Summer 2021

Postpartum Depression: Development of a Screening Protocol in the Neonatal Intensive Care Unit

Kelsey T. Langdale
kturner2@jsu.edu

Jacksonville State University
Graduate Studies
700 Pelham Rd N., 320 Angle Hall, Jacksonville, AL 36265
Phone: (256) 782-5348
http://www.jsu.edu/graduate/index.html

DNP Manuscript Defense Approval

First Name: * Kelsey Last Name: * Langdale Student ID: *

Date: * 06/28/2021

Choose your DNP program: *
- ○ Adult-Gerontology Acute Care Nurse Practitioner (Doctor of Nursing Practice)
- ◉ Family Nurse Practitioner (Doctor of Nursing Practice)
- ○ Post-Master's DNP (Doctor of Nursing Practice)

Manuscript Title: * Postpartum Depression: De

Date of Manuscript Approval: * 06/29/2021

Student Signature	Electronically signed by Kelsey Langdale on 06/28/2021 8:41:56 PM
Chair, DNP Manuscript Signature	Electronically signed by Sherron Deweese on 06/29/2021 3:17:04 PM
DNP Clinical Coordinator Signature	Electronically signed by Lori McGrath on 07/01/2021 8:53:07 AM
DNP Program Coordinator Signature	Electronically signed by Donna Dunn on 07/01/2021 4:47:46 PM
Director of Online & Graduate Nursing Programs Signature	Electronically signed by Kimberly Helms on 07/01/2021 5:24:27 PM
Dean of Graduate Studies Signature	Electronically signed by Channing Ford on 07/26/2021 7:56:01 PM

POSTPARTUM DEPRESSION: DEVELOPMENT OF A SCREENING PROTOCOL IN THE NEONATAL INTENSIVE CARE UNIT

A DNP Project Submitted to the
Graduate Faculty
of Jacksonville State University
in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Nursing Practice

By

KELSEY TURNER LANGDALE

Jacksonville, Alabama

June 28, 2021

Kelsey T. Langdale August 6, 2021

ABSTRACT

Postpartum depression (PPD) affects approximately 19% of all postpartum women. Evidence indicates an increased risk for mothers of hospitalized infants, with estimates ranging from 28% to 67%. The American Academy of Pediatrics and Bright Futures recommend mothers be screened for postpartum depression at the infants' well-child appointments. During hospitalizations, there are no well-child appointments; thus, no postpartum depression screening. This project aims to 1) improve knowledge of PPD in the staff of the Neonatal Intensive Care Unit (NICU) and 2) investigate the staff's interest level in implementing a PPD screening protocol. Utilizing the Plan-Do-Study-Act (PDSA) framework, a protocol was developed to screen postpartum mothers at 1-, 2-, 4-, and 6-month intervals. Staff of the NICU received a 30-minute educational presentation on PPD, the developed PPD screening protocol, and available resources for mothers who screen positive for PPD. The effectiveness of the education was measured using pre-and post-education Likert-style surveys. Outcomes, as measured by a self-reported Likert survey, indicated a ~74% increase in PPD knowledge and a ~64% increase in willingness to screen for PPD in the NICU. This project suggests that educating NICU staff increases knowledge and willingness to screen for PPD in the NICU. This quality improvement project adds to the growing body of literature that inpatient PPD screening is feasible and necessary.

Keywords*:* Neonatal Intensive Care Unit, postpartum depression screening, mother

ACKNOWLEDGMENTS

I wish to thank Jacksonville State University for providing me with a prestigious education. Thank you to the College of Health Professions and Wellness for allowing me to conduct my research and providing as many resources as possible. A special thanks to my project chair, Dr. Sherron DeWeese, for her countless hours of reading, reflecting, and encouraging me. She was more than generous with her knowledge, expertise, patience, and time.

This DNP project is dedicated to my family and friends who have supported and encouraged me throughout my life, education, and career. Thank you, Justin, for the sacrifices, love, and unwavering support you have given me. My sweet daughters, Maddie and Parkie, thank you for reminding me there is always time for playing and snuggles. Thank you both for giving me the motivation to always give my best effort. Thank you, Daddy, for being my role model and biggest fan. I cannot wait to see you again. This DNP project is also dedicated to the many mothers who have an invisible mental illness. You are not alone.

TABLE OF CONTENTS

Postpartum Depression: Development of a Screening Protocol in the Neonatal Intensive Care Unit

Introduction

Postpartum depression (PPD) is considered the most common complication of childbirth. PPD often goes undetected and untreated, and there are lasting adverse outcomes on the entire family unit. According to a 2014 study by Tahirkheli and associates, data shows that mothers of hospitalized infants experience PPD at an increased rate of occurrence in addition to more elevated symptomatology than mothers of healthy infants (Tahirkheli, Cherry, Tackett, McCaffree, & Gillaspy, 2014). Bright Futures and the American Academy of Pediatrics recommend pediatric providers complete PPD screening at the 1-, 2-, 4-, and 6-month well-child checks; however, there has not been increased awareness or adequate attention given to PPD in the context of a hospitalized infant. Many healthcare providers do not participate in screening for postpartum depression due to a lack of awareness, interest, and standardized screening protocols.

Background

Postpartum psychiatric disorders represent a significant public health problem, and this problem has not been adequately addressed. Symptoms of postpartum depression vary in presentation and severity. Mothers with PPD can present with low energy, sleep disturbances, anhedonia, appetite changes, anxiety, extreme sadness, and other persistent depressive symptoms that may progress to thoughts of self-harm or suicide (American College of Obstetricians & Gynecologists [ACOG], 2018). The symptoms of PPD often

go undetected by mothers and clinicians alike, last for greater than two weeks, and interfere with daily life (ACOG, 2018). The peak incidence of postpartum depression is six weeks following childbirth, with a second peak occurring at 6 months following childbirth (Earls, Yogman, Mattson, & Raffety, 2019). The exact cause of PPD is not known but is believed to be produced by a combination of factors including rapid hormone shifts associated with pregnancy, childbirth, lactation, sleep disturbance, and psychological stress (Callahan & Caughey, 2018). Risk factors for the development of PPD include maternal age of less than 25, having a poor support system, a history of personal or familial mental illness, stressful events during pregnancy, financial stress, and substance abuse (United National Library of Medicine [USNLM], 2019).

Maternal mood and anxiety disorders are associated with several adverse outcomes for the mother, her offspring, and the family system, and is known as an adverse childhood event (Umylny, German, & Lantiere, 2017). Children of a depressed parent can encounter deficits in all areas of development extending into adulthood (Earls et al., 2019). Addressing maternal mental health during the perinatal period is of critical importance. Postpartum mood and anxiety disorders (PMADs) remain widely unrecognized and poorly understood by both patients and providers. Pediatric primary care providers encounter mothers repeatedly throughout the postpartum period; thus, the pediatric provider could potentially intervene with mothers suffering from mental illness earlier than other primary care providers (Umylny et al., 2017). Early intervention with mothers suffering from postpartum depression or anxiety is essential in preventing adverse outcomes in children's physical, neuromotor, language, and cognitive development (Aoyagi & Tsuchiya, 2019).

According to a meta-analysis by Beck, mothers with PPD displayed several distinct patterns of negative behavior, including "less affectionate behavior with the infant, less responsiveness to patient cues, withdrawn with a flat affect, and/or hostility and intrusiveness with their infants" (Beck, 1995, p.300). Additionally, mothers with PPD display fewer positive parental behaviors, such as bonding, playing, and breastfeeding, than mothers without PPD. Infants with mothers with PPD were "fussier, more discontent and avoidant, and made fewer positive facial expressions and vocalizations" than infants whose mothers did not have PPD (Beck, 1995, p. 299).

