

Postpartum Depression Screening in Primary Care:
A Quality Improvement Project

Shaudine Woody, MSN, RN, CPNP-PC

Oregon Health & Science University

Abstract

Postpartum depression may affect crucial early development phases of the mother infant dyad and contribute to short-and long-term adverse child outcomes that can lead to cognitive, social, emotional, and behavioral problems that last into adolescence. The Edinburgh Postnatal Depression Scale was developed to assess postpartum depression. The U.S. Preventive Services Task Force, American College of Obstetricians and Gynecologists and the American Academy of Pediatrics endorse screening within the primary care setting to decrease adverse long-term effects to the infant of a depressed mother.

As a quality improvement project, utilization of the Edinburgh Postnatal Depression Scale was implemented within the primary care setting with screening at 2-, 4-, and 6-month well child visits. Repeated Plan-Do-Study-Act cycles were utilized to provide structure for iterative testing during implementation of postpartum depression screening. Results were collected employing chart review and electronically generated reports. Interpretation and scoring of each scanned EPDS were independently verified. Project concluded pediatric providers are in position to universally screen for postpartum depression, as part of the holistic care they provide for their patient, the child. Implementation of postpartum depression screening is feasible and yields positive screenings requiring follow-up and diagnosis with trained adult mental health or primary care physicians.

Depression is a serious mood disorder with symptoms and intensity that vary from person to person. Currently, there is recognition that depression is a combination of multiple causes and that biological, psychological, and social factors play a role (Behzadmehr & Moghadam, 2018). Early recognition of any form of depression is challenging due to how variable symptoms and severity present.

In looking specifically at postpartum depression (PPD) we know it is a recognized mood disorder affecting women after childbirth. Extreme feelings of sadness, exhaustion, and anxiety may interfere with their ability to complete daily care activities for their child(ren) and for themselves (National Institute of Mental Health, n.d.). Research completed by Centers for Disease Control and Prevention (CDC) (Ko, Rockhill, Tong, Morrow & Farr, 2017) show that one in nine women experience some symptoms of PPD. Data compiled from 2014-present shows the PPD rate in the United States is at 12.8%, with Oregon slightly less at 9.7% (America's Health Rankings, 2018). One developmental objective of *Healthy People 2020* is to decrease the number of women delivering a live birth who experience postpartum depressive symptoms (Office of Disease Prevention and Health Promotion, 2018).

Postpartum depression affects between 5-25% of new mothers with this rate nearly doubling for low-income families, young parents, and those with a history of depression (Vasta et al., 2018). According to American Academy of Pediatrics Clinical Report (Earls & The Committee on Psychosocial Aspects of Child and Family Health, 2010), perinatal depression is the most underdiagnosed obstetric complication, with more than 400,000 infants born, yearly, to mothers who are depressed. Furthermore, PPD leads to increased medical costs, child abuse and neglect, early discontinuation of breastfeeding, family dysfunction and early brain development sequelae (Earls et al., 2010).

Infant development can be interrupted by the serious adverse effects that maternal postpartum depression can have on the mother-child dyad. According to the Minnesota Department of Health 2015 clinical guidelines, infants who live in a neglectful or depressed environment are more likely to show impaired social interaction and delays in development. As early as 2 months of age, the infant looks at the depressed mother less often, shows less engagement with objects, has a lower activity level, and has poor state regulation. Language development depends on number of words used by the family; playing with, conversing with, and talking with the infant; and daily face to face interactions which are less frequently occurring in a family with a depressed mother. Insecure attachment, can later be associated with conduct disorders and behavior problems (Martins & Gaffan, 2000; Atkinson et al., 2000). Longitudinal studies show evidence of association between PPD and poor social competence in school; increased risk of depression during adolescence; internalizing disorders and externalizing difficulties such as attention deficit hyperactivity disorder, oppositional defiant disorder, and conduct disorder (Stein, et al., 2014).

Literature Review

The literature search was conducted during the months of August to October, 2018 and March and April, 2019. Databases used include, Ovid Lippincott, SAGE, Scopus, and Google Scholar. Keywords used in the database search include, “Postpartum depression,” “postnatal depression,” “maternal depression,” “depression epidemiology,” “postpartum screening tools,” “Edinburgh postnatal depression scale,” “depression statistics,” “USPSTF statement on depression screening,” “AAP statement on depression screening,” “postpartum depression and primary care,” “child development,” “attachment disorder,” “depression symptoms,” and “child brain development” and led to more than 60,000 articles. Inclusion parameters for the search

were set to look for full-text, available online, peer-reviewed journal, English, and published between the years 2013 and 2018 along with exclusion criteria: unipolar depression, maternal depression outside of postpartum stage, and other postpartum psychosis. Seminal manuscripts were also included. This resulted in 26 manuscripts reviewed.

