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Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives

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The University of Texas Health Science Center at Houston - Cizik School of Nursing

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POSTPARTUM DEPRESSION SCREENING IN THE NEONATAL INTENSIVE

CARE UNIT:

MATERNAL AND PROVIDER PERSPECTIVES

A DISSERTATION

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE

DEGREE OF DOCTOR OF PHILOSOPHY IN NURSING

THE UNIVERSITY OF TEXAS CIZIK SCHOOL OF NURSING

BY

CANDICE TRIULZI, PhD(c), MSN, RNC-NIC

MAY, 2022

Approval Form D-3

The University of Texas Health Science Center at Houston School of Nursing
Houston, Texas

March 8, 2022

To the Dean for the School of Nursing:

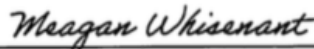
I am submitting a dissertation written by Candice Triulzi and entitled "Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Nursing.

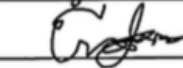
We have read this dissertation and recommend its acceptance:



Cathy Rozmus, PhD, RN, FNAP, FAAN Committee Chair

We have read this dissertation and recommend its acceptance:

 Meagan Whisenant, PhD, APRN, Committee Member

 Eric C Jones, PhD, Committee Member

Accepted



Dean for the School of Nursing

Acknowledgement

Thank you to God, my family and friends! Without your support and encouragement, I would not have made it through this process.

To Enzo: Always remember that every day is a special occasion! Reach for the stars. Believe in yourself and be willing to put in the work, and you will achieve great things! Most of all, always stay humble and kind. I love you!

To Mom and Dad: Thank you for always being my #1 cheerleaders! I love you!

To Brian: Thank you for always supporting my visions. I love you!

To Dr. Rozmus: Your support, advice, honesty and encouragement spurred me to the finish line. Thank you!

To Dr. Jones and Dr. Whisenant: Thank you for all of your wonderful advice, time and support through this process.

To Dr. Hart: Thank you for always offering encouragement and supporting this study.

To Joyce Standish and HNEF: Thank you for the financial support for the PhD program for which I am eternally grateful!

To the mothers and providers that participated in this study: Thank you for taking the time to share your story! I will strive to bring this issue to a national stage in hopes of improving mental health for Moms of NICU babies.

Candice Triulzi PhD(c), MSN, RNC-NIC

Postpartum Depression Screening in the Neonatal Intensive Care Unit:

Maternal and Provider Perspectives

May, 2022

Abstract

Objective: Although mothers of preterm infants are at increased risk for postpartum depression, postpartum depression screening conducted by neonatal providers in the Neonatal Intensive Care Unit (NICU) is currently not a standard of care. The purpose of this study was to explore maternal and provider perceptions of neonatal providers conducting postpartum depression screening in the NICU.

Design: This study was conducted with a qualitative approach.

Setting: Acute care hospital with a 24-bed Level III NICU in the southwest U.S.

Participants: Participants were purposively sampled (N=31) and included mothers of NICU infants (n=15) and NICU providers (n=16).

Methods: Semi-structured individual and paired interviews were conducted with mothers of NICU infants and NICU providers to determine appropriateness of postpartum depression screening in the NICU, screening preferences, facilitators and barriers. Inductive thematic analysis was used to analyze verbatim transcripts of interviews. Transcripts were coded for content and subsequently organized into emergent themes.

Results: Analysis of maternal and provider interviews revealed qualitative evidence supporting Health Belief Model constructs to include perceived susceptibility and severity of postpartum depression in the NICU; as well as perceived benefits, barriers and cues to action for postpartum depression screening in this setting.

Conclusion: NICU providers and mothers support maternal postpartum depression screening in the NICU as a standard of care led by nurses at the bedside. Special attention to stigma-related barriers and structural barriers should be considered with program development.

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Summary of the Study

Mothers of infants hospitalized in the Neonatal Intensive Care Unit (NICU) are at increased risk for postpartum depression compared with the general population. Low rates of postpartum care visit attendance and prolonged time to first pediatric encounter for mothers of NICU infants may place these mothers at risk for being lost in the screening gap. Postpartum depression screening in the NICU is currently not a standard of care, but may offer the opportunity to conveniently screen these high-risk mothers. Available evidence on postpartum depression screening in the NICU is limited to implementation publications, with no qualitative evidence to support preferences for screening in this setting. The purpose of this study was to explore maternal and provider perceptions of neonatal providers conducting postpartum depression screening in the NICU.

The proposal titled “Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap” uses a qualitative approach to explore maternal and provider perceptions of postpartum depression screening in the NICU setting. The study was approved by the University of Texas Committee for Protection of Human Subjects and host site (Appendix A).

Data collection for provider participants was approved for both semi-structured interviews as well as focus groups. Due to the availability of provider participants, all interviews were done as semi-structured individual or paired interviews. Changes in

consent forms used in the study were revised from the original proposed consent to meet CPHS recommendations.

This publication includes the approved study proposal, followed by the final study manuscript. The final manuscript titled “Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives” contains methods and results of the study. CPHS approved informed consent documents, interview guides and participant demographic forms can be found in Appendix B-D.

Proposal

**Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal
and Provider Perspectives of a Novel Approach to Bridging the Mental Health
Screening Gap**

Principal Investigator: Candice Triulzi, MSN, RNC-NIC -PhD Candidate

Co-Investigators:

Cathy Rozmus, PhD, RN, FAAN

Meagan Whisenant, PhD, RN

Eric Jones, PhD

University of Texas Cizik School of Nursing

Advisor: Cathy Rozmus, PhD, RN, FAAN

Abstract

Aims: Although mothers of preterm infants are at increased risk for postpartum depression, postpartum depression screening conducted by neonatal providers in the Neonatal Intensive Care Unit (NICU) is currently not a standard of care. The long-term goal is to advocate for maternal mental health screening in the NICU setting for all mothers of preterm infants. However, maternal and provider perceptions of participating in and conducting postpartum depression screening in the NICU setting is unknown. The specific aims of this study are:

Aim 1: To explore maternal perceptions of the acceptability, benefits and barriers of postpartum depression screening conducted in the NICU by neonatal providers.

Aim 2: To explore neonatal provider perceptions of the acceptability, benefits and barriers of postpartum depression screening conducted in the NICU by neonatal providers.

Background and Significance: Thirty-nine percent of mothers of preterm infants are affected by postpartum depression (Alexopoulou et al., 2018). Untreated postpartum depression has been associated with breastfeeding problems, poor mother-infant bonding and impaired infant fine motor and cognitive development (Ali et al., 2013; Dunn et al., 2006; Koutra et al., 2012; O'Higgins et al., 2013; Örün et al., 2013). Low rates of postpartum care visit attendance and prolonged time to first pediatric encounter for mothers of preterm infants may place these mothers at risk for being lost in the screening gap.

Innovation: This study aims to provide the first available insights into maternal and provider perceptions of conducting postpartum depression screening in the NICU.

Methods: This qualitative study will utilize purposive sampling of mothers of NICU infants and neonatal providers. Semi-structured interviews and focus groups will be analyzed with thematic analysis.

Specific Aims

Mothers of preterm infants disproportionately suffer with postpartum depression; affecting as many as 39% of preterm mothers, compared with estimates of 10-20% in the general population (Alexopoulou et al., 2018). The U.S. Department of Health and Human Services has recognized the importance of postpartum depression screening, even recommending an increase in the proportion of women who are screened for postpartum depression as part of Healthy People 2030 (U.S. Department of Health and Human Services, n.d.). The need for screening has also been recognized by the American College of Obstetricians and Gynecologists (ACOG) and the American Academy of Pediatrics (AAP), with both organizations implementing recommendations for universal maternal mental health screening (ACOG, 2015; Earls et al., 2018). American College of Obstetricians and Gynecologists guidelines recommend that obstetric providers screen all women for postpartum depression during the routine postpartum visit (ACOG, 2015). American Academy of Pediatrics guidelines recommend that pediatricians screen for postpartum depression during 1-, 2-, 4- and 6-month well-child appointments (Earls et al., 2018). While current guidelines strive for universal screening, low rates of postpartum care visit attendance and prolonged time to first pediatric encounter for mothers of preterm infants may place these mothers at risk for being lost in the screening

gap (ACOG, 2018). Current evidence shows that 40% of mothers in the United States do not attend their postpartum visit due to lack of perceived importance and time constraints (ACOG, 2018; DiBari et al., 2014). Furthermore, mothers of preterm infants may not visit a pediatrician for a well-child visit for months after delivery due to their infant still being hospitalized in the Neonatal Intensive Care Unit (NICU). As a result, mothers of preterm infants that do not attend their postpartum visit may be suffering with an undiagnosed mental health concern for months before screening takes place at a well-child pediatrician visit. Implementation of routine postpartum depression screening for mothers of preterm infants conducted in the NICU setting by neonatal providers may offer an opportunity to implement a standardized approach to address the current barriers to screening by creating an opportunity to conveniently screen mothers while they are already in a location interacting with healthcare providers. Screening mothers for postpartum depression while visiting their infant in the NICU is not currently a standard of care.

Our overall objective in this study, which is essential to meeting our long-term goal, is to understand maternal and provider perceptions of the acceptability, benefits and barriers of postpartum depression screening in the NICU conducted by neonatal providers.

The following specific aims will support this objective:

Aim 1: To explore maternal perceptions of the acceptability, benefits and barriers of postpartum depression screening conducted in the NICU by neonatal providers.

Aim 2: To explore neonatal provider perceptions of the acceptability, benefits and barriers of postpartum depression screening conducted in the NICU by neonatal providers.

At the completion of this study, the expected outcome is to understand maternal and provider perceptions of the acceptability, benefits, and barriers of conducting postpartum depression screening in the NICU by neonatal providers. If acceptable to mothers and providers, identified barriers and benefits may assist with evidence-based screening program development and implementation.

Background and Significance

Importance of the Problem to Be Addressed

Mothers of preterm infants admitted to the Neonatal Intensive Care Unit (NICU) are at high-risk for postpartum depression. These mothers are vulnerable to mental health concerns due to the added stress of the hospitalization of their newly born infant placing them at risk for acute stress disorder, anxiety, postpartum depression and post-traumatic stress disorder (Alexopoulou et al., 2018; Cakmak & Karacam, 2018; Erdem, 2010; Harris et al., 2018; Holditch-Davis et al., 2014; Lefkowitz, 2010). Postpartum depression in this population has been shown to affect as many as 39% of mothers (Alexopoulou et al., 2018). Mothers with untreated postpartum depression experience difficulty with relationships, poor self-care, increases in risky behaviors, and increased health related expenditures (Chapman & Wu, 2013; Chee et al., 2008; Lilja et al., 2011; Rodrigues et al., 2003; Vliegen et al., 2013). Maternal postpartum depression also affects infants. Postpartum depression has been shown to impact the maternal-infant relationship resulting in difficulties with mother-infant bonding as well as breastfeeding (Dunn et al.,

2006; O'Higgins et al., 2013; Örün et al., 2013). Infants of mothers with postpartum depression have a greater risk of impaired outcomes in fine motor and cognitive development (Ali et al., 2013; Koutra et al., 2012; Nasreen et al., 2013). Impaired cognitive development has been shown in areas of language and emotional development (Ali et al., 2013). With the increased risk of postpartum depression for mothers of preterm infants, as well as the potential for poor maternal mental health to impact maternal and infant outcomes, it is imperative that these mothers are screened. The novel practice of conducting postpartum depression screening in the NICU by neonatal providers may address screening barriers by creating an opportunity to conveniently screen mothers while they are already in a location interacting with healthcare providers.

Current literature evaluating this practice is limited as maternal postpartum depression screening is not a standard of care in the NICU setting. Most related publications describe quality improvement projects conducted in large tertiary care NICUs (Cherry et.al, 2015; Cole et al., 2018; Moreyra et al., 2021; Sheans, 2016; Vaughn et. al, 2020). Cherry and colleagues stress that while postpartum depression screening in the NICU is needed, unknown barriers to screening may limit the success of implementation (2015). Currently, maternal perspectives of benefits and barriers to postpartum depression screening in the NICU are unknown. However, Young and colleagues explored maternal perceptions of postpartum depression screening conducted in pediatric primary care settings and found maternal perceptions of barriers to postpartum depression screening in the pediatric setting to include psychiatric symptoms inhibiting access to care, mental health stigma, and fear of Child Protective Services (Young et al., 2019). Perceived benefits to postpartum depression screening in the

pediatric setting included convenience of embedded services, low barrier to entry, and trust in providers (Young et al., 2019). Rogers and colleagues describe high levels of anxiety and depression in NICU mothers at discharge that “support the need for universal screening within the NICU” (Rogers et. al., 2013, p.171). Available publications on postpartum depression screening conducted in the NICU include content validation of instruments to assess postpartum depression (McCabe et al., 2012), lessons learned from quality improvement projects (Cherry et.al, 2015; Cole et al., 2018; Moreyra et al., 2021; Sheans, 2016; Vaughn et. al, 2020), and descriptions of the prevalence of postpartum depression (Beck, 2003). Quality improvement implementation projects have identified levels of maternal compliance with postpartum depression screening to range from 48.5% to 96.5% when conducted in the NICU at large centers (Cherry et.al, 2015; Cole et al., 2018). However, while a handful of implementation publications have been successful, it is still unclear what the potential barriers and facilitators are to the expansion of this practice as a standard of care.

Maternal and provider perceptions of the implementation of postpartum depression screening in the NICU are currently unknown. The acquisition of this knowledge will allow for assessment of acceptability of postpartum depression screening in the NICU setting and the identification of perceived barriers to this screening as well as perceived benefits.

The Health Belief Model will be utilized as the conceptual framework for this study. The Health Belief Model is an explanatory model of health- related behaviors (Glanz et. al, 2008). The model supports that an individual’s decision to engage in health-related behaviors are influenced by their perception of disease severity and

personal susceptibility as well as barriers and benefits to behaviors (Glanz et. al, 2008). Analysis of qualitative data from this study will utilize the Health Belief Model as a framework to assess maternal perceptions of personal barriers and benefits to engaging in postpartum depression screening in the NICU. Analysis of qualitative data of provider perceptions of conducting postpartum depression screening in the NICU will explore perceived maternal susceptibility, as well as barriers and benefits to conducting screening in the NICU.

Rigor of the Prior Research Supporting the Aims

Aim 1: To explore maternal perceptions of the acceptability, benefits and barriers of postpartum depression screening conducted in the NICU by neonatal providers.

Current literature on postpartum depression screening conducted in the NICU by neonatal providers is scant, as this is not currently a standard of care in the United States. It is unknown how many NICUs conduct postpartum depression screening, but published literature suggests this practice is an anomaly (Cherry et.al, 2015; Cole et al., 2018; Moreyra et al., 2021; Sheans, 2016; Vaughn et. al, 2020). Descriptions of quality improvement implementation projects have been published from only four large tertiary care high-resource centers (Cherry et.al, 2015; Cole et al., 2018; Moreyra et al., 2021; Sheans, 2016; Vaughn et. al, 2020). These projects have demonstrated maternal compliance rate with mental health screening in the NICU to be between 48.5% to 95.5% (Cherry et.al, 2015; Cole et al., 2018; Moreyra et al., 2021; Sheans, 2016). While compliance rates in these implementation projects demonstrate promise for maternal participation, all projects lacked qualitative analysis exploring the maternal thought

process and perception of participating in mental health screening in the NICU. Maternal preference of who should conduct the screening, perceived barriers to screening, perceived benefits to screening and concerns with participating in mental health screening in this setting have not been explored. Lacking qualitative analysis, the current literature does not possess the data to explore the wide range in participation compliance between 48.5% to 95.5%. Maternal perception data is necessary to determine if modifiable barriers to screening exist. The current literature on this practice has found prevalence estimates of postpartum depression rates for mothers of preterm infants to be approximately 30% which is congruent with existing prevalence estimates (Cherry et.al, 2015; Cole et al., 2018; Moreyra et al., 2021; Sheans, 2016). Studies evaluating instruments to assess postpartum depression in NICU mothers have identified the Edinburgh (EPDS), Postpartum Depression Screening Scale (PDSS) and Patient Health Questionnaire-9 as valid for use in this population and setting (McCabe et al., 2012; Moreyra et al., 2021; Sheans, 2016). The maternal perception of the acceptability of various instruments and administration modalities in the NICU is still unclear.

