ishikawa Cause and Effect Diagram (see *Appendix A*) demonstrates the contributing factors of inconsistent PPD screening which was used to develop actions that sustain correction.

Available Knowledge

PPD is a devastating emotional experience that affects families and communities (Stewart & Vigod, 2016). Approximately 10% to 20% of women suffer from the disorder after childbirth, causing serious health implications for both mothers and newborns (Stewart & Vigod, 2016). Poor bonding, impaired infant development, and poor breastfeeding habits are some of its negative consequences. In the United States (US), 6.5% to 12.9% of women suffer from PPD which is about 1 in 9 mothers (Wilkinson, Anderson, & Wheeler, 2017). Postpartum blues also known as “baby blues” is a common response to the physiological and psychological changes associated with pregnancy that lasts approximately two weeks (Stewart & Vigod, 2016). PPD is an affective mood disorder with similar symptoms to those associated with postpartum blues, however, the condition persists beyond two weeks after childbirth (NIHCM, 2010; Stewart & Vigod, 2016). Postpartum blues are characterized by periods of sadness, crying, and fatigue and usually limited to the first 10 to 14 days postpartum period. (Roy-Byrne, 2016). However,

PPD is characterized by insomnia, anxiety, confusion, and suicidal ideation and can occur at any time during the first year after birth (Roy-Byrne, 2016).

The World Health Organization (WHO) (2019) estimated that 10% of pregnant women and 13% of new mothers have some form of mental disorder. Up to 25% of women are diagnosed with PPD (Naveed & Naz, 2015). The Diagnostic and Statistical Manual of Mental Disorders, fifth edition: DSM-5, classifies PPD as a mental health diagnosis, with major depression symptoms (Clevesy, Gatlin, Cheese, & Strebel, 2019). These symptoms occur over two weeks and may include "changes in appetite, moderate to significant anxiety symptoms, and sleep disturbances accompanied by somatic complaints such as fatigue, chest discomfort, or headaches" (Clevesy et al., 2019, p.23). Other symptoms may also include "emotional instability, guilt, dysphoria, confusion, and suicidal ideation" (Clevesy et al., 2019, p.23). Suicide is the leading cause of death during the postpartum period, occurring in 11 per 100,000 births (Roy-Byrne, 2016). If PPD is left untreated, it can last months to years after childbirth (Naveed & Naz, 2015). Treatment depends on the severity of the symptoms which can include social support, psychological therapy, and pharmacotherapy (Stewart & Vigod, 2016). Postpartum women need to receive timely diagnosis and treatment to help reduce the disease burden and improve their health outcomes.

Data suggest that PPD rates do not change by race and ethnicity, however they do not conclusively indicate the same rates of illness across groups (Kozhimannil, Trinacty, Busch, Huskam, & Adams, 2011). Various studies conducted on low-income mothers who were screened for clinical criteria during the postpartum period show a similarity in PPD rates among Hispanic women, Black women, and White women, with 8% for major

depressive disorders and 23% for all depressive disorders during the first three months following childbearing (Kozhimannil et al., 2011). While there are well-known and well-described racial and ethnic inequalities in depression care, research on treating PPD among women from racial and ethnic minority groups is minimal (Kozhimannil et al., 2011). Differences in cultural beliefs and perceptions of both motherhood and mental health may have an influence on the varying rates of postpartum depressive symptoms described by these women (Kozhimannil et al., 2011). There is a complex relationship between race-ethnicity, depressive symptoms, and mental health treatment. The authors argued the reasons for this complex relationship include socioeconomic status, differences in risk factors, perceived need for care, access to health insurance coverage, and patient-provider communication (Kozhimannil et al., 2011).

It is estimated that four out of five women who screen positive for PPD do not receive care from a mental health specialist (Venkatesh, Nadel, Blewett, Freeman, Kaimal, & Riley, 2016). Loundon et al. (2016) noted that about half of women with PPD go undetected because either the patients failed to attend their six-week postpartum visits, or the health care providers failed to formally screen the patients using a standardized screening tool. Consequently, the disorder remains undiagnosed and untreated despite its prevalence and potential debilitating complications. Evidence suggests that formal PPD screening and referral to mental health services play a vital role in reducing depressive symptoms and improving health outcomes for mothers and their infants (Loudon et al., 2016).

The American College of Obstetricians and Gynecologists (ACOG) (2016) recommends screening patients for PPD using a standardized, validated tool at least once

during the six-week postpartum period, monitoring those with a history of mental illness, and referring those who screen positive for depression. ACOG based its recommendation on the evidence confirming that PPD is one of the most common complications of childbearing and early diagnosis and treatment are important to minimize its negative effects. Loudon et al. (2016) stated that the first postpartum visit is the best time to screen women because the onset of most postpartum mood disorders manifest within the first month of childbirth.

The EPDS is a well-validated tool used to detect depressive symptoms in women during pregnancy and postnatal period (see *Appendix D*) (Roy-Byrne, 2016). While ACOG does not endorse a specific screening tool, the EPDS is widely used among providers who screen their patients (Roy-Byrne, 2016). The EPDS is a 10-item self-questionnaire that is a sensitive and specific scale for detecting postpartum depression (Roy-Byrne, 2016). Each question is scored with a 0, 1, 2, or 3 (maximum score=30) (Roy-Byrne, 2016). Scores of 0 through 9 indicate mild to moderate postpartum depression, with little intervention required (Roy-Byrne, 2016). Scores of 10 or greater suggest postpartum depression, with immediate intervention required (Roy-Byrne, 2016). The tool has been computerized and translated in more than 35 languages and many studies support its reliability 0.87% and validity 0.88% in identifying women who may be experiencing depressive symptoms (Roy-Byrne, 2016).

The systematic literature review (see *Appendix I*) demonstrated that PPD screening is not the standard of practice despite ACOG's screening recommendations. More efforts are needed to promote PPD screening through provider education with the implementation of a universal screening tool. Many physicians reported feeling

inadequate and unprepared due to lack of or no training they received on PPD screening during medical school and residency (Evans, Phillippi, & Gee, 2015). This uncertainty forces them to rely on their clinical judgment, putting them in a position to attempt to diagnose a disorder that is often undetected (Evans et al., 2015). The stigma associated with PPD causes women to experience shame and subsequently, do not report their symptoms to their providers (Venkatesh et al., 2016).

Rationale

According to Clevesy et al. (2019), there are currently no national PPD screening rates available to be analyzed. However, it is well-known that there is a gap in practice because not all providers screen for PPD (NIHCM, 2010). Among 400 member providers of ACOG who were surveyed to analyze their PPD screening practices, 38.6% reported screening their patients using a validated screening tool, whereas 50.6% reported that they have never used a validated screening tool (Clevesy et al., 2019). A study conducted by Horowitz, Murphy, Gregory, and Wojcik (2009) examined 4,419 women at their 4 to 6 weeks postpartum visit. The study results showed that 2,806 women (63%) were asked by their providers about their emotional state and 1,1613 women (37%) were not asked by their providers about their emotional state during their postpartum visit.

The Translating Research into Practice for Postpartum Depression (TRIPPD), a postpartum depression program, is the first pragmatic study conducted in the US to report improved process and maternal outcomes at 12-months (Yawn, Dietrich, Wollan, Bertram, Graham, Huff, Pace, 2012). PPD screening and follow-up care services from qualified staff were implemented by the TRIPPD study, thus reducing women's need to seek evaluation and mental health services beyond their primary care practice (Yawn et

al., 2012). Nevertheless, PPD screening practices remain inconsistent despite the well-known evidence of impending negative consequences among mothers and their infants (Clevesy et al., 2019). Implementation of PPD screening, provider and staff education and initiation of care-seeking services are vital to improve outcomes associated with the disorder (Clevesy et al., 2019).

