

IMPROVING MATERNAL MENTAL HEALTH: NON-PHARMACOLOGICAL  
RECOMMENDATIONS FOR MOTHERS IN A PEDIATRIC SETTING

by

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DOCTOR OF NURSING PRACTICE

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As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Himani Rashmi Sullhan, titled Improving Maternal Mental Health: Non-Pharmacological Recommendations for Mothers in a Pediatric Setting, and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

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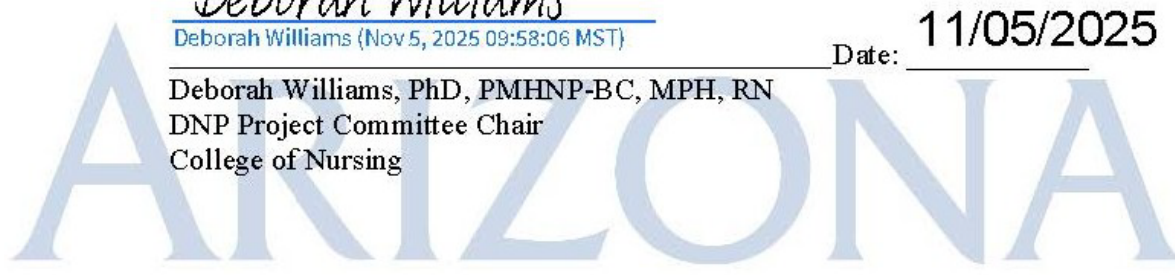
I hereby certify that I have read this DNP project prepared under my direction and recommend that it be accepted as fulfilling the DNP project requirement.

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## LAND ACKNOWLEDGEMENT

We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. The University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.

## DEDICATION

To my family, friends, faculty at the University of Arizona College of Nursing, the bedside nurses that shaped me into who I am today, and the incredible providers that took me under their wing during this past year: thank you for your encouragement, patience, and guidance throughout this journey. Your support has been invaluable in helping me reach this milestone!

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## Abstract

**Background:** Postpartum depression (PPD) is one of the most common complications of pregnancy, impacting 15% of all women, and affects a mother's ability to bond and form a secure attachment with her infant (Kallem et al., 2019). Infants of mothers who suffer from postpartum depression have been shown to have impairments in growth, brain development, and cognitive, behavioral, and social development (Lamere et al., 2022). Pharmacological treatments like antidepressants are the mainstay treatment options. However, several mothers, especially those who are breastfeeding, have concerns about safety and side effects. There is an emerging interest in exploring the use of nonpharmacologic modalities as an alternative treatment, and these interventions are well-received by mothers (G et al., 2024).

**Purpose:** The purpose of this project is to educate mothers on holistic, non-pharmacological, evidence-based recommendations to improve symptoms of anxiety and depression.

**Methods:** Participants involved in this quality improvement project were mothers of children at Horizon Health and Wellness who attended well-child visits up to 12 months of age. The project investigator recruited these mothers on the day of their appointment with a consent and disclosure letter. An educational handout on non-pharmacological interventions for postpartum depression and anxiety was given, and a post survey was implemented to measure perceived awareness and benefits of behavior change.

**Results:** After 2 weeks of implementation, 11 mothers participated in the project with a completed written survey. A Likert scale was used to analyze the results of the survey, and answers were interpreted rating from 1 (strongly disagree/highly unlikely) to 5 (strongly agree/highly likely). Average scores were calculated and used to evaluate results. Overall,

participants had a better understanding of the impact PPD/PPA can have on children (4.7) and learned something new from the educational handout (4.9). Furthermore, 9 out of 11 women stated they were likely to implement the recommended holistic interventions, with an additional mother answering that she was highly likely to implement changes.

**Conclusions:** This quality improvement project showed that the use of an educational handout was beneficial in enhancing maternal knowledge on the effects PPD/PPA can have on children and introducing new interventions that can be implemented into their daily life. Embedding this education into pediatric care offers a low-cost, accessible way to reduce stigma, support maternal well-being, and ultimately improve outcomes for both mothers and infants.

## Background

The period of time after birth is critical to new mothers, infants, and families. Postpartum depression (PPD) is one of the most common complications of pregnancy, impacting 15% of all women, and affects a mother's ability to bond and form a secure attachment with her infant (Kallem et al., 2019). Infants of mothers who suffer from postpartum depression have been shown to have impairments in growth, brain development, and cognitive, behavioral, and social development (Lamere et al., 2022). This may extend past the postpartum period into the early stages of parenting, up to five years after birth (Farewell et al., 2021). During this highly sensitive time, poor social-emotional and behavioral regulation in a child can translate to depression, bipolar disorder, borderline personality disorder and substance abuse disorders through adolescence and into adulthood (Farewell et al., 2021).

Pediatric providers are in a unique position to screen and detect postpartum depression. Typically, postpartum women see their obstetrician once after delivery at 6 weeks. However, the onset of postpartum depression can be anywhere from 4 weeks to 12 months, and a significant proportion of women who develop depression are missed (Lamere et al., 2022). Additionally, up to 46% of women do not attend their 6-week postpartum appointment, and routine well-child care is their only reliable connection to a healthcare system (Caskey et al., 2021). Therefore, there has been a shift to screen for PPD within the pediatric setting, and the American Academy of Pediatrics (AAP) has recommended that mothers be screened at the 1-, 2-, 4-, and 6-month well-child visits (Lamere et al., 2022).

While screening for PPD has been found to be feasible and accepted by providers and mothers, there is limited evidence on whether mothers who screen positive receive appropriate

treatment and there is a gap in understanding on maternal and infant risk factors that predict which mothers are more likely to receive services (Kallem et al., 2019). Therefore, it is important for all mothers to receive education on ways to prevent or improve symptoms of postpartum anxiety and depression. Pharmacological treatments like antidepressants are the mainstay treatment options. However, several mothers, especially those who are breastfeeding, have concerns about safety and side effects. Women have reported resistance to pharmaceutical treatments due to fear of addiction, concerns with breast milk transmission, and perception of long-term harms (Marie et al., 2024). There is an emerging interest in exploring the use of non-pharmacologic modalities as an alternative treatment, and these interventions are well received by mothers (G et al., 2024).

The literature shows that it is unlikely that women would access services with referrals being offsite, as referrals alone have not been shown to translate to treatment engagement (Dennis et al., 2024). After a referral is made or local resources are given, it can be several months of a wait to see a psychiatrist (Dennis et al., 2024). Integrating mental health services into health settings reduces logistical barriers to access, provides frequent and consistent contact, and decreases stigma (Falek et al., 2022). New mothers often identify significant practical barriers to care: lack of time, lack of support related to childcare during appointments, or lack of transportation to be able to access services (Dennis et al., 2024). Lifestyle interventions may be important low-cost, accessible options for those with mild to moderate depression symptoms and adjunctive opportunities for those with increased severity (Dennis et al., 2024).