Aim 2: To explore neonatal provider perceptions of the acceptability, benefits and barriers of postpartum depression screening conducted in the NICU by neonatal providers.

Identified barriers to implementation of postpartum depression screening in the NICU of a large tertiary center were difficulty in establishing contact with mothers, administration to non-English speaking mothers, and lack of referral protocols for positive screens (Cherry et al., 2016). Neonatal provider perceptions of conducting maternal mental health screening in the NICU are unknown. This piece of the puzzle is

highly important, as neonatal providers historically do not provide care to adult patients. It is necessary to determine if neonatal providers would support the implementation of maternal mental health screening in the NICU, would be comfortable conducting this screening and what perceived barriers exist to this practice. All published quality improvement projects on this topic were conducted at large tertiary care NICUs that possess specialty resources for maternal mental health screening. It is unknown how this practice would be perceived by neonatal providers at community based NICUs.

Significance of the Expected Research Contribution

The results of this study are expected to provide insight into maternal and provider perceptions of postpartum depression screening conducted in the NICU by neonatal providers. *This contribution is expected to be significant because it will offer insight as to the acceptability, benefits and barriers to screening mothers of preterm infants for postpartum depression in the NICU environment from both the maternal and provider perspectives.* These contributions will aid clinicians and researchers looking to implement postpartum depression screening in the NICU with information needed to develop and implement successful screening program. Maternal perception of this practice will assist in identifying modifiable barriers as well as facilitators to postpartum depression screening in the NICU setting. Provider perceptions gathered will assist in gaining insight into barriers and facilitators to this practice in the lower-resource community-based NICU setting. Without these perspectives to facilitate program development, trial-and-error implementation programs will continue. The NICU environment has the potential to contribute to the Healthy People 2030 recommendation

to increase postpartum depression screening by universally screening the high-risk population of mothers of preterm infants with successful screening programs.

Innovation

Maternal postpartum depression screening is conducted as a standard of care by obstetricians at the postpartum appointment and by pediatricians at well-child visits (ACOG, 2018; Earls et al., 2018). *The proposed research exploring maternal and provider perceptions of postpartum depression screening conducted in the NICU by neonatal providers is innovative because it will provide insights into perceived acceptability, barriers and benefits of this new way of screening high-risk mothers of NICU infants that may have been lost in the screening gap.* This identified screening gap in mothers of preterm infants is essential to address as they are at much higher risk for postpartum depression when compared with the general population. Gaining perceptions on implementing this screening in the NICU has the potential to shift the postpartum depression screening standard of care to include screening in NICUs across care settings. This study will unlock new horizons, providing data to assist clinicians in the creation of NICU screening programs that address identified barriers and promote perceived benefits. This study will be the first, to our knowledge, to collect data from mothers and providers on this topic in a community-based NICU as opposed to a large tertiary care center. Data from this study may contribute to a national movement to increase postpartum depression screening for mothers of NICU infants.

Approach

Aim 1: To explore maternal perceptions of the acceptability, benefits and barriers of postpartum depression screening conducted in the NICU by neonatal providers.

Design

Aim 1 will be conducted with a qualitative design utilizing inductive thematic analysis. Thematic analysis “is a method for identifying, analyzing, organizing, describing, and reporting themes found within a data set” (Nowell et al., 2017, p. 2).

Sample and Setting

The sample will include mothers with an infant admitted to the Neonatal Intensive Care Unit who are English speaking, and able to read/write in English. Purposive sampling methods will be utilized to ensure perspectives of mothers delivering at varying gestational ages, and ethnicities. Gestational age categorizations will follow World Health Organization (WHO) categories to include mothers that delivered infants in the all of the following categories: extremely preterm (<28 weeks), very preterm (28-32 weeks), moderate or late preterm (32-37 weeks) and term (37 weeks +) (Quinn et. al, 2016). Sampling will occur simultaneously with analysis; continuing until data saturation (Saunders et al., 2017). Data gathered from maternal participants will study the maternal perceptions of engaging in postpartum depression screening conducted in the NICU by neonatal providers, perceived benefits of engaging in screening in the NICU, willingness to be screened in the NICU and perceived concerns with this practice. Postpartum depression screening in the NICU by neonatal providers is not a current standard of practice at the study site.

Recruitment of participants will be accomplished in-person by the principal investigator at the Memorial Hermann Memorial City Kate Lindig NICU. Memorial Hermann Memorial City (MHMC) NICU is a 40-bed level III NICU located in Houston, TX. Rooms in the NICU are semi-private, with rooming-in options for mothers

limited. Infants admitted to the NICU at MHMC are inborn and range from 24 weeks gestation to 41 weeks gestation. The average census of NICU admitted infants is 25 infants. Physicians and nurse practitioners caring for infants in the NICU are employed by UTPhysicians. NICU nurses caring for infants are employees of Memorial Hermann and also include contract nurses employed by Central Staffing, a division of Memorial Hermann.

Data Collection Procedures

Informed consent for all study participants agreeing to participate in the study will be obtained in accordance with policies set forth by the UTHealth Committee for the Protection of Human Subjects (UTHealth Committee for the Protection of Human Subjects, n.d.-a). Participants will be approached for participation in the study in-person by the Principal Investigator at the study site. Informed consent for maternal participants (Appendix A) will be provided in both verbal and written forms. Participants will be informed that there are no direct benefits to participating in the study. Risks to participation may include loss of time and potential for emotional distress. Individuals agreeing to participate in the study will be required to sign the informed consent form (Appendix A) before participation in any study related activities. A safety plan to ensure safety of maternal participants with emergent mental health issues will be followed during interviews. Any maternal participant that verbally expresses they may be of harm to themselves or others will be referred to the Memorial Hermann Memorial City Psychiatric Response Team for further evaluation following the interview.

Data collection will be conducted utilizing individual semi-structured interviews. The use of semi-structured interviews is congruent with the aims of this

study as this method of data collection is appropriate for assessing participant opinions surrounding emotionally sensitive issues (Kallio et al., 2016). A maternal demographic data form will be collected for each participant (Appendix C) and will include participant provided data such as ethnicity, pregnancy history, gestational age at delivery, psychiatric history, previous child NICU admission, postpartum visit compliance data, and experience with postpartum depression screening. Medical records of mothers or infants will not be accessed by study personnel. Semi-structured individual in-person interviews will be conducted by the principal investigator in the NICU conference room on the 4th floor of the Memorial Hermann Tower. Interview times will be conducted at the preference of the study participants. Interviews will last no more than 60 minutes in length and will be tape recorded utilizing two digital tape recorders encrypted to meet UTHealth security standards. The second recorder will be utilized for backup. Field notes, consent documents and demographic data forms collected by the principal investigator will be stored in a locked cabinet at the UTHealth School of Nursing. Information collected in field notes may include principal investigator perceptions of participant body language, vocal inflection and interview experience. Verbatim transcription of recorded interviews will be done manually by the principal investigator utilizing Microsoft Word software on a UTHealth School of Nursing Computer. Transcribed data will be stored on UTHealth owned Microsoft Teams per the UTHealth School of Nursing PhD student protocol for data storage. A \$5 Starbucks gift card, supplied by the Principal Investigator, will be provided to participants as a token of appreciation for participation in the study.

Measurement

Semi-structured interviews will be conducted by the Principal Investigator utilizing an interview guide developed with consultation from a PhD prepared researcher whose expertise includes qualitative research focused on mental health in traumatic settings (Appendix D). Interviews will last no more than 60 minutes and will be digitally recorded. The interview guide will undergo preliminary field-testing with two mothers of NICU infants at the study site upon initiation of the study (Kallio et al., 2016). Analysis of the test-interview will determine the need for any further revision to the interview guide.

Data Analysis Plan

Data will be analyzed utilizing an inductive thematic analysis approach (Nowell et al., 2017). Data analysis will be conducted concurrently with data collection to allow for evaluation of data saturation (Elo et al., 2014). Thematic analysis procedures will follow recommendations from Nowell and colleagues and will include the following steps: familiarization with the data, generation of codes, development of themes, review of themes, defining themes, naming of themes and report production (Nowell et al., 2017). Prior to beginning coding, transcripts of all interviews will be read in their entirety by the principal investigator. Transcripts of interviews and field notes will be coded for content by the principal investigator utilizing MaxQDA coding software to maintain audit trails of study records (VERBI Software, 2020). The final codebook with code definitions will be determined by the principal investigator with the input of the PhD Advisor. Interviews will be recoded and analyzed for congruence with the final codebook. Emergent themes and subthemes will be generated by aggregating similar and

frequently occurring codes; prioritizing codes that appear most often in participant interviews. Hypothesized theme categories include benefits to screening, barriers to screening, perception of screening, and maternal preferences for screening practices. Final themes and subthemes will be reported in the findings (Bayrampour et al., 2017).

Strategies to ensure credibility, transferability, dependability and confirmability will be addressed utilizing recommendations from Lincoln and Guba (Robert Wood Johnson Foundation, 2008). Credibility will be ensured through prolonged engagement and persistent observation in the NICU through interactions with families of NICU infants (Robert Wood Johnson Foundation, 2008). Transferability will be ensured by the development of a thick description of the emergent themes (Robert Wood Johnson Foundation, 2008). Dependability will be ensured by maintaining audit records during coding and theme development that will be reviewed with the PhD advisor (Robert Wood Johnson Foundation, 2008). Confirmability will be ensured by maintenance of all study records for audit including raw data, transcripts, field notes, coding decisions and theme development documentation (Robert Wood Johnson Foundation, 2008).

Timeline

March 2021- Candidacy Defense- PhD Candidate Awarded

August 2021- Dissertation Proposal Defense

August 2021- IRB Proposal Submission for Dissertation Study

August 2021- IRB Approval

September 2021-November 2021- Participant Recruitment, Conduct Participant Interviews, Transcription of Interviews & Data Analysis

December 2021-March 2022- Dissertation Document & Manuscript Development

March 2022- Final Dissertation Defense

April 2022- Dissemination at National Conference

May 2022- Projected Graduation Date

Limitations

Economic homogeneity of maternal participants may be a limitation of the study. Memorial Hermann Memorial City serves a population of higher economic status due to the hospital location and payor mix. Sampling of mothers that delivered at various gestational ages may be limited based upon availability and willingness to participate in the study, possibly limiting perspectives from missing groups. Selection bias may occur with sampling methods excluding mothers that do not regularly visit the NICU or excluding mothers with medically complicated infants that may face time constraints limiting their participation.

Aim 2: To explore neonatal provider perceptions of the acceptability, benefits and barriers of postpartum depression screening conducted in the NICU by neonatal providers.

Design

A qualitative approach utilizing focus groups and individual semi-structured interviews with inductive thematic analysis will be utilized to explore healthcare providers perceptions of postpartum depression screening conducted in the NICU by neonatal providers. A focus group approach will allow for discussion of the topic among an interdisciplinary team to promote safety in information sharing and diversity of opinion (Onwuegbuzie et al, 2009).

Sample and Setting

The sample will include direct care healthcare providers working in the Neonatal Intensive Care Unit. To be eligible, participants must read/write English and be a healthcare provider working in the NICU with the title of RN, Neonatologist, Neonatal Nurse Practitioner, Social Worker or Case Manager. Purposive sampling methods will be utilized to gather interdisciplinary perspectives from providers with varying experience levels. Recruitment of participants will be done in person by the Principal Investigator. Focus groups will be conducted until data saturation.

Memorial Hermann Memorial City (MHMC) NICU is a 40-bed level III NICU located in Houston, TX. Rooms in the NICU are semi-private, with rooming-in options for mothers limited. Infants admitted to the NICU at MHMC are inborn. The average census of NICU admitted infants is 25 infants. Physicians and nurse practitioners caring for infants in the NICU are employed by UTPhysicians. NICU nurses caring for infants are employees of Memorial Hermann and also include contract nurses employed by Central Staffing, a division of Memorial Hermann. Social workers and case managers are employees of Memorial Hermann.

Data Collection Procedures

Informed consent for all study participants agreeing to participate in the study will be obtained in accordance with policies set forth by the UTHealth Committee for the Protection of Human Subjects (UTHealth Committee for the Protection of Human Subjects, n.d.-a). Participants will be approached for participation in the study in-person by the Principal Investigator at the study site. Informed consent for provider participants (Appendix B) will be provided in both verbal and written forms. Risks and benefits of

participating in this study will be verbally discussed with study participants and provided in writing. Participants will be informed that there are no direct benefits to participating in the study. Risks of participation include loss of time spent participating in the study. Participants will be required to sign the informed consent form (Appendix B) before participation in any study related activities.

Data collection will be conducted utilizing the provider participant demographic data collection form (Appendix F), focus groups and individual semi-structured interviews as needed. The use of focus groups will allow for the exploration of diversity and congruence of opinion among the healthcare team through participant directed conversation (Kamberelis et. al, 2013). In-person focus groups will be conducted by the principal investigator in the NICU conference room on the 4th floor of the Memorial Hermann Tower. Focus groups will be scheduled with a target of 4-5 participants per group. Focus group participants will not exceed a maximum of 10 participants per group (Onwuegbuzie et al, 2009). Focus groups will be facilitated by the Principal Investigator and will utilize an interview guide (Appendix E) and prompts to facilitate the conversation among participants (Kamberelis et. al., 2013). Focus groups will last approximately 60 minutes in length and will be tape recorded utilizing two digital tape recorders encrypted to meet UTHealth security standards. The second recorder will be utilized for backup. Due to participant availability, it may be necessary as needed to conduct semi-structured interviews with participants to ensure an interdisciplinary sample is obtained. If this is necessary to gain perspectives from various provider disciplines within the NICU, the individual semi-structured interviews will follow the focus group interview guide (Appendix E).

Field notes, demographic forms, and consent forms collected by the principal investigator will be stored in a locked cabinet at the UTHealth School of Nursing. Information collected in field notes may include principal investigator perceptions of participant body language, vocal inflection and interactions among participants.

Verbatim transcription of recorded interviews will be done manually by the principal investigator utilizing Microsoft Word software on a UTHealth School of Nursing Computer. Transcribed data will be stored on UTHealth owned Microsoft Teams per the UTHealth School of Nursing PhD student protocol for data storage. A \$5 Starbucks gift card, supplied by the Principal Investigator, will be provided to participants as a token of appreciation for participation in the study.

Measurement

The Principal Investigator will moderate the focus groups utilizing an interview guide containing questions and prompts (Appendix E). The preliminary focus group question guide has been developed with consultation from a PhD prepared researcher whose expertise includes qualitative research focused on mental health in traumatic settings. Analysis of the first focus group will determine the need for further revision of focus group questions. Focus group questions in the interview guide (Appendix E) have been adapted from a study looking at provider perceptions of bowel cancer screening (Dawson et al., 2017).

Data Analysis Plan

Data will be analyzed utilizing an inductive thematic analysis approach (Nowell et al., 2017). Data analysis will be conducted concurrently with data collection to allow for evaluation of data saturation (Elo et al., 2014). Thematic analysis procedures will

follow recommendations from Nowell and colleagues and will include the following steps: familiarization with the data, generation of codes, development of themes, review of themes, defining themes, naming of themes and report production (Nowell et al., 2017). Prior to beginning coding, transcripts of all interviews will be read in their entirety by the principal investigator. Transcripts of interviews and field notes will be coded for content by the principal investigator utilizing MaxQDA coding software to maintain audit trails of study records (VERBI Software, 2020). The final codebook with code definitions will be determined by the principal investigator with the input of the PhD Advisor. Interviews will be recoded and analyzed for congruence with the final codebook. Emergent themes and subthemes will be generated by aggregating similar and frequently occurring codes; prioritizing codes that appear most often in participant interviews. Finalized themes and subthemes will be reported in the findings (Bayrampour et al., 2017). Hypothesized theme categories include benefits to screening, barriers to screening, perception of screening, and provider preferences for screening practices.