In 2015, the Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN) took a stance towards supporting PPD screening practices. AWHONN recommends screening all women for perinatal mood and anxiety disorders during the perinatal and postpartum period to detect early signs of maternal depression and improve care management among mothers and their infants (AWHONN, 2015; Clevesy el al., 2019). Policies and protocols were developed by various healthcare facilities providing care to perinatal and neonatal populations to address education and screening for women as well as approaches to train staff regarding depression disorders (AWHONN, 2015). The Council on Patient Safety in Women's Healthcare (2016) developed a *Maternal Mental Health Safety Bundle* toolkit (see *Appendix C*) to address maternal anxiety and depression. The *Maternal Mental Health Safety Bundle* includes a collection of health care processes based on developing clinical, scientific, and patient safety advances that have shown improved quality of care and positive maternal outcomes (Council on Patient Safety in Women's Healthcare, 2016).

Rapid Cycle Quality Improvement (RCQI) Framework

Rapid Cycle Quality Improvement (RCQI) is defined as a "quality improvement method that identifies, implements, and measures changes made to improve a process or a system" (McCormick, 2018, p. 3). The model for improvement is a tool used by health

care professionals, community-based organizations and educators to achieve improved outcomes. RCQI can identify effective ideas that have the largest impact on program outcomes by allowing the application of several tests over time. The model consists of two parts that address three fundamental questions and engage in tests of change (McCormick, 2018). This DNP project was guided by the RCQI framework to help advance improvement efforts in increasing PPD screening and referral rates, and adherence to the *Maternal Mental Health Safety Bundle* toolkit.

Theoretical Framework

The Adult Learning Theory (ALT) was used as a guide for the implementation of the educational intervention due to its focus on how adults learn. Developed by Malcolm Knowles in 1968, the ALT aims to show how adult learning is distinct and identify the learning styles that best suit the learner. Knowles's ALT focuses on the learner's needs and self-directed learning which encourages adults to be in control of their learning (Mitchell & Courtney, 2005). The ALT requires six key elements for optimal learning to occur: "a need to know, a responsibility for one's own learning, the role of experience as a resource in one's learning, a readiness or applicability of the information to one's life situation, motivation to learn, and problem-centered learning with real-life problems" (Mitchell & Courtney, 2005, p. 258). In a new area of learning, these elements may not always happen together but can be cultivated by adult education and the teacher (in this case, the DNP student) needs to understand the learners (in this case, the provider and staff) and give direction that will enhance learning (Mitchell & Courtney, 2005). Adults need the information they are learning to be meaningful and relevant, making them more eager to learn and connect the learning with experience to improve themselves. Learning

outcomes are more likely to be improved when educational interventions provide the learners with the support needed to acquire the skills being taught. Knowles' ALT was an ideal theoretical framework to educate the provider and staff about PPD screening practices.

Project Aims

The purposes of this QI project were 1). To increase the provider and staff knowledge about the importance of consistent screening with the implementation of a standardized screening tool 2). To increase postpartum depression screening rates to 100% 3). To increase appropriate referrals to mental health services by 15% 4). To increase adherence to the *Maternal Mental Health Safety Bundle* toolkit to 80%. An educational intervention was implemented to promote best practice recommendations in an Ob/Gyn practice where consistent PPD screening practices were not a standard of care. The goal was to measure the provider and staff knowledge about the importance of PPD screening, referrals and follow-up care, and adherence to the *Maternal Mental Health Safety Bundle* toolkit before and after an educational intervention to establish a standard of care that could improve the PPD screening process.

Methods

Context and Stakeholders

The setting was a small, private practice that provides obstetrical and gynecological services to adolescent and adult female patients in the Northern Virginia area. The practice has about 4,000 active patients and approximately 15 to 25 women are seen every month for their six-week postpartum evaluation. The practice has a primary location that operates on weekdays. Another office approximately 15 miles away, is open

only on weekends. Only the primary location was chosen for implementing the educational intervention and collecting data due to practical considerations.

The provider who is the practice owner and the ancillary staff that consisted of a registered nurse who is the practice manager, and two medical assistants were the key stakeholders of this QI project. The practice is ethnically and financially diverse, serving privately insured patients as well as Medicaid patients. PPD screening is currently done at the six-week postpartum visit. Evaluation of screening practices at the clinic showed inconsistencies in PPD screening among the staff. Findings from the retrospective paper chart review (n=39) performed by the DNP student showed that 13% of women who attended their six-week postpartum visit were not screened for PPD.

Intervention

Description of the Intervention. The provider and staff received a training from the DNP student on July 18, 2020. The practice hours are from 10:00 am to 7:00 pm and the provider and staff usually arrive between 8:30 am and 8:45 am. The provider and staff agreed with the DNP student for the training to start at 9:00 am so all participants could be together prior to patients arriving at the clinic. A week before the training, the DNP student emailed the participants a pre-intervention survey through Qualtrics (see *Appendix B*) to assess knowledge about PPD screening, referrals and follow-up care and adherence to the *Maternal Mental Health Safety Bundle* toolkit (see *Appendix C*). All participants took the pre-intervention survey few days prior to attending the training that lasted approximately one hour. During this training, the following were presented via PowerPoint: an overview of current data about PPD which included incidence and prevalence, challenges in identifying PPD, negative impacts on mothers and their infants,

support for screening using the EPDS tool, instructions on how to use and interpret the screening tool and processes to adhere to the *Maternal Mental Health Safety Bundle* toolkit. After the training, all participants were instructed to take a post-intervention survey within two weeks from the day they attended the training. The DNP student emailed the post-intervention survey via Qualtrics to all participants a few days after the training. All participants took the post-intervention survey within the allotted timeframe of two weeks (100% response rate).

Specifics of the team involved. Input to implement this project was required from Shalini Varshney, MD, the provider, Linda Hulton, RN, PhD, the project chair, Karen Spencer, DNP, ACNP-BC, the content expert, Cindy Cheng, RN, the practice manager, and the medical assistants.

Study of the Intervention

The Institute for Healthcare Improvement (IHI) Model was used to effectively guide this practice improvement. The Plan-Do-Study-Act (PDSA) cycles were initiated, and the interventions occurred over three cycles.

Cycle one was to initiate a change in PPD screening practices with the project preparation. A gap analysis identified a need for change in PPD screening through the examination of retrospective data collection of EPDS screening tools. Thirty-nine screening tools were reviewed from April 2019 to May 2019 and a baseline data showed that 34 women who visited the clinic during their six-week postpartum follow-up were screened and 5 were not screened.

Cycle two was the implementation of the educational intervention for the provider and staff to provide an overview of current data about PPD which included incidence and

prevalence, challenges in identifying PPD, negative impacts on mothers and their infants, support for screening using the EPDS tool, instructions on how to use and interpret the screening tool and processes to adhere to the *Maternal Mental Health Safety Bundle* toolkit. This educational intervention was edited and supported by a content expert, Karen Spencer, DNP, ACNP-BC, who was also part of the DNP Project Team.

Cycle three was the data analysis of PPD screening rates and pre-and post-surveys data from each participant's reported knowledge about the importance of PPD screening, referrals and follow-up care, and adherence to the *Maternal Mental Health Safety Bundle* toolkit.

The implementation of the educational intervention was achieved within a 3-month period by executing the PDSA cycle weekly to support the project success. The provider and clinical staff were informed of the project results and were acknowledged for their support.