### **Local Problem**

Mental health conditions are the leading cause of maternal deaths in the United States, and 75% of women do not get treatment (Maternal Mental Health Leadership Alliance, 2025). 11.7% of women who gave birth in 2022 in Arizona suffered from significant postpartum depression, compared to a 12% national average (Maternal Mental Health Leadership Alliance, 2025). With 78,547 births in Arizona that year, an estimated 9,190 women were impacted by postpartum depression, with an estimated 6,892 of those women left untreated (Maternal Mental Health Leadership Alliance, 2025).

According to the Arizona Department of Health Services, the most common underlying cause of pregnancy-related deaths between 2018 and 2019 was mental health conditions and substance use disorder was identified as a contributing factor to almost half of pregnancy-associated deaths (Ramirez et al., 2024). Based on this data, the Arizona Maternal Mortality Review Committee has identified several recommendations to address the contributing factors present in the investigated 2018-2019 deaths. Noteworthy recommendations include: offering treatment options that consider behavioral and lifestyle factors, increasing funding for perinatal mental and behavioral health providers and address the shortage of these providers, implementing telehealth and online services to reduce logistical barriers and ensure accessibility, and training providers to provide patient-centered care that includes support, navigation, counseling and open dialogue with postpartum mothers and their families (Ramirez et al., 2024).

Horizon Health and Wellness in Chandler, Arizona serves a diverse population of patients, predominantly of White, Hispanic/Latino, Asian, and African American decent (City of Chandler, 2020). Approximately 11% of White women, 19% of Asian women, and 18% of

African American women experience postpartum depression, all of which are core members of the Chandler population (Haight et al., 2024). Postpartum mothers presenting to this clinic for a well child visit are screened for postpartum depression using the Edinburgh Postnatal Depression Scale at the newborn, 1- month, 2-month, 4-month, 6-month, and 9-month well child visits according to AAP guidelines. While this screening identifies mothers in need of resources, Arizona is ranked 48<sup>th</sup> nationally in access to mental health care and there is a significant shortage of mental health providers that hinder the ability to seek help (Mental Health America, 2025). These systemic barriers compound the personal challenges, including time, transportation, and childcare, that mothers already face when trying to access mental health services. Providing education on non-pharmacological interventions provides tangible, immediate guidance and resources during visits that already exist and reduces stigma by normalizing discussions surrounding mental health. This quality improvement project helps address this need by equipping mothers with practical tools to manage symptoms as external referrals often go unutilized.

### **Theoretical Framework**

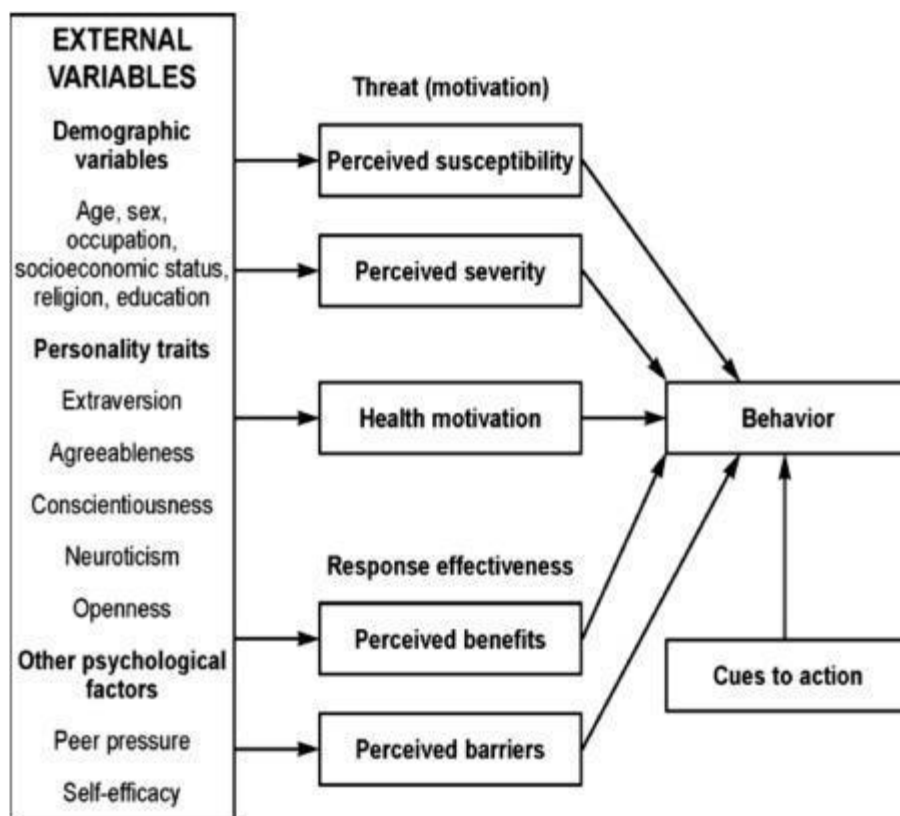
The theoretical framework used to drive this QI project is the Health Belief Model (HBM). This model was created in the 1950s by social psychologists working in the United States Public Health Service as a foundational framework to study how individuals perceive health threats and assess the benefits of changing their behavior (Alyafei & Easton-Carr, 2024). This model has been applied in several diverse contexts, ranging from chronic disease prevention to health education and promotion (Alyafei & Easton-Carr, 2024). The model comprises four primary cognitive constructs: perceived susceptibility to the illness, perceived severity, perceived

benefits of behavior change, and perceived barriers to action (Alyafei & Easton-Carr, 2024). Over time, psychologists have recognized self-efficacy as a critical aspect of health behavior decision making and have since incorporated it into the model (Alyafei & Easton-Carr, 2024).

To apply this theoretical framework to this QI project, the survey given to mothers after reading the handout will explore the primary cognitive constructs of the HBM. To evaluate perceived susceptibility to the illness, mothers will be asked to identify any signs and symptoms of postpartum depression and anxiety they have experienced since giving birth. The handout given to the mothers will include information on the impact postpartum depression has on infants. The survey will then identify if the mothers perceive the potential severity of infant outcomes from untreated postpartum depression and anxiety based on the given information. Lastly, the survey will investigate perceived benefits by asking how likely these mothers are to implement these changes into their daily lives.

**Figure 1**

*The Health Belief Model for Improving Postpartum Depression and Anxiety*



*Note:* The HBM provides an effective framework for implementing patient education on non-pharmacological interventions to prevent or improve postpartum depression and anxiety at well-child visits in a pediatric clinic. Adapted from Norman & Conner (2017).

## Model for Implementation

### Plan-Do-Study-Act (PDSA) Cycle

The Plan-Do-Study-Act is a systematic method used for testing and implementing changes in quality improvement (Institute for Healthcare Improvement [IHI], 2024). In the planning phase of the cycle, a problem is identified and a plan for improvement is formulated based on the goal of the project (IHI, 2024). The change is then implemented on a small scale, and data is collected. The results of the change are analyzed, and outcomes are compared to

predictions. Finally, a decision is made on whether the change was successful and should be implemented long term. If unsuccessful, the idea is refined, and a new cycle begins (IHI, 2024).