Strategies to ensure credibility, transferability, dependability and confirmability will be addressed utilizing recommendations from Lincoln and Guba (Robert Wood Johnson Foundation, 2008). Credibility will be ensured through data triangulation with data from the focus group provider participant demographic data form (Robert Wood Johnson Foundation, 2008). Transferability will be ensured by the development of a thick description of the emergent themes (Robert Wood Johnson Foundation, 2008). Dependability will be ensured by maintaining audit records during coding and theme development that will be reviewed with the PhD advisor (Robert Wood Johnson

Foundation, 2008). Confirmability will be ensured by maintenance of all study records for audit including raw data, transcripts, field notes, coding decisions and theme development documentation (Robert Wood Johnson Foundation, 2008).

Timeline

March 2021- Candidacy Defense- PhD Candidate Awarded

August 2021- Projected Dissertation Proposal Defense

August 2021- IRB Proposal Submission for Dissertation Study

August 2021- IRB Approval

September 2021-November 2021- Participant Recruitment, Conduct Participant Interviews, Transcription of Interviews & Data Analysis

December 2021-March 2022- Dissertation Document & Manuscript Development

March 2022- Final Dissertation Defense

April 2022- Dissemination at National Conference

May 2022- Projected Graduation Date

Limitations

Limitations of this study may include provider participants honesty with responses surrounding barriers and benefits to implementation. Providers may be reluctant to express negative views surrounding implementations. Selection bias may occur with sampling methods excluding providers that are unavailable at the time of the focus group. Physicians, social workers and case managers will be limited in the sample as staffing patterns allow for one physician, one social worker and one case manager for the unit.

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Appendix A

Informed Consent Form – Maternal Participants

CONSENT TO TAKE PART IN RESEARCH

Simple Study Title: Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap

Full Study Title: Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap

Principal Investigator: Candice Triulzi, MSN, RNC-NIC

Study Contact: Candice Triulzi, MSN, RNC-NIC; candice.j.triulzi@uth.tmc.edu; 713-515-1971

The purpose of this study is to explore maternal and provider perceptions of conducting postpartum depression screening in the Neonatal Intensive Care Unit (NICU). If you choose to participate in this study, you will be asked to participate in an interview designed to explore your opinions on participating in postpartum depression screening in the NICU. The total amount of time you will be in this study is less than 60 minutes.

There are potential risks involved with this study that are described in this document. Some known risks include loss of time participating in the study and the potential for emotional distress. There are no direct benefits to participation in this study.

Participation in this research study is voluntary. You may choose not to take part in this research study or may choose to leave the research study at any time. Your decision will not affect the clinical care you or your child receive at the University of Texas Health Science Center at Houston (UTHealth) or Memorial Hermann Healthcare System.

If you are interested in participating, please continue to read below.

What is the purpose of this research study?

The purpose of this study is to see how mothers of infants admitted to the Neonatal Intensive Care Unit feel about being screened for postpartum depression while visiting their baby in the NICU if this service was offered. You will not be screened for postpartum depression during this study.

Who is being asked to take part in this study?

You are being asked to take part in this research study because you are the mother of an infant in the Neonatal Intensive Care Unit. This study is being conducted at a single site at Memorial Hermann Memorial City. About 20 people will take part in this study at Memorial Hermann Health System.

What will happen if I take part in this study?

If you choose to participate in this study, you will participate in an individual interview with the Principal Investigator. You will be asked questions about your feelings and opinions on participating in postpartum depression screening in the NICU if it were offered. Before the interview, you will be asked to complete a demographic form stating your gestational age at delivery, past pregnancies, age, history of psychiatric illness and experience with postpartum depression screening. The demographic form will not contain your name, date of birth or any personally identifying information. The interview will be tape recorded and the researcher will record notes during the interview.

How long will you be in the study?

If you agree to take part, your participation will last until completion of the interview.

What choices do you have other than this study?

You do not need to participate in this study. Participation is strictly voluntary.

What are the risks of taking part in this study?

There are both risks and benefits to taking part in this study. It is important for you to think carefully about these as you make your decision.

If you choose to take part in this study, there is a risk of breach of confidentiality in the case of a data breach. If you express to the interviewer that you have feelings of self-harm or harm to others, you will be referred to a healthcare provider for help.

What are the benefits to taking part in this study?

There are no direct personal benefits to participation in this study. This study may help the study researcher to learn things that may help other people in the future.

Can you stop taking part in this study?

You may decide to stop taking part in the study at any time. To withdraw from the study, please contact Candice Triulzi at 713-515-1971.

The Principal Investigator can stop the study at any time. If you stop participating in this study, the information already collected about you will still be used in the data analysis. However, no further information will be collected without your permission.

What are the costs of taking part in this study?

There are no costs to participate in this study.

You will receive a \$5 Starbuck's gift card following completion of the interview. All information is stored in a secure fashion and will be deleted from the system once the study has been completed.

How will privacy and confidentiality be protected?

Your privacy is important and your participation in this study will be kept confidential. However, absolute confidentiality cannot be guaranteed.

If you sign this document, you give permission to UTHealth and Memorial Hermann Healthcare System to utilize data provided in the demographic data sheet and interviews for study purposes. No information will be obtained from you or your child's medical record.

Please note that you do not have to sign this Authorization, but if you do not, you may not participate in this research study. UTHealth and Memorial Hermann Health System or Harris Health System may not withhold treatment or refuse treating you or your child if you do not sign this Authorization.

You may change your mind and revoke (take back) this Authorization at any time. Even if you revoke this Authorization, researchers may still use data they already have obtained about you as necessary to maintain the integrity or reliability of the current research. To revoke this Authorization, you must contact Candice Triulzi in writing at Candice.j.Triulzi@uth.tmc.edu.

This Authorization will expire 15 years after the end of the study.

Whom can you contact if you have questions about the study?

If you have questions at any time about this research study, please feel free to contact Candice Triulzi at 713-515-1971, as they will be glad to answer your questions. You can contact the study team to discuss problems, voice concerns, and obtain information in addition to asking questions about the research.

The Committee for Protection of Human Subjects at the University of Texas Health Science Center has reviewed this research study. You may contact them for any questions about your rights as a research subject, and to discuss any concerns, comments, or complaints about taking part in a research study at (713) 500-7943.

SIGNATURES

Sign below only if you understand the information given to you about the research and you choose to take part in this research study. Make sure that all your questions have been answered. If you decide to take part in this research study, a copy of this signed consent form will be given to you.

_____ Printed Name of Subject	_____ Signature of Subject	_____ Date	_____ Time
_____ Printed Name of Legally Authorized Representative	_____ Signature of Legally Authorized Representative	_____ Date	_____ Time

<hr/>	<hr/>	<hr/>	<hr/>
Printed Name of Person Obtaining Informed Consent	Signature of Person Obtaining Informed Consent	Date	Time

Appendix B

Informed Consent Form – Provider Participants

CONSENT TO TAKE PART IN RESEARCH

Simple Study Title: Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap

Full Study Title: Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap

Principal Investigator: Candice Triulzi, MSN, RNC-NIC

Study Contact: Candice Triulzi, MSN, RNC, NIC; candice.j.triulzi@uth.tmc.edu; 713-515-1971

The purpose of this study is to explore maternal and provider perceptions of conducting postpartum depression screening in the Neonatal Intensive Care Unit (NICU). If you choose to participate in this study, you will be asked to participate in a focus group designed to explore your opinions on conducting postpartum depression screening in the NICU. The total amount of time you will be in this study is 60 minutes.

There are potential risks involved with this study that are described in this document. Some known risks include loss of time spent participating in the study. There are no direct benefits to participation in this study.

Participation in this research study is voluntary. You may choose not to take part in this research study or may choose to leave the research study at any time. Your decision will not affect the clinical care your employment at the University of Texas Health Science Center at Houston (UTHealth) or Memorial Hermann Healthcare System.

If you are interested in participating, please continue to read below.

What is the purpose of this research study?

The purpose of this study is to see how NICU providers feel about conducting postpartum depression screening for mothers while they are visiting their baby in the NICU. You will not be conducting postpartum depression screening during this study.

Who is being asked to take part in this study?

You are being asked to take part in this research study because you are a healthcare provider that works in the Neonatal Intensive Care Unit. This study is being conducted at a single site at Memorial Hermann Memorial City. About 20 providers will take part in this study at Memorial Hermann Health System.

What will happen if I take part in this study?

If you choose to participate in this study, you will participate in a focus group with other healthcare providers where you will be asked questions about your feelings and opinions on conducting postpartum depression screening in the NICU. Before the beginning of the focus group, you will be asked to identify your professional discipline (RN, MD, NNP, Social Worker, Case Manager). No personal identifiers will be obtained. The focus group interview will be tape recorded and the researcher will record notes during the interview.

How long will you be in the study?

If you agree to take part, your participation will last until completion of the focus group interview.

What choices do you have other than this study?

You do not need to participate in this study. Participation is strictly voluntary.

What are the risks of taking part in this study?

There are both risks and benefits to taking part in this study. It is important for you to think carefully about these as you make your decision.

If you choose to take part in this study, there is a risk of breach of confidentiality in the case of a data breach.

What are the benefits to taking part in this study?

There are no direct personal benefits to participation in this study. This study may help the study researcher to learn things that may help other people in the future.

Can you stop taking part in this study?

You may decide to stop taking part in the study at any time. To withdraw from the study, please contact Candice Triulzi at 713-515-1971.

The Principal Investigator can stop the study at any time. If you stop participating in this study, the information already collected about you will still be used in the data analysis. However, no further information will be collected without your permission.

What are the costs of taking part in this study?

There are no costs to participate in this study.

You will receive a \$5 Starbucks gift card following completion of the interview. All information is stored in a secure fashion and will be deleted from the system once the study has been completed.

How will privacy and confidentiality be protected?

Your privacy is important and your participation in this study will be kept confidential. However, absolute confidentiality cannot be guaranteed.

If you sign this document, you give permission to UTHHealth and Memorial Hermann Healthcare System to utilize data obtained in the focus group interview for study purposes.

Please note that you do not have to sign this Authorization, but if you do not, you may not participate in this research study.

You may change your mind and revoke (take back) this Authorization at any time. Even if you revoke this Authorization, researchers may still use data they already have obtained about you as necessary to maintain the integrity or reliability of the current research. To revoke this Authorization, you must contact Candice Triulzi in writing at Candice.j.Triulzi@uth.tmc.edu.

This Authorization will expire 15 years after the end of the study.

Whom can you contact if you have questions about the study?

If you have questions at any time about this research study, please feel free to contact Candice Triulzi at 713-515-1971, as they will be glad to answer your questions. You can contact the study team to discuss problems, voice concerns, and obtain information in addition to asking questions about the research.

The Committee for Protection of Human Subjects at the University of Texas Health Science Center has reviewed this research study. You may contact them for any questions about your rights as a research subject, and to discuss any concerns, comments, or complaints about taking part in a research study at (713) 500-7943.

SIGNATURES

Sign below only if you understand the information given to you about the research and you choose to take part in this research study. Make sure that all your questions have been answered. If you decide to take part in this research study, a copy of this signed consent form will be given to you.

_____ Printed Name of Subject	_____ Signature of Subject	_____ Date	_____ Time
_____ Printed Name of Legally Authorized Representative	_____ Signature of Legally Authorized Representative	_____ Date	_____ Time
_____	_____	_____	_____

<hr/>	<hr/>	<hr/>	<hr/>
Printed Name of Person Obtaining Informed Consent	Signature of Person Obtaining Informed Consent	Date	Time

Appendix D

Maternal Participant Semi-Structured Interview Guide

Opening Statement: “Thank you for participating in this study. As you know, we are looking to find out how moms would feel about being screened for postpartum depression while visiting their baby in the NICU. Postpartum depression screening is usually done at your postpartum wellness check with your OB doctor and again when you take your baby to the pediatrician. The screening is done by providing answers to a short survey that asks about how you have been feeling in the past week. The survey will ask things such as if you have been feeling sad, have had trouble sleeping, or felt anxious. A healthcare provider will look at the answers provided to determine if there is a concern about postpartum depression. From there, mothers that may have postpartum depression would be referred for help. For this study, we are interested to talk with you about your feelings on having postpartum depression screening done in the NICU by the team directly caring for your baby.”

Table 1

Semi-Structured Interview Questions for Mothers of NICU Infants

Interview Question
Can you tell me a bit about your child(ren)? (Young et. al., 2019)
What is it like to have your baby in the NICU? How has this experience been for you?
Has having your baby in the NICU caused stress or impacted your ability to function? How so?
Do you talk with anyone such as a friend or family member, about your baby in the NICU? If so, who? How do they feel about the situation?

Generally speaking, in what ways do you feel that the NICU is difficult for moms?

I am interested in learning what moms in this situation need. How do you feel moms in the NICU would feel about discussing their stress and feelings with the staff that directly cares for their baby? How do you feel about that?

I want to ask you to think back to when you were in the postpartum unit here at the hospital. You were asked to fill out a survey asking about how you have been feeling mentally in the past week. That questionnaire asked you to rate your agreement with statements such as: “I have been so unhappy I have had difficulty sleeping,” or “I have looked forward with enjoyment to things” (Cox et.al, 1987). Do you remember doing that?

That survey was a screening for postpartum depression. We are trying to determine the appropriateness of this in other contexts.

So, what would you think about a scenario in which any of the various individuals directly caring for your baby in the NICU – in other words, no specific Doctor or Nurse – were to give you the postpartum depression screening survey?

If the screening survey was given out in the NICU, is there a specific person or category of staff with whom you would prefer to talk with about these things? Why?

In what ways, do you think this postpartum depression screening survey is useful or needed?

In what ways, do you think this postpartum depression screening survey is not useful or not needed?

How do you think other Moms might feel about filling out the postpartum depression screening survey in the NICU?

What do you think are benefits Moms might perceive? Would any of those be benefits for you?

What are some issues other Moms might have participating in this screening in the NICU?

What issues would you personally be concerned about?

You said you had your baby ____ ago, (have you/do you plan to) do to your postpartum checkup with your doctor? Why?

How do you feel about having that doctor screen you for postpartum depression?

Is there anything that you feel is important to share that I didn't ask about?

Appendix E

Provider Focus Group Interview Guide

Opening Statement: “Thank you for participating in this focus group. As you know, we are looking to gain your perspective as a NICU healthcare provider on issues surrounding the wellbeing of mothers in the NICU. I will be asking questions to the group. Anyone is free to respond, or not, to any question asked. Please state your participant pseudonym before each response to help me in my note taking.”

Focus Group Questions for NICU Providers

Interview Question

I am interested in learning about your experience interacting with mothers of NICU infants...

I want you to think back on your interactions with NICU mothers in the last month, please write down one word you would use to describe the impact of the NICU on moms.

Then please think to yourself why you picked the word. After giving you a minute to think on that, I will start with some questions.

1. Thinking back on your experience, what are some specific examples of ways in which you have seen the experience of having a baby in the NICU affect mother’s wellbeing?
2. Do mothers in the NICU communicate with NICU staff about their wellbeing? How?
3. In the current state of how the NICU functions, how would you learn if a mother in your NICU had a mental health concern, such as postpartum depression?
4. Think about the last few moms you have cared for; what would you imagine postpartum depression screening to look like in the NICU?
5. Of the healthcare providers that work in the NICU; which professional role (NP, Neo, Bedside RN, Charge RN, Social Work, Case Manager) do you think mothers would be most comfortable talking with about their wellbeing, stress or mental health? Why?

6. What do you imagine mothers in the NICU would think about being screened for postpartum depression by a NICU provider such as a nurse, neonatologist, nurse practitioner, case manager or social worker?
7. I would like you to think broadly. What kind of obstacles would prevent postpartum depression screening in the NICU from working?
8. What factors might help to facilitate postpartum depression screening in the NICU? What do you think other NICU providers like yourselves at other hospitals would think about conducting postpartum depression screening for mothers in their unit? What might be some concerns they may have?
9. Imagine you are in charge of developing a NICU maternal screening program for postpartum depression here at this hospital, what discipline (NP, Neo, Bedside RN, Charge RN, Social Work, Case Manager) do you feel should screen these mothers? Why did you choose that discipline? (Probe each discipline that was picked)
10. What would other (ie-RN) colleagues feel about conducting this screening?
I.
11. Imagine you are conducting postpartum depression screening and obtain a positive screen. How would this be handled?
12. Think broadly (not necessarily things you need to provide to these mothers) ...What do you think NICU mothers need, if anything, related to mental health?
13. Is there anything you feel is important to share that I didn't ask about?