Lebel et al. (2016) conducted a study in which 52 women were provided the Edinburgh Postnatal Depression Screen (EPDS) each trimester of their pregnancy, and again at 3- months postpartum. Their children received MRI scans at 2.6- and 5.1- years of age. Higher maternal depressive symptoms were associated with MRI results indicating altered gray matter in the children. Findings appeared to be uniquely related to the postpartum period suggestive of premature brain development in children exposed to higher maternal perinatal depressive symptoms. Acting as an early adverse experience, maternal perinatal depression may lead to premature myelination and synaptic pruning. At the expense of brain plasticity, underused neural connections that would otherwise be used in the child, may prematurely be pruned, affecting the lifetime cognitive and behavioral outcomes of the child (Lebel et al., 2016).

A review of published literature on postpartum depression programs, by Olin et al. (2015), gathered that important caregiving activities such as feeding, sleep, adherence to well-child visits, and vaccine schedules can be compromised in depressed moms. Among children less than three years of age, maternal depression is linked with increased use of acute healthcare services, which increases healthcare costs and emergency department visits (Olin et al., 2015). For low-income families, maternal depression is associated with food insecurities (Olin et al., 2015). Choi et al. (2017) found that maternal postpartum depression negatively affected maternal-infant bonding and infant physical growth at one year, increasing the risk for replication of negative outcomes in next generations. Seng et al. (2013) utilized a prospective

cohort study and found that postpartum depression either alone or with posttraumatic stress was associated with impaired bonding.

With regards to screening programs, O'Connor, Rossom, Henninger, Groom, and Burda, (2016) identified a relative reduction of 18% to 59% in the risk of depression at follow-up compared with usual care, which is an absolute reduction in depressive prevalence of 2.1%-9.1%. The direct and indirect evidence suggests that a reduction in depressive symptoms in women with depression and a reduction in the prevalence of depression in a given populations may be reduced by screening pregnant and postpartum women for depression (O'Connor et al., 2016).

In 2014, the American Academy of Pediatrics (AAP) clinical report reaffirmed the 2010 statement that pediatric practices should establish implementation protocols to screen for PPD, identify and use community resources to treat and refer depressed mothers, and support the mother-child relationship (Earls et al., 2010). The U.S. Preventive Services Task Force (USPSTF) released a recommendation in 2016 for screening for depression in the general adult population, including pregnant and postpartum women (not previously indicated in 2009 recommendation), and that screening should have adequate systems in place to ensure accuracy of diagnosis, effectiveness of treatment, and appropriate follow-up.

Given the AAP statement and recommendation of USPSTF on establishing implementation protocols this project aim was to implement screening of postpartum depression within the primary care setting utilizing the Edinburgh Postnatal Depression (EPDS) scale.

Method

Design

Repeated Plan-Do-Study-Act (PDSA) cycles were utilized to provide structure for iterative testing of the implemented changes to ultimately improve the quality of care offered. PDSA cycle is a four-step model for improving a process. *Plan* identifies tasks and the when, how, and where of implementation. *Do* carries out the plan and documents the data; identifying success, problems or unexpected outcomes. *Study* evaluates the data to determine if current plan of implementation is working compared to the predicted results. *Act* implements the intervention based on the prior step of evaluation and adopts, adapts or abandons the intervention (Christoff, 2018). The PDSA cycle was most useful in improving to workflow, especially with regards to getting the EPDS to each mother at the specific well child visit upon check-in.

Setting

The project took place at a private pediatric primary care clinic not associated with any major hospitals or large pediatric conglomerates. The primary physician and owner employs 26 healthcare providers (nine registered nurses, four pediatric nurse practitioners, and six doctors (medical doctors, doctor of osteopathic medicine, and doctor of naturopathic medicine) along with additional ancillary staff. The clinic provides primary care pediatric services to roughly 15,000 children in the greater Portland area. The office moto is “safe passage in a changing world” and the owner physician prides himself on bringing the best of complementary, alternative, and holistic medicine to all infants, children, and adolescents and has been doing so for 20+ years.

