Phone-Delivered Mindfulness Training for Pregnant Women at Risk for Preterm Birth

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DESPITE MEDICAL ADVANCES TO prevent preterm birth (PTB), the United States has the highest PTB rate among developed countries.¹ Although the causes of PTB remain elusive, there is an increasing recognition that psychological stress contributes to the pathophysiology of PTB.² Pregnant women who experience high prenatal stress are up to six times more likely to deliver preterm.³ However, pregnant women at risk for PTB are faced with numerous barriers to accessing mental health treatment, including frequent medical appointments, significant childcare demands, and medically indicated activity restriction. Thus, there is a pressing need for feasible interventions to reduce stress among women at risk for PTB.

Prenatal mindfulness-based interventions significantly reduce symptoms of stress in medically healthy pregnant women. However, previous randomized controlled trials of prenatal mindfulness interventions have excluded pregnant women at risk for PTB, and healthy pregnant participants cited numerous barriers to participation in mindfulness interventions, including transportation difficulties,⁴ delivery/miscarriage before the end of the intervention,⁵ and medical complications of pregnancy.^{4,6–8} These data strongly suggest the need for feasible mindfulness interventions for high-risk prenatal populations that can effectively reduce prenatal stress and overcome common barriers to participation.

As a first step, we conducted a single-arm pre-/post-test proof-of-concept study of phone-delivered mindfulness training among pregnant women at risk for PTB. There is a growing body of evidence demonstrating that non-face-to-face mindfulness interventions are effective at reducing mental health symptoms (see Spijkerman et al. for a recent review).⁹

Pregnant women were recruited through medical offices in Rhode Island, hospital postings, and flyers placed in community locations. To be eligible to participate, women needed to be ≥ 18 years old, English speaking, pregnant with only one fetus, at risk for PTB as determined by their provider, and free of severe depression and psychosis. The Rhode Island Hospital IRB approved this study and all women provided written informed consent.

Ten pregnant women participated in eight weekly 30-min phone-delivered mindfulness training sessions guided by a certified mindfulness instructor. Mindfulness sessions included standard components of traditional mindfulness-based stress reduction (body scan, awareness of breath, mindful activities of daily life, and open awareness). Participants were encouraged to practice mindfulness exercises for 15 min each day using recordings provided at enrollment. Women were $M_{\text{age}} = 34$ ($SD = 3.16$); 71% with annual income $> \$50K$; race/ethnicity: 21% Hispanic, 42% non-Hispanic white, 14% black, and 14% Asian. Seventy percent of participants completed ≥ 4 sessions ($M = 5$, range: 1–8). Seventy-five percent reported that they were “very satisfied” with the intervention.

Symptoms of pregnancy anxiety, depression, post-traumatic stress disorder, and perceived stress decreased after mindfulness training, with average reductions of 16% ($d = 0.50$), 26% ($d = 0.43$), 40% ($d = 0.61$), and 14% ($d = 0.32$), respectively. The average gestational length of the current pregnancy was 38.26 weeks ($SD = 1.30$). Women delivered ~ 7 weeks later ($t = -2.92$, $p = 0.017$) and were less likely to deliver preterm ($t = 3.13$, $p = 0.011$) compared with the penultimate pregnancy. Thirty-six percent of participants received weekly progesterone injections and/or

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cerclage to prevent PTB. There were no differences in gestational length among women who did or did not receive medical interventions to prevent PTB ($t = -0.89$, $p = 0.40$).

Findings from this proof-of-concept study indicate that phone-delivered mindfulness training for pregnant women at risk for PTB holds promise as a beneficial intervention to reduce prenatal stress. However, significant limitations from this study include the lack of randomization, lack of comparison condition, and inclusion of women without significant symptoms of prenatal stress at baseline. Future steps in this line of research include the optimization of the intervention, including at-home self-guided practice and the exploration of alternative delivery methods (i.e., web based) to improve retention and adherence. Future studies should also use a randomized controlled design with an attention-control comparison condition, and involve larger samples of pregnant women at risk for PTB who experience high levels of distress in pregnancy.

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Author Disclosure Statement

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