The American Academy of Pediatrics (AAP) recommends conducting developmental surveillance at every health supervision visit and conducting general developmental screening using evidence-based tools at 9, 18, 30 months, or whenever a concern is expressed (American Academy of Pediatrics [AAP], 2020). With direction from Bright Futures, the AAP recommends that pediatric care providers integrate patient and family-centered care in their practices, which includes asking about and reinforcing family strengths. The AAP recommends postpartum depression surveillance and screening at the 1-, 2-, 4-, and 6- month well-child visits (AAP, 2020).

Problem Statement

National recognition of toxic stress, adverse childhood experiences, and the importance of trauma-informed care has led to recommendations for early recognition and intervention from professional and policy organizations, including the US Preventative Services Task Force (USPSTF), Center for Medicare and Medicaid Services (CMS), as well as the American Academy of Pediatrics (AAP). Some infants are hospitalized for an extended period and are unable to attend well-child appointments with

their pediatrician. Adverse parental behaviors are troubling, and intervention must occur to decrease adverse outcomes for both mothers and infants. The mothers of the hospitalized infants are not benefitting from PPD screening by the pediatric care providers. These mothers are at a higher risk of developing Postpartum Mood and Anxiety Disorders (PMADs) (Hall, Shahidullah, & Lassen, 2020). With an assortment of medical concerns, infants hospitalized in the Neonatal Intensive Care Unit (NICU) are a vulnerable population. Lack of postpartum depression screening in the NICU creates a missed opportunity to prevent adverse developmental outcomes in children. Developing a postpartum depression screening protocol and educating NICU staff on PPD increases opportunities for a referral. This DNP project adds to the growing body of literature that inpatient PPD screening is feasible and necessary.

This project will address the following question: in staff of the NICU, will the development of an evidence-based educational presentation focused on screening mothers of infants in the NICU compared with no evidence-based educational presentation, improve knowledge of PPD and interest in PPD screening?

Organizational Description of Project Site

This project was conducted in a 24-bed Neonatal Intensive Care Unit step-down at a large free-standing pediatric hospital in the Southeastern United States. Currently, the medical providers and nursing staff do not screen for PPD, provide referrals, or facilitate follow-up for maternal postpartum depression. The NICU team at this facility cares for infants aging in a range from 0 days-2 years. Low-income women are at a higher risk for PPD. According to the US Census Bureau, the poverty rate for this facility's state is ~16%. The average household income in the facility's state is ~$12,000 less than the

average household income of the United States (United States Census Bureau, 2020). The average yearly income of females in the same state is ~$6,500 less than the average female income in the United States (United States Census Bureau, 2020). Taking into consideration the facility's patient population is necessary for addressing prior knowledge and experience of medical and nursing providers and emphasizing potential implications of future practice (Boyd, 2018).

Review of the Literature

To address the lack of inpatient postpartum depression screening of mothers with hospitalized infants, a literature review was conducted. Academic Search Premier, Alternative Medicine and Health, Health Source - Consumer Edition, Health Source: Nursing/Academic Edition, MEDLINE, The Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline, Google Scholar, and PubMed were searched using keywords: postpartum depression screening, neonatal intensive care unit, postpartum depression screening protocol, and mother. Sixty-two relevant items resulted from the search and were narrowed to 39 results by applying 'scholarly texts' and 'full-text' filters. Sources were then selected based on their focus on PPD screening in the NICU and/or referral for PPD management. Similarly, articles that discuss the effect of PPD on childhood development were included if the articles discussed hospitalized infants as a risk factor. Articles were excluded if studies were based in settings other than inpatient hospitals. After extensive review, 6 articles were extracted for this project. There was a common theme of the reviewed literature sources: the need for increased screening, referral, and follow-up for postpartum depression.

In a 2016 study by Yogman, compliance of postpartum depression screening was compared to 2004 data, showing an increase in compliance of maternal screening in the pediatric setting. However, only 44% of pediatric pediatricians in Massachusetts reported screening for PPD. Thus, missed opportunities for screening occurred. Non-compliance by pediatric providers came after Massachusetts mandated insurance reimbursements for PPD screening in addition to devising a treatment referral plan if positive (2016). Similarly, in a 2016 study by Cherry and associates, 36% of mothers of infants in the NICU screened positive for depression. Each mother surveyed reported no prior screening; thus, reinforcing the expanding role of psychologists and mental health providers to intervene as soon as symptoms present to decrease adverse infant outcomes (Cherry, Blucker, Thornberry, Hetherington, & McCaffree, 2016).

A 2016 study by Trost reported that 87 mothers in the NICU had an Edinburgh Postnatal Depression Scale (EPDS) greater than 10. Additionally, the mothers cited lack of mental support and having a child with medical comorbidities added to their EPDS rating (Trost, 2016). In a 2019 study completed by Hall, mothers who screened positive and agreed to interventions decided on by a psychologist had lower EPDS compared to mothers who did not agree to interventions, furthering the evidence that PPD screening programs at institutions are needed (Hall, Shahidullah, & Lassen, 2020).

The appearance of the baby in addition to the sounds and sights of the NICU environment were major sources of stress in mothers of hospitalized infants. In addition, higher maternal stress was found to be associated with poor family support, mothers' perception of baby's acuity, lower birth weight of the baby, and moderate to severe anxiety. A 2019 study by Varma and associates recommended postpartum depression

screening in the NICU to decrease adverse childhood outcomes (Varma, Nimbalker, Patel, & Phatak, 2019)

Finally, a 2015 study conducted by Siewert implemented nurse-led "listening visits" (LVs) in NICU. This BSN-prepared nurse would become certified to utilize LVs as interventions. These sessions were 45-60 minutes long and would occur 2 to 3 days per week (Siewert, Cline, & Segre, 2015). The results implied that hospitals that utilize LVs have increased compliance with therapy and fewer adverse outcomes as measured by pre- and post-EDPS screening.

Evidence-Based Practice: Verification of Chosen Option

The United States Preventative Services Task Force (USPSTF) recommends screening for postpartum depression, and it also recommends that screening should take place with established resources for confirmation of diagnosis, treatment, and follow-up (United States Preventative Services Task Force [USPSTF], 2016). Bright Futures recommends that providers screen mothers for postpartum depression at well-child exams. There has not been increased awareness or adequate attention to PPD in the context of a hospitalized infant. The AAP clarifies the role of the pediatric provider, in that he or she is not responsible for treating PPD, but is responsible for facilitating access to additional resources, care, and follow-up (Earls, 2010).

Theoretical Framework/Evidence-Based Practice Model

The Humanistic Nursing Theory, also called the holistic approach, looks to mold mental and emotional health with physical health (DuQuesne University, 2020). This nursing theory was created by Advanced Practice Nurses (APNs) Josephine Paterson and

Loretta Zderad, and it seeks to view patients as individuals who need personalized care. This approach helps foster mental and emotional health in addition to physical health. This approach to nursing emphasizes the nurse-patient relationship, in which both people influence the outcome of the nursing interventions (see Appendix A, Figure A). The function of the nursing approach shows that the relationship between the nurse and patient has as much to do with the patient's healing as medical interventions. Humanistic nursing focuses closely on how the relationship between the patient and nurse develops in addition to the patient's physical and mental health (Petiprin, 2016). Paterson and Zderad developed five phases of nursing, called phenomenological nursing, to be used with the Humanistic Theory. These five phases include: 1) Nurses begin investigating a case or need, 2) Nurses create an "I-You" relationship to better understand their patients and use intuitive knowledge, 3) Nurses apply scientific knowledge and begin a subject-object or "I-It" relationship, which allows nurses to reflect on their own experiences and utilize them in the context of the situation, 4) Nurses synthesize their knowledge to become a source of continually evolving information, and 5) Nurses evolve to apply knowledge to a practical clinical setting (DuQuesne University, 2020).