Appendix F

Provider Participant Demographic Data Form

Participant Pseudonym _____

Study: Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap

Principal Investigator: Candice Triulzi, MSN, RNC-NIC

I am a (Circle One): RN MD NNP Social Worker Case
Manager

Years of Experience in the NICU: _____

During my career, I have cared for NICU patients in the following level NICUs (Select All That Apply)

II- Level Two

III – Level Three

IV- Level Four

I feel comfortable conducting maternal postpartum depression screening in the NICU:

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

I have worked at a facility that offers maternal postpartum depression screening in the NICU conducted by NICU providers.

Yes No

I have personally conducted maternal postpartum depression screening in the NICU:

Yes No

If yes, my role in conducting this screening was _____.

March 22, 2022

Cheryl Tatano-Beck

Editor-in-Chief

Journal of Obstetric, Gynecologic and Neonatal Nursing

Dear Dr. Tatano-Beck:

I am writing to submit our manuscript titled “Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives” for consideration for publication in *JOGNN*. This manuscript explores maternal and provider perspectives of postpartum depression screening in the NICU being conducted by neonatal providers. Our findings utilize Health Belief Model constructs to explore maternal and provider perceptions of the appropriateness of postpartum depression screening in the NICU, screening preferences, facilitators and barriers. Results of our study show support for postpartum depression screening to be conducted in the NICU by RNs at the bedside.

We appreciate your consideration of our manuscript and look forward to speaking with you soon. Please feel free to contact me with any questions at

Candice.J.Triulzi@uth.tmc.edu.

Sincerely,

Candice Triulzi, PhD(c), RNC-NIC

Manuscript

Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives

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March 1, 2022

Abstract

Objective: Although mothers of preterm infants are at increased risk for postpartum depression, postpartum depression screening conducted by neonatal providers in the Neonatal Intensive Care Unit (NICU) is currently not a standard of care. The purpose of this study was to explore maternal and provider perceptions of neonatal providers conducting postpartum depression screening in the NICU.

Design: This study was conducted with a qualitative approach.

Setting: Acute care hospital with a 24-bed Level III NICU in the southwest U.S.

Participants: Participants were purposively sampled (N=31) and included mothers of NICU infants (n=15) and NICU providers (n=16).

Methods: Semi-structured individual and paired interviews were conducted with mothers of NICU infants and NICU providers to determine appropriateness of postpartum depression screening in the NICU, screening preferences, facilitators and barriers.

Inductive thematic analysis was used to analyze verbatim transcripts of interviews.

Transcripts were coded for content and subsequently organized into emergent themes.

Results: Analysis of maternal and provider interviews revealed qualitative evidence supporting Health Belief Model constructs to include perceived susceptibility and severity of postpartum depression in the NICU; as well as perceived benefits, barriers and cues to action for postpartum depression screening in this setting.

Conclusion: NICU providers and mothers support maternal postpartum depression screening in the NICU as a standard of care led by nurses at the bedside. Special attention to stigma-related barriers and structural barriers should be considered with program development.

Keywords: Neonatal Intensive Care Unit, NICU, postpartum depression, postpartum depression screening, providers, maternal

Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives

Mothers of infants admitted to the Neonatal Intensive Care Unit (NICU) disproportionately suffer with postpartum depression; affecting as many as 40% of NICU mothers, compared with prevalence estimates of 14% in the general population (Alexopoulou et al., 2018; Levinson et al., 2020; Liu et al., 2021). Postpartum depression is characterized by maternal feelings of intense sadness and despair that has not resolved within two weeks after birth (American College of Obstetricians and Gynecologists [ACOG], 2019). Postpartum depression can be debilitating; affecting a mother's ability to care for themselves and their infant (ACOG, 2019). The most severe cases may result in a mother harming themselves or others (ACOG, 2019). Untreated postpartum depression has been associated with maternal relationship difficulties, poor self-care, risky behaviors, and increased health-related expenditures (Chapman & Wu, 2013; Chee et al., 2008; Lilja et al., 2011; Rodrigues et al., 2003; Vliegen et al., 2013). Untreated maternal postpartum depression can affect infants; resulting in difficult mother-infant bonding, breastfeeding problems, and increased risk for impaired infant fine motor and cognitive development (Ali et al., 2013; Dunn et al., 2006; Koutra et al., 2012; Nasreen et al., 2013; O'Higgins et al., 2013).

Mothers of NICU infants are particularly vulnerable to mental health concerns such as postpartum depression due to the added stress of the hospitalization of their newly born infant (Alexopoulou et al., 2018; Cakmak & Karacam, 2018; Erdem, 2010; Harris et al., 2018; Holditch-Davis et al., 2014; Lefkowitz, 2010). With the increased risk of postpartum depression for mothers of NICU infants, as well as the potential for

poor maternal mental health to impact maternal and infant outcomes, postpartum depression screening for mothers of NICU infants is essential for reducing the impacts on the mother, their family and society. While current postpartum depression screening guidelines strive for universal screening, low rates of postpartum care visit attendance and prolonged time to first pediatric encounter for mothers of NICU infants may place these mothers at risk for being lost in the screening gap (American College of Obstetricians and Gynecologists [ACOG], 2018a; 2018b). Offering maternal postpartum depression screening in the NICU by neonatal providers is not currently a standard of care. However, expanding maternal postpartum depression screening into the NICU may offer an opportunity to bring convenient universal screening to this high-risk population. A better understanding of maternal and provider perspectives of the appropriateness, benefits and barriers to postpartum depression screening in the NICU must be understood before universal NICU-based postpartum depression screening programs can be recommended. The purpose of this study was to explore maternal and provider perceptions of neonatal providers conducting postpartum depression screening in the NICU.

Background and Significance

Postpartum depression has been recognized on a national level as a major public health concern for women in the United States. In an effort to target postpartum depression, the U.S. Department of Health and Human Services has recommended an increase in the proportion of women who are screened for postpartum depression in the United States as part of Healthy People 2030 (U.S. Department of Health and Human Services, n.d.). Maternal postpartum depression screening is completed as a self-report

paper questionnaire at a healthcare providers office during either the postpartum obstetric visit or a pediatric well-child visit. Commonly used postpartum depression screening questionnaires range from 10 to 35 questions in length and may include one of the following instruments; the Edinburgh Postnatal Depression Scale, Postpartum Depression Screening Scale, Beck Depression Inventory and Patient Health Questionnaire 9 (American College of Obstetricians and Gynecologists [ACOG], 2018b). Screener questions focus on how the mother has been feeling mentally in the past one to two weeks. Providers reviewing the completed instrument assign a total score comparing it with the instrument specific cut score to help determine if there is a concern for postpartum depression. Mothers diagnosed with postpartum depression are either referred for treatment to a mental health provider or treated by their obstetrics provider.

Women at highest risk for postpartum depression include mothers with a history of depression, those that deliver a preterm infant, mothers over 35 years of age and those with a diagnosis of gestational diabetes (Silverman et.al, 2017). Women with a history of depression are 20 times more likely to suffer from postpartum depression than women without a history of depression (Silverman et.al, 2017). Social risk factors such as perceived low social support and stressful life events have also been shown to be associated with increased postpartum depression risk (Vigod et.al., 2010). Mothers that deliver a preterm infant hospitalized in the NICU are particularly vulnerable to postpartum depression. Mothers that delivered a preterm infant were found to be 1.6 times more likely to develop postpartum depression than mothers of term infants (Vigod et.al., 2010). Risk for the development of postpartum depression among this population is increased with lower gestational age at delivery, lower birthweight at delivery, ongoing

infant disability and perceived low social support (Vigod et.al., 2010). While the environment of the NICU offers a unique opportunity for interaction with mothers at high-risk for postpartum depression, screening for this condition is not a standard of care in this setting.

Current guidelines for postpartum depression screening follow the recommendations from the American College of Obstetricians and Gynecologists (ACOG) and the American Academy of Pediatrics (AAP) with both obstetricians and pediatricians screening women. With the increasing importance being placed on maternal mental health, these organizations have joined forces to implement recommendations for an attempt at universal postpartum depression screening (American College of Obstetricians and Gynecologists, 2015; Earls et al., 2018). ACOG guidelines recommend that obstetric providers conduct postpartum depression screening for all women at the routine postpartum visit (American College of Obstetricians and Gynecologists, 2015). However, mothers that do not attend their postpartum checkup are not screened. Current evidence shows that nearly 40% of women in the United States do not attend their postpartum visit due to lack of perceived importance and time constraints (ACOG, 2018a; 2018b; DiBari et al., 2014). AAP guidelines recommend that pediatricians screen mothers for postpartum depression during 1-, 2-, 4- and 6-month well-child appointments (Earls et al., 2018). For mothers with an infant in the NICU, postpartum depression screening at a well-child visit may be delayed by weeks or even months since their infant is still hospitalized in the NICU. Thus, safety nets designed to screen for postpartum depression are circumvented for NICU mothers that do not attend their postpartum checkup and are delayed to pediatric care due to their infant's

hospitalization. As a result, these mothers may be suffering with an undiagnosed mental health concern.

Routine postpartum depression screening in the NICU setting by neonatal providers is not a current standard of care (Cherry et al., 2016; Cole et al., 2018; Moreyra et al., 2021; Scheans et al., 2016; Vaughn & Hooper, 2020). A recent study validating the increased risk of postpartum depression for mothers of NICU infants, concluded that efforts should be made to expand access to screening by increasing the opportunities to be screened (Barber et al., 2021). The practice of neonatal providers conducting maternal postpartum depression screening in the NICU may offer an opportunity to implement a standardized approach to address current barriers to postpartum depression screening. Mothers in the NICU often are a captive audience, interacting with NICU healthcare providers frequently in-person or by phone to receive updates on their infant's care. These frequent interactions may offer the opportunity for NICU healthcare providers to screen mothers for postpartum depression and offer referral for treatment if postpartum depression is suspected.

The need for postpartum depression screening in the NICU has been established. Rogers and colleagues support that high levels of anxiety and depression in NICU mothers at discharge “support the need for universal screening within the NICU” (Rogers et al., 2012, p. 171). However, current literature evaluating this practice is limited since postpartum depression screening in this setting is not a standard of care (Vaughn & Hooper, 2020). Current literature highlights lessons learned from postpartum depression screening quality improvement projects conducted in tertiary care NICU facilities (Cherry et al., 2016; Cole et al., 2018; Moreyra et al., 2021; Scheans et al., 2016; Vaughn

& Hooper, 2020). These quality improvement implementation publications have identified a wide range of maternal compliance with postpartum depression screening from 48.5% to 96.5% when conducted in the NICU at large centers (Cherry et al., 2015; Cole et al., 2018; Moreyra et al., 2021). It is unclear as to why there is such wide variation in compliance rates as no qualitative evidence is available on this topic. Current published literature offers no available evidence to support who should conduct maternal postpartum depression screening in the NICU based on maternal and provider preferences. Published implementation projects have used a variety of disciplines to conduct postpartum depression screening in the NICU including nurses, psychiatric fellows, social workers, and project coordinators (Cherry et al., 2016; Cole et al., 2018; Moreyra et al., 2021; Scheans et al., 2016; Vaughn & Hooper, 2020). However, best practices for who should conduct the screening have not been established. Cherry and colleagues stressed that while postpartum depression screening in the NICU is needed, barriers to screening may deter institutions from implementing this in the clinical setting (2015). Lessons learned from published quality improvement projects identified barriers encountered from one-site implementations as difficulty contacting mothers, referral challenges, language barriers and administrative challenges (Cherry et al., 2016; Moreyra et al., 2021). However, perceptions of barriers to screening in the NICU from maternal and provider perspectives remain unknown.

While qualitative perspectives on this practice in the NICU are unavailable, studies looking at the implementation of postpartum depression screening in the pediatric primary care setting may offer some insight into perspectives that may apply to the NICU. Young and colleagues explored maternal perceptions of postpartum depression

screening conducted in pediatric primary care settings, and found maternal barriers to screening to include psychiatric symptoms inhibiting access to care, mental health stigma, and fear of Child Protective Services (Young et al., 2019). The same study reported perceived benefits to screening in this setting to include convenience of embedded services, low barrier to entry, and trust in providers (Young et al., 2019).

This purpose of this study is to explore maternal and provider perceptions of the appropriateness, preferences, benefits and barriers to extending the practice of postpartum depression screening into the NICU.

Theoretical Framework

The Health Belief Model (HBM) (Figure 1) was utilized as the conceptual framework for this study. The Health Belief Model is an explanatory model of health related behaviors (Glanz et al., 2008). The model supports that an individual's decision to engage in health promoting behaviors are influenced by their perception of disease severity and personal susceptibility as well as barriers, benefits and cues to action for health promoting behaviors (Glanz et al., 2008; Rosenstock, 1974). According to the model, if an individual perceives themselves as susceptible to a health problem and that the consequences of the problem are severe, they are more likely to engage in health promoting behaviors given effective cues to action and that perceived benefits outweigh perceived barriers. The model is utilized in this study as a framework to analyze maternal perceptions of severity and personal susceptibility to postpartum depression, cues to action for engaging in postpartum depression screening as well as barriers and benefits to NICU based screening. Analysis of provider perception data on conducting postpartum depression screening in the NICU explores perceived maternal susceptibility,

as well as perceived barriers, benefits and cues to action for conducting screening in the NICU. Based on the assumptions of the Health Belief Model, perceptions surrounding susceptibility and severity will influence views on benefits, barriers and cues to action. Previous studies exploring screening for colorectal cancer have concluded that “perceived susceptibility, benefits and cues to action were directly associated with screening history or intention” (Lau et.al, 2020, p. 1). A study on breast cancer screening intention found that the component of a cue to action in the Health Belief Model had the greatest effect size on breast cancer screening intention (Ritchie et. al, 2020). Analysis of perception data obtained from this study will provide insight into perceived susceptibility, severity, benefits, barriers and cues to action that may help influence future interventions and studies to promote postpartum depression screening success in the NICU. Discussion of study results utilize the Health Belief Model concepts to highlight participant perceptions of susceptibility and severity and its impact on support for postpartum depression screening in the NICU. Benefits to postpartum depression screening in the Health Belief Model must outweigh barriers to result in screening participation. Identified benefits and barriers in this context are discussed to provide insight into potential facilitators and blockades for screening success in the NICU.

Methods

Design

This study uses a descriptive qualitative design to explore maternal and provider perceptions of neonatal providers conducting postpartum depression screening in the NICU. Semi-structured individual interviews with mothers of infants admitted to the NICU discuss perceptions of postpartum depression screening in the NICU, preferences

for screening as well as perceived benefits and barriers to this practice. Semi-structured individual and paired interviews with neonatal providers discuss perceptions of postpartum depression screening utility in the NICU, logistical considerations for program development as well as perceived benefits and barriers to implementing such a practice.

Setting

This study was conducted at a 24-bed Level III community based NICU in the southwest US. The study site does not conduct maternal postpartum depression screening in the NICU. However, hospital protocol requires postpartum depression screening for all mothers by postpartum nurses in the postpartum unit within 12 hours of admission. Mothers admitted to the postpartum unit complete the 10-question Edinburgh Postnatal Depression Scale as a screening for postpartum depression. Thus, mothers participating in this study should have been familiar with the postpartum depression screening process. NICU providers at the recruiting facility are not involved with postpartum depression screening that occurs on the postpartum unit and were unfamiliar with their process of screening. Semi-structured interviews with maternal and provider participants were conducted in private spaces in the NICU, including a nearby conference room.

Participants

Purposive sampling methods were used to recruit maternal participants delivering at varying gestational ages and interdisciplinary provider participants with a range of years experience working in the NICU. Eligible mothers had an infant admitted to the NICU, and were able to speak, read and write in English. All mothers participating

delivered their infants at the facility. Eligible NICU provider participants included nurses, physicians and neonatal nurse practitioners working in the NICU at the study site.