Participants

The project participants were mothers in attendance at their child's 2-, 4-, and 6- month well child check. There were no exclusions for age, socioeconomic status, or parity; or a cutoff for number of mother's screened. Additionally, there were no exclusions for language barrier, as the EPDS is available in 50 different languages (American College of Obstetricians and Gynecologists, 2018). Institutional Review Board determination that the project did not qualify as research involving human subjects, approval from pediatric clinic, and consent for accessing protected health information was obtained prior to project implementation. HIPPA compliance was maintained for information received and generated. Protected health information was not disclosed in data analysis or removed from the clinic at any time.

Instrument

The Edinburgh Postnatal Depression Scale (EPDS), an endorsed screening tool by the USPSTF, is a widely used validated screening instrument to identify women with postpartum mood disorders. The 10-item questionnaire asks women to rate how they have felt in the previous seven days, assessing ability to laugh, anhedonia (inability to feel pleasure), guilt, anxiety, panic attacks, overwhelmed, sleep disorders, sadness, tearfulness, and suicidal ideation (Zhong et al., 2014). Optimal cutoff scores used for a positive screen for the EPDS were >9. (Venkatesh, Zlotnick, Triche, Ware, & Phipps, 2014). Sensitivity (true positive rate) is the ability of a screening tool to correctly identify a participant as having the condition being screened for (Parikh, Mathai, Parikh, Sekhar, & Thomas, 2008). The EPDS, with a sensitivity rate of 90% for a score of ≥ 9 , indicates a high accuracy of identifying individuals who may benefit from further evaluation and diagnosis of postpartum depression given their screening score.

Implementation and Outcome Evaluation

Implementation

Front desk personnel provided an EPDS screening tool to all mothers as they checked in for their scheduled 2-, 4-, and 6- month well child visit with any provider within the clinic. The EPDS, upon completion, were given to the nursing staff or directly to the provider before or during their exam time. The results were scored by either the nursing staff or provider and initialed by the provider to indicate that it was reviewed. EPDS screens were billed for, along with the routine well child charges, at each of these visits. Positive screens received a phone call by the provider within 1-2 weeks to address if there were any other questions/concerns, assess whether families needed additional resources, and/or have scheduled diagnostic testing with an appropriate mental health provider or their primary care provider since the EPDS was only a screening tool, not diagnostic.

Educational material was provided in written format to families who had a positive EPDS screen or whom requested more information on postpartum depression regardless of screening results. A list of online resources and educational points were on the provided handout, including emergency resource numbers for immediate support to the mother and family.

Measures/Outcome Evaluation

Data collection.

An electronically generated report was provided by the billing department for a three-month timeframe after implementing screening for postpartum depression. The report contained a list of patient names and date of service for all patients seen by any provider within the clinic for a 2-, 4- or 6- month WCC. An electronic chart review was completed for each patient included in the report. During the chart review, data was collected on 1) whether an EPDS was

completed and scanned into the chart 2) what WCC visit an EPDS was completed 3) if completed was the score ≥ 9 indicating a positive score 4) and if a positive score, were there any chart notes discussing current treatment (i.e. medications, counseling, being followed by primary care or obstetrician, etc.).

In order to maintain HIPPA compliance all data analysis and chart reviews were performed while remaining in clinic. Once data collection was completed the generated reports were shredded to maintain patient confidentiality. No patient identifiable information was described or displayed during project implementation or presentation.

Data accuracy.

Accuracy was ensured through the process of chart review. With opening and reviewing all 262 patient charts confirmation was obtained that each child was seen for the specified visit type. Interpretation and scoring of each scanned EPDS were independently verified.

Ethical considerations.

The burden of PPD is well established. Numerous studies have found that if maternal mental health is impaired, children can be adversely affected. The simple, validated screening tools, such as the EPDS, is specifically designed for screening mothers for an increased risk of postpartum depression.

Being a treatable disorder that may adversely affect the health of a child the provider is ethically bound to offer help with screening and referral. For providers screening, there was an emphasis and clarity that the screening was for the purpose of enhancing and maintaining the child's well-being (Chaudron, Szilagyi, Campbell, Mounts, & McInerny, 2007) with ongoing care and therapy of the adult being referred to a qualified professional.

Cost.

The cost involved with screening utilizing the EPDS was minimal compared to benefit.

Printing costs and five minutes or less of provider or nursing staff time in handing out and scoring the EPDS were the only cost considerations.

Project Implementation

Prior to implementing the EPDS screening tool, a lunch-&-learn was scheduled with all staff at the pediatric clinic. Information was shared regarding project aim and clinical significance of postpartum depression screening within the first 6 months of life as recommended by the AAP. Staff support was obtained and questions were answered. The proposed workflow was initiated on January 9th, 2019.