Measures

Data Collection. The DNP student reviewed EPDS paper screening tools from patient charts who attended their six-week postpartum visits between April 2019 and May 2019 to collect baseline data. Following the Institutional Review Board (IRB) approval from the student's academic institution, the DNP student adapted a six-question Likert-type survey developed by Boyd (2018) that was reviewed by Karen Spencer, DNP, ACNP-BC, the content expert, and emailed to all participants through Qualtrics prior to the educational intervention. This survey was self-reported and anonymous, filled out electronically by each participant. The survey measured the following: knowledge about PPD, importance of screening for PPD, comfort level in administering and interpreting

the screening tool, time constraints as barriers to screening, knowledge of PPD resources and initiation of referral and follow-up care. The pre-and post-surveys data were collected through Qualtrics and transferred to Statistical Package for the Social Sciences (SPSS) for analysis and interpretation. The post-survey included an additional item that inquired about the usefulness of the project. Three months later the DNP student returned to the practice to review the EPDS screening tools that were administered post project educational intervention.

Data Analysis. The data collected from the pre-and post-educational intervention were downloaded, cleaned, analyzed and interpreted using *SPSS version 27*. Paired samples statistics (paired t-test) were used to compare pre-and post-mean scores for each survey item. Increased mean scores indicated an improvement in PPD knowledge, importance for screening, comfort level in administering and interpreting the screening tool, perceived time constraints as barriers to screening. Declined mean scores indicated lack of perceived awareness of available PPD resources and initiation of referrals and follow-up care. Descriptive statistics were used to analyze adherence to *Maternal Mental Health Safety Bundle* toolkit before and after the educational intervention. Pre-and post-PPD screening rates were analyzed through paper chart review. Increased PPD screening rates indicated an improvement in consistent screening.

Results

The pre-education self-reported knowledge survey indicated decreased mean scores for four out of the six survey questions (see *Appendix F, Table 1*). The pre-education patient safety bundle indicated 54% adherence, 7% non-adherence, and 39% did not know (see *Appendix G, Figure 1*). The pre-education PPD screening rates

indicated that 87% of women were screened during their six-week postpartum visit and 13% were not (see *Appendix H, Figure 3*). The post-education self-reported knowledge survey indicated improved mean scores for four out of the six survey questions. The post-education patient safety bundle indicated a 98% adherence and 2% non-adherence (see *Appendix G, Figure 2*). The post-education PPD screening rates indicated that 100% of women were screened during their six-week postpartum visit (see *Appendix H, Figure 3*). The initial project goal was to increase PPD knowledge, screening rates to 100%, appropriate referrals to mental health services by 15%, and adherence to the *Maternal Mental Health Safety Bundle* toolkit to 80%. There were overall increased scores in all categories except for the appropriate follow-up and referrals to mental health services since there was no positive diagnosis for PPD.

Discussion

The project outcomes demonstrated the participants increased knowledge about PPD, increased attitudes about the importance of PPD screening, increased screening rates, and increased adherence to the *Maternal Mental Health Safety Bundle* toolkit. Of the 46 patient charts reviewed after the project intervention, all 46 charts had documentation of PPD screening with the EPDS screening tool. The chart review showed a significant increase in PPD screening rates from 87% before the educational intervention to 100% after the educational intervention. There was a significant improvement in *Maternal Mental Health Safety Bundle* compliance from 54% before the educational intervention to 98% after the educational intervention. These changes met the project expected outcomes. However, there continue to be gaps in referrals to mental health services and follow-up care, and awareness of community resources after the

educational intervention. The DNP student created a toolkit of resources for the clinic which included evidence-based brochures about PPD screening, patient educational materials on PPD, and a list of community resources for women who screen positive for PPD (see *Appendix J*). This project initiative was important to educate the provider and staff about the importance of consistent PPD screening with the use of a standardized screening tool and adherence to the *Maternal Mental Health Safety Bundle* toolkit. The efforts have shown to help identify depressive symptoms early and improve maternal health outcomes.

Limitations

There are limitations to this project. Due to the large volume of patients seen at the practice every day, the provider and medical assistants are constantly busy with patient care. The medical assistants are mainly responsible for triaging patients before they are seen by the provider. The nurse manager is mainly responsible for managing all business aspects of the practice. It was challenging to get all participants together for the project intervention. The educational intervention was originally scheduled to take place in June 2020, but it had to be rescheduled for July 2020 due to scheduling conflict with the provider. In addition, the coronavirus (COVID-19) pandemic delayed the project launching as the focus in the clinic shifted to researching COVID-19 impacts on pregnancy and educating patients on safety measures to reduce the spread of the virus. Another limitation is the lack of diversity among the patient population. The project was implemented in a clinic with an overwhelmingly Asian Indian patient population and it is unrealistic to presume that the findings would be similar in a different setting.

Implications

The evidence from the literature review indicates that there is a need for early recognition and intervention for PPD as it has serious negative effects on maternal well-being and infant development. The evidence also indicates that screening women at their six-week postpartum visit with a validated, standardized screening tool can successfully identify mothers at risk for PPD (Roy-Byrne, 2016). Roush (2018) noted the importance of addressing four domains: practice, education, policy, and research when discussing the significance of study results in the real world.

Addressing sustainability in a practice change is important to ensure that the change becomes the norm (Roush, 2018). The study findings support a change for best practice and the recommendations include the implementation of consistent screening for PPD with the standardized tool to identify women at risk during their six-week visit. The provider and staff need to promote an environment where administering the EPDS tool and communicating the results with patients is consistent. AWHONN (2015) notes the importance of consistent screening practices as it promotes early recognition of depressive symptoms and treatment of PPD. In addition, resources are needed to sustain the practice change (Roush, 2018). The creation of toolkit of resources for the practice which included evidence-based brochures about PPD screening, patient educational materials on PPD, and a list of community resources in Fairfax County for women who screen positive for PPD were cost-effective and accessible for improved knowledge about PPD, screening practices, and follow-up care.

Provider and clinical staff education were associated with increased PPD knowledge, screening rates, and adherence to *Maternal Mental Health Safety Bundle* toolkit. The study findings indicate that the educational intervention was effective and the

need for continuing education is vital. Evans et al. (2015) stated that PPD screening rates can increase if providers are educated about the condition and professionally trained to administer and interpret a standardized screening tool. As a result, more recognition of depressive symptoms can lead to timely diagnosis and treatment, which in turn, will alleviate the long-term damaging impact that untreated PPD has on mothers and their infants (Evans et al., 2015).

Funding for mental health services is needed to ensure women who screen positive for PPD get adequate treatment and follow-up care. Referral to mental health services for PPD care is a complex issue that requires a multidisciplinary approach (Boyd, Mogul, Newman, & Coyne, 2011). Referral strategies can facilitate access to care and improve maternal mental health outcomes (Boyd et al., 2011). This policy change can be accomplished with the provider efforts to advocate for adequate funding of mental health services and work with mental health professionals to ensure the optimal care for women who screen positive for PPD.

The project implementation in a practice with an overwhelmingly Asian Indian population leaves room for further research on PPD screening among this population using a validated screening tool that is sensitive and specific in detecting PPD. Joshi, Lyngdoh, and Shidhaye (2020) evaluated the sensitivity and specificity of the Hindi version of the EPDS in Asian Indian women attending antenatal care and they concluded that it can be used as a valid measure to screen antenatal depression. A challenge for future research is finding a way to incorporate the use of the Hindi version of the EPDS to screen for PPD. Using a tool that is sensitive and specific for the early identification of

depressive symptoms among Asian Indian women is essential to provide timely care and treatment.