Data Collection and Procedures

Permission to conduct this study was obtained from the Institutional Review Board and host facility. Recruitment of study participants was completed by the Principal Investigator. Potential maternal participants were approached for recruitment into the study at their infant's bedside, while provider participants were recruited in-person at the nursing stations. Both verbal and written informed consent were obtained from study participants before data collection. Recruitment of study participants continued until data saturation. Data saturation was met when incoming interview data no longer added additional information to contribute to the study objectives (Guest et.al, 2020). Data collected from participants included a demographic form shown in Figure 2 and Figure 3; and a tape-recorded interview following interview guides shown in Tables 1 and 2. Field notes were collected during participant interviews. To protect participant identity, maternal participants were assigned a participant number for data-gathering forms and interviews. Provider participant data forms and interviews used a pseudonym chosen by each participant for anonymity. Face-to-face semi-structured interviews with study participants were conducted using an interview guide and probes to elicit further discussion. Interview questions for maternal and provider participants are shown in Table 1 and Table 2, respectively. All study participants received a \$5 Starbuck's gift card upon completion of the study. All data obtained for this study were stored in accordance with institutional requirements.

Analysis

Analysis of interviews used an inductive thematic analysis approach. Tape recorded interviews were transcribed verbatim by the Principal Investigator. Accuracy of transcription was verified by word error rate calculation conducted on a random sample of provider and maternal transcripts. Selected written transcripts were compared with interview audio recordings to identify word insertions, deletions and substitutions in the transcript. Word error rate was determined to be 1% for both maternal and provider transcription. Transcribed interviews were reviewed by the Principal Investigator and then coded in MAXQDA software (VERBI Software, 2020). Provider interviews were coded first followed by maternal interviews. Provider interviews revealed 56 individual codes that were subsequently grouped into eight code categories. Maternal interviews revealed 61 individual codes that were then grouped into seven code categories. Themes were developed from code categories, first separately for mothers and providers, then combined. Most frequently commonly occurring codes within both provider and maternal interviews guided theme development as shown in Table 5. The concepts of the Health Belief Model theoretical framework utilized in this study guided the categorization of codes for theme development to be consistent with elements in the Health Belief Model.

Following theme development, coded quotes were extracted for reporting in the findings. Strategies to ensure credibility, transferability, dependability and confirmability were addressed utilizing recommendations from Lincoln and Guba (1985). Credibility was ensured through prolonged engagement and persistent observation in the NICU through interactions with mothers and providers of NICU infants (Lincoln & Guba,

1985). Transferability was ensured by the development of thick descriptions of emergent themes (Lincoln & Guba, 1985). Dependability was ensured by maintaining audit records during coding and theme development (Lincoln & Guba, 1985). Confirmability was ensured by maintenance of all study records for audit including raw data, transcripts, field notes, coding decisions and theme development documentation (Lincoln & Guba, 1985).

Results

Thirty-one interviews (N=31) were conducted with NICU mothers (n=15) and NICU providers (n=16). Seventeen providers and sixteen mothers were approached for participation in the study. The two non-participants had time constraints limiting their ability to participate. Demographic data for mothers and providers participating in the study are displayed in Table 3 and Table 4, respectively. Participating mothers' gestational ages at delivery ranged from 24 1/7 weeks gestation to 37 4/7 weeks gestation. Adult mothers of varying ethnicities participated, identifying as Hispanic (n=5), White (n=5), Black (n=4) and unknown (n=1). Mean infant length of stay in the NICU at the time of the interview was 11.8 days, ranging from 1 day to 35 days. Two participating mothers had a diagnosis of postpartum depression on previous pregnancies and three mothers had mental health diagnoses. Hospital protocol requires all mothers be screened for postpartum depression in the postpartum unit within 12 hours of admission, yet all 15 mothers noted on the demographic form they had no experience with postpartum depression screening in the past. However, when asked in the interview about previous participation in postpartum depression screening, mothers recalled they had in fact been screened in the postpartum unit following this delivery. Participating

NICU providers included nurses (RNs) (n=12), neonatologists (n=2), and neonatal nurse practitioners (NNPs) (n=2) working in the NICU with years of experience ranging from 1 to 30 years; mean 11.9 years. One provider formerly worked at a NICU that offered postpartum depression screening, but this person and none of the rest of the providers had personal experience with conducting postpartum depression screening in the NICU. Although none of the provider participants had personal experience conducting postpartum depression screening, six participants reported that they would feel comfortable conducting this screening, while nine reported neutral feelings about conducting the screening and one participant reported to be uncomfortable with conducting postpartum depression screening.

Themes

Analysis of interviews revealed emerging themes congruent with constructs in the Health Belief Model. The Health Belief Model constructs applicable to this analysis include perceived severity & susceptibility, perceived benefits, perceived barriers and cues to action. Organization of themes and sub-themes are depicted in Figure 4.

Perceived Severity & Susceptibility

In the context of the Health Belief Model, perceived severity of a health problem combined with an individual's perceived susceptibility to the health problem influences decisions to engage in health promoting behaviors, such as postpartum depression screening (Glanz, n.d.). Both mothers and providers expressed that postpartum depression is a serious problem and that the stress of the NICU environment may contribute to increased susceptibility to postpartum depression, necessitating screening. The NICU experience was described by mothers and providers as stressful when recalling

experiences of shock at the initial NICU admission, separation of mother and baby, as well as frustration of not knowing when baby would come home.

A mother that delivered at 31 2/7 weeks gestation that had been in the NICU for five weeks said:

“You know, if you were going to be prone to postpartum depression, I wouldn’t be surprised if it tripped that trigger being in the NICU.”

Another NICU mother that delivered at 37 4/7 weeks gestation that delivered one day prior stated:

“Yes [the NICU needs postpartum depression screening]. Cause’ having your child taken away from you moments after being born or hours or a day or two it’s not easy because you definitely feel the worst. You don’t feel oh, it’s all is going to be OK. You go straight from 100% happy to everything that could go wrong in the world. So, it would be good if we all got screened, because even if it’s temporary, postpartum is still postpartum and they can go from temporary to permanent.”

A NICU mother that delivered at 24 1/7 weeks gestation that had been in the NICU for 4 weeks at the time of the interview commented on the severity of postpartum depression:

“I think it’s needed for sure. There’s [sic] Moms who kind of like you know, they’ll lose it and they end up hurting their babies or they end up hurting themselves. And I think it would be needed for sure.”

Providers of NICU infants echoed similar concerns. A neonatologist with nine years of experience in the NICU stated:

“I think it’s actually a good idea. I think our Moms are probably at a little bit higher risk given the sudden change in their expectations of what their birth experience was going to be like.”

An RN with 15 years experienced noted:

“It should be [standard of care] especially with the NICU babies, because it is such a stressful situation and then they go home. First of all, they come here and it’s not the pregnancy that they expected, and then they go home without a baby.”

An RN with five years experience said:

“I do think almost if you went and talked to every single one of those nurses, they would say that postpartum depression in the NICU is a big problem and something that we should watch out for. ‘Cause that’s the first thing you learn about being a NICU nurse, is that the parents and their parenting is taken away and it’s unexpected. And it’s the unknown.”

Providers and mothers interviewed perceived NICU mothers at increased risk for postpartum depression and recognized the severity of the condition. In the context of the Health Belief Model, the identified perceptions of severity of postpartum depression combined with the belief of heightened susceptibility to postpartum depression for mothers of NICU infants may have contributed to the overwhelmingly positive support for postpartum depression screening seen in the interviews.

Perceived Benefits

Perceived benefits in the Health Belief Model may influence one’s decisions to engage in health promoting behavior, given that they perceive themselves at risk for a health problem (Glanz et al., 2008). Analysis of interviews demonstrate both mothers

and providers perceive benefits to conducting postpartum depression screening in the NICU to include early intervention for postpartum depression and promotion of family centered care.

Early Intervention for Postpartum Depression.

Mothers and providers expressed that the unique environment of the NICU, where healthcare providers have frequent contact with NICU mothers offer an opportunity for early identification of postpartum depression and subsequent intervention.

A mother that delivered at 36 weeks gestation and had been in the NICU for one-week said:

“Instead of having to go to an outside place where it’s unfamiliar, you know, NICU moms sometimes are here for weeks, months.”

Another mother stated:

“I think it would [sic] be good because the nurses and everything they see. Like y’all see how we are every day. There’s the good days and the bad days. So if you, if a Mom could come in and open up about that I think it would help the Mom. It would help the nurse too.”

An RN with 15 years’ experience recalled her experience interacting with mothers in the NICU and noted her role may offer the opportunity for observation of postpartum depression symptoms:

“As NICU nurses, we’re gonna see them more often than maybe your postpartum nurse. Your postpartum nurse will have them at three or four days that’s it. It’s over, they’re gone. But the NICU nurse is the constant observer like were going to be able to... the Mom will come in here... We’ll be able to observe you know we’ll report off to

one another like ‘I don’t think this Mom is doing well.’ We’ll see little signs and her little mannerism. We can pick up on that, so we’re going to see it for especially the mothers that are here three to four months.”

Both mothers and providers expressed that early identification of postpartum depression in the NICU may offer an opportunity for early intervention.

A NICU mother that delivered at 33 2/7 weeks gestation and had been in the NICU for one week stated:

“Well, I would say that I would probably do it [postpartum depression screening] because you know, I wouldn’t want to go home and not have that bond with my child. You know, knowing that I was depressed and that they were here and I could have got help while [sic] they’re in here before taking them home.”

An RN with seven years experience said:

“I feel like early intervention is good for these Moms to get any help or support that they need. And we’re communicating with them directly, so I feel like we would be able to identify it or help point it out for them.”

Promotion of Family Centered Care.

Both mothers and providers recognized that care in the NICU is infant-focused; but felt a benefit of including maternal postpartum depression screening in the NICU would be promotion of an environment of family centered care. Mothers particularly felt that talking with NICU providers about their mental health would allow them to feel cared for and supported.

A NICU mother that delivered at 31 2/7 weeks gestation that had been in the NICU for five weeks said:

“It would be beneficial if like a nurse or someone saw that in you and wanted to help you instead of just being like you know, my patient is the babies.”

Another mother said:

“I know how it is. There’s not many people you can talk to. So like, if you come in there and someone says ‘Hey how are you doing... and how are YOU doing?’ Like let’s not think about your baby for this second, like how are you doing? I think it would be very beneficial because you don’t feel like you’re so alone and everyone there in the NICU is so nice. It’s like very comforting to walk in there. You feel almost kind of vulnerable if that makes sense.”

An RN with seven years experience felt that extending NICU care to include postpartum depression screening for mothers would be beneficial:

“Yes, and I think that nurses I think would... you know, once you learn about something; another kind of aspect of patient care where you’re talking about the parents and the Mom, I think that helps you as a practitioner. You’re kind of, you’re not just blinders on the baby, you know, it is helping to open that up.”

Perceived Barriers

Perceived barriers in the Health Belief Model may impede one’s ability to engage in a health promoting behavior such as postpartum depression screening. Our study findings demonstrate that stigma related and structural barriers may prove challenging for the success of postpartum depression screening in the NICU.

Stigma-Related Barriers.

Stigma related barriers that emerged in the interviews include discomfort with discussing mental health and fear of children being taken away.

Discomfort Discussing Mental Health.

Both mothers and providers felt that mothers may be uncomfortable discussing mental health and that providers may be reluctant to have the conversation.

A mother that delivered at 32 5/7 weeks gestation that had been in the NICU nine days said: “Honestly, just know that it’s a sensitive subject and it’s going to be tough to get some Moms to be vulnerable enough to have that conversation. But it needs to be done, you know.”

An RN said:

“And sometimes the mommies, they don’t even know. They don’t even know they’re going through depression. They don’t know. They don’t know. They don’t realize it and it sometimes takes somebody to say hey, I think you need [help], but it’s such a stigma. And it shouldn’t be. [sic] Sometimes it’s such a stigma they don’t want to reach out for help.”

Mothers felt stigma related barriers may offer the biggest obstacle to participation in postpartum depression screening in the NICU, even impacting the honesty of responses.

Fear of Children Being Taken Away.

Mothers of NICU infants expressed concern that screening positive for postpartum depression in the NICU may jeopardize the custody or discharge of their child. This sentiment did not surface in any of the NICU provider interviews.

One mother expressed fears of screening positive for postpartum depression in the NICU:

“Uh, that they might be reported to somebody. That they right... like if I seem... crazy is not the right word obviously, but like that’s the way I would feel. Do I seem crazy or are they gonna like report me to somebody? Am I going to be watched extra carefully?”

Another mother echoed these concerns:

“I don’t know, like unless they would feel like maybe well if they think I’m depressed they’re not going to send my baby home.”

One mother felt fears may cause other mothers to be reluctant to participate in postpartum depression screening in the NICU:

“It could be because they’ve already had CPS called on them, because of school, it could be because they’re scared their children are going to get taken away if they say the wrong thing. Not just the one that’s in the NICU, but the ones they have at home. Because they say the wrong thing. So they don’t want help, they just want to be left alone.”

Maternal participants discussed that they feared being watched carefully, reported to CPS or having their baby’s discharge delayed due to a diagnosis of postpartum depression.

Structural Barriers.

NICU providers expressed concern with structural barriers to screening such as time, resistance to change, mom as ‘not the patient,’ and referral challenges.

Time.

NICU providers expressed concern that postpartum depression screening would add to an already busy day. An NNP with 19 years of NICU experience said:

“I think it would be feasible if it didn’t require a lot of like time on the NICU staff’s behalf ‘cause some days we have it, but a lot of days we don’t.”

Resistance to Change.

NICU providers suggested that resistance to changing the normal workflow would need to be overcome.

One RN stated “I think that anytime there is more, you know another survey or another form or another thing to chart or another thing to hand out, I think it is sometimes met with resistance. And I think that you know, I think people feel like they have enough going on. They have enough to worry about with these patients, but it’s important and I think you know we kind of have to do it.”

Mom as ‘Not the Patient.’

Providers in the NICU also expressed concern that NICU mothers are generally visitors to the NICU and not patients of the NICU, creating some unique challenges to screening mothers for postpartum depression.

A neonatologist with 11 years experience said:

“Ok, because this is something I have felt too. Sometimes like if I try to get involved, I feel like I’m starting to blur the line because I’m not their doctor, like I am a doctor. But, a lot of times I tell Mom like I’m not trying to diagnose you with anything ‘cause I don’t feel like that’s my role.”

An RN with five years of experience expressed nurses may share a similar sentiment:

“Like the nurses would be like well, the Mom is not us. We’re like in charge of the baby.”

An RN with seven years experience said:

“Well, technically that mother may not be a patient any longer, and so charting on the patient record may be a little confusing. Or, how to direct them after you know they’re not a patient of ours, who supports them? Like which physician is covering?”

Referral Challenges.

NICU providers expressed concern with referral avenues for mothers without a regular obstetrics provider. They also were concerned with how to initiate referrals for mothers, as they are not patients of the NICU.

An RN with seven years experience said:

“So, if she’s not a patient, what resources do we provide for her? What do we direct her? Do we give her a list of you know, providers in the community or what do we do for them at that point?”

A neonatologist said:

“I think you have to inform their doctor. The problem is when you don’t have a doctor, like it’s a walk-in Mom and they don’t have any.”

Structural barriers existing in the healthcare system were identified as potential barriers to implementation and success of NICU postpartum depression screening programs.

Cues to Action

Cues to action in the Health Belief Model prompt engagement in health promoting behaviors. Mothers of NICU infants expressed postpartum depression screening administered in the NICU by bedside RNs would act as a cue to action to engage in screening.

RN Led Screening.

Analysis of interviews from NICU mothers and providers revealed a key perceived cue to action for postpartum depression screening in the NICU is the opportunity to be screened by bedside RNs with whom rapport had already been established.

A NICU mother that delivered at 34 weeks and had been in the NICU for four days said:

“Like one you know is on your baby’s schedule a lot [sic]. I wouldn’t say like your favorite nurse, but your favorite nurse (emphasis) or whoever you know is mostly handling your baby that you see the most.”

Another NICU mother that delivered at 24 1/7 weeks gestation that has been in the NICU four weeks noted she would prefer to be screened by NICU nurses:

“It’s very easy to open up to them, so my default answer would be like the nurses would be the greatest people to talk to about that.”

Mothers expressed their desire to have nurses screen for postpartum depression also should extend beyond the paper, to a conversation about mental health. While RN led screening emerged as a major theme in both provider and maternal interviews,

alternative perspectives surrounding whom should conduct screening are presented below.