After the first week, the first PDSA cycle identified a need for change, in that the EPDS did not have a designated space to write in the date of screening. As the EPDS were collected in the first week, it became apparent that the date was important when scanning in hundreds of EPDS and making sure they align with the correct date of service since subsequent EPDS would be collected in the future. The EPDS was modified with the date of service and initiated into circulation.

After the first month, the second PDSA cycle demonstrated the workflow for distributing the EPDS needed modification. The original workflow was for the front desk personnel to provide the screening tool upon check-in. The inconsistency of that workflow became evident and the revised workflow was that the EPDS was attached to the chart the night before when the charts were being prepared and insurance verification was obtained. This eliminated chances for an EPDS opportunity to be missed because front desk personnel either forgot, didn't pay attention to the particular visit type, or were too busy to hand out an EPDS. With the EPDS

already attached to the chart, the EPDS were more consistently provided to mothers at the 2-, 4- and 6-month WCC visits.

Upon completion of the project on April 12th, 2019 a provider meeting was scheduled to gather feedback on the project and implementation process. Positive feedback was obtained and no workflow revisions were initiated at this time. All providers within the clinic will continue to provide EPDS screening at the 2-, 4-, and 6-month visits to all mother's in attendance.

Outcomes

There were 262 patients seen at 2-, 4-, or 6-months of age by one of nine pediatric providers (MD, DO, ND or PNP) during the three-month project timeframe for a WCC. A 61.5% overall completion rate was obtained with 161 completed EPDS. Further breakdown showed a 59% completion rate for 2-month visits, 57% for 4-month visits, and 66% for 6-month visits (Figure 1).

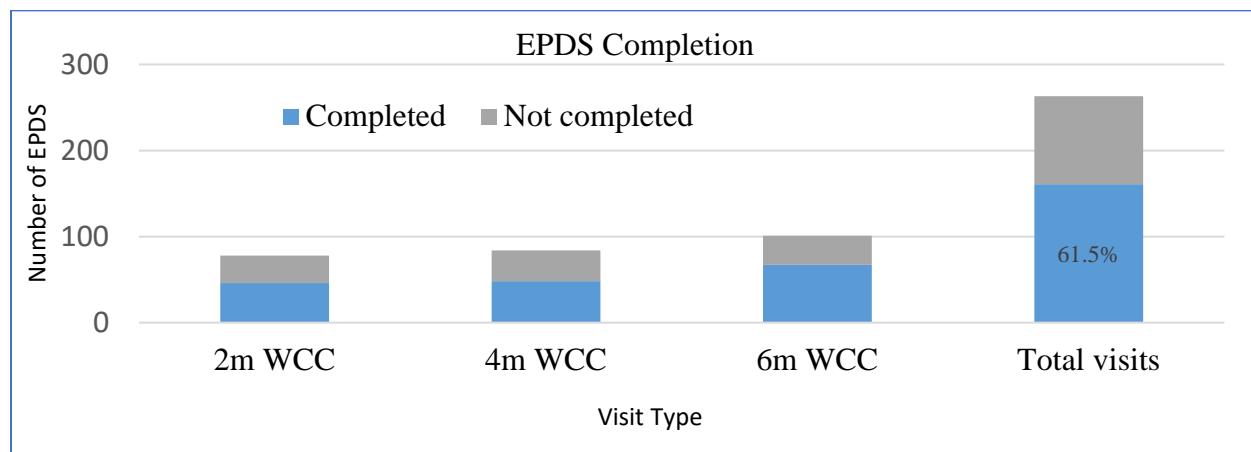


Figure 1. EPDS Completion Rate

Positive screenings (score ≥ 9 on EPDS) occurred with 25 mothers with an overall 15% positive screening percentage. There were seven positive screenings for two-month visits, nine for four-month visits, and nine for six-month visits (Figure 2). From those 25, analysis concluded

that seven of these mothers affirmed either current medication treatment and/or ongoing counseling. The positive screening rate within the clinic was significantly higher than expected given the United States PPD rate is 12.7% and Oregon is slightly lower at 9.7%.