### ***Plan***

The first phase of the PDSA cycle is the planning phase. For this quality improvement project, the project director consulted with the pediatric nurse practitioner at Horizon Health and Wellness to assess current practices and any barriers in the clinic to gain support for the intended improvement. The clinic implements postpartum depression screening at the newborn, 1, 2, 4, 6, and 9-month well visits according to AAP recommendations. Local resources are provided to mothers who screen positive for postpartum depression or anxiety. However, according to the literature review, there is a gap in mothers using these local resources due to various barriers. Additionally, there is an expressed interest by mothers in using non-pharmacological interventions to improve mood due to concerns of taking medications while breastfeeding.

### ***Do***

During the second phase of the PDSA cycle, the intervention is implemented, and data is collected. For this project, participants received a disclosure and consent statement, a printed handout with educational material, and a post-intervention survey. The participants were invited to review the handout and complete the questionnaire during their appointment. The survey data was collected to be reviewed at the end of the 2-week trial period for the study phase of the PDSA cycle. One cycle of the PDSA cycle was completed due to time constraints. Future cycles would be beneficial in determining if the implemented change should be adopted or abandoned.

### *Study*

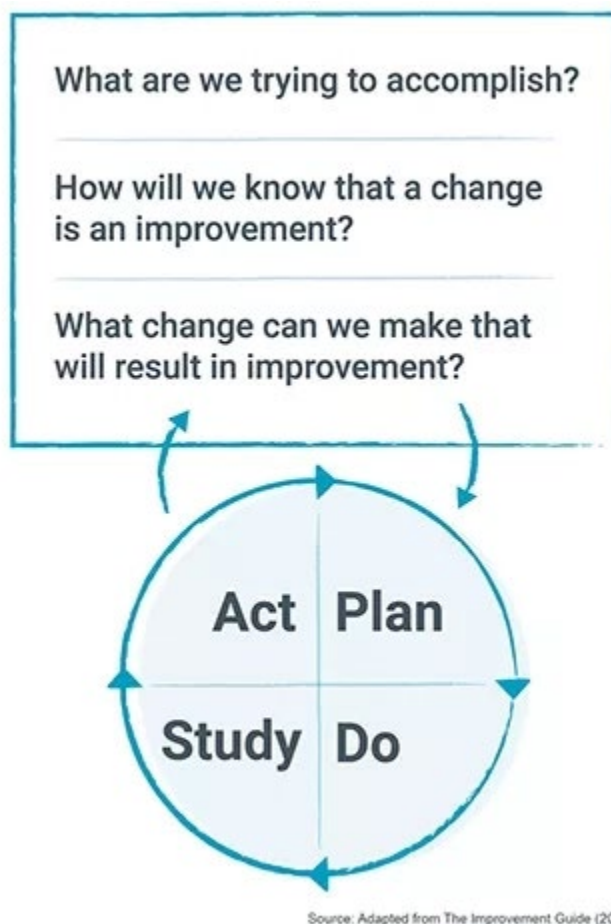
In the study phase of the PDSA cycle, data from the post-intervention surveys were analyzed. Conclusions were drawn to determine if the project objectives were met and if the handout was effective in educating mothers on non-pharmacological interventions to improve their mental health and their understanding on how their mental health can impact their child. The Likert scale questions in the survey were evaluated using a bar graph in Microsoft Excel.

### *Act*

The final phase of the PDSA cycle includes deciding whether to adapt, adopt, or abandon the implemented change after analyzing the data and the conclusions that were drawn from the project. The data was evaluated to determine if the educational handout was effective at providing information on the impact PPD/PPA can have on the mother and non-pharmacological interventions to help improve their mental health. Decisions about permanently incorporating the educational handout into daily practice was discussed with the clinic upon completion of the project.

**Figure 2**

*Model for Improvement: The PDSA Cycle*



*Note:* The Plan-Do-Study-Act (PDSA) Cycle (IHI, 2024)

### **Purpose**

Untreated postpartum depression in mothers can have negative effects on a child, and early screening, detection, and treatment have been linked to improved outcomes for children (Lamere & Golova, 2022). Pediatric providers are in a unique position to screen at regular intervals, as postpartum mothers typically only see their obstetrician once at six weeks (Lamere & Golova, 2022). The purpose of this project was to educate mothers on holistic, non-

pharmacological, evidence-based recommendations to improve symptoms of anxiety and depression. The following PICO question was used: In mothers within their first year postpartum, how does incorporating patient education, compared to no education affect their knowledge and intent to use the presented holistic, non-pharmacological, evidence-based recommendations for postpartum anxiety and depression?

## **Methods**

### **Site**

This quality improvement project was implemented at Horizon Health and Wellness in Chandler, Arizona. Key stakeholders for this project included the project manager, a pediatric nurse practitioner, a practice manager, medical staff, and the parents of the patients attending well child visits.

### **Participants and Recruitment**

Mothers, aged 18 and above and English speaking, attending well-child visits at Horizon Health and Wellness within the first year postpartum, were invited to participate. This includes mothers at newborn well visits, 1 month, 2 months, 4 months, 6 months, 9 months, and 12 months. Recruitment took place on the day of the appointment upon arrival at the clinic. After the well-child visit was complete, the project manager introduced the project to the mother and provided the disclosure form, handout, and survey to complete if they wished to participate.

### **Intervention**

A printed educational handout in English was provided to mothers presenting to their infant's well-child visit within the first year of life. The implementation period was over 2 weeks. Topics that were covered in the handout included the impact PPD has on child

development and non-pharmacological interventions to prevent or improve symptoms. Free resources were also included. The project manager presented the handout to the mother, answered any questions she may have had, and received consent for completing the voluntary survey. A content expert, Angela Zearing, CPNP, reviewed the educational handout and survey.

### **Evaluation Measures**

After reviewing the handout, participants were given the opportunity to complete a quantitative survey to evaluate their knowledge and intent to use the presented holistic, non-pharmacological, evidence-based recommendations for postpartum anxiety and depression.

### **Analysis**

Quantitative data was collected from the surveys to identify if the handout had a positive effect on the participants' knowledge and their intent to use holistic, non-pharmacological ways to improve their mental health. Microsoft Excel was used to provide descriptive statistics.

### **Ethical Considerations**

This project upheld the ethical considerations outlined in the Belmont Report. Participant autonomy was protected through informed consent, and the consent form outlined that the project does not pose any unnecessary risks (Office for Human Research Protections, 1979). There was an equitable selection of participants so that the burdens and benefits of the project were fairly distributed and not targeted or withheld from specific groups (Office for Human Research Protections, 1979). The participants' well-being was protected by doing no harm and maximizing potential benefits from this project while minimizing any risks (Office for Human Research Protections, 1979).