This theoretical framework will guide this DNP project through the utilization of holistic care. It is understood that undiagnosed and untreated PPD can result in adverse developmental outcomes for children. Through knowledge obtained from PPD education, nurses become a resource for PPD information and can apply knowledge to address PPD. Nurses in the NICU have substantial opportunities to interact with mothers while caring for the hospitalized infant posing many PPD screening opportunities. Using the Humanistic Nursing Theory, NICU nurses will seek to prevent adverse developmental

outcomes by recognizing potential PPD in mothers and involving the medical provider for the need for referral.

Goals, Objectives, and Expected Outcomes

Pediatric healthcare providers have the most access to new mothers and can educate on and screen for postpartum depression. Infant hospitalization represents a potential health encounter for screening and intervention for postpartum depression. This project aims to 1) improve knowledge of PPD in the staff of the NICU and 2) investigate the NICU staff's interest level in implementing a PPD screening protocol. The aims were addressed by developing an evidence-based PPD screening protocol and providing education to the nurses and providers in the NICU on presentation of PPD, identification of PPD, the effects of PPD on childhood development, and available resources for mothers whose EPDS score is ≥10.

Improvements in these areas were measured using pre-and post-education Likert-style surveys to determine if staff knowledge and interest levels improved because of the educational intervention (see Appendix B). To improve staff knowledge about PPD presentation, identification, and effects of PPD on childhood development, the goal was to see improved survey scores in at least 65% of participants. To improve staff interest levels in the implementation of PPD screening and referral protocol, the goal was to see improved survey scores in at least 55% of participants.

The objectives for this project are specific, measurable, assignable, realistic, and time-specific (SMART):

Specific: raise knowledge and interest levels for PPD screening through educating staff on the presentation of PPD, the importance of screening for PPD in the pediatric

inpatient setting, the crucial importance of facilitating referrals to decrease adverse childhood events and educating staff on the developed PPD screening protocol.

Measurable: improve staff knowledge and interest levels as evidenced by self-reported pre- and post-education surveys.

Assignable: the DNP student is responsible for developing the protocol; developing, coordinating, and leading the educational sessions; providing supplemental information to nurses and providers; and collecting and analyzing pre- and post-education surveys.

Realistic: This project aims to improve staff knowledge and interest levels during a 30-minute educational session. Surveys will be user-friendly and quick to complete. The development of a PPD screening protocol did not involve new expenses or new technology. Future implementation of the PPD screening protocol will not involve a drastic change in workflow.

Time-Specific: The pre-survey, educational presentation, and post-survey are limited to 30-minutes.

Project Design

This is a Quality Improvement (QI) project aimed at increasing NICU staff's knowledge of PPD presentation, PPD identification, PPD's effects on childhood development, available resources for mothers with PPD, and interest in implementing a standardized PPD screening protocol. The goal is to measure staff's knowledge of PPD and interest in implementing screening protocol. This DNP QI project will add to the growing body of literature that developing a standardized PPD screening protocol for the

NICU is feasible and necessary.

Project Site and Population

This project will be completed on a 24-bed Neonatal Intensive Care Unit step-down unit at a free-standing pediatric hospital in the Southeastern United States. Before the implementation of this QI project, there is no PPD screening, referral, or follow-up of mothers of infants hospitalized in the facility. This facility provides acute care services to urban, suburban, and rural families living around the United States. Low-income women are at a higher risk of developing PPD; the facility is in a state with poverty rates averaging ~16%.

The site is a 300-bed freestanding pediatric hospital. This facility cared for approximately 677,000 children in outpatient visits and more than 15,000 children inpatient in 2018. This project will be carried out in the NICU step-down within this facility. The NICU is a level IV NICU. The unit admits patients via transport from other hospitals or admission from the Emergency Department (ED). A stakeholder is an individual or group that is affected by a project or can influence the implementation of a project and long-term sustainability (Reavy, 2016). The stakeholders in this project are the NICU neonatologists, neonatal nurse practitioners (NPs), and NICU nursing staff. The staff will attend the provided education and complete the pre- and post-education surveys to gauge knowledge of PPD and willingness to perform PPD screening in the NICU. Flyers with the schedule for the educational presentation will be posted in the employee lounge and the NP resource room (see Appendix C). Educational opportunities will be provided at times convenient for both dayshift and nightshift employees to attend (Langdale, 2021).

Setting facilitators and barriers. Main barriers to improving staff's knowledge and willingness to screen for PPD utilizing the developed protocol include perceived responsibility and time constraints. The AAP clarifies the role of the pediatric provider, in that he or she is not responsible for treating PPD, but is responsible for facilitating access to additional resources, care and follow-up (Earls, 2010). To overcome this barrier, the author of this work collaborated with Postpartum Support International (PSI) to provide a list of local, state, and national resources (see Appendix D). Stakeholders acknowledge the lack of knowledge regarding PPD screening and available resources for referral. Having the support of the facility and the unit was imperative, and the neonatologists, NPs, and unit managers assisted with coordinating educational sessions, the protocol development, and the research process. Additionally, the acuity of the infant in the NICU setting may make PPD screening a lower priority; thus, the NICU staff may be less willing to screen. To overcome this barrier, the author of this project worked to streamline the screening process, guaranteeing efficiency and resources in place before screening.

Implementation Plan/Procedures

The Plan-Do-Study-Act (PDSA) model for QI implementation will be an effective model to facilitate these evidence-based recommendations into practice (Dearholt & Dang, 2012). The DNP candidate met with the Chief Nursing Officer (CNO), presented the identified problem and solution, and obtained permission to begin the process. Next, the DNP candidate began corresponding with the NICU nursing director and neonatologists for suggestions and input on the project and developed a PPD screening

protocol. The next step of the project was to 'Do' the educational presentation to NICU staff. Educational opportunities were provided at multiple times convenient for both dayshift and nightshift employees to attend. After the educational presentation, the author 'Studied' the survey results to evaluate the effectiveness of education on knowledge and willingness to screen for PPD. Finally, the author presented findings for future change in practice and intervention (see Appendix E).

Measurement Instruments

To measure the outcomes of this DNP Project, an anonymous Likert-style survey was administered before the educational presentation. The survey assessed existing knowledge and beliefs of PPD and willingness to screen for PPD in the NICU setting (Langdale, 2021). The educational PowerPoint presentation (see Appendix F) began with the incidence and prevalence of PPD, signs and symptoms of PPD, and recommendations and support for screening and referral in the NICU setting (Langdale, 2021). Next, the EPDS tool was introduced (see Appendix G), and an explanation of its benefits was discussed. Then, the PPD screening protocol was introduced and explained (see Appendix H). Next, the presentation included a plan for mothers whose EPDS scores are indicative of potential PPD. The presentation ended with a review of facility-provided, local, state, and national resources available for mothers with PPD. After the educational presentation, the same anonymous survey was re-administered to measure and compare knowledge and interest in screening for PPD in the NICU and step-down units to the results from the pre-educational survey.

Data Collection Procedures

The DNP student developed an anonymous self-reported individual survey for all participating staff. This seven-question survey was a Likert-style survey and measured the following: knowledge of PPD signs and symptoms, PPD's effect on childhood development, available resources for mothers with PPD, comfort level in discussing and screening for PPD, and willingness to utilize the protocol to screen for PPD. The educational PowerPoint presentation included the incidence, signs and symptoms, and identification of PPD in addition to the developed protocol and established resources for mothers who screen positive on the EPDS tool. After the educational presentation, the same anonymous survey was re-administered to measure and compare knowledge and willingness to implement the PPD screening protocol in the NICU to the results of the pre-educational survey (Langdale, 2021).