Timeline

The project timeline was estimated to take three months to develop the educational materials, launch the educational intervention, and complete the data analysis and interpretation. The educational intervention had to be rescheduled due to a scheduling conflict with the provider. The intervention took place in July 2020 and the analysis and interpretation of the results took place in October 2020.

Ethical Considerations

James Madison University's IRB was consulted before starting the project. Training in the protection of Human Subjects was done by the DNP student when CITI training was completed through her educational institution in April 2018. There was no direct patient contact during this project. Only the screening tools from patients were analyzed before and after the educational intervention. The privacy of patients was protected as all data were de-identified by the medical assistants and office manager prior to reviewing by the DNP student. The human subjects concerned were the clinical practice personnel which included the physician, nurse, and medical assistants. There was no anticipated risk to clinical personnel or the DNP student during the project. The participants were consented through Qualtrics prior to participating in the study (see *Appendix E*). The surveys were confidential, created from Qualtrics questionnaire and stored electronically in a password protected computer. The surveys did not contain identifying data other than clinical title. The data were electronically transferred to SPSS by the DNP student through a secure computer network and were doubled password

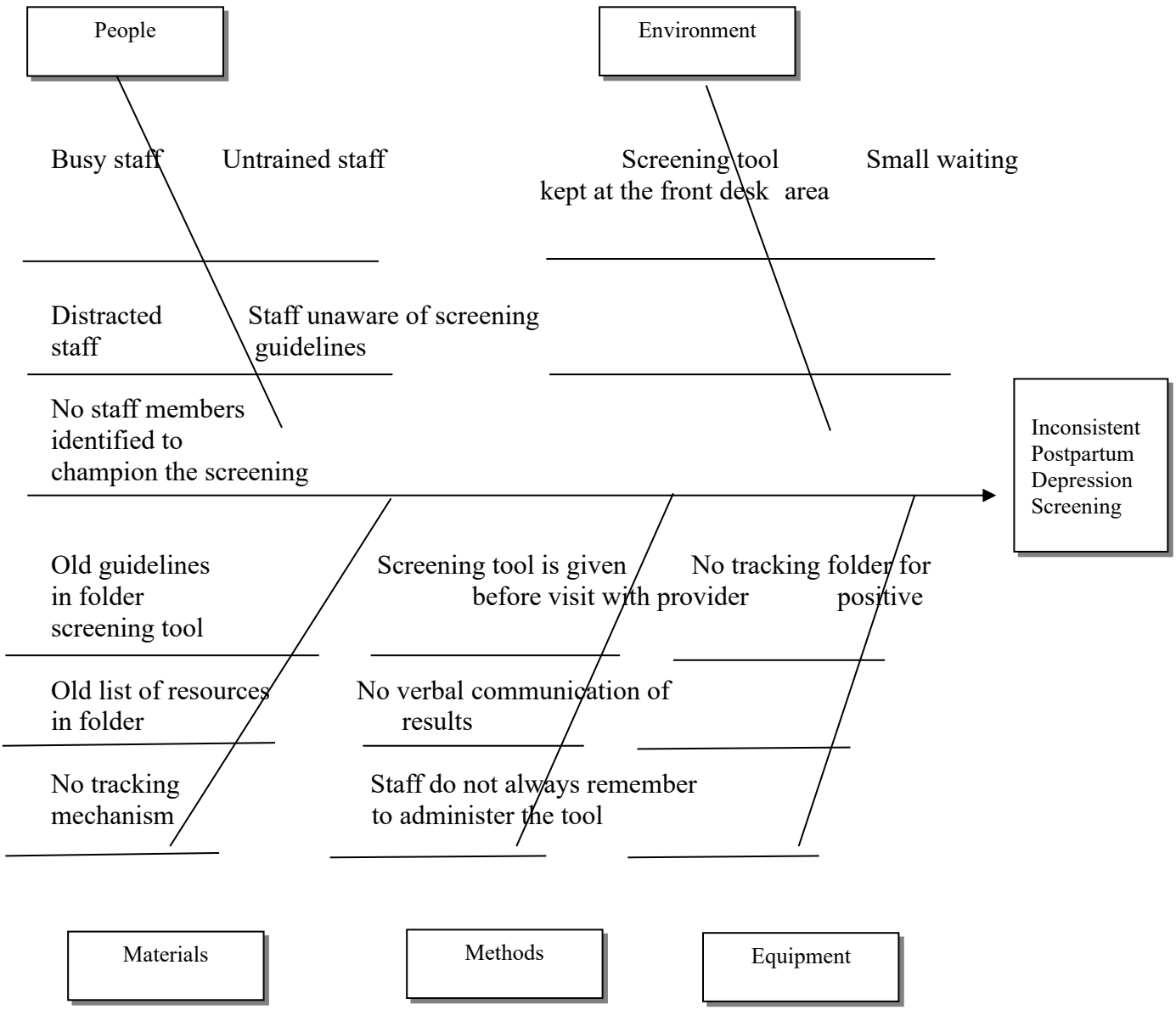
protected. The DNP student and Dr. Linda Hulton, member of the DNP Project Team, had access to the stored computer file. All de-identified data will be kept for purposes of program development.

Conclusion

PPD is a public concern that poses serious problems for mothers and their infants when left undiagnosed and untreated. Studies show that screening for PPD with a standardized screening tool facilitate timely identification of symptoms, diagnosis and treatment. While professional organizations recommend routine screening, there continue to be gaps in PPD screening practices among health care providers. Growing evidence suggests that PPD screening education plays a crucial role in early PPD recognition and treatment. In this DNP project, the provider and staff education were associated with increased knowledge about PPD, screening rates, and adherence to the *Maternal Mental Health Safety Bundle* toolkit. These changes can promote the best possible health outcomes among mothers and their infants.

Appendix A

Ishikawa Cause and Effect Diagram for Postpartum Depression Screening



Appendix B

Provider and Staff Survey

Click in the space below that represents your role.

	MD
	RN
	MA
	Other

Click in the space below to indicate your answer.

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
I feel knowledgeable about postpartum depression					
I feel knowledgeable about the importance of routine screening during six-week visits					
I feel comfortable administering and interpreting the EPDS tool					
Time constraints during visits is a major barrier to screening					
I am aware of available resources for women with postpartum depression					
Initiating referral for postpartum depression care and follow-up is the responsibility of the provider					
This education session was helpful to me*					

*Will be included only on the post educational intervention survey

Click in the space below to indicate your answer. Does your clinic do the following:

Readiness	**Yes**	**No**	**Don't know**
Identify mental health screening tools to be made available in every clinical setting (OB clinicals and inpatient facilities).			
Establish a response protocol and identify screening tools for use based on local resources.			
Educate clinicians and office staff on use of the identified screening tools and response protocol.			
Identify an individual who is responsible for driving adoption of the identified screening tools and response protocol.			

Recognition & Prevention	**Yes**	**No**	**Don't know**
Obtain individual and family mental health history (including past and current medications) at intake, with review and updated as needed.			
Conduct validated mental health screening during appropriately timed patient encounters, to include both during pregnancy and in the postpartum period.			
Provide appropriately timed perinatal depression and anxiety awareness education to women and family members or other support persons.			

Response	**Yes**	**No**	**Don't know**
Initiate a stage-based response protocol for a positive mental health screen.			
Activate an emergency referral protocol for women with suicidal/homicidal ideation or psychosis.			
Provide appropriate and timely support for women, as well as family members and staff, as needed.			
Obtain follow-up from mental health providers on women referred for			

treatment. This should include the necessary release of information forms.			