### **IRB Review and Approval**

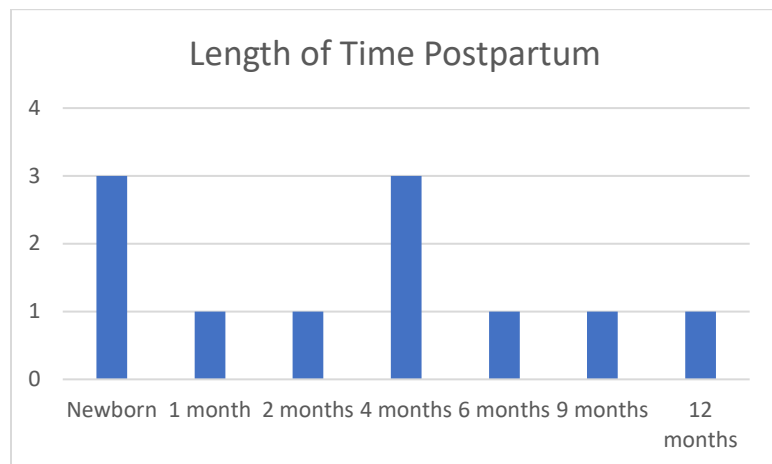
Prior to implementation, the University of Arizona's Institutional Review Board (IRB) reviewed this project for approval. Participation in this QI project from mothers at the pediatric clinic was voluntary, and no identifying information was collected. A disclosure was provided to explain the purpose of the project and explain the process of data collection.

### **Results**

The results of this project were analyzed using Microsoft Excel. Over the two-week implementation period, 11 surveys were completed. All participants that were presented with the educational handout completed the written survey. No identifying information was collected.

### **Demographics**

The length of time postpartum among participants was widely distributed (Figure 3). This information was collected based on the age of the child presenting for the well child check. Mothers completed surveys across various well-child visits, with the highest participation at the newborn and 4-month visits (three mothers each), and one mother each participating at the 1-, 2-, 6-, 9-, and 12-month visits.

**Figure 3***Length of Time Postpartum*

The first question of the survey aimed to evaluate the presence of postpartum depression and anxiety symptoms (Table 1). Participants were able to select more than one answer. All 11 participants answered extreme fatigue. Feelings of anxiety was the next most common answer, with 7 out of the 11 mothers answering yes.

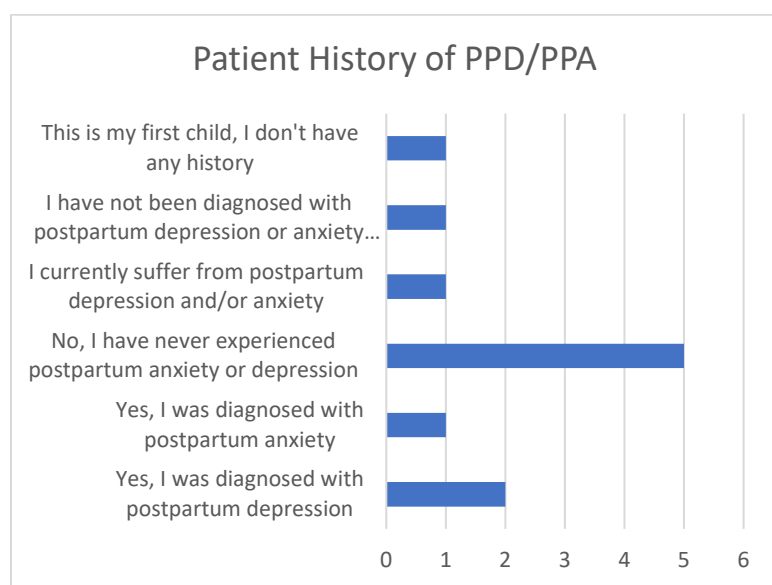
**Table 1***Signs and Symptoms of Postpartum Depression and Anxiety*

Have you experienced any of the following symptoms since giving birth?	Number of times response was chosen
Persistent sadness or feelings of emptiness	0
Difficulty bonding with baby	0
Extreme fatigue	11
Difficulty sleeping or eating	1
Irritability or mood swings	3
Loss of interest in activities that were previously pleasurable	2
Withdrawing from friends or family	2
Loss of motivation to complete normal daily activities like bathing	3
Anxiety or feeling scared/panicky	7
Not being able to cope as well as usual	3
Feelings of wanting life to go back to how it was before baby was born	0

Nearly half of the participants, 5 out of 11, did not have any known history of postpartum anxiety or depression (Figure 4). Two mothers were diagnosed with postpartum depression and one mother was diagnosed with postpartum anxiety in the past. One mother answered that she is currently suffering from postpartum depression/anxiety and one mother answered that she was not officially diagnosed in the past but thinks she suffered with a previous child. Lastly, one mother did not have any history due to being a first-time mother.

**Figure 4**

*History of Postpartum Depression or Anxiety*



**Outcomes**

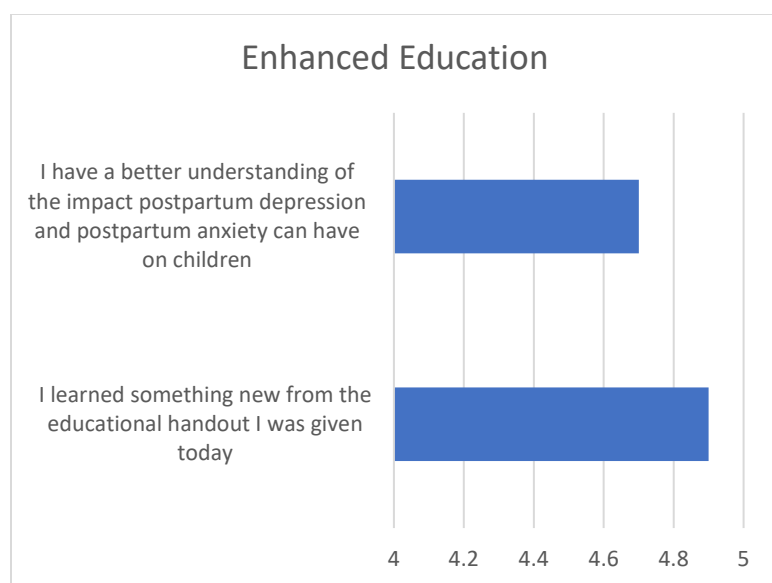
Survey questions measuring the effectiveness of the brochure were answered using a Likert scale with 5 choices ranging from “strongly disagree” to “strongly agree”. The likelihood to implement any holistic interventions into their lives if necessary was also evaluated using a Likert scale with 5 choices ranging from “highly unlikely” to “highly likely”. For analysis purposes, these were interpreted as a rating from 1 (strongly disagree/highly unlikely) to 5

(strongly agree/highly likely). Average scores from each question were calculated and used for evaluation.