Alternative Perspectives

Results presented above represent major themes and subthemes identified by the majority of participants interviewed. Alternative perspectives represent a minority of participant's differing opinions on major themes and subthemes identified on the topic of postpartum depression screening in the NICU. Variation in maternal and provider perspectives centered around support for whom should conduct postpartum depression screening in the NICU. Support for RN led screening identified as a major theme was rooted in the perception that NICU bedside RNs have existing rapport with mothers, thus creating a positive environment for discussion of mental health and postpartum depression screening.

However, one mother who delivered at 32 5/7 weeks gestation and had been in the NICU nine days explained she would not feel comfortable being screened for postpartum depression in the NICU by nurses:

“I haven't had that [relationship] yet, so being that I haven't I don't think I would be vulnerable enough to have that conversation.

A nurse with nine years experience felt that postpartum depression screening in the NICU should be conducted not by the bedside NICU RN, but by a social worker or other discipline assigned to complete the screening for each mother:

“You know, sometimes they [mothers] come on the night shift, sometimes they come on the day shift. Have somebody assigned or something like that... pre-assigned so you know it would get done.”

An NNP with 19 years experience also felt bedside nurses should not be responsible for conducting postpartum depression screening but rather should be the responsibility of:

“Nursing, social work or maybe one of the clinical coordinators that’s not doing direct bedside care.”

Perspectives offered by maternal and provider participants support that both NICU providers and mothers perceive postpartum depression to be a problem for mothers of NICU infants for which they are uniquely susceptible. Both mothers and providers expressed that benefits of postpartum depression screening in the NICU may offer early intervention for postpartum depression as well as promotion of family centered care. NICU nurses conducting postpartum depression screening was viewed as a call to action for promotion of postpartum depression screening by both providers and mothers, but was also noted to be a barrier if rapport was not well established. Barriers to screening identified by participants included stigma related barriers as well as structural barriers within the healthcare system.

Discussion

The purpose of this study was to explore maternal and provider perceptions of postpartum depression screening in the NICU as this practice is not currently a standard of care in the NICU setting. Findings from inductive thematic analysis of maternal and provider interviews discussing postpartum depression screening in the NICU were congruent with constructs in the Health Belief Model. Results of this study provide qualitative evidence of perceived susceptibility and severity of postpartum depression in

the NICU; as well as perceived benefits, barriers and cues to action for postpartum depression screening in this setting.

Support for postpartum depression screening in this setting was reiterated by all mothers and providers that participated in the study. Participants expressed that mothers of NICU infants are uniquely susceptible to postpartum depression due to the added stressors present in the NICU environment. Furthermore, mothers of NICU infants recognized not only their increased susceptibility to postpartum depression, but also recognized the severity of untreated postpartum depression. In the context of the Health Belief Model, individuals are more likely to support engaging in health related behaviors if they feel at risk for a health problem and that the consequences of the health problem are severe. Findings from this study indicate both mothers and providers recognize NICU mothers are at increased risk for postpartum depression which likely contributed to the overwhelming support from both mothers and providers for postpartum depression screening to be conducted in the NICU by neonatal providers. Our findings of increased susceptibility and severity of postpartum depression for mothers of NICU infants may offer explanation for high compliance with postpartum depression screening in the NICU seen in implementation publications in existing literature. Two implementation publications reported maternal compliance with postpartum depression screening in the NICU to be upwards of 95% (Cole et al., 2018; Moreya et. al, 2020).

Perceived benefits of postpartum depression screening in the NICU expressed by participants in our study include the opportunity for early intervention for postpartum depression as well as the promotion of family centered care. Maternal participants expressed that postpartum depression screening in the NICU would promote patient

centered care, extending care beyond the baby and allowing for mothers to feel cared for by NICU staff. A qualitative study exploring the implementation of postpartum depression screening in the pediatric setting had similar findings, with authors noting mothers appreciated receiving care by trusted providers for themselves in addition to their child (Young et al., 2019).

In the context of the Health Belief Model, cues to action facilitate engagement in health promoting behaviors. Mothers in our study expressed a preference for postpartum depression screening in the NICU to be conducted by NICU bedside RNs. NICU RNs were identified by participants as a constant contact with mothers, and the frequency of their interactions were perceived to present the opportunity for ease of screening as well as a chance to go beyond the screening allowing for direct observation of mothers. This newly identified cue to action of RN led postpartum depression screening is a major finding of our study, as preferences for whom would be most appropriate to conduct postpartum depression screening in the NICU was previously unknown. For the future, programs utilizing this unique feature of the NICU may better positioned for success. Findings of a clear preference for RN led postpartum depression screening may explain the wide range of maternal participation in NICU postpartum depression screening seen in published quality improvement articles (Cherry et al., 2016; Cole et al., 2018). In one program, obstetric RNs conducting postpartum depression screening for mothers of NICU infants reported 96.5% compliance with screening, while another program that utilized a project coordinator to conduct screenings reported compliance to be 48.5% (Cherry et al., 2016; Cole et al., 2018).

Maternal participants in our study expressed they preferred to be screened by NICU RNs with whom they have an established rapport. These findings are consistent with a study looking at postpartum depression screening in the well-child pediatric setting where it was found that mothers supported embedded services due to their existing trust in pediatric providers (Young et al., 2019). Alternative viewpoints suggest that screening by RNs could also become a barrier if rapport had not been well established. While healthcare providers supported the concept of RN led postpartum depression screening, RNs did express the need for more education regarding postpartum depression screening and stated that a clear algorithm for action if postpartum depression is suspected would be needed. None of the NICU providers in our study had personal experience conducting postpartum depression screening, thus supporting the need for education on this concept at implementation sites. The NICU as a constant contact with mothers was perceived by NICU providers as an opportunity for ease of screening as well as a chance to go beyond the screening and allow for direct observation of mothers.

Barriers to NICU-based postpartum depression screening identified in this study were categorized as stigma-related and structural barriers. Stigma-related barriers such as discomfort discussing mental health and maternal fears of their children being taken away due to mental health concerns represent major obstacles to overcome. Maternal and provider participant interviews focused on stark contrasting barriers, with maternal participants focusing on stigma related barriers while providers focused on structural barriers. Interestingly, maternal participants mentioned fears of custody concerns when asked about engaging in postpartum depression screening in the NICU. Mothers mentioned that they feared being watched carefully, being reported to CPS or having

their baby's discharge delayed due to a diagnosis of postpartum depression. This concern did not surface in healthcare provider interviews, thus demonstrating an opportunity to educate providers on this critical maternal barrier to participation in NICU based postpartum depression screening. These findings are consistent with maternal perceptions of postpartum depression screening in the pediatric primary care setting and reflect a serious threat to postpartum depression screening success in the NICU as mothers view the NICU as controlling possession of their infant until discharge (Young et al., 2019). Providers implementing postpartum depression screening in the NICU must be aware of maternal fears of a postpartum depression diagnosis further separating mom and baby to address these concerns with a supportive and non-punitive environment.

Structural barriers to postpartum depression screening in the NICU mentioned by providers included time, resistance to change, mom as 'not the patient', as well as referral challenges. Time to conduct screening also was a concern for mothers supporting RN screening as they recognized the busy nature of the NICU. Time constraints were a consistent barrier in a NICU postpartum depression implementation project at a large tertiary care center (Cherry, et.al, 2015). Mom as 'not the patient' was discussed by providers as a major barrier to be addressed as this created confusion with the NICU providers' role if postpartum depression was identified, with referral protocols and even with entry of screening data into the EHR. Referral challenges were consistent with lessons learned from an implementation project where it was noted that mothers that were uninsured or under insured presented extreme challenges for referrals (Cherry et.al, 2015).

Major contributions of this study include evidence for support of NICU based postpartum depression screening from both mothers and providers, a clear preference for RN led screening and identification of stigma related and structural barriers.

Implications for Practice

Overall study findings offer support for RN conducted postpartum depression screening to be implemented in the NICU as a standard of care. This study shows postpartum depression screening in the NICU is perceived by both providers and mothers to be necessary and beneficial; even offering the opportunity to influence the perception of overall care. Support for development of postpartum depression screening as a standard of care offers the unique opportunity for bedside RNs and RN administrators to develop postpartum depression screening programs at their institutions considering incorporating recommendations from this study as best practices. Based on the findings, nurses looking to develop a NICU postpartum depression screening program should recognize that NICU RNs have expressed the need for education regarding postpartum depression and that mothers may be reluctant to participate or offer honest answers if they feel there could be a threat of their infant being ‘taken away.’ Development of a NICU postpartum depression screening program may also offer opportunities for interprofessional collaboration to address the structural barriers of time, resistance to change and referrals.

Implications for Research

A large body of literature in the topic of postpartum depression screening in the NICU has not been well established as this practice is not currently a standard of care. Future research objectives should focus on identification of essential elements to promote

safety in postpartum depression screening in the NICU addressing maternal fears identified in this study regarding positive screening results risking child custody. Studies looking at bedside RN led screening in the NICU should be conducted. While this study identified individual perceptions of postpartum depression screening in the NICU consistent with the Health Belief Model, modifying factors in the model such as age, sex, ethnicity, education and knowledge should be explored to better tailor NICU based postpartum depression screening programs.

Study Limitations

Limitations of this study include participants from a single site. This study was conducted in a community-based NICU where frequent interaction occurs between a core group of staff and parents. Thus, findings may not be applicable to a large tertiary care NICU setting. Another limitation of this study is the inability to generalize to the greater population of NICU mothers and providers based on our study design. The provider sample in this study included RNs, NNPs and neonatologists with direct care responsibilities. Hospital administrator perspectives should be included in subsequent studies to offer additional insight. Strengths of this study included diversity of maternal participants in both ethnic and delivery gestational age, as well as diversity in provider roles and years of experience in the sample. The community based NICU setting in which this study was conducted offers important perspectives to augment the existing literature conducted in large academic medical center facilities.

Conclusion

This study contributes the first available qualitative perspectives offered by mothers and providers on postpartum depression screening in the NICU. Major

contributions of this study include evidence for support of NICU based postpartum depression screening from both mothers and providers, a clear preference for RN led screening and identification of stigma related and structural barriers. Mothers and providers demonstrated support for postpartum depression screening in the NICU to be implemented as a standard of care. NICU RNs with whom rapport has been established was identified to be the preferred provider to conduct postpartum depression screening in the NICU according to both mothers and providers. Adding maternal postpartum depression screening to the NICU was perceived to enhance the care provided; offering opportunity for early intervention and family centered care. Stigma related and structural barriers identified should be addressed in the development of NICU postpartum depression screening programs; particularly focusing on creating a safe non-punitive environment for maternal postpartum depression screening. Further research is needed to assess effectiveness of NICU postpartum depression screening programs using recommendations from this study as well as strategies to create a perceived non-punitive postpartum depression screening programs in the NICU. Evidence from this study should be integrated into the development of NICU based postpartum depression screening programs. Implementation of NICU based postpartum depression screening programs may offer an opportunity to target the high-risk group of mothers of NICU infants, thus contributing to the Healthy People 2030 goal of increasing postpartum depression screening prevalence.

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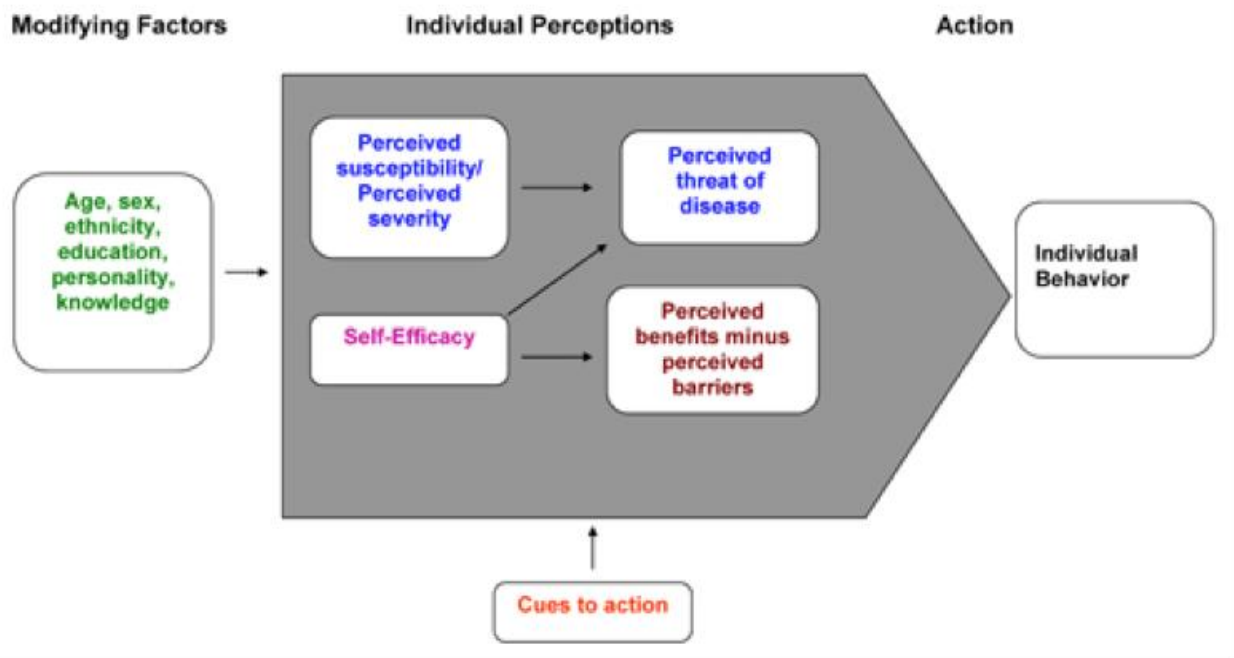
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Figure 1

Theoretical Framework: Health Belief Model



(Glanz, n.d.)

Figure 2***Maternal Participant Demographic Data Form***

Maternal Participant Demographic Data Form

Participant Number _____ (For Research Team Use)

Study: Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap

Principal Investigator: Candice Triulzi, MSN, RNC-NIC

Race/Ethnicity: _____

Relationship Status: Married Single In A Relationship

How many times have you been pregnant? _____

At how many weeks pregnant did you deliver your most recent baby? _____
(ex: 37 weeks 2 days)

How long ago did you deliver your most recent baby? _____
(ex: 12 hours ago, 2 weeks ago, etc.)

Please circle Yes or No to the following questions:

Have you had a previous baby in the NICU?	Yes	No
Do you plan to go to your postpartum follow-up visit with your doctor?	Yes	No
Have you been screened for postpartum depression in the past?	Yes	No
Have you been diagnosed with postpartum depression in the past?	Yes	No
Have you been diagnosed with a psychiatric condition in the past? (ie- anxiety, depression)	Yes	No

THANK YOU FOR YOUR PARTICIPATION

Figure 3***Provider Participant Demographic Data Form***

Provider Participant Demographic Data Form

Participant Pseudonym _____

Study: Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap

Principal Investigator: Candice Triulzi, MSN, RNC-NIC

I am a (Circle One): RN MD NNP Social Worker Case
Manager

Years of Experience in the NICU: _____

During my career, I have cared for NICU patients in the following level NICUs (Select All That Apply)

II- Level Two

III – Level Three

IV- Level Four

I feel comfortable conducting maternal postpartum depression screening in the NICU:

1 2 3 4 5
Strongly Disagree Disagree Neither Agree Agree Strongly Agree

Nor Disagree

I have worked at a facility that offers maternal postpartum depression screening in the NICU conducted by NICU providers.

Yes No

I have personally conducted maternal postpartum depression screening in the NICU:

Yes No

If yes, my role in conducting this screening was _____.