Data Analysis

For each of the seven questions, the available responses were given a value of one through five, with one representing strongly disagree and five representing strongly agree. The questions were divided into two categories, knowledge of PPD and willingness to screen for PPD. After the pre-education and post-education surveys were administered, the results were compared using a Welch Two Sample t-test. Improved scores represent improvement of knowledge of presenting signs and symptoms of PPD, the effects of PPD on childhood development, available facility, local, state, and national resources for mothers with PPD, comfort level for discussing PPD with mothers, and willingness to utilize the developed protocol to screen for PPD in the NICU. Declining average scores and/or unchanged scores indicate diminished or lack of change in

perceived/self-reported knowledge, beliefs, and attitudes. The measured results were indicative of the project aims of increasing PPD knowledge by 65% and willingness to screen by 55% being met through education.

Results

Pre- and post-education scores were calculated to determine the effect of education on NICU staff's knowledge of PPD. A Welch Two Sample t-test was completed to analyze pre-education and post-education surveys of 31 participants (n=31). For survey questions 1,2,5,6, and 7, the mean score pre-intervention was 12.548 with a minimum score of 5 and a maximum score of 25. Upon completion of the educational presentation, the post-intervention mean was 21.839, indicative with 95% confidence that the 30-minute evidence-based educational presentation improved knowledge of Postpartum Depression by ~74% (t-score = 11.029, p-value < 0.001). On average, implementation of this educational presentation could increase knowledge by a minimum of 7.597 and a maximum of 10.984 points utilizing the same Likert-style survey (Langdale, 2021).

Next, pre- and post-education scores were calculated to determine the effect of the educational presentation on staff's willingness to screen for PPD in the NICU. A Welch Two Sample t-test was completed to analyze pre-education and post-education surveys of 31 participants (n=31). For survey questions 3 and 4, the mean score pre-intervention was 5.323 with a minimum score of 2 and a maximum score of 10. After completion of the educational presentation, the post-interventional mean was 8.742, indicative with 95% confidence that the provided educational presentation increased staff willingness to screen by ~64% (t-score = 8.984, p-value < 0.001). On average, implementation of this

educational presentation could increase willingness to screen a minimum of 2.655 and a maximum of 4.184 points utilizing the same Likert-style survey (Langdale, 2021).

Discussion

The DNP student developed a screening protocol, educational presentation, and Likert-style survey to improve knowledge and willingness to screen for PPD in the NICU. The results of the DNP QI project indicate an improvement in knowledge of PPD symptoms, the effect of PPD on childhood development, resources available to mothers with PPD, and an increase in willingness to screen for PPD in the NICU. Staff received an educational presentation to increase knowledge and willingness to screen. Early recognition of PPD can prevent or minimize adverse childhood outcomes.

Limitations of the project include a small sample size of staff. Due to COVID pandemic regulations and 6-foot distancing recommendations, the DNP student had a smaller sample size than previously expected. There was also a lack of generalization as the QI project was conducted on a single unit on one single date. Data collected from the sample population was self-reported. Finally, validity and reliability were not established as the Likert-style survey was developed by the DNP student.

As a result of the QI project, the facility has increased awareness of the need for PPD screening in the NICU to align with the facility's mission to provide the finest pediatric health services to all children in an environment that fosters excellence in research and medical education, and to serve as an advocate for all children and work to educate the public about issues affecting children's health and well-being. The results of

this DNP project provide an opportunity to collaborate with leaders to implement an appropriate, evidence-based, PPD screening protocol in the NICU.

Cost-Benefit Analysis/Budget

No significant costs were incurred and NICU staff were not required to participate on off-days or stay past their scheduled shift to attend. The cost of colored printed flyers is estimated at $10. This expense was paid for by the author of this work. There were no other financial costs for this project. The cost of the time of the participants is 30 minutes, including the pre-education survey, the educational presentation, and the post-education survey.

Timeline

The project took six months from the development of the protocol, educational presentation, and pre- and post-education surveys to completion of analysis and interpretation. The educational sessions took place in February of 2021, analysis and interpretation of data were completed in May of 2021, and final submission will occur in June of 2021 (see Appendix I).

Ethical Considerations/Protection of Human Subjects

The Jacksonville State University Institutional Review Board (IRB) approval was obtained before initiating the DNP project. Participation in this research project was completely voluntary without penalty for withdrawing or not participating. There was no direct patient contact during this project. The DNP student did not have access to patient

information, nor was this information needed for this project. The subjects participating in this project were the NICU-trained nursing staff, nurse practitioners, and neonatologists. All information collected as part of evaluating the impact of education on knowledge of PPD and willingness to screen for PPD in the NICU is data from the project participants and is completely anonymous without any identifying factors. There was no risk to the project participants or the DNP student during this project. Any data collected for evaluation is stored at the DNP student's home. Based on the project design, the DNP student obtained IRB approval for exemption from Human Subjects Research (see Appendix J).

Conclusion

Postpartum depression (PPD) is considered the most common complication of childbirth. PPD often goes undetected and untreated, and there are lasting adverse outcomes on the entire family unit. The American Academy of Pediatrics and Bright Futures recommends screening mothers for Postpartum Depression at well-child visits. Mothers of hospitalized infants experience PPD at an increased rate of occurrence in addition to more elevated symptomatology than mothers of healthy infants. Infants who are hospitalized do not receive well-child visits; thus, mothers of hospitalized infants are not screened for PPD. Many healthcare providers do not participate in screening for postpartum depression due to lack of awareness, interest, and standardized screening protocols. This Quality Improvement project aimed to increase knowledge of and willingness to screen for PPD in the NICU through the implementation of an educational presentation.

Pre- and post-education scores were calculated to determine the effect of education on NICU staff's knowledge of PPD. A Welch Two Sample t-test was completed to analyze pre-education and post-education surveys of 31 participants (n=31). Data was indicative with 95% confidence that the 30-minute evidence-based educational presentation improved knowledge of Postpartum Depression by ~74% and willingness to screen by ~64%.

This DNP Quality Improvement project examined the effect of an educational presentation on knowledge of the symptomology, impact on childhood development, available resources for PPD, and willingness to screen for PPD using a developed protocol on NICU staff. This QI project demonstrated an increase in both staff knowledge of Postpartum Depression and willingness to screen for Postpartum Depression in the NICU after implementation of the educational presentation, meeting the project goals of increasing staff knowledge of PPD by 65% and willingness to screen by 55%. The results indicated an educational intervention was effective at improving knowledge of PPD and willingness to screen for PPD in the NICU.

Early recognition of PPD can prevent or minimize lasting adverse childhood outcomes. As a result of this Quality Improvement project, the facility has an increased awareness that there is no process to care for this vulnerable population. The findings from this DNP QI project support existing research that screening for PPD in the inpatient setting is feasible.

REFERENCES

American Academy of Pediatrics (2020). Screening recommendations. *Screening technical assistance & resource center (STAR).* Retrieved from https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Screening/Pages/Screening-Recommendations.aspx

American College of Obstetricians & Gynecologists [ACOG] (2018). ACOG committee opinion no. 757: Screening for perinatal depression. *Obstetrics and Gynecology 132(*5), e208-e212. Retrieved from https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2018/11/screening-for-perinatal-depression

Aoyagi, S. & Tsuchiya, K. (2019). Does maternal postpartum depression affect children's developmental outcomes? *Journal of Obstetrics and Gynaecology Research, 45*(9), 1809-1820. https://doi.org/10.1111/jog.14064

Beck, C. (1995). The effects of postpartum depression on maternal-infant interaction: a meta-analysis. *Nursing Research 44*(5), 298–304. Retrieved from https://pubmed.ncbi.nlm.nih.gov/7567486/

Boyd, T. (2018*). Pediatric primary care providers and postpartum depression: Educating providers about the importance of regular screening, referrals, and follow-up* (Doctoral dissertation). Retrieved from ScholarWorks@UMass Amherst. Retrieved from https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1165&context=nursingdnpcapstone

Callahan, T.L. & Caughey, A.B. (2018). *Blueprints: Obstetrics and Gynecology*. Philadelphia, PA: Wolters Kluwer.