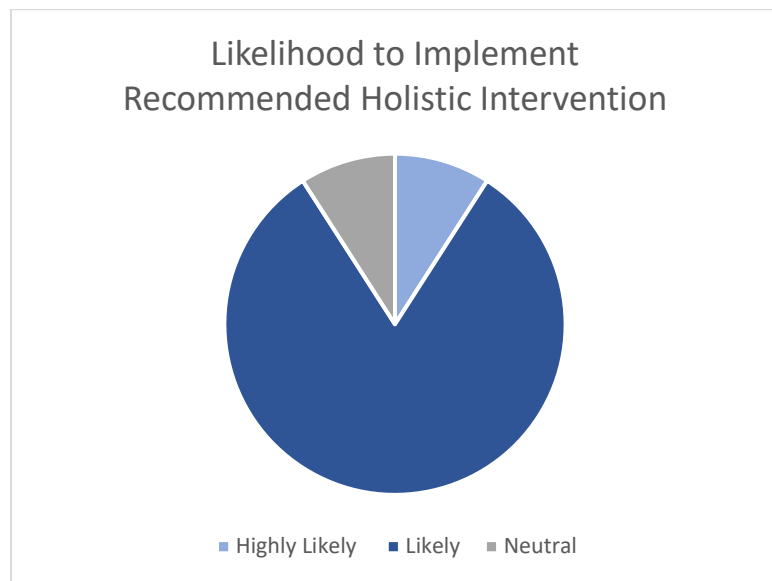
Effectiveness of the handout in enhancing patient knowledge of evidence based, holistic interventions and the impact of PPD/PPA on children were assessed (Figure 5). Out of 11 mothers, 10 mothers answered “strongly agree” to the question asking if they learned something new from the handout. One mother answered the question with “somewhat agree”. Eight mothers answered “strongly agree” and 3 mothers answered “somewhat agree” to the question asking if they have a better understanding of the impact PPD/PPA can have on children.

**Figure 5**

*Enhanced Education*



The following question was used to evaluate the intent to implement the holistic recommendations from the handout: how likely are you to implement some of these recommended holistic interventions into your daily life when needed? One mother answered “highly likely”, nine mothers answered “likely”, and one mother answered “neutral” (Figure 6).

**Figure 6***Intent to Implement Recommendation***Discussion**

The results of this quality improvement project demonstrate that providing an educational handout on holistic, non-pharmacological interventions during pediatric well-child visits can improve maternal knowledge on the impact PPD/PPA can have on children and their intent to adopt these interventions as healthy coping strategies. Nearly all participants reported learning new information from the handout, and the majority indicated a greater understanding of how maternal mental health directly influences child outcomes. Mothers also expressed a strong likelihood of implementing these strategies into their daily lives, emphasizing the feasibility of integrating such education into routine pediatric practice.

These findings align with previous studies highlighting that education and accessible, low-cost interventions are well received by mothers and can reduce barriers to care (Dennis et al., 2024; G et al., 2024). Unlike external referrals, which are often underutilized due to logistical

and systemic challenges, the use of in-clinic educational tools ensures that mothers receive practical resources at the point of care. By leveraging the frequency of pediatric visits, this project supports existing literature emphasizing the pediatric setting as a critical touchpoint for maternal mental health interventions (Kallem et al., 2019; Caskey et al., 2021).

The consistent reporting of extreme fatigue and anxiety among participants mirrors national findings regarding common postpartum symptoms (Haight et al., 2024). While this project did not aim to diagnose or treat, the high prevalence of these symptoms in a small sample reinforces the importance of ongoing screening, education, and early intervention. Furthermore, the findings support the Health Belief Model (HBM) framework, as mothers demonstrated recognition of their susceptibility to PPD/PPA, acknowledged the severity of untreated maternal mental health on child outcomes, and expressed intent to act on perceived benefits of behavior change.

Overall, the response to the handout was overwhelmingly positive. No participants had additional questions, and their expressions suggested appreciation that someone was acknowledging the emotional challenges associated with the major transition of becoming a parent. The most engaging aspect of the intervention appeared to be the Guardians app, which could be downloaded for free on their phones. One mother, who shared her long history of postpartum depression and anxiety following a previous pregnancy, was especially open about her experiences. She reflected on how unprepared she had been for the reality that postpartum life would not be “all rainbows and butterflies,” and how surprised she felt by the negative emotions she experienced after giving birth. She emphasized that therapy had been instrumental in helping her recognize that these feelings are common and do not make her a bad mother.

Additionally, she discussed the significant influence of social media on her mental health, particularly the pressure it creates for mothers to exclusively breastfeed.

### **Alignment with DNP Essentials**

The Doctor of Nursing Practice (DNP) Essentials are a set of foundation competencies outlined by the American Association of Colleges of Nursing (AACN) that define the core knowledge and skills expected of all nurses graduating from a DNP program (AACN, 2006).

This quality improvement project aligns with several of the DNP essentials:

#### ***DNP Essential I: Scientific Underpinnings for Practice***

DNP Essential I focuses on applying theories, concepts, and knowledge from nursing and related sciences to translate this into evidence-based clinical decision-making (AACN, 2006).

This project applied the Health Belief Model to guide the development and evaluation of an educational intervention, demonstrating integration of theoretical frameworks with evidence-based practice to address maternal mental health.

#### ***DNP Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking***

DNP Essential II emphasizes leadership in health systems through quality and safety initiatives to improve patient outcomes (AACN, 2006). By embedding maternal education into pediatric well-child visits, this project exemplifies systems-level thinking to address gaps in care and contributes to ongoing quality improvement aimed at improving access to mental health education within a pediatric setting.

***DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice***

DNP Essential III focuses on the translation of evidence into practice (AACN, 2006).

This project aligns with this essential as current evidence regarding non-pharmacological interventions for PPD/PPA was translated into a practical, accessible educational handout.

***DNP Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health***

DNP Essential VII highlights health promotion and disease prevention to achieve the national goal of improving the health status of the United States population as unhealthy lifestyle behaviors account for over 50% of preventable deaths (AACN, 2006). By addressing PPD/PPA through preventative, non-pharmacological strategies, this project directly supports prevention efforts and promotes population health by targeting maternal well-being during a critical developmental window for infants. While this project was directed towards postpartum mothers, the child also benefits from improving lifestyle behaviors.

**Sustainability**

To support the sustainability of this project, an executive summary detailing the project's outcomes was disseminated to the practice manager and healthcare providers. Horizon Health and Wellness currently distributes a packet of information to parents presenting with a newborn. This information includes the vaccine schedule followed by the clinic, medication dosages, anticipatory guidance for developmental milestones, vitamin D supplementation, a list of local pediatric urgent cares, and resources for help call lines. The educational handout presented in this project should be included in this packet of information, as it would promote routine distribution to mothers entering their postpartum period. Additionally, once the final project gains approval

from the DNP committee, this project will be accessible within the University of Arizona's Thesis and Dissertation repository where it can be accessed by others.