Figure 4*Themes and Subthemes*

Themes & Subthemes

Perceived Severity & Susceptibility**Perceived Benefits***Early Intervention for Postpartum Depression**Promotion of Family Centered Care***Cues to Action***RN Led Screening***Perceived Barriers***Stigma Related Barriers*

Discomfort Discussing Mental Health

Fear of Children Being Taken Away

Structural Barriers

Time

Resistance to Change

Mom as 'Not the Patient'

Referral Challenges

Table 1*Semi-Structured Individual Interview Questions for Mothers of NICU Infants*

Interview Question
Can you tell me a bit about your child(ren)?
What is it like to have your baby in the NICU? How has this experience been for you?
Has having your baby in the NICU caused stress or impacted your ability to function? How so?
Do you talk with anyone such as a friend or family member, about your baby in the NICU? If so, who? How do they feel about the situation?
Generally speaking, in what ways do you feel that the NICU is difficult for moms?
I am interested in learning what moms in this situation need. How do you feel moms in the NICU would feel about discussing their stress and feelings with the staff that directly cares for their baby? How do you feel about that?
I want to ask you to think back to when you were in the postpartum unit here at the hospital. You were asked to fill out a survey asking about how you have been feeling mentally in the past week. That questionnaire asked you to rate your agreement with statements such as: “I have been so unhappy I have had difficulty sleeping,” or “I have looked forward with enjoyment to things” (Cox et.al, 1987). Do you remember doing that?
That survey was a screening for postpartum depression. We are trying to determine the appropriateness of this in other contexts.
So, what would you think about a scenario in which any of the various individuals directly caring for your baby in the NICU – in other words, no specific Doctor or Nurse – were to give you the postpartum depression screening survey?
If the screening survey was given out in the NICU, is there a specific person or category of staff with whom you would prefer to talk with about these things? Why?
In what ways, do you think this postpartum depression screening survey is useful or needed?
In what ways, do you think this postpartum depression screening survey is not useful or not needed?

How do you think other Moms might feel about filling out the postpartum depression screening survey in the NICU?

What do you think are benefits Moms might perceive? Would any of those be benefits for you?

What are some issues other Moms might have participating in this screening in the NICU?

What issues would you personally be concerned about?

You said you had your baby ____ ago, (have you/do you plan to) do to your postpartum checkup with your doctor? Why?

How do you feel about having that doctor screen you for postpartum depression?

Is there anything that you feel is important to share that I didn't ask about?

Table 2*Semi-Structured Individual and Paired Interview Questions for NICU Providers*

Interview Question
<p>I am interested in learning about your experience interacting with mothers of NICU infants...</p> <p>I want you to think back on your interactions with NICU mothers in the last month, please write down one word you would use to describe the impact of the NICU on moms.</p> <p>Then please think to yourself why you picked the word. After giving you a minute to think on that, I will start with some questions.</p> <ol style="list-style-type: none"> 1. Thinking back on your experience, what are some specific examples of ways in which you have seen the experience of having a baby in the NICU affect mother's wellbeing? 2. Do mothers in the NICU communicate with NICU staff about their wellbeing? How? 3. In the current state of how the NICU functions, how would you learn if a mother in your NICU had a mental health concern, such as postpartum depression? 4. Think about the last few moms you have cared for; what would you imagine postpartum depression screening to look like in the NICU? 5. Of the healthcare providers that work in the NICU; which professional role (NP, Neo, Bedside RN, Charge RN, Social Work, Case Manager) do you think mothers would be most comfortable talking with about their wellbeing, stress or mental health? Why? 6. What do you imagine mothers in the NICU would think about being screened for postpartum depression by a NICU provider such as a nurse, neonatologist, nurse practitioner, case manager or social worker? 7. I would like you to think broadly. What kind of obstacles would prevent postpartum depression screening in the NICU from working? 8. What factors might help to facilitate postpartum depression screening in the NICU? What do you think other NICU providers like yourselves at other hospitals would think about conducting postpartum depression screening for mothers in their unit? What might be some concerns they may have? 9. Imagine you are in charge of developing a NICU maternal screening program for postpartum depression here at this hospital, what discipline (NP, Neo, Bedside RN, Charge RN, Social Work, Case Manager) do you feel should

screen these mothers? Why did you choose that discipline? (Probe each discipline that was picked)

10. What would other (ie-RN) colleagues feel about conducting this screening?
11. Think broadly (not necessarily things you need to provide to these mothers)
...What do you think NICU mothers need, if anything, related to mental health?
12. Is there anything you feel is important to share that I didn't ask about?

Table 3*Characteristics of Maternal Participants (N=15)*

Characteristic	n	M	Range
Race/Ethnicity			
Hispanic	5		
White	5		
Black	4		
Unknown	1		
Relationship Status			
Married	8		
In A Relationship	7		
Single	-		
Pregnancies			
1	2		
2	2		
3	4		
4	4		
5	0		
6	1		
7	2		
Previous Baby in NICU	2		
Previous Postpartum Depression Diagnosis	2		
History of Psychiatric Diagnosis	3		
Gestational Age at Delivery		33.4 weeks	24.1-37.4 weeks
<28 Weeks	1		
28-32 Weeks	2		
32-37 Weeks	9		
37 Weeks +	3		
Time Since Delivery		11.8 days	1-35 days

Table 4*Characteristics of Provider Participants (n=16)*

Characteristic	n	M	Range
Role in NICU			
RN	12		
Neonatologist	2		
Neonatal Nurse Practitioner	2		
Experience in NICU		11.9 years	0-30 years
Worked at Facility Offering Postpartum Depression Screening	1		
Has Not Conducted Postpartum Depression Screening	16		
Comfortable with Conducting Screening			
Strongly Disagree	0		
Disagree	1		
Neither Agree Nor Disagree	9		
Agree	6		
Strongly Agree	0		

Table 5*Themes and Subthemes with High Frequency Codes*

Themes and Subthemes	Provider Codes	Maternal Codes
Perceived Severity & Susceptibility	Provider- Yes- PPD NICU Screening Needed; Provider- Stressful; Provider- Anxious	Mom- Yes- PPD NICU Screening Needed; Mom- Stressful
Perceived Benefits <i>Early Intervention</i> <i>Promotion of Family Centered Care</i>	Provider- NICU “Constant Observer”; Provider- Treatment Before Discharge	Mom- Benefit- Treatment Before Discharge; Mom- Caring Even Though Mom Not a Patient
Cues to Action <i>RN Led Screening</i>	Provider- RN Screener; Provider- Consistent Screener with Rapport	Mom- Comfort with RN Mom- Screener with Rapport
Perceived Barriers <i>Stigma Related Barriers</i> Discomfort Discussing Mental Health Fear of Children Being Taken Away	Provider- Stigma; Provider- Staff Uncomfortable; Provider- Mom Not Communicating; Provider- Honesty with Responses	Mom- Concern- Talking About Mental Health; Mom- Concern Stigma; Mom- Concern CPS; Mom- Fear of Separation
<i>Structural Barriers</i> Time Resistance to Change Mom as ‘Not the Patient’ Referral Challenges	Provider- Time; Provider- Change; Provider- Barrier- Referral; Provider- Mom Not Patient	Mom- Time; Mom- Mom Not the Patient

Appendix A

Approvals



Committee for the Protection of Human Subjects

6410 Fannin Street, Suite 1100
Houston, Texas 77030

Dr. Candice Triulzi
UT-H - SN - Nursing Undergraduate Studies

NOTICE OF APPROVAL TO BEGIN RESEARCH

September 17, 2021

HSC-SN-21-0705 - Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap

Number of Subjects Approved: Target: 40 / Screen: 80

PROVISIONS: This approval relates to the research to be conducted under the above referenced title and/or to any associated materials considered by the Committee for the Protection of Human Subjects, e.g. study documents, informed consent, etc.

APPROVED: By Expedited Review and Approval

REVIEW DATE: 09/09/2021

APPROVAL DATE: 09/17/2021

CHAIRPERSON: L. Maximilian Buja, MD

Subject to any provisions noted above, you may now begin this research.

PLEASE NOTE: Due to revisions to the common rule that went into effect July 19, 2018, this study that was approved under expedited approval no longer needs to submit for continuing review. Changes to the study, adverse events, protocol deviations, personnel changes, and all other types of reporting must still be submitted to CPHS for review and approval. When this study is complete, the PI must submit a study closure report to CPHS.

CHANGES: The principal investigator (PI) must receive approval from the CPHS before initiating any changes, including those required by the sponsor, which would affect human subjects, e.g. changes in methods or procedures, numbers or kinds of human subjects, or revisions to the informed consent document or procedures. The addition of co-investigators must also receive approval from the CPHS. **ALL PROTOCOL REVISIONS MUST BE SUBMITTED TO THE SPONSOR OF THE RESEARCH.**

INFORMED CONSENT DETERMINATION: Signed Informed Consent Required

INFORMED CONSENT: When Informed consent is required, it must be obtained by the PI or designee(s), using the format and procedures approved by the CPHS. The PI is responsible to instruct the designee in the methods approved by the CPHS for the consent process. The individual obtaining informed consent must also sign the consent document. Please note that only copies of the stamped approved informed consent form can be used when obtaining consent.

HEALTH INSURANCE PORTABILITY and ACCOUNTABILITY ACT (HIPAA): Exempt from HIPAA

UNANTICIPATED RISK OR HARM, OR ADVERSE DRUG REACTIONS: The PI will immediately inform the CPHS of any unanticipated problems involving risks to subjects or others, of any serious harm to subjects, and of any adverse drug reactions.

RECORDS: The PI will maintain adequate records, including signed consent and HIPAA documents if required, in a manner that ensures subject confidentiality.



September 20th, 2021

MEMORIAL HERMANN HEALTHCARE SYSTEM APPROVAL FOR MEMORIAL HERMANN – MEMORIAL CITY

Thank you for choosing Memorial Hermann as your service provider for this research study.

IRB ID: HSC-SN-21-0705

PRINCIPAL INVESTIGATOR: Candice Justine Triulzi, MSN, RNC

STUDY TITLE: Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap.

NUMBER OF SUBJECTS: 40 Mothers

Approval is hereby granted by Memorial Hermann Healthcare System to initiate this research study at the Memorial Hermann – Memorial City location. This approval is subject to the Principal Investigator's acceptance of the following stipulations:

STUDY-SPECIFIC STIPULATIONS:

Research Informed Consent:

1. The Joint Commission requires that a copy of the signed consent form for hospital-based studies be in all subjects' hospital medical records. In addition, the MHHS Authorization for Disclosure of Protected Health Information for Research (with IRB approval stamp) must be placed in all subjects' hospital medical records. The informed consent and disclosure form must remain in the subjects' charts.

Data Security and HIPAA:

2. All data security computer devices and Protected Health Information used in this study must be password protected and/or data encrypted.
3. The Principal Investigator will use a "linking log" that contains the MRN (Medical Record Number) and study number to identify subjects. The MRN must not be used on the data collection tool.
4. **PATIENT ENROLLMENT:** Please note that to ensure appropriate research codes and modifiers are applied to the patient bills, it is necessary to report research patient enrollment to the Memorial Hermann Research Accountant. You will receive a temporary password via email 2-3 days after you receive MHH approval letter. Once you receive your temporary password, please utilize the Study Enrollment and Research Services Web Page Link: <http://www.memorialhermann.org/servicesandprograms/clinicalinnovationandresearchinstitute/>
 - a. After clicking this link, to the left of the page click "Study Enrollment and Research Service Form"
 - b. Enter your User Name (will be your UT email address)
 - c. Copy and paste your temporary password you received via email (you will be instructed to create your own personal password).
 - d. Report patient enrollment using free text/comment section of the form.

If you have any questions or concerns accessing the Webpage Link please contact Linda Dargin, Research Billing Accountant by email - Linda.Dargin2@memorialhermann.org or by phone - 713-704-4220.

Other Stipulations:

5. Please remember to acknowledge the Memorial Hermann Hospital System in any publications resulting from this study, and provide a copy of the publication to the Director of Clinical Research Operations for Memorial Hermann Clinical Innovation & Research Institute (Sheila.Ryan@memorialhermann.org). The methods of acknowledgement may include:
 - a. Memorial Hermann – Texas Medical Center as an author's affiliation;
 - b. mention in an "acknowledgement" section; or
 - c. as a footnote.



MEMORIAL HERMANN CLINICAL INNOVATION & RESEARCH INSTITUTE GUIDELINES

INSERVICE EDUCATION

The Investigator will provide in-service education regarding study procedures and requirements to all unit, clinic and/or department staff participating in the study including unit directors and managers.

PATIENT RECORDS/INFORMED CONSENT

The Joint Commission requires that the signed copy of the informed consent form for hospital-based studies be in all subjects' hospital medical records. In addition, the MHHS Authorization for Disclosure of Protected Health Information for Research (with IRB approval stamp) must be placed in all subjects' hospital medical records. The informed consent and disclosure form must remain in the subjects' charts.

RESEARCH ORDERS

Investigator must document in the medical record the subject's participation in the research study including consent process, study procedures, and treatments, with notation of research related procedures.

FINANCIAL RESPONSIBILITIES

Investigator agrees to make payment on the research account within 45 days of the billing date and according to the rates set forth in the attached Budget Worksheet. The budget provides a standard discount for research-related services. Research billing statements are distributed on a monthly basis. Please contact the MH Research Institute at (713) 704-4220 with billing questions. Past due accounts may be referred by Memorial Hermann to the appropriate Medical School Department Chair or Memorial Hermann Hospital CFO.

MEDICAL RECORD ACCESS

Requests for medical records must be submitted three (3) business days in advance. The Investigator must provide copies of the signed informed consent and MHHS Authorization for Disclosure of Protected Health Information for Research for each record requested. Records will be held in the Research Room for one week. There is a 20 record limit per request. At Memorial Hermann – TMC, the Research Room is open Monday through Friday, 8am-5pm. Please contact Health Information to make arrangements for after-hours access to records. Investigator must also provide three (3) business days notice of all monitoring visits to the Health Information Department (Medical Records).

DATA SECURITY

All data security computer devices used in this study must be password protected and/or data encrypted.

INVESTIGATIONAL DRUG SERVICE (IDS) PHARMACY

Upon receipt of the Memorial Hermann Approval Letter, IDS will need approximately two weeks to prepare the pharmacy protocol, create a distribution system, and in-service the Pharmacy staffs before enrollment of patients can begin. The Study Set-Up/Administrative Fee will be charged to the Research Billing Account once the preparation process is completed.

CONTINUING IRB REVIEW

Memorial Hermann requires continuous approval by the IRB for all research studies. The Principal Investigator is responsible for maintaining continuing review approval during the conduct of the study.

FEDERAL REGULATORY AGENCY

The MH Clinical Innovation & Research Institute must be notified, in advance, of any regulatory agency visit or review. Contact Sheila Ryan, MHHS Director of Clinical Research Operations.



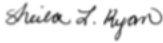
6. To request data extracts, please submit an online form available at: <http://datarequest.memorialhermann.org>. You will need to be connected to the Memorial Hermann Network to access the form. You may also contact a member of the Clinical Innovation and Research Institute to submit this form on your behalf. In the online request, this letter authorizing release of the data as well as the approved UT IRB document will be required as an attachment. You will be contacted within 5 business days of submitting the form to begin the process of determining the scope of work and deliverable timeframe.

Please sign and return a copy of this letter to the Memorial Hermann Clinical Innovation & Research Institute to the attention of Eleonora.Balibalita@memorialhermann.org to indicate your acceptance of our terms and policies (guidelines attached).


This study may not be initiated until the letter is signed and returned to the Memorial Hermann Clinical Innovation & Research Institute.

If you have questions or need additional information, please contact the Memorial Hermann Clinical Innovation & Research Institute at (713) 704-5655.

APPROVED:


 _____ 9.20.21
 Sheila Ryan, JD, MPH, CCRP Date
 Director, Clinical Research Operations
 Clinical Innovation & Research Institute
 Memorial Hermann Health System

ACCEPTANCE:


 _____ 9/21/21
 Candice Justine Triulzi, MSN, RNC Date
 Principal Investigator

cc:
 Paul Lampi – Director Technical Services
 CPHS

Attachments:
 Memorial Hermann Clinical Innovation and Research Institute Guidelines
 Research Registration Form
 Research Attestation

Appendix B

Approved Informed Consent



INFORMED CONSENT DOCUMENT - INTERVIEW

Study Title: Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap

Principal Investigator: Candice Triulzi, MSN, RNC-NIC, candice.j.triulzi@uth.tmc.edu; 713-515-1971

We are inviting you to be in a research study conducted by investigators at the University of Texas Health Science Center at Houston. We are studying maternal and provider perceptions of conducting postpartum depression screening in the Neonatal Intensive Care Unit (NICU).

If you agree to be in our study, we will ask you to participate in an interview designed to explore your opinions on participating in postpartum depression screening in the NICU. The total amount of time you will be in this study is about 60 minutes. You do not have to be in the study if you do not want to; it is your choice. You can change your mind at any time and there will be no penalty.

