

# Maternal Mental Health MATTERS

Mary Kimmel

**Depression and anxiety during pregnancy and the postpartum period are common and have significant negative impacts on mother and child. Suicide is a leading cause of maternal mortality. Evidence-based efforts for screening, assessment, and treatment improve maternal and infant mental health, as well as overall family health, throughout the lives of women and children.**

**D**epression and anxiety during pregnancy and the year after delivery, known as the perinatal period, are highly common. There is an estimated prevalence of 10%-20% for episodes that meet full criteria for a major depressive episode [1], and an even greater estimated prevalence of 25%-50% when minor episodes of depression or anxiety are included [2-4]. Untreated perinatal depression and anxiety are associated with pregnancy complications (eg, preterm birth), negative outcomes during the perinatal period (eg, impaired lactation, suicide, and infanticide), and negative impacts beyond the perinatal period not only for mother and child but also the entire family (eg, impaired mother-infant bonding, divorce, psychiatric disorders later in life, and continued higher risk for suicide) [5-8]. Suicide as reported in the National Violent Death Reporting System between 2003 and 2007 accounted for more deaths than obstetric complications including hemorrhage, obstetric embolism, or preeclampsia/eclampsia [9].

Suicide may be increased during the perinatal and postpartum period because presentations of depression and anxiety can begin as mild to moderate but rapidly deteriorate, changing the clinical picture quickly and resulting in wide fluctuations in the intensity of symptoms and severe swings of mood, increasing risk of suicide [10]. While prevalence of bipolar disorder during the perinatal period has been contradictory [10] and the impact of pregnancy and the postpartum period on those with known bipolar disorder has as well, childbirth has been found to be a trigger for hypomania and mania symptoms even in those without bipolar disorder, and hypomania and mania often go unrecognized in the postpartum period [11, 12]. Women with manic and/or psychotic symptoms (commonly focused on personal and child safety) in addition to depressive and anxiety symptoms are referred to as having postpartum psychosis, despite these symptoms signifying a mood disorder as opposed to a primary psychotic disorder. These women are at high risk of suicide and of infanticide, keeping in mind that infanticide is

still infrequent [12]. Perinatal mental health specialists have identified that many women have individualized groupings of depressive, anxiety, and even manic and psychotic symptoms and have therefore created the term perinatal mood and anxiety disorders (PMAD).

Despite perinatal depression being common and having significant negative impacts, over half of women with this condition are currently not being identified and 85% are not receiving care for perinatal depression [13]. This leads to only 3%-5% of women with perinatal depressive symptoms achieving remission [13]. There has been even less focus and even less is known about the identification and treatment of anxiety and manic and psychotic symptoms. In a study where bipolar disorder was confirmed for perinatal women, the majority being treated in obstetrics or by a primary care provider, over 70% were receiving an antidepressant alone, a treatment that may worsen course for those with bipolar disorder [14] or those with a perinatal episode with high and low mood features. Barriers for patients include access, stigma, symptom heterogeneity, changes in presentation over time, and symptoms impairing communication and motivation [15]. However, evidence-based practices can be utilized to improve identification and treatment [16].

One such example of a successful evidence-based program is the Massachusetts Child Psychiatry Access Project (MCPAP) for Moms. MCPAP, through a low-cost, population-based program, builds primary care and obstetric providers' capacity to address perinatal depression [17]. MCPAP includes the following 3 components: education through trainings and toolkits on screening, assessment, and treatment for perinatal depression; telephone access to perinatal psychiatric consultation for providers caring for pregnant and postpartum women; and care coordination that links perinatal women needing services with individual psychotherapy and support groups [17]. MCPAP for Moms is funded by the Massachusetts state legislature and through work with payers and has demonstrated that it is both effective and cost-effective [17]. Focus groups of health care providers that have engaged with MCPAP for Moms felt

Electronically published January 6, 2020.

Address correspondence to Mary Kimmel, UNC School of Medicine Department of Psychiatry, CB #7160, Chapel Hill, NC 27599-7160 (mary\_kimmel@med.unc.edu).

**NC Med J. 2020;81(1):45-50.** ©2020 by the North Carolina Institute of Medicine and The Duke Endowment. All rights reserved. 0029-2559/2020/81110

the program helped them detect and address depression, and with provider increase in persistence and efficacy in discussing and treating depression, patients felt more comfortable discussing their mental health symptoms and engaging in treatment [18].