Cherry, A., Blucker, R., Thornberry, T., Hetherington, C., & McCaffree, M. (2016). Postpartum depression screening in the Neonatal Intensive Care Unit: program development, implementation, and lessons learned. *Journal of Multidisciplinary Healthcare, 9*, 59-67. https://doi.org/10.2147/JMDH.S91559

Dearholt, S., & Dang, D. (2012). *Johns Hopkins Nursing Evidence-Based Practice: Models and Guidelines (2nd edition).* Indianapolis, IN: Sigma Theta Tau International.

Duffy, G., & Moran, J. (2011). Applications and tools for creating and sustaining healthy teams. *Public Health Foundation*. Retrieved from http://www.phf.org/resourcestools/Documents/Applications_and_Tools_for_Creating_and_Sustaining_Healthy_Teams.pdf

Duquesne University (2020). Nursing theories for nurse educators. *Nursing Education in the Faculty Role.* Retrieved from https://onlinenursing.duq.edu/blog/nursing-theories-nurse-educators/#:~:text=Humanistic%20Nursing%20Theory&text=The%20theory%20is%20based%20on%20the%20idea%20that%20patients%20grow,individual%20who%20needs%20personalized%20care

Earls, F. (2010). Incorporating recognition and management of perinatal and postpartum depression into pediatric practice. *Pediatrics, 126*(5), pp. 1032–1039. doi: 10.1542/peds.2010-2348

Earls, M., Yogman, M., Mattson, G., & Raffety, J. (2019). Incorporating recognition and

management of perinatal and postpartum depression into pediatric practice. *Pediatrics, 143*(1). Retrieved from https://pediatrics.aappublications.org/content/143/1

Hall, E., Shahidullah, J., & Lassen, S. (2020). Development of postpartum depression interventions for mothers of premature infants: A call to target low-SES NICU families. *Journal of Perinatology 40*, 1-9. https://doi.org/10.1038/s41372-019-0473-z

Langdale, K. (2021). *Postpartum depression: Development of a screening protocol in the neonatal intensive care unit*. Manuscript in preparation.

Petiprin, A. (2016). Humanistic Model. *Nursing Theory*. Retrieved from https://nursing-theory.org/theories-and-models/humanistic-model.php#:~:text=and%20Health%20Care,Humanistic%20Model,simply%20an%20illness%20or%20injury.&text=Humanistic%20nursing%20theories%20have%20a,Josephine%20Paterson%20and%20Loretta%20Zderad

PMhealthNP (2021). Josephine Paterson & Loretta Zderad humanistic nursing theory. *Psych-Mental Health NP.* Retrieved from http://pmhealthnp.com/josephine-paterson-loretta-zderad-humanistic-nursing-theory/

Reavy, K. (2016). *Inquiry and Leadership: A Resource for the DNP Project*. Philadelphia, PA: F.A. Davis Company.

Siewert, R., Cline, M., and Segre, L. (2015). Implementation of an innovative nurse-delivered depression intervention for mothers of NICU infants. *Advanced Neonatal Care 15*(2), 104-111. https://doi.org/10.1097/ANC.0000000000000146

Tahirkheli, N., Cherry, S., Tackett, A., McCaffree, M., & Gillaspy, S. (2014). Postpartum depression on the neonatal intensive care unit: Current perspectives. *International Journal of Women's Health, 6*, 975-987. https://doi.org/10.2147/IJWH.S54666

Trost, M. (2016). Screening for maternal postpartum depression during infant hospitalizations. *Journal of Hospital Medicine, 11*(12), 840-846. https://doi.org/10.1002/jhm.2646

Umylny, P., German, M., & Lantiere, A. (2017). Treating postpartum mood and anxiety disorders in primary care pediatrics. *Current Problems in Pediatric and Adolescent Healthcare 47*(10), 254-266. https://doi.org/10.1016/j.cppeds.2017.08.003

United States Census Bureau (2020). Alabama; United States. *QuickFacts*. Retrieved from https://www.census.gov/quickfacts/fact/table/AL,US/PST045219

United States National Library of Medicine [USNLM]. (2019). Postpartum depression. *Medical Encyclopedia*. Retrieved from https://medlineplus.gov/ency/article/007215.htm

United States Preventative Services Task Force [USPSTF] (2016). Screening for depression in adults: U.S. Preventive Services Task Force recommendation statement. *Journal of the American Medical Association 315*(4), 380-387. doi:10.1001/jama.2015.18392

Varma, J., Nimbalker, S., Patel, D., & Phatak, A. (2019). The level and sources of stress in mothers of infants admitted in neonatal intensive care unit. *Indian Journal of Psychological Medicine 41*(4), 338-342. https://doi.org/IJPSYM.IJPSYM_415_18

Yogman, M. (2016). Postpartum depression screening by pediatricians: Time to close the gap. *JDPH, 37*(2), 157. Retrieved from https://www.mcpapformoms.org/Docs/Publications/Yogman%20Postpartum_Depression_Screening_by_Pediatricians__%206.pdf

APPENDIX A

Humanistic Nursing Theory

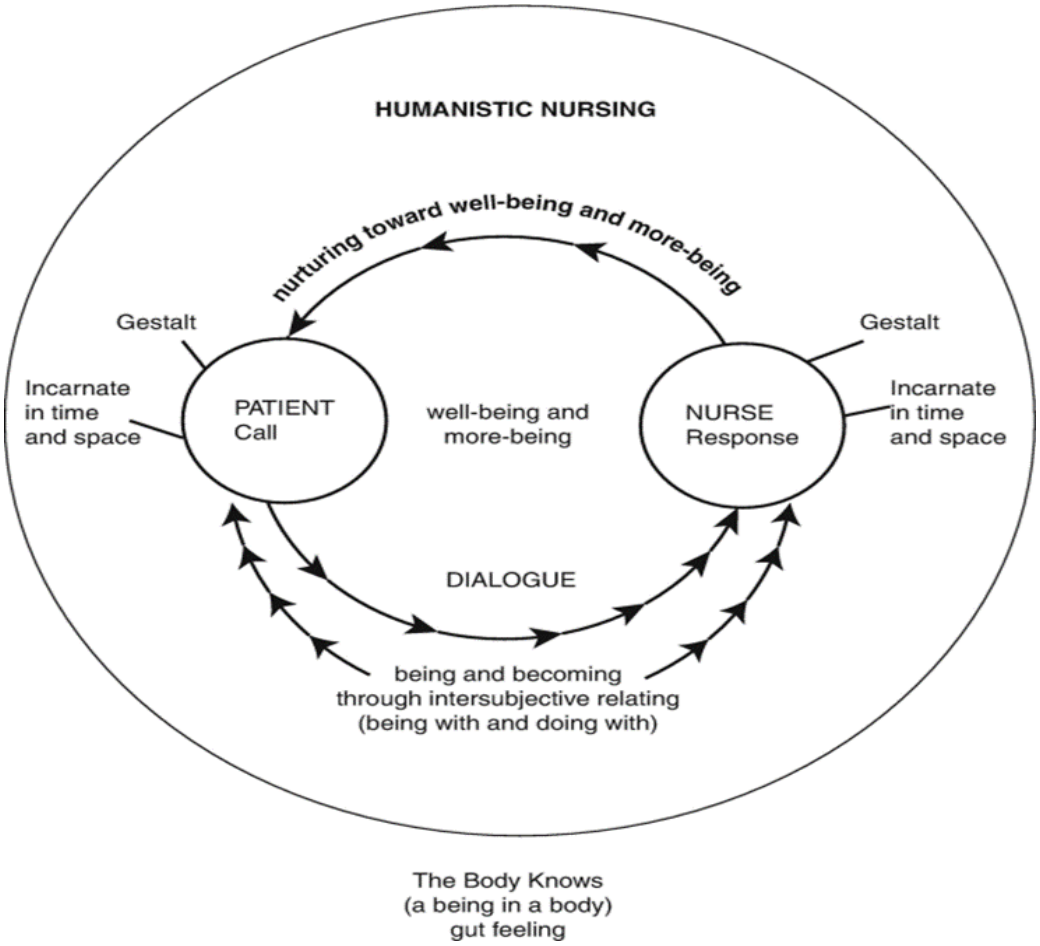


Figure A. Person is viewed as an "Incarnate being" always in relation with man and things in a world of time and space''. Person has the capability of self- reflection. Nursing is conceptualized as a lived human act, a response to a human act and situation. The dialogical quality of nursing is emphasized with the Humanistic Model; nursing is viewed as a transaction between persons. Transactional relationship whose meaningfulness is founded on a nurse's awareness of self and others. Humanistic nursing aims at the development of human potential, at wellbeing and more being. Nursing's concern is not merely with a person's wellbeing but within their more being, holistically helping the patient become as well as possible in their life situation (PMhealthNP, 2021).

