PRENATAL YOGA FOR DEPRESSION DURING PREGNANCY: FINDINGS FROM A SERIES OF STUDIES

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**OVERVIEW**

Antenatal depression
Treatment development process: survey, pilot studies
Current RCT: Wellness for Two Study:
- Design, Aims, Recruitment
- Attendance, Patient Satisfaction
- Participant Feedback – exit interview, post-class
ANTENATAL DEPRESSION

- 13% of pregnant women experience MDD; 20% symptom elevations
- Co-occurs with anxiety
- In addition to distress:
  - Poor self-care: nutrition, substance use, lack of prenatal care
  - Adverse infant outcomes: premature birth, low birthweight
  - Greater risk of PPD, which can lead to continued functional impairment and disruptions to maternal-infant interactions
  - Risk for suicidal thoughts and behaviors
- Societal cost = depression is #1 complication of pregnancy and childbirth, leading to multigenerational consequences
- Under-treated – many barriers limit access to standard forms of mental health treatment

*Could prenatal yoga represent a safe, acceptable, effective treatment option?*

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Treatment Development – A process

1. **Patient Survey** to gauge acceptability and interest
2. **Open Pilot Trial** of Prenatal Yoga Program
3. **Pilot Randomized Trial** of PYP vs. Mom & Baby Wellness Workshop
4. **Full Scale RCT**
(STUDY 1) PATIENT SURVEY

- 250 perinatal women attending behavioral health clinic
- “If available, would you be interested in attending prenatal yoga classes?”
- 88% of depressed pregnant women expressed interest in yoga
- Common motivators: stress, depression, anxiety

<table>
<thead>
<tr>
<th>Reason for practicing yoga</th>
<th>% endorsing</th>
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<tbody>
<tr>
<td>Increased physical exercise and flexibility</td>
<td>84</td>
</tr>
<tr>
<td>Reduction of stress</td>
<td>73</td>
</tr>
<tr>
<td>Reduction of anxiety</td>
<td>63</td>
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<tr>
<td>Reduction of depression</td>
<td>62</td>
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<tr>
<td>Increase in happiness and joy</td>
<td>48</td>
</tr>
<tr>
<td>Personal growth</td>
<td>32</td>
</tr>
<tr>
<td>Increasing social support</td>
<td>16</td>
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<tr>
<td>Spiritual or religious reasons</td>
<td>15</td>
</tr>
</tbody>
</table>

Battle et al., 2010, Prenatal yoga and depression during pregnancy, JMHJ Issues in Perinatal Care v. 37, 353-354

(STUDY 2 & 3) R34 TREATMENT DEVELOPMENT GRANT

3-year trial, funded by NIMH

Objectives:
- Develop and refine a treatment manual
- Develop a teacher training program
- Develop intervention adherence scale
- Assess feasibility and acceptability of classes in an open pilot trial
- Assess safety of the yoga program
- Prepare for larger clinical trial: develop a comparison condition, recruitment and randomization procedures; conduct small pilot RCT
PRENATAL YOGA PROGRAM

• Developed in collaboration with experienced prenatal yoga instructors
• Gentle hatha yoga, tailored for pregnant women
• Similar to “typical” prenatal yoga classes available in the community
• Each class included breathwork, meditation, gentle warm-up, standing poses, floor poses, final resting pose, class closing and discussion of home practice
• Instructors encouraged to teach mindfulness, emphasize breath awareness, encourage home practice
• Props and modified asanas used as necessary
• 9-class series
• 75 minute class once a week + home practice encouraged
• 147 page intervention manual

STUDY 2) OPEN PILOT TRIAL

Recruitment: OB clinics, online, flyers
Eligibility: 12-26 weeks, singleton pregnancy, depressed, not using substances, medically cleared, English speaking
Assessments: Baseline, weeks 3, 6, and 10 (endpoint) measuring depression severity, mindfulness, injuries due to yoga

