Maternal depressive symptoms and infant healthcare utilization: The moderating role of prenatal mindfulness

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Children of mothers with depression have elevated rates of healthcare utilization compared to children of non-depressed mothers.[1] Mindfulness-based interventions are associated with lower use of healthcare services among adults[2] and decreased maternal depression during the perinatal period.[3] No research has explored the potential moderating role of mindfulness-based treatment on the positive relation between maternal depression and offspring healthcare utilization. We hypothesized that a prenatal mindfulness intervention would attenuate the relation between maternal depressive symptoms and infant healthcare utilization during the first year of life.

Data were drawn from a quasi-experimental study that enrolled overweight and obese pregnant women in a mindfulness-based intervention (Mindful Moms Training; MMT) or treatment as usual (TAU) during the second trimester of pregnancy.[4] Women who begin pregnancy overweight or obese have a higher likelihood of developing perinatal depression,[5] a risk factor that may be compounded by the sociodemographic characteristics of our sample. Women in the current study were ethnically diverse (40.2% = African American, 33.3% = Latina, 12.8% = White, 13.7% = Other/Multiracial) and predominantly low-income (median income of $19,000, Range $0 - $98,000). A subsequent study followed the infants of women who participated in the original project[6] (49.6% female, M gestational age = 39.6 weeks, SD = 1.4). Healthcare utilization data was collected for 118 offspring (68 infants of women in MMT and 49 infants of women in TAU).

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In previous analyses with this sample, latent profiles of perinatal maternal depressive symptoms were derived using continuous PHQ-9 scores collected during the third trimester of pregnancy, 6 months postpartum, and 18 months postpartum.[7] Women in the present study were classified into one of three profiles of perinatal depression: none/minimal symptoms (24%), mild symptoms (53%), or moderate symptoms (24%). By uncovering heterogeneous subgroups of depressive symptom severity, latent profile analysis is more advantageous than creating a singular average depressive symptom score across the sample.[8]

Healthcare utilization data were abstracted from children's medical records. Emergency room and primary care provider visits were averaged ($M = 10.8$, $SD = 4.6$, $Range = 3–32$) given research suggesting that lower income families disproportionately rely upon emergency room services for routine and preventive care healthcare. To contextualize healthcare utilization, we compared our rates to the American Academy of Pediatrics (AAP) recommendations for eight healthcare visits for children from birth through 12 months of age for growth monitoring, screenings, and immunizations.[9]

The interaction of maternal depressive symptom profile and intervention group on healthcare utilization was modeled using linear regression (rather than Poisson due to the high mean of our outcome) controlling for percent of poverty level, maternal education, race/ethnicity, infant gestational age at birth. There was no main effect of the intervention on healthcare utilization ($p = .50$), however depression profile interacted with intervention group to predict offspring utilization (interaction $b = −7.16$, SE = 2.54, $p < .01$; See Table 1 in Supplementary Materials). Participation in MMT during pregnancy attenuated the association between moderate maternal depressive symptom severity and utilization of healthcare services for infants. Among women in the moderate severity profile who received TAU, the mean number of healthcare visits was 15.0 ($SD = 3.79$). Among women in the moderate severity profile who received MMT, the mean number of infant healthcare visits was 8.93 ($SD = 3.77$), approximately 40% lower than TAU participants and a rate more consistent with the AAP-recommended eight visits (see Figure 1).

The influence of mothers' enrollment in a mindfulness-based intervention on infant healthcare utilization adds to growing literature of the benefits of prenatal mindfulness training for health outcomes.[3] Mindfulness may serve as a healthy cognitive and behavioral coping tool for new mothers, combating depression-related deficits in maternal self-efficacy that can lead to increased reliance on healthcare professionals for guidance when children are ill.[10]

Limitations include a focus on depressive symptoms and healthcare usage in terms of physician visits, precluding generalizability to women with clinical diagnoses of depression or to other types of healthcare services (e.g., inpatient hospitalizations, specialty care). The present research was also an early proof-of-concept pilot study of efficacy and did not utilize random assignment, which limits the causal inferences we may draw from our results.

In summary, the present study found an attenuation of the higher rates of infant healthcare utilization among a high-risk sample of women with moderate depression after participation in a prenatal mindfulness-based intervention. Incorporating screening and referral of

maternal mental health problems into obstetric and pediatric healthcare settings may contribute to wide-ranging benefits for mothers, infants, and resource utilization.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

Abbreviations:

AAP	American Academy of Pediatrics
LPA	latent profile analysis
MMT	Mindful Moms Training
TAU	treatment as usual

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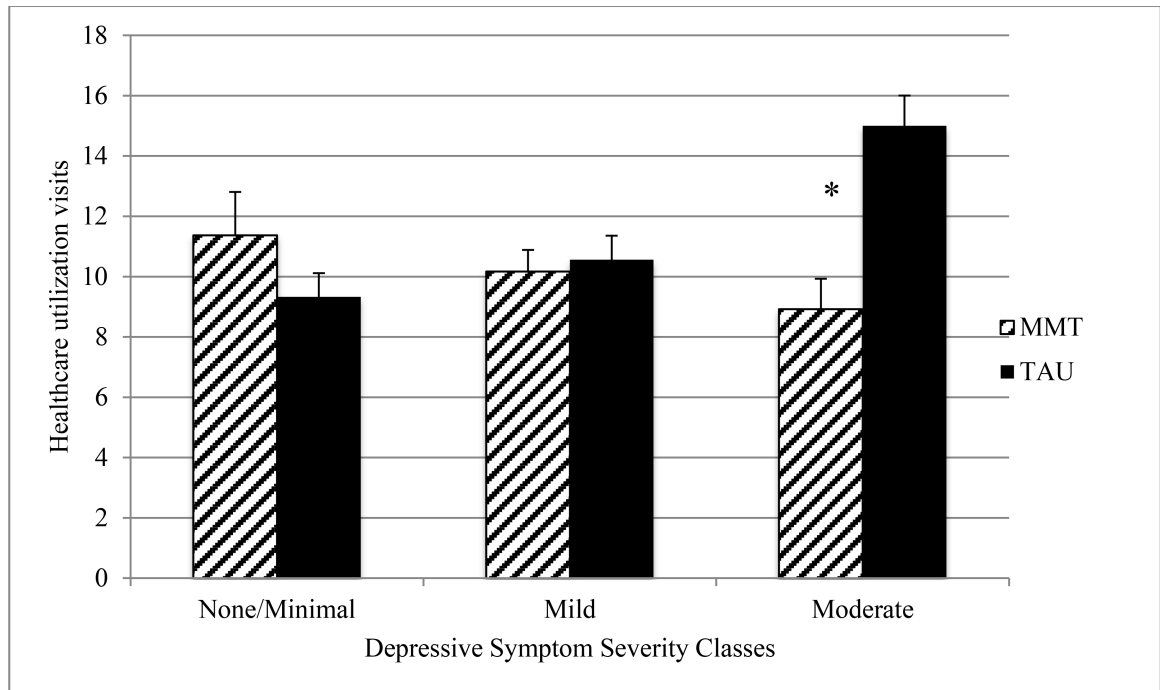
Figure 1. Average number of children's healthcare visits and standard errors by depressive symptom severity profile and treatment group assignment
Note. MMT = Mindful Moms Training, TAU = Treatment as usual. *$p < .05$