APPENDIX B

Pre- and Post-Education Staff Survey

Staff Survey

Place an "X" in the box to indicate your answer:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I feel knowledgeable about the presenting signs and symptoms of postpartum depression (PPD)					
I feel knowledgeable about the effects of PPD on childhood development					
I feel comfortable discussing PPD with mothers of infants hospitalized in the NICU					
I am willing to use screening protocol to screen for PPD in the NICU					
Initiating referral for PPD support and care is the responsibility of the pediatric provider					
Patient acuity level is a potential barrier to PPD screening and discussing PPD (i.e., screening is low priority)					
I am aware of the available facility, local, state, and nation-wide resources for women with PPD					
This educational presentation was beneficial to me *					
I could benefit from additional education regarding PPD screening and referral *					

*Included only on the post-educational survey.

Figure B. Pre- and Post- Education Likert Style Survey developed by author of this work to analyze the effect of evidence-based educational presentation on knowledge of PPD and willingness to screen for PPD in the NICU (Langdale, 2021). Each answer was valued from 1 point to 5 points with 'Strongly Disagree' totaling 1 point and 'Strongly Agree' totaling 5 points.

APPENDIX C

Educational Session Flyer

WANTED: NICU STAFF

To participate in a Quality Improvement Project regarding Postpartum Depression!

ARE YOU INTERESTED? ATTEND AN EDUCATIONAL PRESENTATION IN THE CONFERENCE ROOM

POSTPARTUM DEPRESSION SCREENING

Help Us to Improve Developmental Outcomes!

As a volunteer, you will:

-Take an anonymous pre-educational survey

-Attend a short educational presentation on PPD and a PPD screening protocol

-Take an anonymous post-education survey

Schedule for Education

Date: 3/13/21 Time: 0800

Date: 3/13/21 Time: 1200

Date: 3/13/21 Time: 1600

This QI project is part of a DNP project presented by Kelsey Langdale, MSN RN FNP-BC CPN

APPENDIX D

Personal Email Correspondence/Permission to Use Resources

Re: New submission from the PSI-AL site

August 29, 2020 at 6 19 AM

From PSI Alabama Chapter

To Kelsey Langdale

Hi Kelsey,

Thank you for reaching out to us. I am so encouraged to hear about your project. We have been working for several years trying to get into the hospitals to encourage universal mental health screenings for postpartum mothers. We appreciate all of the work that you are doing!! Yes, you may use our references for the services that we offer mothers. If you'd like, I'd be happy to do a video chat with you and we can talk more about screenings and I would love to hear more about the work you are doing.

Look forward to hearing more!

Alicia Schuster-Couch, MA, LPC,
PMH-C, NCC Board Chair

On Thu, Aug 27, 2020 at 8 40 PM No-Reply Postpartum <postpartum.noreply@gmail.com> wrote:

> **Name**
>
> Kelsey Langdale
>
> **Email**
>
> kelseytlangdale@icloud.com
>
> **How can we help?**
>
> Hi! I am a FNP working to obtain my DNP. For my DNP project, I am looking to implement Postpartum Depression Screening in the NICU setting. When infants are hospitalized, their mothers are not being screened for postpartum depression at well-
>
> child checkups. Thus, mothers of hospitalized infants are a missed population for screening despite being at a higher risk for developing PPD. May I utilize your database for PSI support groups and hotlines and your PPD handouts in my project with appropriate references to your organization?-- Postpartum Support International-Alabama Chapter

You are not alone. You are not to blame. With help, you will be well.
psichapters.com/al
https://www.facebook.com/psialabama/ 1/1

APPENDIX E

Plan-Do-Study-Act

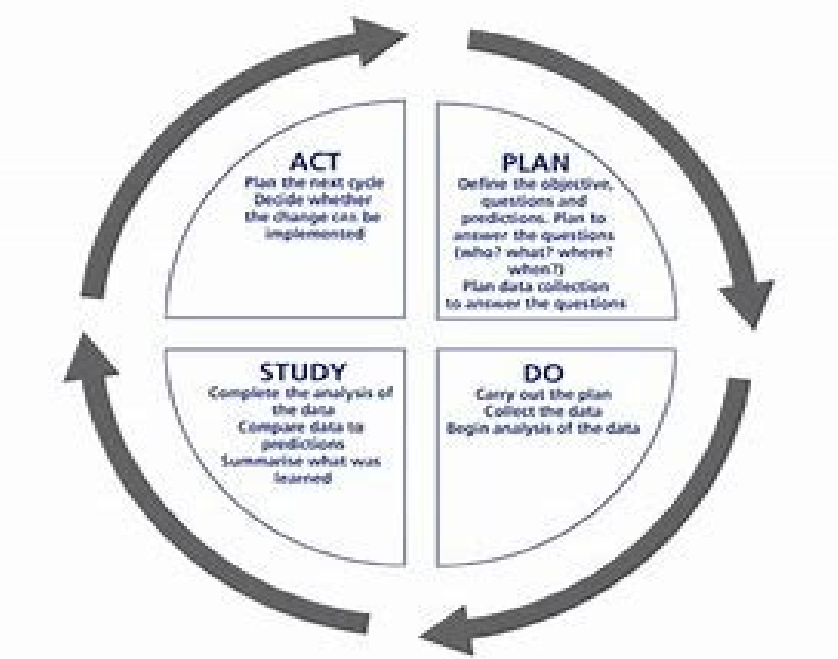
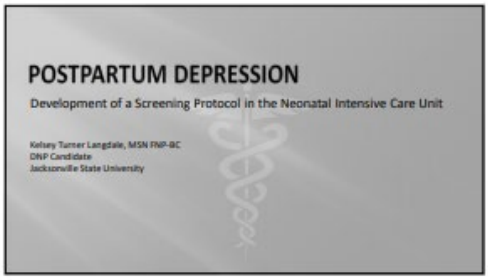


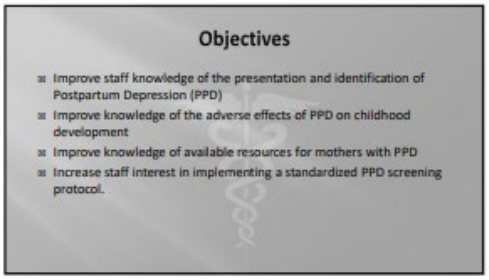
Figure E. The PDSA model includes for cyclic stages to implement change. 1) Plan- form a hypothesis/create a new process, 2) Do- implement the new process and collect data, 3) Study- interpret results from data collection, and 4) Act- based on data analysis, determine if change/process can successfully be implemented and disseminate findings (Duffy & Moran, 2011)