### **Limitations**

There were several limitations that can be acknowledged in this quality improvement project. First, the small sample size of 11 participants limits the generalizability of the findings and prevents more robust statistical analysis. The short two-week implementation period further constrained the ability to capture variability in responses and limited the PDSA cycle to one completed round. Second, the project was conducted at a single pediatric clinic in Chandler, Arizona. While the clinic reflects racial and ethnic diversity, the results may not fully represent the broader maternal population across different practice settings. Third, only English-speaking mothers were included, which excludes perspectives from non-English speaking mothers who may face distinct barriers. Fourth, the survey relied on self-reported responses, which may be subject to social desirability bias as participants may have provided answers they believed to be expected, especially regarding their intent to implement interventions. Lastly, the project did not include a pre-intervention survey, which limits the ability to measure the magnitude in change in knowledge about the impact PPD/PPA can have on a child from baseline.

### **Conclusion**

In conclusion, this quality improvement project demonstrated that a brief, evidence-based educational handout on non-pharmacological strategies for postpartum depression and anxiety can be beneficial to mothers. By leveraging the well-child visit as a touchpoint, an essential gap in maternal mental health care is addressed. Despite limitations related to sample size and implementation time, an overwhelming number of positive responses from participating mothers

emphasized the value of practical, low-cost, and accessible interventions. The findings reinforce the importance of normalizing discussions about postpartum depression and anxiety, reducing stigma, and providing families with tangible tools at the point of care. Ultimately, integrating maternal mental health education into pediatric practice has the potential to improve outcomes not only for mothers but also for their infants, contributing to healthier families and stronger communities.

### **Implications for Future Practice**

The findings from this project carry several implications for future practice. First, the success of a brief, low-cost educational handout highlights the feasibility of incorporating maternal mental health education into routine well-child visits without adding significant burden to providers or families. By normalizing conversations about postpartum depression and anxiety, pediatric providers can play a pivotal role in reducing stigma and encouraging early intervention. This project also underscores the importance of integrating non-pharmacological strategies into maternal mental health care. Offering accessible interventions such as exercise, nutrition, sleep hygiene, mindfulness, and social support empowers mothers to engage in self-care and provides options for those who are reluctant or unable to use pharmacological treatments.

**Appendix A**

**Site Authorization Approval Letter**



Horizon Health and Wellness  
600 S Dobson Rd  
Chandler, AZ 85224

Date: 6/3/2025

Human Subjects Protection Program  
The University of Arizona  
845 N Park Ave., Suite 537A  
Tucson, AZ 85719

Please note that Ms. Himani Sullhan, University of Arizona Doctor of Nursing Practice student, has permission from the Horizon Health and Wellness Clinic to conduct a quality improvement project at our facility for her project titled, "Improving Maternal Mental Health: Non-pharmacological Recommendations for Mothers in a Pediatric Setting" in partial fulfillment of the requirements for the Doctor of Nursing Practice at the University of Arizona College of Nursing.

Ms. Sullhan has permission to work with the clinic's patients to evaluate an educational handout on non-pharmacological recommendations to prevent or improve depression and/or anxiety in postpartum mothers. Mothers of infants less than a year old will be invited to participate in the project and will provide feedback using a survey. This project will physically be conducted at Horizon Health and Wellness in Chandler, Arizona. Ms. Sullhan's activities will be completed by December of 2025, pending review from the University of Arizona's Institutional Review Board.

Ms. Sullhan has agreed to provide to my office a copy of the University of Arizona Determination before she recruits participants.

If there are any questions, please contact my office.

**Emilia Avila,**  
Practice Manager  
Horizon Health & Wellness - Chandler Pediatric Care Clinic

A handwritten signature in black ink, appearing to read "Emilia Avila".



Horizon Health and Wellness | 625 N Plaza Drive Apache Junction, AZ 85120  
Phone (833) 431-4449 | Fax (480) 671-4541  
[www.hhw32.org](http://www.hhw32.org)



**Appendix B**  
**Consent Document**

### Consent Document

My name is Himani Sullhan, RN, BSN, and I am a graduate student at the University of Arizona. I am working towards getting my Doctor of Nursing Practice degree as a Pediatric Nurse Practitioner.

I am conducting a quality improvement project to complete my degree. I have created an educational handout to help educate mothers on ways to prevent or improve postpartum depression and/or anxiety symptoms without using medication.

Because you have been identified as having a child younger than 12 months who is a patient at Horizon Health and Wellness, I am inviting you to participate in this project by completing a brief survey after reviewing the handout.

Participation is voluntary, and you may withdraw from this project at any point without negatively impacting your care here at Horizon Health and Wellness. If you choose to participate, you will receive an educational handout with different ways you can care for yourself to promote your mental health. To evaluate how useful this handout is, you will be asked to complete a short survey that will take approximately 5 minutes or less. There are no foreseeable risks associated with participating in this project. Your responses are anonymous, and your name will not be collected or linked to your answers.

Your participation is appreciated and will help improve patient education tools, promote awareness of ways you can take care of yourself that will in turn promote the health and wellness of your child, and reduce stigma around postpartum depression and anxiety.

It is normal for all women to feel all the changes that come with bringing a new baby into this world. I hope the information I have given you today will help you better care for yourself. It is just as important as caring for your child.

I sincerely appreciate your time and feedback. For questions, concerns, or complaints about the project, please feel free to contact me at [hsullhan@arizona.edu](mailto:hsullhan@arizona.edu)

Thank you,

Himani Sullhan, RN, BSN, DNP-PNP student

**Appendix C**

**The University of Arizona Institutional Review Board (IRB) Approval Letter**



University of Arizona IRB  
 845 N Park Ave., Suite 537A  
 Tucson, AZ 85719  
 Fax: 520-621-9810  
[VPR-IRB@arizona.edu](mailto:VPR-IRB@arizona.edu)

### NOT HUMAN RESEARCH

September 8, 2025

Himani Sullhan

Dear Himani Sullhan:

On 9/8/2025, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title:	Improving Maternal Mental Health: Non-pharmacological Recommendations For Mothers in a Pediatric Setting
Investigator:	Himani Sullhan
IRB Submission ID:	STUDY00006970
Sponsor:	None
Prime Sponsor:	None
IND, IDE, or HDE:	None
Documents Reviewed:	<ul style="list-style-type: none"> <li>• IRB-Protocol-for-Determination-of-Human-Research-Sullhan.docx, Category: IRB Protocol;</li> <li>• Sullhan_AdvisorAttestation.pdf, Category: Other;</li> <li>• Sullhan_ConsentDocument.docx, Category: Consent Form;</li> <li>• Sullhan_EducationalHandout.docx, Category: Participant Material;</li> <li>• Sullhan_Evaluation Instruments.docx, Category: Data Collection Tool;</li> <li>• Sullhan_SiteAuthorization.docx, Category: External Site Authorization;</li> </ul>

The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.

IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these





University of Arizona IRB  
845 N Park Ave., Suite 537A  
Tucson, AZ 85719  
Fax: 520-621-9810  
[VPR-IRB@arizona.edu](mailto:VPR-IRB@arizona.edu)

activities are research involving humans in which the organization is engaged, please submit a new request to the IRB for a determination.

