Anxiety as a Moderator of Perinatal Distress Trajectories Following a Condensed Mindfulness-Based Program

Marissa D. Sbrilli, M.S. & Heidemarie K. Laurent, Ph.D.
Department of Psychology, Clinical-Community Division, University of Illinois at Urbana-Champaign

INTRODUCTION

- Given the serious negative impacts on child-bearer's own health as well as their children's neurocognitive development, it is imperative to reduce psychological distress—stress, anxiety, and depression—during the perinatal period.

- *Mind in Labor (MIL)* is a condensed mindfulness-based childbirth preparation program that has shown to reduce depressive symptoms through six-weeks postpartum (Duncan et al., 2017).

- Taken together, the previous research provides growing evidence for the benefit of MBIs in pregnancy to support maternal well-being (Hall et al., 2016), while also highlighting a need for further research to elucidate the nature and durability of benefits.
   - In particular, further investigation is required to establish whether mindfulness training predicts lasting differences in trajectories of often comorbid manifestations of perinatal distress, as well as to identify baseline characteristics that moderate these effects.

AIM

- We examined whether MIL compared to treatment as usual (TAU) resulted in lower distress across the perinatal period (pregnancy to one-year postpartum) and whether child-bearers' baseline anxiety symptoms moderated degree of benefit in a pilot RCT.

- We hypothesized that participation in MIL would be associated with greater reductions in distress—evidenced by decreasing slopes and lower final distress levels—compared to TAU.

- We further predicted moderated effects such that women with higher levels of depression or anxiety symptom severity at baseline would display the greatest improvements in MIL compared to TAU.

METHOD

Procedures
- Participating mothers (n=30) in their third trimester were randomized to MIL or TAU
   - TAU was an active control condition. Participants were able to choose a standard childbirth education class from a list of approved community resources, which had no mind-body focus, mindfulness, or yoga.
- Reported distress was measured at four times: pre- and post-intervention, 6-weeks and 12-months postpartum.

Measures
- Distress measures included:
   - Perceived Stress Scale (PSS)
   - Spielberger State-Trait Anxiety Inventory–Trait (STAIT)
   - The Centers for Epidemiologic Studies Depression Scale (CESD).

Analyses
- A distress composite score of the STAIT, CESD, and PSS was created at each wave by standardizing and then averaging the scores.

- HLM analyses examined trajectories of distress across time and to test proposed differences by intervention group.
   - Level 1 modeled each woman's distress trajectory with an intercept and linear slope; the latter was centered at the final assessment so that intercepts represented final levels of distress at 12 months postpartum.
   - Level 2 modeled between-woman differences in distress trajectories that could be explained by intervention condition (testing hypothesis 1), as well as interactions of intervention condition with baseline levels of symptoms or mindfulness (testing hypothesis 2).

RESULTS

- Multilevel modeling of distress trajectories showed MIL participation resulted in decreased distress trajectories, especially among women higher in baseline anxiety symptoms.
- Significant intervention*time 1 STAIT anxiety interaction effects on both distress intercepts (p<.01) and slopes (p<.01) were observed.
- Region of significance testing showed MIL participation resulted in lower (decreasing) distress slopes and lower ending distress levels for women with moderate to high levels of prenatal anxiety (STAIT scores > 63rd percentile).

Table 1. Effect of Intervention Condition on Distress Trajectories and Moderation by Baseline Anxiety

Variable	γ	p
A. Main Effects		
Distress Intercept (predicted T4 level)	.045	.816
MIL Participation	-.250	.229
Distress Slope (T1-4 change)	.012	.871
MIL Participation	-.123	.098
B. Moderated Effects – Baseline Symptoms		
Distress Intercept (predicted T4 level)	.012	.945
MIL Participation	-.261	.162
T1 Anxiety	.641	.009
MIL x T1 Anxiety	-.584	.004
Distress Slope (T1-4 change)	.011	.858
MIL Participation	-.106	.101
T1 Anxiety	-.040	.553
MIL x T1 Anxiety	-.172	.005

Note. γ = standardized coefficient from HLM model; MIL = Mind in Labor condition (vs. TAU); Distress = composite of CESD, STAIT, and PSS scores; Anxiety = STAIT.