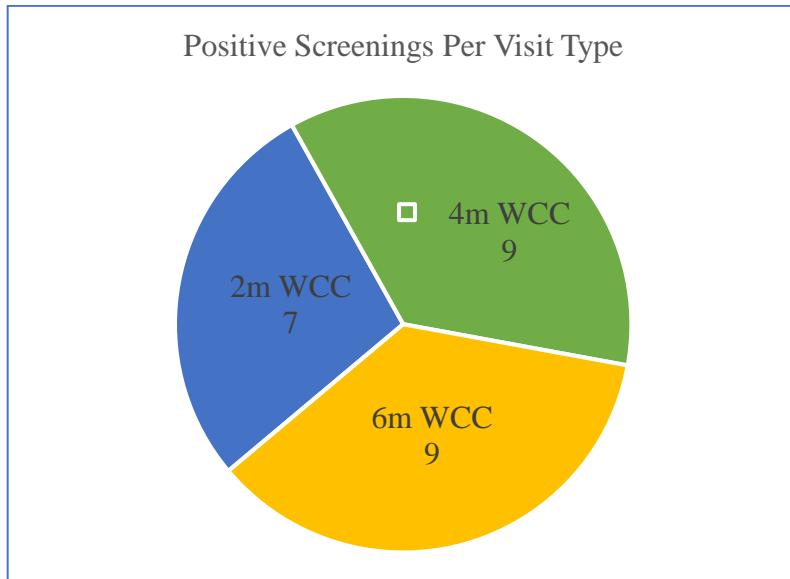


Figure 2. Positive Screenings Per Visit Type

Validation studies have utilized various threshold scores in determining which women were positive and in need of referral. Cut-off scores ranged from 9 to 13 points. The EPDS copyrighted in 1987 indicates a 12 or higher score indicative of postpartum depression. Given that cutoff, the clinic positive screening rate would have been 4%, well below the national and state average. No literature was found to determine what cutoff score was utilized for the national and state statistics. To err on safety's side, scores ≥ 9 or indicating any suicidal ideation, that is a score of 1 or higher on question #10, were considered positive and referred for follow-up

within this project (Mcbride, Wiens, McDonald, Cox, & Chan, 2014; Venkatesh, et al., 2014).

Another consideration was the impact on systems, including cost.

In a cost-effectiveness analysis, Wilkinson, Anderson, and Wheeler (2017) found that with screening, 29 more women with PPD achieved remission compared to 3 in usual care, which was associated with a remission benefit of 664% in total costs and resulted in an additional 21.43 quality-adjusted life years (QALYs). Given the nominal cost involved in printing and staff time, the benefit is exponential. A separate billing report was generated for reimbursement from several commonly used insurance plans and rates varied from \$10 to \$30 for each EPDS screening. Aside from the psychosocial, emotional, and developmental benefit to mother and patient when diagnosed and treated for postpartum depression, the financial incentive is also evident.

Limitations

Given the unique opportunity that pediatric providers have to interact with both patient and parent, information is not as readily available for analysis. A mother's demographic information is limited when in the context of being a child's primary care provider. Data and subsequent analysis were not able to be collected on maternal 1) age at screening, 2) parity, 3) prior history of postpartum depression and/or depression outside of postpartum period, or 4) ethnicity.

Practice Related Implications and Summary

Pediatric providers are in a position to universally screen for postpartum depression, as part of the holistic care they provide for their patient, the child. Implementation of postpartum depression screening is feasible and yields positive screenings requiring follow-up and diagnosis with trained adult mental health or primary care physicians.

The importance of screening beyond the project goals, was evident in the staff feedback, feedback from mother's screened, as well as the resulting data. On several occasions mothers wrote on the EPDS, "thank you for asking"; affirmation of the importance of asking what may be a difficult question for some, but so important.

The clinic plans to continue to implement screening to all mothers at the 2-, 4-, and 6-month visit as part of the ongoing efforts to employ the medical home model of care. Medical home is an approach to patient-centered, comprehensive, team-based, coordinated, and focused care within the primary care setting emphasizing partnership between health care providers and families (American Academy of Pediatrics, 2018).

Next Steps

There has been discussion around implementing the screening tool at prenatal appointments to obtain a baseline score prior to delivery. This will be discussed further at an upcoming provider meeting. Another consideration is expanding the screening to include fathers.

Paternal depression is estimated to affect 6% of new fathers (Earls et al., 2010). Paternal postpartum depression occurs later in postpartum in men than in women, but also leads to long term effects for the child and detrimental effects on the parental relationship (Musser, Ahmed, Foli, & Coddington, 2013). Compounding the effect on children, the rate of paternal depression is higher when the mother has postpartum depression (Earls et al., 2010). Paternal PPD has also been linked to conduct and emotional disorders, hyperactivity, language delays, anxiety, and depression in the child (Musser et al., 2013). Given this increasing trend and effect on child development, PDSA cycles should be utilized to best implement paternal depression screening using the EPDS within the primary care setting.

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