All Covered Individuals must disclose all sponsored and non-sponsored Research Projects to the Office for Responsible Outside Interests (OROI) prior to Conducting Research if the individual is an Investigator. Please visit the [OROI](#) website for more information.

We value your feedback and would appreciate you taking the time to complete our survey about your experience with the IRB staff:

[https://uarizona.co1.qualtrics.com/jfe/form/SV\\_ahQ04WzNA06b42i](https://uarizona.co1.qualtrics.com/jfe/form/SV_ahQ04WzNA06b42i).

If questions arise at any time during your study, please email the general IRB inbox at [VPR-IRB@arizona.edu](mailto:VPR-IRB@arizona.edu).



**Appendix D**  
**Evaluation Instruments**

1. Have you experienced any of the following symptoms since giving birth? Choose all that apply.
  - Persistent sadness or feelings of emptiness
  - Difficulty bonding with baby
  - Extreme fatigue
  - Difficulty sleeping or eating
  - Irritability or mood swings
  - Loss of interest in activities that were previously pleasurable
  - Withdrawing from friends or family
  - Loss of motivation to complete normal daily activities like bathing
  - Anxiety or feeling scared/panicky
  - Not being able to cope as well as usual
  - Feelings of wanting life to go back to how it was before baby was born
2. Have you ever had postpartum depression or anxiety in the past?
  - Yes, I was diagnosed with postpartum depression
  - Yes, I was diagnosed with postpartum anxiety
  - No, I have never experienced postpartum depression or anxiety in the past
  - I currently suffer from postpartum depression and/or anxiety
  - I have not been diagnosed with postpartum depression or anxiety in the past, but I think I had it with a previous child
  - This is my first child, I don't have any history
3. I learned something new from the educational handout I was given today.
  - Strongly agree
  - Somewhat agree
  - Neutral
  - Somewhat disagree
  - Strongly disagree
4. I have a better understanding of the impact postpartum depression and postpartum anxiety can have on children.
  - Strongly agree
  - Somewhat agree
  - Neutral
  - Somewhat disagree
  - Strongly disagree
5. How likely are you to implement some of these recommended holistic interventions into your daily life when needed?
  - Highly likely
  - Likely
  - Neutral
  - Unlikely
  - Highly unlikely

**Appendix E**  
**Participant Materials**

## YOU CAN'T POUR FROM AN EMPTY CUP

### Why Postpartum Mental Health Matters

Infants of mothers who suffer from postpartum depression and/or anxiety have been shown to have impairments in growth, brain development, and cognitive, behavioral and social development. During this highly sensitive time, poor social-emotional and behavioral regulation can translate to various mental health disorders through adolescence and into adulthood.

### Holistic Habits for Mental Wellness

The following are evidence based recommendations to help prevent or treat postpartum depression and anxiety:

- Regular exercise: aim for 20–25 minutes of activity per day (Morres et al., 2022)
- Guardians Paradise Island: a free app that encourages you to take care of yourself with an interactive game (G et al., 2024)
- Supplements: 1800–3500 IU of vitamin D per day, can be found at your local grocery store (Ghaedrahmati & Alipour, 2024)
- Bright Light Therapy: sunlight first thing in the morning (Garbazza et al., 2022)
- Social Support: lean on friends and family (G et al., 2024)

Taking care of yourself isn't selfish. It's an act of love, for both you and your child.



### Free Resources



Postpartum Support International:  
Arizona Chapter



4<sup>th</sup> Trimester Arizona



Support Birth

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**Appendix F**  
**Evidence Table**

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
<p>Caskey, R. N., Olender, S. E., Zocchi, A., Bergo, C. J., Uesugi, K. H., Haider, S., &amp; Handler, A. S. (2021). Addressing women's health care needs during pediatric care. <i>Women's Health Reports</i>, 2(1), 227–234. <a href="https://doi.org/10.1089/whr.2021.0016">https://doi.org/10.1089/whr.2021.0016</a></p>	<p>Addressing women's health care needs during pediatric care</p>	<p>Randomized control trial</p>	<p>Attendance at 4-6 week postpartum visit is low while well-baby visits are highly utilized AAP guidelines for health supervision encourage providers to assess maternal well-being as part of routine care of infants 22% of postpartum women in this study expressed a desire/need for a primary care provider between 2 and 6 months PP women who were exposed to PQM during well baby visit were 66% more likely to have a healthcare visit between 2-6 months PP</p>	<p>This study suggests that a pediatrician asking about women's health needs reinforces the importance of care in the extended period after delivery and links the importance of maternal health with infant health</p> <p>Acknowledging maternal mental health is motivating for mothers to care for themselves</p>
<p>G, S., Eashwar V M, A., Pandian, S., Albert Sekhar, M., &amp; Pricilla, S. E. (2024). Non-pharmacological radical methods for treating postpartum depression around the globe: A narrative review. <i>Curēus</i>, 16(12), e76052. <a href="https://doi.org/10.7759/cureus.76052">https://doi.org/10.7759/cureus.76052</a></p>	<p>Non-pharmacological radical methods for treating postpartum depression around the globe: A narrative review</p>	<p>Narrative review</p>	<p>While pharmacological methods are mainstay treatment options for PPD, many women, especially breastfeeding mothers, have concerns about safety and side effects Non-pharmacological methods are well received by mothers</p>	<p>Non-pharmacological interventions that have decreased depressive symptoms: behavioral activation gaming app, CBT, interpersonal psychotherapy, peer support, creative art therapy, yoga, mother-infant massages, and light therapy</p>
<p>Falek, I., Aciri, M., Dominguez, J. <i>et al.</i> (2022). Management of depression during the perinatal period: state of the evidence</p>	<p>Management of depression during the perinatal period: state of the evidence</p>	<p>Systematic review</p>	<p>Integrating mental health services into health settings reduces logistical barriers to access, provides frequent</p>	<p>The role of the physician is to screen, provide psychoeducation, and refer for services. However, it is</p>

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
state of the evidence. <i>Int J Ment Health Syst</i> 16, 21 <a href="https://doi.org/10.1186/s13033-022-00531-0">https://doi.org/10.1186/s13033-022-00531-0</a>			and consistent contact, and decreases stigma 6.3% of women with PPD were treated	unlikely that women would access services with referrals being offsite, as referrals alone have not been shown to translate to treatment engagement
Dennis, CL., Singla, D.R., Brown, H.K. <i>et al.</i> (2024). Postpartum depression: A clinical review of impact and current treatment solutions. <i>Drugs</i> 84, 645–659 <a href="https://doi.org.ezproxy4.library.arizona.edu/10.1007/s40265-024-02038-z">https://doi.org.ezproxy4.library.arizona.edu/10.1007/s40265-024-02038-z</a>	Postpartum depression: A clinical review of impact and current treatment solutions		Up to 50% of women are undiagnosed After a referral, can be several months of a wait to see a psychiatrist New mothers often identify significant practical barriers to care: lack of time, lack of support related to childcare during appointments, or lack of transportation to be able to access services Lifestyle interventions may be important low-cost, accessible options for those with mild to moderate depression symptoms and adjunctive opportunities for those with increased severity	Mothers would benefit from PPD management in the pediatric setting as it eliminates many barriers
Kallem, Stacey, MD, MSHP, Matone, Meredith, DrPH, MHS, Boyd, Rhonda C., PhD, & Guevara, James P., MD, MPH. (2019). Mothers' mental health care use after screening for postpartum depression at well-child visits. <i>Academic Pediatrics</i> , 19(6), 652–658.	Mother's mental health care use after screening for postpartum depression at well-child visits	Retrospective cohort design	Greater rates of PPD in women of low income and less educated Impacts mother's ability to parent and form secure attachment, leading to negative socioemotional development, child behavior, and cognitive development	Mental health care use for women with positive screening for PPD at well visit is low  Treatment may consist of education by pediatricians and behaviorally based interventions can be