Due to the success of MCPAP for Moms, the United States Department of Health and Human Services Health Resources & Services Administration (HRSA) announced a 5-year grant funding opportunity in summer 2018 with a goal of improving screening and treatment of maternal depression and related behavioral health disorders such as anxiety and substance use disorders. A similar funding opportunity was announced to improve pediatric mental health access. Seven states were awarded funds to implement programs that provide psychiatric consultation, care coordination,

and training of frontline providers to screen, assess, and treat pregnant and postpartum women. There is a special focus on rural and medically underserved areas. The states include Florida, Kansas, Louisiana, Montana, North Carolina, Rhode Island, and Vermont [19]. Only 3 states (Montana, North Carolina, and Rhode Island) were awarded funds for both a pediatric mental health access program and for a program for maternal depression and related behavioral health disorders [19].

### **North Carolina Maternal Mental Health MATTERS Program**

Through the HRSA funds, the North Carolina Maternal Mental Health MATTERS (Making Access to Treatment, Evaluation, Resources, and Screening Better) Program has

*Johnson sidebar continued*

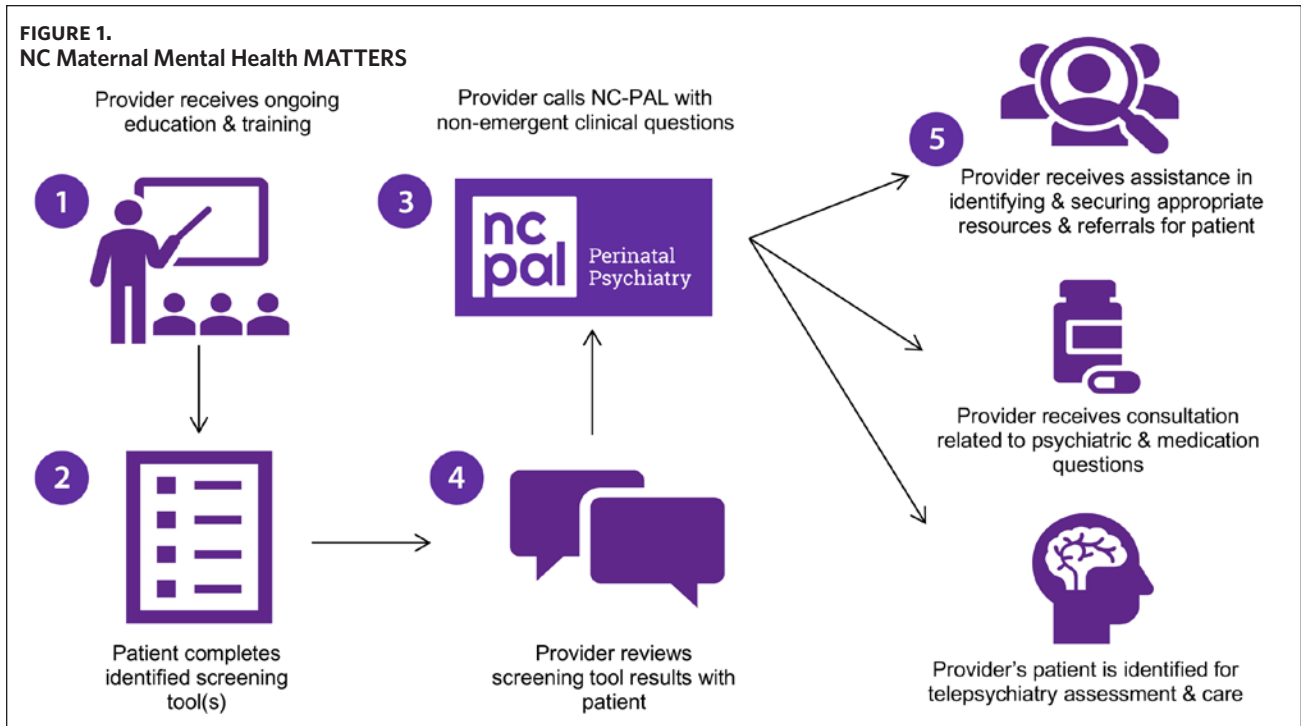
been established. This partnership opportunity includes the North Carolina Department of Health and Human Services (NC DHHS) Division of Public Health; NC DHHS Division of Mental Health, Developmental Disabilities, and Substance Use Services; the Office of Rural Health; the University of North Carolina at Chapel Hill (UNC); and Duke University. The goal of the MATTERS Program is to enhance systems for screening, assessment, and treatment of depression, substance use, and other behavioral health disorders in pregnant and postpartum women.