Reporting/Systems Learning	**Yes**	**No**	**Don't know**
Establish a non-judgmental culture of safety through multidisciplinary mental health rounds.			
Perform a multidisciplinary review of adverse mental health outcomes.			
Establish local standards for recognition and response in order to measure compliance, understand individual performance, and track outcomes.			

Appendix C

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE
safe health care for every woman

PATIENT SAFETY BUNDLE

Maternal Mental Health

MATERNAL MENTAL HEALTH: PERINATAL DEPRESSION AND ANXIETY

READINESS

Every Clinical Care Setting

- Identify mental health screening tools to be made available in every clinical setting (outpatient OB clinics and inpatient facilities).
- Establish a response protocol and identify screening tools for use based on local resources.
- Educate clinicians and office staff on use of the identified screening tools and response protocol.
- Identify an individual who is responsible for driving adoption of the identified screening tools and response protocol.

RECOGNITION & PREVENTION

Every Woman

- Obtain individual and family mental health history (including past and current medications) at intake, with review and update as needed.
- Conduct validated mental health screening during appropriately timed patient encounters, to include both during pregnancy and in the postpartum period.
- Provide appropriately timed perinatal depression and anxiety awareness education to women and family members or other support persons.

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February 2016

PATIENT SAFETY BUNDLE

Maternal Mental Health

RESPONSE

Every Case

- Initiate a stage-based response protocol for a positive mental health screen.
- Activate an emergency referral protocol for women with suicidal/homicidal ideation or psychosis.
- Provide appropriate and timely support for women, as well as family members and staff, as needed.
- Obtain follow-up from mental health providers on women referred for treatment. This should include the necessary release of information forms.

REPORTING/SYSTEMS LEARNING

Every Clinical Care Setting

- Establish a non-judgmental culture of safety through multidisciplinary mental health rounds.
- Perform a multidisciplinary review of adverse mental health outcomes.
- Establish local standards for recognition and response in order to measure compliance, understand individual performance, and track outcomes.

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Standardization of health care processes and reduced variation has been shown to improve outcomes and quality of care. The Council on Patient Safety in Women's Health Care disseminates patient safety bundles to help facilitate the standardization process. This bundle reflects emerging clinical, scientific, and patient safety advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Although the components of a particular bundle may be adapted to local resources, standardization within an institution is strongly encouraged.

The Council on Patient Safety in Women's Health Care is a broad consortium of organizations across the spectrum of women's health for the promotion of safe health care for every woman.

February 2016

For more information visit the Council's website at www.safehealthcareforeverywoman.org

Appendix D

Edinburgh Postnatal Depression Scale [1] (EPDS)

Name: _____ Address: _____

Your Date of Birth: _____ _____

Baby's Date of Birth: _____ Phone: _____

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

Here is an example, already completed.

I have felt happy:
□ Yes, all the time
☒ Yes, most of the time This would mean: "I have felt happy most of the time" during the past week. □ No, not very often Please complete the other questions in the same way. □ No, not at all

In the past 7 days:

1. I have been able to laugh and see the funny side of things
   □ As much as I always could
   □ Not quite so much now
   □ Definitely not so much now
   □ Not at all

2. I have looked forward with enjoyment to things □ As much as I ever did
   □ Rather less than I used to
   □ Definitely less than I used to
   □ Hardly at all

*3. I have blamed myself unnecessarily when things went wrong
   □ Yes, most of the time
   □ Yes, some of the time

*6. Things have been getting on top of me
   □ Yes, most of the time I haven't been able to cope at all
   □ Yes, sometimes I haven't been coping as well as usual
   □ No, most of the time I have coped quite well
   □ No, I have been coping as well as ever

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

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

- □ Not very often
- □ No, never

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

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

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

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

- □ Yes, quite often
- □ Not very often □ No, not at all

*9 I have been so unhappy that I have been crying

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

*10 The thought of harming myself has occurred to me

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

Administered/Reviewed by _____

Date _____ 1

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

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

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Edinburgh Postnatal Depression Scale [1] (EPDS)

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

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

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

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

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

SCORING

QUESTIONS 1, 2, & 4 (without an *)
Are scored 0, 1, 2 or 3 with top box scored as 0 and the bottom box scored as 3.

QUESTIONS 3, 510 (marked with an *)
Are reverse scored, with the top box scored as a 3 and the bottom box scored as 0.

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

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Instructions for using the Edinburgh Postnatal Depression Scale:

1. The mother is asked to check the response that comes closest to how she has been feeling in the previous 7 days.

2. All the items must be completed.

3. Care should be taken to avoid the possibility of the mother discussing her answers with others. (Answers come from the mother or pregnant woman.)

4. The mother should complete the scale herself, unless she has limited English or has difficulty with reading.

Appendix E

Email Cover Letter

Identification of Investigators & Purpose of Study

You are being asked to participate in a research study conducted by Natalie Regis from James Madison University. The purpose of this study is 1). To increase the provider and staff knowledge about the importance of consistent screening with the implementation of a standardized screening tool 2). To increase postpartum depression screening rates to 100% 3). Increase appropriate referrals to mental health services by 15%. 4). To increase adherence to the *Maternal Mental Health Safety Bundle* toolkit to 80%.

This study will contribute to the researcher's completion of her Doctor of Nursing Practice project.

Research Procedures

This study consists of an online survey that will be administered to individual participants through email using Qualtrics, an online survey tool. You will be asked to provide answers to a series of questions related to 1). To increase the provider and staff knowledge about the importance of consistent screening with the implementation of a standardized screening tool 2). To increase postpartum depression screening rates to 100% 3). Increase appropriate referrals to mental health services by 15%. 4). To increase adherence to the *Maternal Mental Health Safety Bundle* to 80% toolkit.

Time Required

Participation in this study will require one hour of your time.

Risks

The investigator does not perceive more than minimal risks from your involvement in this study (that is, no risks beyond the risks associated with everyday life).

Benefits

Potential benefits from participation in this study include 1). Increased knowledge about the importance of consistent screening with the implementation of a standardized screening tool 2). Increased postpartum depression screening rates 3). Increased appropriate referrals to mental health services 4). Increased adherence to the *Maternal Mental Health Safety Bundle* toolkit.

Confidentiality

The results of this research will be presented in a classroom. While individual responses are anonymously obtained and recorded online through the Qualtrics software, data is kept in the strictest confidence. No identifiable information will be collected from the participant and no identifiable responses will be presented in the final form of this study. All data will be stored in a secure location only accessible to the researcher. At the end of the study, all records will be destroyed. Final aggregate results will be made available to participants upon request.

Participation & Withdrawal

Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of any kind. However, once your responses have been submitted and anonymously recorded you will not be able to withdraw from the study.

Questions about the Study

If you have questions or concerns during the time of your participation in this study, or after its completion or you would like to receive a copy of the final aggregate results of this study, please contact:

Natalie Regis, MSN, RN, FNP-c
School of Nursing
James Madison University
regisne@dukes.jmu.edu

Linda Hulton, RN, Ph.D
School of Nursing
James Madison University
Telephone: (540) 568-6883
hultonlj@jmu.edu

Questions about Your Rights as a Research Subject

Dr. Taimi Castle
Chair, Institutional Review Board
James Madison University
(540) 568-5929
castletl@jmu.edu

Giving of Consent

I have been given the opportunity to ask questions about this study. I have read this consent and I understand what is being requested of me as a participant in this study. I certify that I am at least 18 years of age. By clicking on the link below, and completing and submitting this anonymous survey, I am consenting to participate in this research.