APPENDIX F

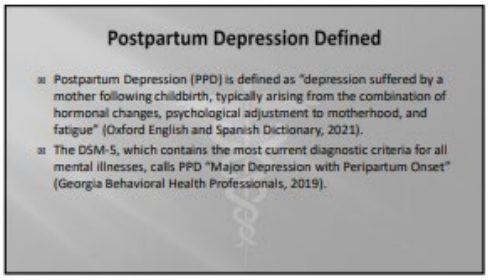
Post-Partum Depression Educational Presentation


POSTPARTUM DEPRESSION
Development of a Screening Protocol in the Neonatal Intensive Care Unit
Kelsey Turner Langdale, MSN FNP-BC
DNP Candidate
Jacksonville State University

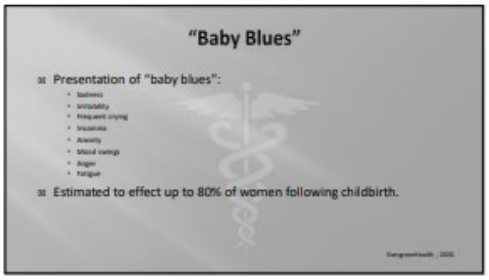
1


Objectives
Improve staff knowledge of the presentation and identification of Postpartum Depression (PPD)
Improve knowledge of the adverse effects of PPD on childhood development
Improve knowledge of available resources for mothers with PPD
Increase staff interest in implementing a standardized PPD screening protocol.

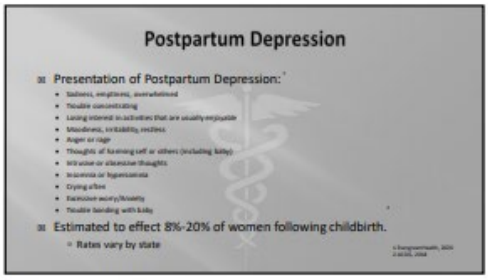
2


Postpartum Depression Defined
Postpartum Depression (PPD) is defined as "depression suffered by a mother following childbirth, typically arising from the combination of hormonal changes, psychological adjustment to motherhood, and fatigue" (Oxford English and Spanish Dictionary, 2021).
The DSM-5, which contains the most current diagnostic criteria for all mental illnesses, calls PPD "Major Depression with Peripartum Onset" (Georgia Behavioral Health Professionals, 2019).

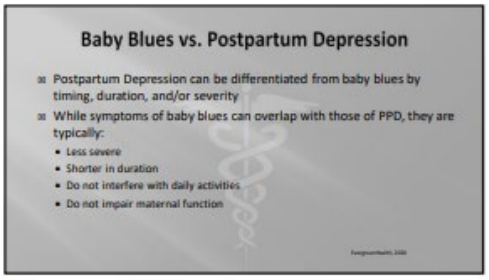
3


"Baby Blues"
Presentation of "baby blues":
Sadness
Irritability
Frequent crying
Insomnia
Anxiety
Mood swings
Anger
Fatigue
Estimated to effect up to 80% of women following childbirth.

4


Postpartum Depression
Presentation of Postpartum Depression:
Estimated to effect 8%-20% of women following childbirth.
Rates vary by state

5


Baby Blues vs. Postpartum Depression
Postpartum Depression can be differentiated from baby blues by timing, duration, and/or severity
While symptoms of baby blues can overlap with those of PPD, they are typically:
Less severe
Shorter in duration
Do not interfere with daily activities
Do not impair maternal function

6

Risk Factors for PPD Development

- Age <25
- Poor support system
- History of personal or familial mental illness
- Stressful events during pregnancy/childbirth/postpartum
- Financial stress
- Substance abuse

UNMLM_2019

7

- https://youtu.be/1n46HPsYsHM

8

Identification of Postpartum Depression

- Postpartum depression (PPD) is a common and often overlooked condition. Validated screening tools for PPD exist but are not commonly used.
- The Edinburgh Postnatal Depression Scale (EPDS) is a validated instrument developed specifically to identify women experiencing postpartum depression (PPD).
  - Sensitivity 84%-100%
  - Specificity 82% to 88%

9

Edinburg Postnatal Depression Scale

10

Edinburgh Postnatal Depression Scale

11

Background

- Postpartum Depression (PPD) is considered the most common complication of childbirth and is known as an adverse childhood event (Umylny, German, & Lantiere, 2017).
- PPD often goes undetected and untreated, leaving lasting adverse effects on the entire family unit.
  - Children of a depressed parent can encounter deficits in all areas of development extending into adulthood (Aoyagi & Tsuchiya, 2019).
- Addressing maternal mental health is of critical importance.

12

Gap In Practice

- Pediatric care providers encounter mothers repeatedly throughout the postpartum period; thus, the pediatric care provider could recognize and intervene with mothers suffering from PPD earlier than other care providers.
- Bright Futures and the American Academy of Pediatrics recommend pediatric providers complete PPD screening at the 1-, 2-, 4-, and 6-month well-child checks.

13

Gap In Practice

- Some infants are hospitalized for an extended period and are not able to attend well-child checkups with their pediatricians. These mothers are not benefitting from PPD screening by pediatricians.
- Infants hospitalized in the Neonatal Intensive Care Unit (NICU) are a vulnerable population.
- Lack of Postpartum Depression Screening in the NICU creates a missed opportunity to prevent adverse developmental outcomes in children.

14

Is PPD Screening in the NICU necessary?

- A 2016 study by Cherry and associates, 36% of mothers of infants in the NICU screened positive for depression. Each mother surveyed reported no prior screening; thus, reinforcing the expanding role of psychologists and mental health providers to intervene as soon as symptoms present to decrease adverse infant outcomes (Cherry, Blucker, Thornberry, Hetherington, McCaffree & Gillaspy, 2016).
- A 2016 study by Trost reported that 87% of mothers in the NICU had an EPDS score of greater than 10. Additionally, the mothers cited lack of mental support and having a child with medical comorbidities added to their EPDS rating.

15

Is PPD Screening in the NICU necessary?

- A 2019 study by Varma and associates recommended postpartum depression screening in the NICU to decrease adverse childhood outcomes. The appearance of the baby in addition to the sounds and sights of the NICU environment were major sources of stress in mothers of hospitalized infants. In addition, higher maternal stress was found to correlate with poor family support, mothers' perception of baby's acuity, lower birth weight of the baby, and moderate to severe anxiety (Varma, Nimbalker, Patel, & Phatak, 2019).
- https://youtu.be/o_lBupktyxk

16

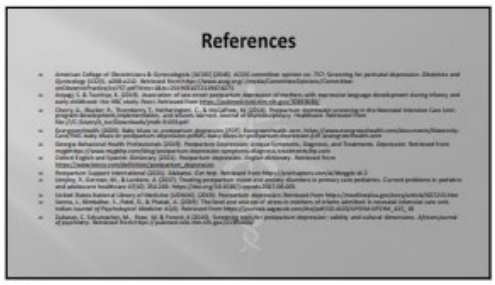
PPD Screening Protocol

17

Support for Mothers with PPD

- Children's of Alabama- Onsite Counseling Services
- Postpartum Support International
  - Alabama Chapter of Postpartum Support International (psichapters.com)
  - Alabama Chapter of Postpartum Support International (psichapters.com)
  - Results near birmingham, al | PSI Perinatal Mental Health Directory (psidirectory.com)
  - In An Emergency | Postpartum Support International (PSI)