The program will provide: 1) outreach and education via in-person trainings and webinars for providers that care for pregnant women and women up to 12 months postpartum; 2) a screening toolkit for specific behavioral health disorders; 3) a consultation line for providers to have one-on-

one, case-specific discussions with perinatal mental health specialists; and 4) a perinatal telepsychiatry clinic to serve women who need additional assessment and do not have access to adequate local resources. The MATTERS Program will also provide specialized care coordination, working with local providers' practices and patients to assist in accessing appropriate care and community resources. See Figure 1 for a graphical representation of the program.

The MATTERS Program's objective is to strengthen local provider understanding and ability to provide care to pregnant and postpartum women regarding depression, substance use, and other behavioral health disorders by providing education, training, and support in the integration of maternal mental health assessment and treatment, while also assisting with care for patients who need addi-

**FIGURE 1.**  
**NC Maternal Mental Health MATTERS**



tional support from perinatal psychiatry experts. MATTERS was developed as a “whole-person” approach to integrated behavioral health and improving behavioral health resources to meet the needs of mothers during a critical time.

This program expands an integrative care model for perinatal mental health where specialists support obstetricians and primary care providers employed in outpatient clinics at UNC [20]. One key component of this integrative care model includes assessment of family history, past psychiatric conditions, and current mood symptoms via screening with the Edinburgh Postnatal Depression Scale [20]. North Carolina also has the unique ability to support those who are found to have the most complex mental health needs and require more intensive acute psychiatric services. The UNC Perinatal Psychiatry Inpatient Unit is the first such unit in the United States that provides inpatient services targeted to the needs of perinatal women who require psychiatric inpatient care [21, 22].

Mental health is a key component of health for everyone. There are many barriers for patients to receive care that supports their mental health and for providers to address mental health. With regard to those with more complex mental health care needs there are even greater barriers for patients and providers. One barrier is that 90 North Carolina counties have a geographic or population health professional shortage area for mental health in findings from the North Carolina Office of Rural Health in 2019 [23]. Frontline providers are critical to providing mental health care and much of this care falls on them. The goal of the MATTERS Program is to build relationships between frontline providers and perinatal mental health specialists and to extend the reach of the latter in cases where their expertise is required.

The program strives to build on the resources of each county and to adapt to the needs of each community. It also holds promise for better understanding the mental health needs of all perinatal women, including perinatal mood and anxiety disorders as they impact North Carolinians.

The MATTERS Program will also work with other evidence-based programs to increase integration of mental health support. For example, the MATTERS program can provide education around maternal mental health to those administering Family Connects, a home visiting program that began in Durham, North Carolina, and provides another point of contact to women and their families for mental health education. Family Connects is an evidence-based program that has shown the benefits of home visiting for overall health, including less total emergency medical care (by 37%) through age 24 months and better use of resources with a \$3.17 decrease in total billing costs for each \$1 in program costs [24]. MATTERS support could further increase the impact on mental health and care access. Similarly, MATTERS integration with peer support initiatives holds promise to increase identification and access to education for women. Peer support already has exhibited the ability to improve depressive symptoms through increasing both activation levels and social support [25].

### Conclusions and Future Directions

MATTERS currently focuses on supporting frontline providers in screening, providing basic pharmacologic treatments, and referring to other treatments as needed. However, the MATTERS model has the potential to be expanded to increase efficacy in the administration of psychotherapies by frontline providers. In fact, in a systematic

review of randomized controlled trials and non-randomized controlled trials, counseling interventions were found to be effective in preventing perinatal depression [26]. The MATTERS model provides the opportunity to educate providers in counseling interventions. Telepsychiatry is a component of MATTERS to increase access to perinatal mental health specialists, and this may be adapted to provide access to telepsychotherapy. Preliminary findings also support the use of video-delivered family therapy integrated with home visiting to address perinatal depression symptoms [27]. As such, the MATTERS model, in conjunction with programs such as Family Connects, could provide a comprehensive approach to maternal mental health where providers and patients feel supported, increasing efficacy in meeting mental health needs in a number of ways, including for those in more rural areas through telehealth approaches.

Furthermore, UNC is part of a multisite clinical trial beginning in January 2020 to study whether obstetric nurses can provide behavioral activation therapy as effectively as specialists, as well studying as the effectiveness of providing counseling through telemedicine [28]. The knowledge gained from this study will inform the MATTERS program's ability to provide education and training for basic psychotherapy administration to frontline providers and its ability to provide telepsychotherapy in addition to medication management through telepsychiatry.