Natalie Regis_____ 04/25/2020 _____
Name of Researcher (Printed) Date

Appendix F

Table 1

Mean Scores for Pre-and Post-Educational Intervention

	Pre-Survey Mean Score	**Post-Survey Mean Score**	**% change**
I feel knowledgeable about postpartum depression	4	4.5	12.5%
I feel knowledgeable about the importance of routine screening during six-week visits	4.5	4.75	5.56%
I feel comfortable administering and interpreting the EPDS tool	3.75	4.75	26.67%
Time constraints during visits is a major barrier to screening	3	4.5	50%
I am aware of available resources for women with postpartum depression	4	3.75	-6.25%
Initiating referral for postpartum depression care and follow-up is the responsibility of the provider	4	3.75	-6.25%

Appendix G

Figure 1

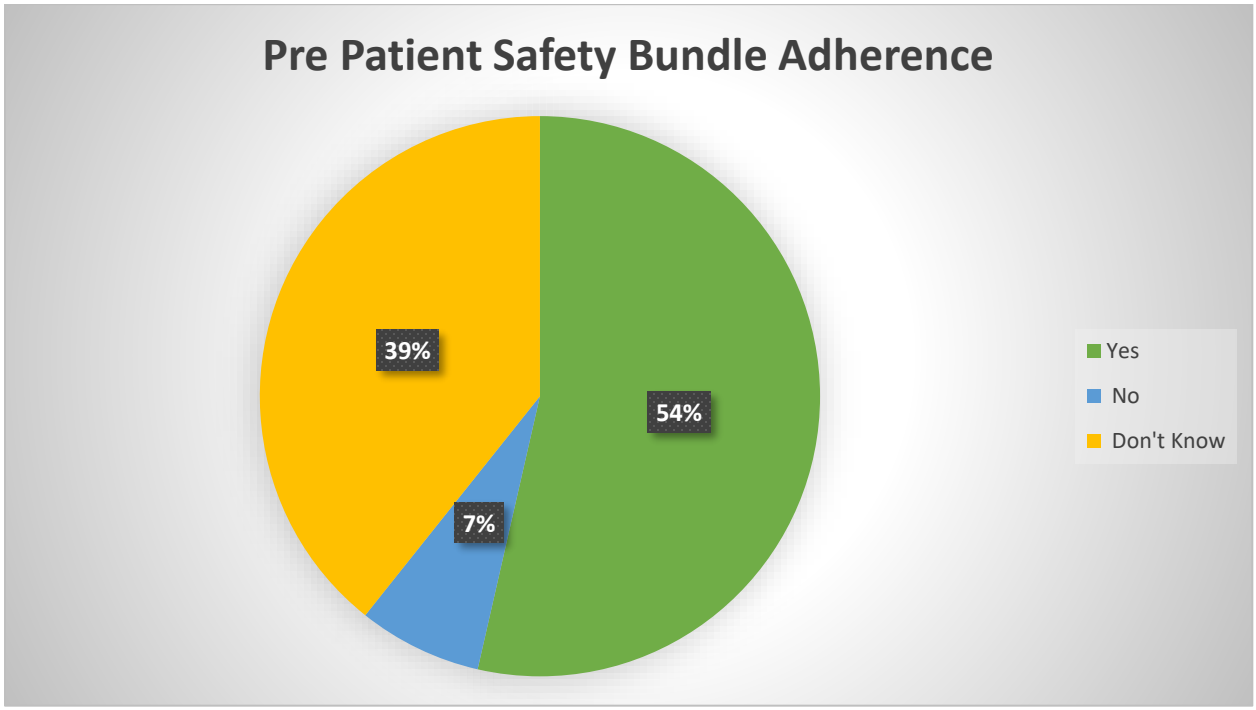
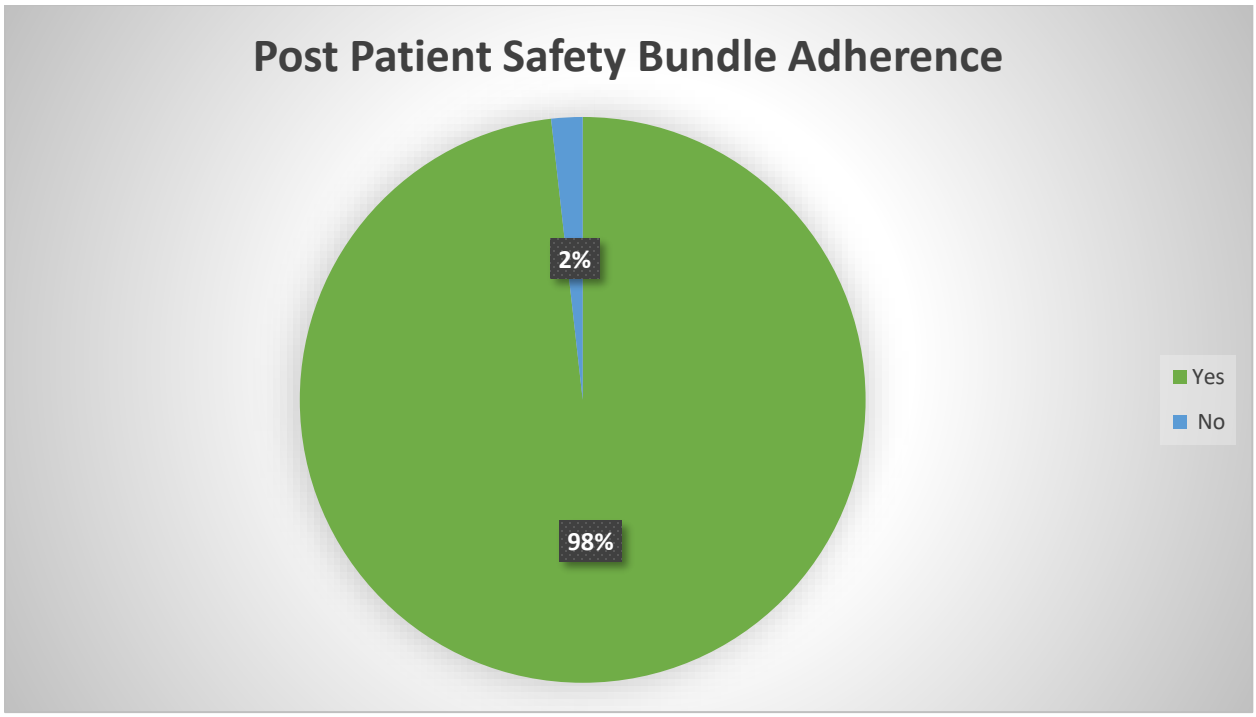
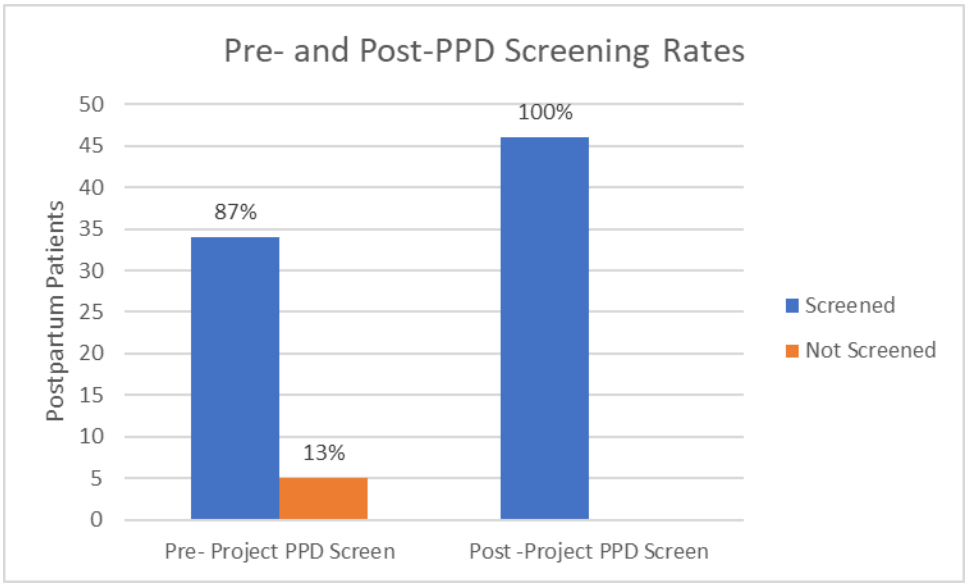