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
<a href="https://doi.org/10.1016/j.acap.2018.11.013">https://doi.org/10.1016/j.acap.2018.11.013</a>			Associated with decreased adherence to infant safety practices and lower likelihood of breastfeeding Limited evidence on whether mothers who screen positive for PPD in pediatric settings receive appropriate treatment One study: 37% of mothers with positive PPD screen in pediatric setting made and kept a mental health appointment	integrated into well child care
Morres, I. D., Tzouma, N. A., Hatzigeorgiadis, A., Krommidas, C., Kotronis, K. V., Dafopoulos, K., Theodorakis, Y., & Comoutos, N. (2022). Exercise for perinatal depressive symptoms: A systematic review and meta-analysis of randomized controlled trials in perinatal health services. <i>Journal of affective disorders</i> , 298(Pt A), 26–42. <a href="https://doi.org.ezproxy4.library.arizona.edu/10.1016/j.jad.2021.10.124">https://doi.org.ezproxy4.library.arizona.edu/10.1016/j.jad.2021.10.124</a>	Exercise for perinatal depressive symptoms: A systematic review and meta-analysis of randomized controlled trials in perinatal health services	Systematic review and meta-analysis	136.07 minutes per week of moderate intensity exercise showed a significant antidepressant effect on perinatal depression (PD) symptoms, this effect increased for exercise > 150 minutes per week	Exercise was effective amongst samples with various severities in PD symptoms Important tool to maintain non-clinical levels of PD symptoms or prevent deterioration
Tsai, Z., Shah, N., Tahir, U., Mortaji, N., Owais, S., Perreault, M., & Van Lieshout, R. J. (2023).	Dietary interventions for perinatal depression and anxiety: a systematic review	Systematic review and meta-analysis	1000-35000 IU of vitamin D per day for 8 weeks-6 months significantly reduced symptoms of PPD	Vitamin D could be a simple addition to a mother's daily routine to

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
<p>Dietary interventions for perinatal depression and anxiety: a systematic review and meta-analysis of randomized controlled trials. <i>The American journal of clinical nutrition</i>, 117(6), 1130–1142.  <a href="https://doi.org/10.1016/j.ajcnut.2023.03.025">https://doi.org/10.1016/j.ajcnut.2023.03.025</a></p>	<p>and meta-analysis of randomized controlled trials</p>		<p>in mothers with baseline EPDS scores of &gt; 12</p>	<p>reduce or prevent PPD symptoms</p>
<p>Grubb, M. D., Wilson, C. A., Zhang, L., Liu, G., Lee, S., Monk, C., &amp; Werner, E. A. (2024). Practical Resources for Effective Postpartum Parenting (PREPP): a randomized controlled trial of a novel parent-infant dyadic intervention to reduce symptoms of postpartum depression. <i>American Journal of Obstetrics &amp; Gynecology MFM</i>, 101526–101526.  <a href="https://doi.org/10.1016/j.ajogmf.2024.101526">https://doi.org/10.1016/j.ajogmf.2024.101526</a></p>	<p>Practical resources for effective postpartum parenting (PREPP): a randomized controlled trial of a novel parent-infant dyadic intervention to reduce symptoms of postpartum depression</p>	<p>Randomized controlled trial</p>	<p>PREPP reduced symptoms of depression during 6, 12, and 16 weeks postpartum  The first intervention focused on the parent and infant dyad by providing caregivers with strategies aimed at reducing infant fussiness and cry behaviors and increasing infant sleep</p>	<p>Infant sleep and fussiness are large contributing factors to parental depression and anxiety   An evidence-based intervention that improved symptoms and promoted parental sleep</p>
<p>Domínguez-Solís, E., Lima-Serrano, M., &amp; Lima-Rodríguez, J. S. (2021). Non-pharmacological interventions to reduce anxiety in pregnancy, labour and postpartum: A systematic review. <i>Midwifery</i>, 102(1),</p>	<p>Non-pharmacological interventions to reduce anxiety in pregnancy, labour and postpartum: A systematic review</p>	<p>Systematic Review</p>	<p>Kangaroo care, music therapy, and massage were the most effective interventions during postpartum  Previous studies reflect mothers’ desire for and high degree of satisfaction with</p>	<p>Non-pharmacological interventions are sought after by mothers and can help decrease anxiety and depression</p>

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
103126. <a href="https://doi.org/10.1016/j.mdw.2021.103126">https://doi.org/10.1016/j.mdw.2021.103126</a>			non-pharmacological interventions	
Ghaedrahmati, M., & Alipour, Z. (2024). The Association between Post-Partum Depression and Nutrition and Dietary Patterns: Systematic Review. <i>Iranian journal of nursing and midwifery research</i> , 29(3), 280–289. <a href="https://doi.org/10.4103/ijnmr.ijnmr_163_22">https://doi.org/10.4103/ijnmr.ijnmr_163_22</a>	The Association between Post-Partum Depression and Nutrition and Dietary Patterns: Systematic Review	Systematic Review	Vitamin D is not naturally found in many foods except for fish, egg yolk, and milk that are fortified with it  Low levels of vitamin D are associated with a 3.67-fold risk of PPD	Vitamin D supplementation of 2000 IU/d can reduce depressive symptoms
Garbaza, C., Cirignotta, F., D'Agostino, A., Cicolin, A., Hackethal, S., Wirz-Justice, A., Cajochen, C., Manconi, M., & “Life-ON” study group (2022). Sustained remission from perinatal depression after bright light therapy: A pilot randomised, placebo-controlled trial. <i>Acta Psychiatrica Scandinavica</i> , 146(4), 350–356. <a href="https://doi.org/10.1111/acps.13482">https://doi.org/10.1111/acps.13482</a>	Sustained remission from perinatal depression after bright light therapy: A pilot randomised, placebo-controlled trial	Randomized control trial	Morning bright light therapy induced a significant remission for perinatal depression compared to dim red light	Bright light therapy is a valid therapeutic strategy for this vulnerable population  Sustained mood improvement following the months after treatment  Excellent safety profile and well tolerated

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