Figure 1. Effects of MIL participation on child-bearers' distress slopes and ending levels at region of significance boundaries for baseline anxiety.
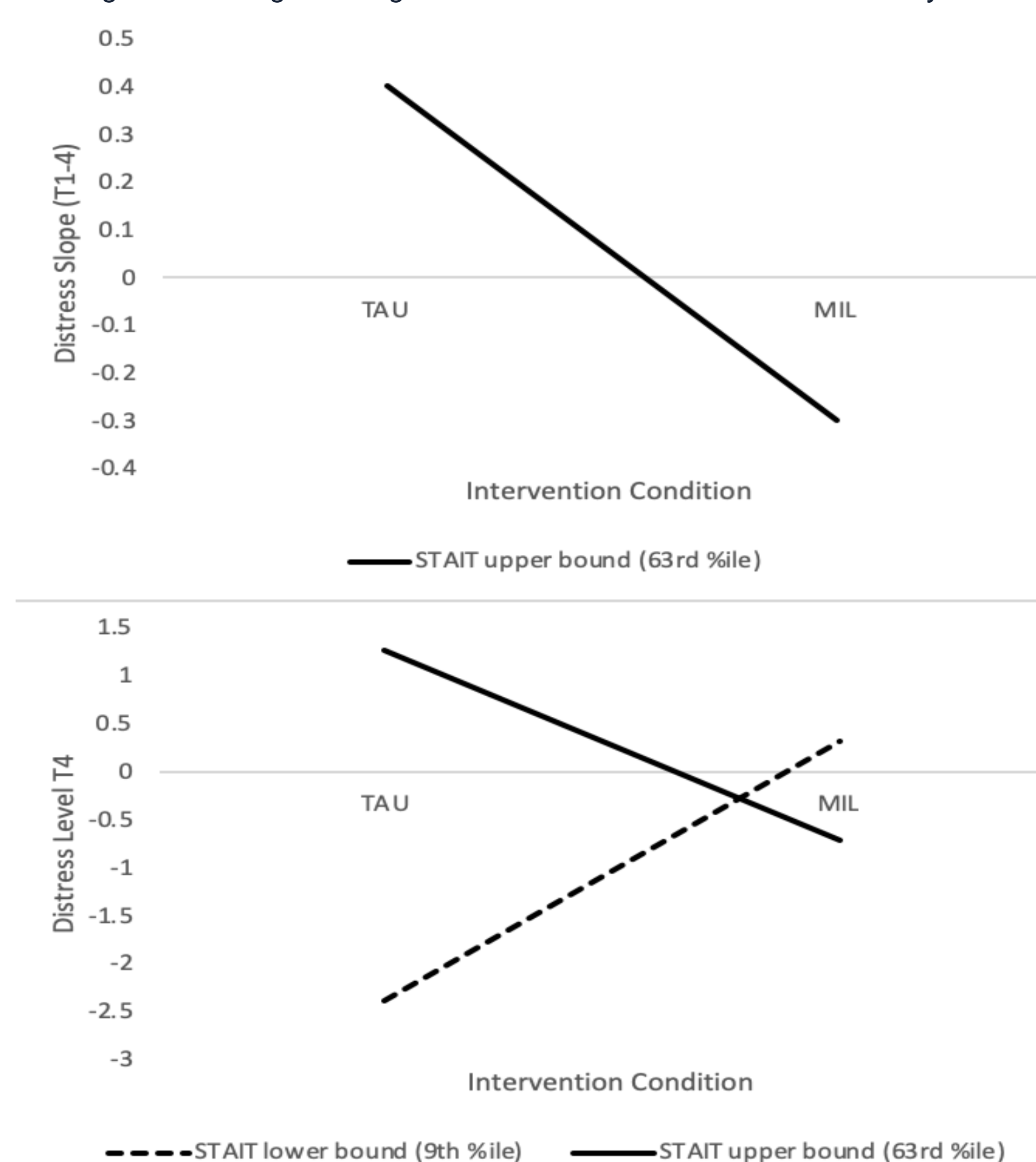
Note. STAIT = Spielberger State-Trait Anxiety Inventory – Trait; MIL = Mind in Labor: Working with Pain in Childbirth; TAU = treatment as usual

DISCUSSION

- This study provides preliminary evidence that a brief mindfulness-based childbirth preparation program during pregnancy can shift child-bearers' trajectories of distress through one-year post-birth.
- Participation in MIL (compared to TAU) predicted a decrease in the depressive symptom component of perinatal distress, with trend-level effects on an overall distress aggregate.
- Those with higher anxiety at baseline received the most benefit, with significant reductions in distress slopes and lower ending levels of postpartum distress compared to their TAU counterparts.
- This finding is consistent with prior work showing that people with greater symptoms derive the greatest benefit from MBIs, and with the idea that mindfulness may function to interrupt the transdiagnostic processes that maintain anxiety and other distress-related symptoms.
- Those with more trait-like and/or pronounced internalizing distress may be especially prone to the automatic reactive processes targeted by mindfulness principles and practices.
- Further investigation of these effects in larger samples is warranted.

CONCLUSIONS

- The present investigation provides preliminary support for the long-term effects of a condensed mindfulness training program on child-bearers' perinatal distress trajectories, particularly for those at greatest risk of stress-related mental health problems.
- Our findings highlight the value of continuing to validate and disseminate such programs, given barriers to completing more extensive interventions and the importance of promoting maternal wellbeing during this period.
- As such, this study represents an important step in the larger progression of building an evidence base for mindfulness-based interventions in the prevention of common mental health difficulties that child-bearers face in the powerful yet vulnerable time of pregnancy and postpartum.

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