Figure 2



Appendix H

Figure 3



Appendix I

Table 2

Systematic Review Matrix Table

Author(s)	Research Design/Level of Evidence	Sample Description and Size	Methods Interventions/Instruments /Data Collection	Results	Summary
Knights, Salvatore, Simpkins, Hunter, and Khandelwal (2016)	Retrospective Cohort Study Non-Experimental Level IV	256 women delivered at Cooper University Hospital in Camden, NJ in 2013.	All patients who presented to the office during the postpartum period completed the Edinburgh Postnatal Depression Scale (EPDS) questionnaire. The delivery and outpatient records were reviewed for demographic data, EPDS scores and outcomes. Three groups of EPDS scoring were analyzed: <10 (low risk for PPD), 10–13 (borderline risk for PPD), and ≥14 (high risk for PPD). Early and late EPDS scores were compared using Pearson Chi Square test. The relationship between	EPDS scores remained the same or improved in 92.2% (189/205) of women. The 16 women whose scores worsened were more likely to have had a diagnosis of prior psychiatric illness (50% vs 16.4%, p=0.003) and/or a diagnosis of fetal anomaly (12.5 vs 1.6%, p=0.05). An early EPDS score of <10 had a 92.7% probability of maintaining low risk screening (EPDS <10) at a later time.	In low risk women, there is good correlation between early and late EPDS scores and so these women may not need to be rescreened. Therefore, the limited available resources should be redirected from screening low risk women multiple times, towards provision of follow-up care for the smaller number of women at highest risk. Women are encouraged to know

			scores was calculated using the Spearman Rho Correlation test. Assuming the EPDS groups would not change, a sample of 200 was needed with 80% power and 5% α-error.		their number (EPDS prior to discharge); and providers should re-screen only those women who score positive on PAP10, which stands for Psychiatry history, Anomaly, Preterm delivery, and EPDS score of 10 or more.
Orringer, Muzik, and Kileny (2019)	Cohort Study Non-Experimental Level IV	1119 women at Briarwood Center for Women, Children, and Young Adults, a Pediatrics and Obstetrics/Gynecology practice in Michigan	Initially, 16 months of screening (September 2016 to December 2017) we reviewed. Overall, 1119 mother-baby dyads were screened using the EPDS, including some mothers screened twice.	Prevalence rate of mothers screening positive for PPD, cumulative over the 16-month period, was 8.2%. Twenty-two mothers screened positive for self-harm (question 10 on the EPDS screener); of those, 18 indicated “hardly ever” and only 4 indicated “sometimes” or “very often” regarding thoughts of self-harm. Within this group of higher-risk mothers, 15 received immediate referral to social work to assess safety; 2 on further discussion needed no	Pediatricians are ideally situated to help identify, refer, and support mothers who are affected by PPD because they see babies so often during their first year of life and establish close bonds with the families in practices. Implementing a standard PPD screening using EPDS is very feasible in a busy pediatric primary care practice if local and online

				intervention; 2 were connected to the state maternal infant health program for home visits. Chart review revealed an overall screening rate of 75% at well visits in babies' first 6 months.	resources are identified and a clinic workflow is established ahead of implementation.
Lind, Richter, Craft, and Shapiro (2017)	Retrospective Cohort Study Non Experimental Level IV	Women presenting for routine postpartum care or for their children's well-child visits from birth to 4 months of age from January 1, 2013 to July 1, 2014. Project was conducted at a large multispecialty health care organization with multiple community-based clinics in Midwestern United States. Each clinic	Implementation of a standardized postpartum depression (PPD) screening process was initiated after a conduction of an 18-month retrospective study of patient visits that required PPD screens. Data we abstracted from medical records and analyzed to determine if PPD screening occurred, what quality of the screening, and what follow-up measures were taken.	28,389 postpartum and well-child visits were eligible for PPD screening within the study timeframe. PPD screening occurred at 88% of eligible visits for roughly 5000 women. PPD was identified in 8.1% of screened women.	Of women with PPD, 44% were prescribed an SSRI and 21.4% attended a visit with a mental health professional. PPD screening can be successful through collaboration of multiple specialty department involved in the care of women at risk for PPD and availability of standardized education regarding PPD for providers who interact with this patient population.

		has multiple primary care specialties.			
Clevesy, Gatlin, Cheese, and Strebel (2019)	Experimental RCT Level I	Health care providers at a community women's health care clinic.	A single educational in-service was presented to health care providers regarding preventive PPD screening practices and documentation recommendations. Measurements included pre- and post-education questionnaire results and electronic health record chart reviews.	PPD screening documentation rates increased from 56% to 92.7% p< .5).	PPD screening education for health care providers and the addition of EPDS criteria to the electronic health record were associated with increased screening rates for PPD at the community women's health care clinic.

Yu and Sampson (2019)	Experimental RCT Level I	Pediatricians in a large city in the Southwest United States	Surveyed pediatricians in a large city who interact with women during well-child visits.	While most pediatricians expressed positive attitudes towards addressing new mothers' depressive symptoms, only 69 (66.3%) recalled the latest case in which they recognized a mother at risk of PPD. Among the 69 pediatricians, nine (13%) reported that they referred new mothers to on-site mental health professionals (MHPs), and eight of the nine MHPs are social workers. Lack of time (84%) and being unfamiliar with available mental health resources (53.5%) are two major barriers that prevented pediatricians from initiating PPD screening in their practice. Twenty-three pediatricians (22.1%) received PPD training in the past year. Pediatricians with training scored significantly higher on their confidence in assessing PPD ($t(36) = 3.218$, $p = .002$) and knowledge of diagnostic	Implementation of PPD training will help pediatricians improve the efficiency of screening. Social workers are the main source of on-site MHPs in pediatric settings. The authors recommend moving towards an interprofessional collaboration and an integrated screening-referral-intervention model where on-site social workers could provide further assessment and interventions after pediatricians' screening and referral.

				criteria of depression ($t(45) = 4.108$, $p < .001$). Pediatricians who received training were also more likely to screen new mothers for PPD in practice (Fisher's exact = 7.845, $p = .012$).	
Emerson, Mathews, and Struwe (2018)	Prospective Cohort Study. Non-Experimental Level IV	Forty-three mothers during infants' 6-month well-child visits	Mother were screened using the EPDS. Feasibility in adding the 6-month time frame was assessed using an investigator-designed clinical team survey. Visit documentation content was obtained through medical record review.	Prevalence rates among participants were 10%, 12.5%, and 14% for 2-month, 4-month, and 6-month well-child visits. The clinical team found the additional screening at the 6-month visit to be feasible.	Prevalence of PPD among participants is consistent with previously reported rates. Areas identified for improved clinical practice include the content of the visit that is documented in the medical record and reviewed with mothers identified to be at-risk, time allotted for the clinical team to screen new mothers, and appropriate referral to outside sources.