18



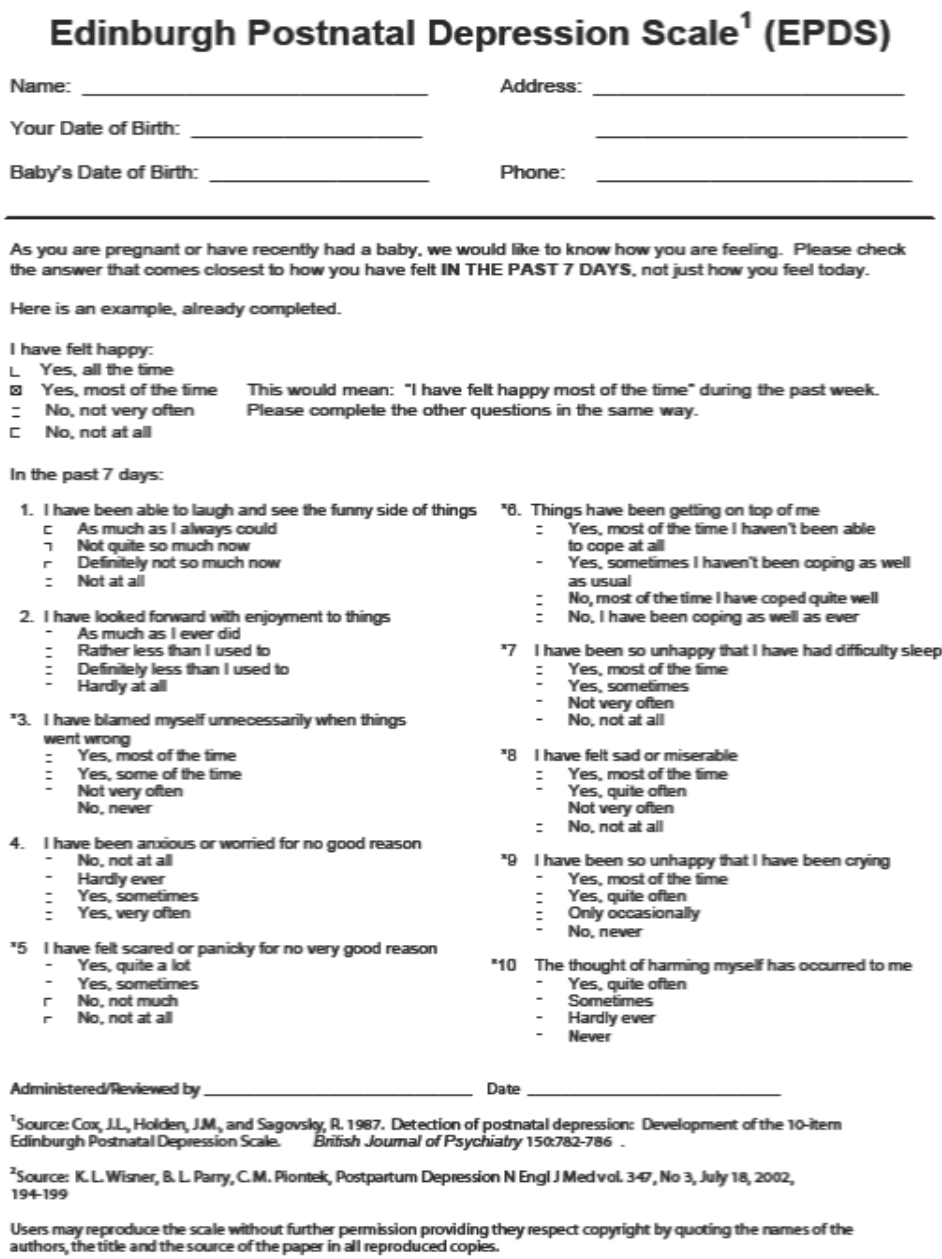
19

4

Figure F. Postpartum Depression (PPD) educational presentation developed by author and presented to NICU staff (Langdale, 2021).

APPENDIX G

Edinburgh Postnatal Depression Scale Screening Tool



Edinburgh Postnatal Depression Scale[1] (EPDS)

Name: _____ Address: _____

Your Date of Birth: _____ _____

Baby's Date of Birth: _____ Phone: _____

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

Here is an example, already completed.

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

In the past 7 days:

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

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

*3. I have blamed myself unnecessarily when things went wrong
   - Yes, most of the time
   - Yes, some of the time
   - Not very often
   - No, never

4. I have been anxious or worried for no good reason
   - No, not at all
   - Hardly ever
   - Yes, sometimes
   - Yes, very often

*5 I have felt scared or panicky for no very good reason
   - Yes, quite a lot
   - Yes, sometimes
   - No, not much
   - No, not at all

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

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

*8 I have felt sad or miserable
   - Yes, most of the time
   - Yes, quite often
   - Not very often
   - No, not at all

*9 I have been so unhappy that I have been crying
   - Yes, most of the time
   - Yes, quite often
   - Only occasionally
   - No, never

*10 The thought of harming myself has occurred to me
   - Yes, quite often
   - Sometimes
   - Hardly ever
   - Never

Administered/Reviewed by _____ Date _____

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

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

Figure G The Edinburgh Postnatal Depression Scale (EPDS) was developed to assist health professionals in detecting mothers suffering from PPD. Responses are scored 0, 1, 2 and 3 based on the seriousness of the symptom. Items 3, 5 to 10 are reverse scored (i.e., 3, 2, 1, and 0). The total score is found by adding together the scores for each of the 10 items.

APPENDIX H

PPD Screening Protocol and Outcomes Management in the NICU

Postpartum Depression (PPD) Screening Protocol

Mother present and infant is 1 mo., 2 mo., 4 mo., or 6 mo.?

Yes?
Proceed with PPD Screening.

No?
Screen for PPD with next parent interaction.

RN:
-Educate mother on screening process and the Edinburg Postpartum Depression Scale (EPDS)
-Mother will return completed EPDS to RN
-Notify provider for review if score ≥ 10 or any answer other than no on Question # 10.

MD or APRN:
-Review completed EPDS. If score ≥ 10 or any answer other than no on question # 10. Refer patient to Obstetrician (OB), Primary Care Provider (PCP), or Mental Health Services (MHS) for evaluation, diagnosis, and treatment.
-Consider collaboration with social work to utilize facility's free onsite counseling services.
-The EPDS does NOT replace clinical judgement regardless of score

Score ≤ 9:
Score is not indicative of PPD.
Educate mother on signs and symptoms of PPD.
Encourage use of support system and self-care.
Provide mother with PPD resources.

Score ≥ 10:
Score is indicative of possible PPD.
Educate mother on positive PPD Screening.
Encourage use of support system and self-care.
MD: Refer mother to OB, PCP, or MHP

Any answer other than no on question number 10? Does mother have suicidal ideation and plan?
No: Continue with referral
Yes: **STOP!** Do not leave mother alone at any time! Notify social services. Mother needs emergent mental health evaluation and transfer to Emergency Department.

APPENDIX I

Timeline

Task	09/20	10/20	11/20	12/20	01/21	02/21	03/21	04/21	05/21	06/21	07/21	08/21
Development of PPD screening protocol	X											
Development of Educational Presentation	X	X	X									
Development of Pre- and Post-Education surveys	X											
Recruitment of Participants				X	X							
Educational Presentation with Pre- and Post- Education Survey							X					
Data Analysis and Interpretation							X	X	X			
Final Project Submission										X		

Table I. DNP Project Completion Timeline. Educational presentation, pre- and post-education survey, flyer development, and participant recruitment occurred 09/2020-01/2021. PPD education and data collection occurred in 03/2021. Data analysis occurred 03/2021-05/2021 with project submission 06/2021.

APPENDIX J

IRB Exemption Approval

OFFICE OF THE VICE PROVOST
JACKSONVILLE STATE UNIVERSITY

October 15, 2020

Dear Kelsey Langdale:

Your proposal submitted for review by the Human Participants Review Protocol for the project titled: "Postpartum Depression: Development of a Screening Protocol in the Neonatal Intensive Care
Unit" has been approved as exempt. If the project is still in process one year from now, you are asked to provide the IRB with a renewal application and a report on the progress of the research project.

Sincerely,

Joe Walsh
Executive Secretary, IRB