If you choose to participate in this study, you will participate in an individual interview with the Principal Investigator. You will be asked questions about your feelings and opinions on participating in postpartum depression screening in the NICU if it were offered. Before the interview, you will be asked to complete a demographic form stating your gestational age at delivery, past pregnancies, age, history of psychiatric illness and experience with postpartum depression screening. The demographic form will not contain your name, date of birth or any personally identifying information. You do not have to share any information that you are not comfortable sharing. You can stop the participating in interview at any time.

We will be careful to keep your information confidential. There is always a small risk of unwanted or accidental disclosure. The interview will be tape-recorded and the researcher will take written notes during the interview. Any notes, recordings, or transcriptions will be kept private by Candice Triulzi, the Principal Investigator of this study. Any digital files will be encrypted and password protected.

If you have any questions about this study please call Candice Triulzi at 713-515-1971. If you have any complaints, suggestions, or questions about your rights as a research volunteer, please contact the UTHealth Committee for the Protections of Human Subjects (CPHS) at 713-500-7943.

Printed Name of Subject	Signature of Subject	Date
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Printed Name of Person Obtaining Informed Consent	Signature of Person Obtaining Informed Consent	Date
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Principal Investigator: Candice Triulzi
Telephone Number: 713-515-1971



IRB NUMBER: HSC-SN-21-0705
IRB APPROVAL DATE: 09/17/2021



INFORMED CONSENT DOCUMENT – FOCUS GROUP OR INTERVIEW

Study Title: Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap

Principal Investigator: Candice Triulzi, MSN, RNC-NIC, candice.j.triulzi@uth.tmc.edu; 713-515-1971

We are inviting you to be in a research study conducted by investigators at the University of Texas Health Science Center at Houston. We are studying maternal and provider perceptions of conducting postpartum depression screening in the Neonatal Intensive Care Unit (NICU).

If you agree to be in our study, we will ask you to participate in a focus group or individual interview designed to explore your opinions on conducting postpartum depression screening in the NICU. The total amount of time you will be in this study is about 60 minutes. You do not have to be in the study if you do not want to; it is your choice. You can change your mind at any time and there will be no penalty.


If you choose to participate in this study, you will participate in a focus group with other healthcare providers or an individual interview with the Principal Investigator. You will be asked questions about your feelings and opinions on conducting postpartum depression screening in the NICU. Before the focus group or interview, you will be asked to complete a demographic form stating your role in the NICU, years of practice experience, and past experience with conducting postpartum depression screening. The demographic form will not contain your name, date of birth or any personally identifying information. You do not have to share any information that you are not comfortable sharing. You can stop the participating in the focus group or interview at any time.

We will be careful to keep your information confidential. There is always a small risk of unwanted or accidental disclosure. Focus groups and interviews will be tape-recorded and the researcher will take written notes during the interview. Any notes, recordings, or transcriptions will be kept private by Candice Triulzi, the Principal Investigator of this study. Any digital files will be encrypted and password protected.

If you have any questions about this study please call Candice Triulzi at 713-515-1971. If you have any complaints, suggestions, or questions about your rights as a research volunteer, please contact the UTHealth Committee for the Protections of Human Subjects (CPHS) at 713-500-7943.

_____	_____	_____
Printed Name of Subject	Signature of Subject	Date
_____	_____	_____
Printed Name of Person Obtaining Informed Consent	Signature of Person Obtaining Informed Consent	Date

Principal Investigator: Candice Triulzi
Telephone Number: 713-515-1971


 IRB NUMBER: HSC-SN-21-0705
 IRB APPROVAL DATE: 09/17/2021

Appendix C

Approved Interview Guides

Maternal Participant Semi-Structured Interview Guide

Opening Statement: “Thank you for participating in this study. As you know, we are looking to find out how moms would feel about being screened for postpartum depression while visiting their baby in the NICU. Postpartum depression screening is usually done at your postpartum wellness check with your OB doctor and again when you take your baby to the pediatrician. The screening is done by providing answers to a short survey that asks about how you have been feeling in the past week. The survey will ask things such as if you have been feeling sad, have had trouble sleeping, or felt anxious. A healthcare provider will look at the answers provided to determine if there is a concern about postpartum depression. From there, mothers that may have postpartum depression would be referred for help. For this study, we are interested to talk with you about your feelings on having postpartum depression screening done in the NICU by the team directly caring for your baby.”

Table 1

Semi-Structured Interview Questions for Mothers of NICU Infants

Interview Question

Can you tell me a bit about your child(ren)?
(Young et. al., 2019)

What is it like to have your baby in the NICU? How has this experience been for you?

Has having your baby in the NICU caused stress or impacted your ability to function? How so?

Do you talk with anyone such as a friend or family member, about your baby in the NICU? If so, who? How do they feel about the situation?

Generally speaking, in what ways do you feel that the NICU is difficult for moms?

I am interested in learning what moms in this situation need. How do you feel moms in the NICU would feel about discussing their stress and feelings with the staff that directly cares for their baby? How do you feel about that?

I want to ask you to think back to when you were in the postpartum unit here at the hospital. You were asked to fill out a survey asking about how you have been feeling mentally in the past week. That questionnaire asked you to rate your agreement with statements such as: “I have been so unhappy I have had difficulty sleeping,” or “I have looked forward with enjoyment to things” (Cox et.al, 1987). Do you remember doing that? That survey was a screening for postpartum depression. We are trying to determine the appropriateness of this in other contexts.

So, what would you think about a scenario in which any of the various individuals directly caring for your baby in the NICU – in other words, no specific Doctor or Nurse – were to give you the postpartum depression screening survey?

If the screening survey was given out in the NICU, is there a specific person or category of staff with whom you would prefer to talk with about these things? Why?

In what ways, do you think this postpartum depression screening survey is useful or needed?

In what ways, do you think this postpartum depression screening survey is not useful or not needed?

How do you think other Moms might feel about filling out the postpartum depression screening survey in the NICU?

What do you think are benefits Moms might perceive? Would any of those be benefits for you?

What are some issues other Moms might have participating in this screening in the NICU? What issues would you personally be concerned about?

You said you had your baby ____ ago, (have you/do you plan to) do to your postpartum checkup with your doctor? Why?

How do you feel about having that doctor screen you for postpartum depression?

Is there anything that you feel is important to share that I didn't ask about?

Provider Focus Group Interview Guide

Opening Statement: “Thank you for participating in this focus group. As you know, we are looking to gain your perspective as a NICU healthcare provider on issues surrounding the wellbeing of mothers in the NICU. I will be asking questions to the group. Anyone is free to respond, or not, to any question asked. Please state your participant pseudonym before each response to help me in my note taking.”

Focus Group Questions for NICU Providers

Interview Question

I am interested in learning about your experience interacting with mothers of NICU infants...

I want you to think back on your interactions with NICU mothers in the last month, please write down one word you would use to describe the impact of the NICU on moms.

Then please think to yourself why you picked the word. After giving you a minute to think on that, I will start with some questions.

1. Thinking back on your experience, what are some specific examples of ways in which you have seen the experience of having a baby in the NICU affect mother’s wellbeing?
2. Do mothers in the NICU communicate with NICU staff about their wellbeing? How?
3. In the current state of how the NICU functions, how would you learn if a mother in your NICU had a mental health concern, such as postpartum depression?
4. Think about the last few moms you have cared for; what would you imagine postpartum depression screening to look like in the NICU?
5. Of the healthcare providers that work in the NICU; which professional role (NP, Neo, Bedside RN, Charge RN, Social Work, Case Manager) do you think mothers would be most comfortable talking with about their wellbeing, stress or mental health? Why?
6. What do you imagine mothers in the NICU would think about being screened for postpartum depression by a NICU provider such as a nurse, neonatologist, nurse practitioner, case manager or social worker?

7. I would like you to think broadly. What kind of obstacles would prevent postpartum depression screening in the NICU from working?
8. What factors might help to facilitate postpartum depression screening in the NICU? What do you think other NICU providers like yourselves at other hospitals would think about conducting postpartum depression screening for mothers in their unit? What might be some concerns they may have?
9. Imagine you are in charge of developing a NICU maternal screening program for postpartum depression here at this hospital, what discipline (NP, Neo, Bedside RN, Charge RN, Social Work, Case Manager) do you feel should screen these mothers? Why did you choose that discipline? (Probe each discipline that was picked)
10. What would other (ie-RN) colleagues feel about conducting this screening?
11. Imagine you are conducting postpartum depression screening and obtain a positive screen. How would this be handled?
12. Think broadly (not necessarily things you need to provide to these mothers) ... What do you think NICU mothers need, if anything, related to mental health?
13. Is there anything you feel is important to share that I didn't ask about?

Appendix D

Approved Demographic Data Forms

Provider Participant Demographic Data Form

Participant Pseudonym _____

Study: Postpartum Depression Screening in the Neonatal Intensive Care Unit: Maternal and Provider Perspectives of a Novel Approach to Bridging the Mental Health Screening Gap
Principal Investigator: Candice Triulzi, MSN, RNC-NIC

I am a (Circle One): RN MD NNP Social Worker Case Manager

Years of Experience in the NICU: _____

During my career, I have cared for NICU patients in the following level NICUs (Select All That Apply)

II- Level Two III – Level Three IV- Level Four

I feel comfortable conducting maternal postpartum depression screening in the NICU:

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree	Agree	Strongly Agree
Nor Disagree				

I have worked at a facility that offers maternal postpartum depression screening in the NICU conducted by NICU providers.

Yes No

I have personally conducted maternal postpartum depression screening in the NICU:

Yes No

If yes, my role in conducting this screening was _____.

CURRICULUM VITAE

Candice Triulzi, PhD(c), MSN, RNC-NIC
 6901 Bertner Ave. Rm 762
 Houston, TX 77030
 713-500-2135
 Candice.J.Triulzi@uth.tmc.edu

EDUCATION

Doctorate of Philosophy in Nursing	UTHealth Cizik School of Nursing (Houston, TX)	May 2022
Masters of Science in Nursing	UTHealth Cizik School of Nursing. (Houston, TX)	May 2014
Bachelor of Science in Nursing	UTHealth Cizik School of Nursing Houston, TX)	August 2012
Bachelor of Science in Communication	University of Miami (Miami, FL)	May 2007

LICENSURE & CERTIFICATION

TX Registered Nurse	Active	September 2012-Current
Neonatal Intensive Care Nursing	National Certification Corporation	May 2018- Current
Neonatal Resuscitation Program Instructor	American Academy of Pediatrics	November 2013-Current
Basic Life Support	American Heart Association	May 2011- Current

PROFESSIONAL EXPERIENCE

CBS Television Miami	Account Executive	June 2007- July 2008
FOX Television Houston	Account Executive	July 2008- January 2009
InterCall	Global Account Executive	January 2009- May 2011
Memorial Hermann	Professional Student Nurse	June 2012-September 2012
Memorial Hermann	Staff Nurse & Charge Nurse	September 2012-March 2017
Chamberlain University	Visiting Nursing Professor	April 2016- March 2017
Memorial Hermann Memorial City	Clinical Manger Children's Services	March 2017-January 2018
University of Houston	Adjunct Nursing Faculty	January 2018- April 2019
Memorial Hermann Memorial City	Magnet Projects RN	January 2018- March 2018
Memorial Hermann Memorial City	Magnet Program Manager	March 2018- May 2019
Lone Star College	Adjunct Nursing Faculty	August 2018- January 2019
UTHealth Cizik School of Nursing	Clinical Instructor (Casual)	January 2015- February 2019
UTHealth Cizik School of Nursing	Instructor in Nursing	February 2019- May 2020
UTHealth Cizik School of Nursing	Instructor in Nursing & OB Clinical Co-Lead	May 2020- January 2021
UTHealth Cizik School of Nursing	Instructor in Nursing & OB Clinical Lead	January 2021- Current

HONORS & AWARDS

PARTNERS BSN Scholarship	PARTNERS	May 2011- August 2012
PARTNERS MSN Scholarship	PARTNERS	August 2012-May 2014
Outstanding Student Nurse Scholar	The Methodist Hospital	March 2012
Community Health & Service Award	UTHealth Cizik School of Nursing	August 2012
PARTNERS MSN Scholarship	PARTNERS	September 2012
Sigma Theta Tau	Sigma Theta Tau Zeta Pi Chapter	December 2013
Platinum CHAMPS Award	Memorial Hermann	December 2013
Texas 10 Step Breastfeeding Award	Memorial Hermann	January 2014
Master's Student Award Winner	Sigma Theta Tau Zeta Pi Chapter	May 2014
Joyce Standish Scholarship	UTHealth Cizik School of Nursing	August 2018- December 2019
HNEF Scholarship	Houston Nursing Excellence Foundation	May 2019- Current
McGovern Outstanding Teacher Nominee	UTHealth Cizik School of Nursing	May 2020
McGovern Outstanding Teacher Nominee	UTHealth Cizik School of Nursing	May 2021

PUBLICATIONS

Media & Creative Projects

Triulzi, C. (2014, May). *MSN Nursing Leadership and Administration Promotional Video* [Writer, Director and Producer]. UTHHealth Cizik School of Nursing, Houston, TX, United States.
<https://nursing.uth.edu/prospstudent/msn-postmasters/nurseleader/default.htm>

PRESENTATIONS

National

Triulzi, C., Cabori, R., Vermillion, J., Duncan, K., Pham, C., Koneru, M., Muthappa, R. (2017, October 27-30). *Decreasing Antibiotic Doses and Standardizing Antibiotic Education in a Level III NICU* [Poster Presentation]. Vermont Oxford Network National Quality Congress, Chicago, IL, United States.

Triulzi, C., Cabori, R., Morace, S., Taschner, T., Khan, A., Muthappa, R. (2018, September 20-24). *Implementation of the Kaiser Early Onset Sepsis Calculator* [Poster Presentation]. Vermont Oxford Network National Quality Congress, Chicago, IL, United States.

Local

Triulzi, C. (2020, August 21). *The Parental Survivorship Model: A Conceptual Framework for Mothers of NICU Infants* [CE Presentation]. UTHhealth Cizik School of Nursing, Houston, TX, United States.

Triulzi, C. & Boehning, S. (2019, May 22). *From Passion to Project: Implementation of Colostrum Collection for VLBW Infants* [Podium Presentation]. Memorial Hermann Katy Hospital Research Day, Houston, TX, United States.

Triulzi, C. (2019, April 24). *Impact of Nurse Manager Educational Level on Staff Nurse Satisfaction* [Podium Presentation]. Memorial Hermann Memorial City Hospital Wide Magnet Meeting, Houston, TX, United States.

Triulzi, C. (2019, December 17). *What is Your Superpower?: Nursing* [Presentation]. Kennedy Elementary Career Day, Houston, TX, United States.

Triulzi, C. (2020, February 18). *The Parental Survivorship Model: A Conceptual Framework for Mothers of NICU Infants*. [Podium Presentation]. Transforming Healthcare Southwest Memorial Hermann Research Day, Houston, TX, United States.

Triulzi, C. & Johnson, T. (2020, February 18). *Impact of Nurse Manager Educational Level on Staff Nurse Satisfaction: An IRB Approved Research Study*. [Podium Presentation]. Transforming Healthcare Southwest Memorial Hermann Research Day, Houston, TX, United States.

PROFESSIONAL SERVICE

Professional Service

Phoenix MSN Student Mentor	Mentor	January 2017-January 2019
Ante-Uppers Antepartum Support Project	Chair	December 2019- Current

Institutional Service

UTHhealth Cizik School of Nursing		
Preceptor Appreciation Task Force Co-Chair		September 2019- January 2020

Simulation Task Force Member	August 2019- June 2020
Baccalaureate Council Member	May 2019- Current
Strategic Planning Committee Member	February 2020- Current
Simulation Task Force Co-Chair	June 2020-June 2021
APG Committee Member	June 2020- June 2021
Simulation Committee Member	June 2021- Current
EHR Implementation Project	June 2022- Current
UTHealth Interdisciplinary Simulation	
Mass Casualty Cooley Center Simulation	May 3, 2019
Mass Casualty Houston Fire Department Joint Simulation	November 26, 2019
Poverty Simulation	January 13, 2020
IPE Inpatient Simulation	January 24, 2020
Mass Casualty Houston Fire Department Joint Simulation	November 23, 2021