Venkatesh, Nadel, Blewett, Freeman, Kaimal, and Riley (2016)	Prospective Cohort Study. Level IV	Pregnant women were screened at 24-28 weeks gestation and again 6-week postpartum, 8840 women screened for depression in the antepartum period and 7780 women were screened in the postpartum period.	Assessment of the feasibility of large-scale implementation of universal screening for depression in pregnancy and during the postpartum period using the EPDS.	Among 8985 women who were enrolled in prenatal care at the participating sites, 8840 women (98%) were screened for depression antepartum, and 7780 women (86%) were screened postpartum. A total of 576 women (6.5%) screened positive for probable depression; of these, 69% screened positive antepartum, and 31% screened positive postpartum ($P < .01$). All women who screened positive were referred for an evaluation by a mental health professional; 79% of the women were evaluated, which was more common antepartum than postpartum (83% vs 71%; $P < .01$). One hundred twenty-one women (21%) were not evaluated further after a positive screen; primary reasons included declining a mental health evaluation (30%) or transferring obstetric care	The feasibility of universal depression screening during both the antepartum and postpartum periods with the use of the EPDS as an initial screen followed by mental health referral for further diagnostic evaluation and treatment. The population of women who screened positive and who accepted additional services differed at the 2 time points, which reinforces the utility of screening during both the antepartum and postpartum periods. Although universal screening for depression is feasible, further study of the barriers to mental health evaluation and treatment and the

				(12%). Among women who underwent a mental health evaluation, 67% were diagnosed with major depression; 37% were diagnosed with an anxiety disorder; 28% were diagnosed concurrently with major depression and an anxiety disorder; 76% were diagnosed with either depression or anxiety, and 35% were treated with an anti depressant, which was more frequent during the postpartum period than during the antepartum period (54% vs 28%; *P*<.001). After adjustment for maternal age, parity, race, and household income, women who screened positive antepartum were significantly more likely to link to mental health services compared with women who screened positive postpartum (adjusted odds ratio, 2.09;	impact of treatment on obstetric outcomes are needed.

				95% CI, 1.24–3.24; *P*= .001).	
De Figueiredo, Parada, Cardoso, Batista, Da Silva, Barbieri, Del-Ben (2015)	Cross-Sectional Study/Observational Level IV	Participants were 1,083 women within 12 months postpartum.	The EPDS was administered by telephone to 1,083 women within 12 months postpartum.	Of these 1,083 women, 257 (23.7%) participants had an EPDS score ≥10. At 67 ± 48 days after their telephone interview, 199 (EPDS ≥10 = 96; EPDS <10 = 103) participants were interviewed face-to-face using the Structured Clinical Interview for DSM-IV (SCID) and completed the EPDS again by self-report. In 90 participants, the diagnosis of major depressive episode was confirmed by the SCID (EPDS ≥10 = 65; EPDS <10 = 25). The Cronbach's alpha coefficient was 0.861.	The application of the EPDS by telephone is a suitable alternative for clinical practice and research and represents a method to optimize the diagnosis of postpartum depression.

				The Spearman's correlation between the EPDS administered by telephone and the self-reported EPDS was 0.69 ($p < 0.001$). The receiver-operating characteristic (ROC) curve for the EPDS administered by telephone was 0.78 (95% confidence interval (CI) = 0.72 to 0.84). Scores ≥10 showed a sensitivity of 72.2%, a specificity of 71.6%, and a positive predictive value of 67.7%.	
Canty, Sauter, Xuckerman, Cobian, and Grisby (2019)	Qualitative Non-Experimental Level VI	Participants were 17 women who scored in the moderate or high-risk range on the EPDS	Semi structured qualitative telephone interviews were conducted with 17 women. Interviews explored personal experience with depressive symptoms, barriers and facilitators to receiving mental health care postpartum, and suggestions for primary care follow-up of at-risk screens. A coding structure was created and updated during review of transcripts.	Personal health/attitude, family/friends, community, and health care system factors influenced mothers' follow-up of at-risk PPD screening test results. Health and personal attitude factors included anxiety, physical and emotional exhaustion, self-care and recognition of symptoms, and living up to personal and family expectations. Family/friend factors included material and emotional support and	Addressing barriers to follow-up after PPD screening may enable better service access for at-risk families.

				competing priorities. Community factors included childcare affordability and availability, access to transportation, geographic access to resources, social networks, and community mental health stigma. Health care factors included pediatrician taking the mother's symptoms seriously, adequate time with the pediatrician, mother and pediatrician focus on the child's health, and access to mental health referrals.	
Long, Morgan, Fontanares, MacFarlane, and Cramer (2018)	Prospective Cohort Study Level IV	Medical records from 557 women.	Archival data from an obstetrician/gynecology practice were analyzed. A total of 557 medical records were examined for the following: demographics, mental health history, PPD screening tools, elevated PPD screen recommendations and adherence. PPD screening frequency was assessed at 2 time points: intake	The screening rates were relatively high at intake (335/557, 60.1%) and at 6-week follow-up (476/557, 85.5%). Elevated PPD score rates at intake were 18.2% (n = 61/335) and 13.0% (n = 62/476) at 6-week follow-up. The following bivariate correlates of elevated PPD risk were observed: history of depression, history of anxiety, younger age,	This research adds new knowledge regarding screening rates of PPD and elevated PPD screens, thereby enhancing quality of service provision for mothers. This study provides the basic science to inform an educational intervention addressing screening

			appointment and 6-week post-delivery follow-up.	Medicaid/Medicare health insurance, and single marital status. Full regression models will be presented at the conference.	rates and correlates of PPD; such training may enhance provider knowledge, attitudes, and skills regarding PPD.
Russomagno and Waldrop (2019)	Cohort Study Level IV	Mothers of 414 newborns during the 1 -, 2-, 4-, and 6- month well-child visits.	The PPD screening schedule at 1-, 2-, 4-, and 6-month well-child visit recommended by the American Academy of Pediatrics and a referral algorithm were implemented in a rural primary care pediatric practice. At these visits, the EPDS was administered 84% of the time (n= 350). Seven percent of the total visits (n= 29) did not have the EPDS administered for a myriad of reasons: mother was not present (n= 18), mother's refusal (n= 9), and other/documentation blank	The implementation significantly increased the clinic's screening rate from 33% to 80% ($p < .001$) and improved referral rates from 66% to 79%.	By standardizing PPD screening and implementing a referral algorithm in the ambulatory pediatric setting, more PPD cases can be identified, further evaluated, and, hopefully, treated to improve maternal and infant health outcomes.

			(n= 2). There were an additional 35 visits for which documentation of the EPDS administration was left blank, which suggests that the EPDS was not administered. Positive screening results per visit varied from 7% to 12%,with 2-month WCCs having the most positive screening results (n= 9) and newborn WCCs having the least (n=5).		

Appendix J

Resources for Women with Postpartum Depression in Northern Virginia

Postpartum Support International- Virginia Chapter

Website: https://www.postpartum.net/locations/virginia/

State Coordinator: Megan MacCutcheon

Telephone: 703-755-0492

Email: meganpsinova@gmail.com

Postpartum Support Virginia

(Fairfax Location)

3300 Gallows Road, Falls Church, VA

Telephone: 703-829-7152

Email: fairfax@postpartumva.org

(Arlington Location)

1701 North George Mason Drive, Arlington

Telephone: 703-829-7152

Email: arlington@postpartumva.org

Sage House Counseling & Art Therapy

Website: https://www.sagehousetherapy.com

11250 Roger Bacon Drive Building 10, Reston, VA

Telephone: 703-483-9442

Pregnancy and Postpartum Therapeutic Support Group

3929 Old Lee Highway, Fairfax, VA

Telephone: 571-748-4202

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