The United Kingdom provides a model of a comprehensive approach to perinatal mental health that includes integration of home visiting services along with a network of Mother and Baby Units (providing psychiatric inpatient care) that is supported by standards created by the Quality Network for Perinatal Mental Health Services and the government [16]. This and the MCPAP for Moms program in Massachusetts serve as models for developing comprehensive services by bringing together consumers, providers, researchers, advocates, and government leaders. North Carolina already has specialized inpatient care for those with the most complex perinatal mental health needs; with a greater focus on screening, assessment, and treatment through primary care and obstetrics through the MATTERS Program, now both patients and providers will be able to ensure patients receive the level of care that matches their needs. However, sustainability will require legislators, payers, providers, and consumers working together in ongoing collaboration to monitor quality and continue to evolve comprehensive approaches.

Evidence-based approaches can improve access to care and result in lower rates of morbidity such as suicide. Improving perinatal mental health may even hold promise to impact associated co-morbidities such as preterm birth. The perinatal period is critical for mother and child, and improved mental health during the perinatal period extends across the lifespan for both. The MATTERS program, integrated with other programs such as Family Connects and peer support programs, not only holds promise to improve

mental health for mothers and infants but can be the epicenter of improving the whole health of families. NCMJ

**Mary Kimmel, MD** assistant professor and co-director, Perinatal Psychiatry Program, Department of Psychiatry, University of North Carolina School of Medicine, Chapel Hill, North Carolina.

### Acknowledgments

Special thanks to Hannah Rackers, program manager at the MATTERS Program's inception, and Emma Granowsky and Miranda Manzanara, MSW, graduate interns who helped in creating materials for outreach and education, such as Figure 1. Special thanks to collaborators at the NC DHHS Division of Public Health and Duke University, including Belinda Pettiford, Tara Owens Shuler, Becky Moore Patterson, Gary Maslow, Naomi Davis, Kendra Rosa, Chelsea Swanson, and Alexis French. Special thanks to Karen Burns, who began as program manager in October 2019, and the perinatal mental health specialists at UNC and Duke University.

Funding is supported by the US Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau under contract number UK3MC32240.

Potential conflicts of interest. M.K. receives some salary support from the grant from HRSA that supports the MATTERS program.

### References

1. Gavin NI, Gaynes BN, Lohr KN, Meltzer-Brody S, Gartlehner G, Swinson T. Perinatal depression: a systematic review of prevalence and incidence. *Obstet Gynecol.* 2005;106(5 Pt 1):1071-1083.
2. Andersson L, Sundström-Poromaa I, Wulff M, Åström M, Bixo M. Depression and anxiety during pregnancy and six months postpartum: a follow-up study. *Acta Obstet Gynecol Scand.* 2006;85(8):937-944.
3. Halbreich U. Women's reproductive related disorders (RRDs). *J Affect Disord.* 2010;122(1-2):10-13.
4. Tandon SD, Cluxton-Keller F, Leis J, Le HN, Perry DF. A comparison of three screening tools to identify perinatal depression among low-income African American women. *J Affect Disord.* 2012;136(1-2):155-162.
5. Shonkoff JP, Garner AS, The Committee on Psychosocial Aspects of Child and Family Health, et al. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics.* 2012;129(1):e232-e246.
6. Muzik M, Bocknek EL, Broderick A, et al. Mother-infant bonding impairment across the first 6 months postpartum: the primacy of psychopathology in women with childhood abuse and neglect histories. *Arch Womens Ment Health.* 2013;16(1):29-38.
7. Lindahl V, Pearson JL, Colpe L. Prevalence of suicidality during pregnancy and the postpartum. *Arch Women's Ment Health.* 2005;8(2):77-87.
8. Woolhouse H, Gartland D, Mensah F, Brown S. Maternal depression from early pregnancy to 4 years postpartum in a prospective pregnancy cohort study: implications for primary health care. *BJOG.* 2015;122(3):312-321.
9. Palladino CL, Singh V, Campbell J, Flynn H, Gold KJ. Homicide and suicide during the perinatal period: findings from the national violent death reporting system. *Obstet Gynecol.* 2011;118(5):1056-1063.
10. Jones I, Chandra PS, Dazzan P, Howard LM. Bipolar disorder, affective psychosis, and schizophrenia in pregnancy and the post-partum period. *Lancet.* 2014;384(9956):1789-1799.
11. Sharma V, Bergink V, Berk M, et al. Childbirth and prevention of bipolar disorder: an opportunity for change. *Lancet Psychiatry.* 2019;6(9):786-792.
12. Jones I, Craddock N. Bipolar disorder and childbirth: the importance of recognising risk. *Br J Psychiatry.* 2005;186(6):453-454.
13. Cox EQ, Sowa NA, Meltzer-Brody SE, Gaynes BN. The perinatal depression treatment cascade: baby steps toward improving outcomes. *J Clin Psychiatry.* 2016;77(9):1189-1200.
14. Byatt N, Cox L, Moore Simas TA, et al. How obstetric settings can help address gaps in psychiatric care for pregnant and postpartum women with bipolar disorder. *Arch Womens Ment Health.* 2018;21(5):543-551.
15. Meltzer-Brody S, Howard LM, Bergink V, et al. Postpartum psychiatric disorders. *Nat Rev Dis Primer.* 2018;4:18022.

16. Kimmel MC, Bauer A, Meltzer-Brody S. Toward a framework for best practices and research guidelines for perinatal depression research. *J Neurosci Res*. doi:10.1002/jnr.24425.
17. Byatt N, Biebel K, Moore Simas TA, et al. Improving perinatal depression care: the Massachusetts Child Psychiatry Access Project for Moms. *Gen Hosp Psychiatry*. 2016;40:12-17.
18. Byatt N, Straus J, Stopa A, Biebel K, Mittal L, Moore Simas TA. Massachusetts Child Psychiatry Access Program for Moms: utilization and quality assessment. *Obstet Gynecol*. 2018;132(2):345-353.
19. HRSA awards over \$12M for maternal & child mental health programs [press release]. Rockville, MD: Health Resources & Services Administration; September 25, 2018.
20. Cox EQ, Raines C, Kimmel M, Richardson E, Stuebe A, Meltzer-Brody S. Comprehensive integrated care model to improve maternal mental health. *J Obstet Gynecol Neonatal Nurs*. 2017;46(6):923-930.
21. Meltzer-Brody S, Brandon AR, Pearson B, et al. Evaluating the clinical effectiveness of a specialized perinatal psychiatry inpatient unit. *Arch Womens Ment Health*. 2014;17(2):107-113.
22. Kimmel MC, Lara-Cinisomo S, Melvin K, Di Florio A, Brandon A, Meltzer-Brody S. Treatment of severe perinatal mood disorders on a specialized perinatal psychiatry inpatient unit. *Arch Womens Ment Health*. 2016;19(4):645-653.
23. North Carolina Department of Health and Human Services. North Carolina Office of Rural Health: Mental Health - Health Professional Shortage Areas (HPSA). NC DHHS website. [https://files.nc.gov/ncdhhs/2019HPSAP\\_MentalHealth\\_MAP2.jpg](https://files.nc.gov/ncdhhs/2019HPSAP_MentalHealth_MAP2.jpg). Published January 3, 2019. Accessed October 21, 2019.
24. Goodman WB, Dodge KA, Bai Y, O'Donnell KJ, Murphy RA. Randomized controlled trial of Family Connects: effects on child emergency medical care from birth to 24 months. *Dev Psychopathol*. September 2019:1-10. doi:10.1017/S0954579419000889.
25. Singla DR, MacKinnon DP, Fuhr DC, Sikander S, Rahman A, Patel V. Multiple mediation analysis of the peer-delivered Thinking Healthy Programme for perinatal depression: findings from two parallel, randomised controlled trials. *Br J Psychiatry*. July 2019:1-8. doi:10.1192/bjp.2019.184
26. O'Connor E, Senger CA, Henninger ML, Coppola E, Gaynes BN. Interventions to prevent perinatal depression: evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2019;321(6):588-601.
27. Cluxton-Keller F, Williams M, Buteau J, et al. Video-delivered family therapy for home visited young mothers with perinatal depressive symptoms: quasi-experimental implementation-effectiveness hybrid trial. *JMIR Ment Health*. 2019;6(3):e13636.
28. Patient-Centered Outcomes Research Institute. Scaling Up Psychological Treatments for Perinatal Depression and Anxiety Symptoms via Telemedicine. PCORI website. <https://www.pcori.org/research-results/2018/scaling-psychological-treatments-perinatal-depression-and-anxiety-symptoms>. Accessed September 6, 2019.