• Demographics:
  • Average age 28 years
  • Race: 41% White; 15% African American; 6% multiracial; 32% unspecified
  • 50% college educated
• Depression diagnosis & symptom levels:
  • 75% had MDD
  • 25% depression elevations
  • Baseline EPDS = 13.0 (sd 5.3); baseline QIDS = 12.6 (sd 3.2)
• Perinatal characteristics:
  • Average gestation 19 weeks
  • 55% first pregnancy

OPEN PILOT TRIAL RESULTS, N=34

SAFETY
• Safety assessed regularly
• No injuries reported from yoga during the entire trial

PRELIMINARY EFFICACY
Mindfulness - increases on FFMQ: Awareness and nonjudgment
Depression – decreases on self reported and interviewer-rated depression scores

ACCEPTABILITY
• Average class attendance = 6 out of 9 classes

Satisfaction
• Client Satisfaction Scale CSQ-8
• Mean score 29.6 (2.8)

FEASIBILITY
• Providers referred and medically cleared patients
• Assessment, class procedures realistic

EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS) (Cox et al., 1987) ([2(2), 38] = 17.4, p = .001).


(STUDY 3) PILOT RCT

Objectives:
• To develop and refine a comparison condition
• To assess feasibility of conducting a larger randomized trial

What is the Mom & Baby Wellness Workshop (MBWW)?
• Educational intervention focused on maternal & child wellness
• Class format – like an interactive college seminar
• Controls for time and attention, social aspects
• Useful material; promotes recruitment feasibility
PILOT RCT RESULTS, N=20


( attraverso il handwritten di L. A. Battle, C. L. Magee, S. R. Sutton, K. Miller)

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( STUDIO 4) FULL SCALE RCT: WELLNESS FOR 2

AIMS

• PRIMARY: Compare PYP vs. MBWW on changes in depression severity
• SECONDARY: Compare PYP to MBWW on other maternal outcomes & preterm birth
• MECHANISMS: Do changes in inflammation and/or increased skill in nonjudgment of internal experiences serve as mediators between treatment group and outcome?
• EXPLORATORY: Examine infant neurobehavioral functioning and birth outcomes

DESIGN & PROCEDURES

• 5 YEAR RCT - FUNDED BY NICHD
• PROCEDURES SIMILAR TO PILOT RCT
• BLINDED OUTCOMES AT MULTIPLE FOLLOW UP POINTS
• CLOSE ASSESSMENT OF SAFETY AND ADVERSE EVENTS
• INFANT OUTCOMES AND BIRTH RECORD ABSTRACTION
• TARGET N=178

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## ENROLLMENT

130 WOMEN RANDOMIZED TO DATE
- 66 in Prenatal Yoga Program (PYP)
- 64 in Mom & Baby Wellness Workshop (MBWW)

## ACCEPTABILITY & SATISFACTION

**Class attendance**
- Similar to pilot, women attend about 6 out of 9 classes
- 6.1 classes in PYP group, 6.6 classes in MBWW group

**CSQ-8 satisfaction ratings**
- All Wellness for 2 classes rated in acceptable range
- PYP classes rated higher (29.4) vs MBWW (25.5)

**Small subset: immediate post-class effects**
- pre/post ratings: Sadness, Anxiety, Irritability, Fatigue
- pre/post description of emotional state
- new - only 18 women to date
PARTICIPANT FEEDBACK - POST CLASS RATINGS

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DESCRIBE YOUR EMOTIONAL STATE RIGHT NOW

PRE CLASS (both)

POST CLASS MBWW

POST CLASS YOGA

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PARTICIPANT FEEDBACK – EXIT INTERVIEWS AFTER SERIES

Did the classes (PYP or MBWW) help improve your mood or stress level?

**MBWW**

- **DEFINITELY**
- **POSSIBLY**
- **NO or NOT SURE**

**Prenatal Yoga**

- **DEFINITELY**
- **POSSIBLY**
- **NO or NOT SURE**

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OPEN ENDED FEEDBACK

**How did prenatal yoga help you?**

- "It helped me sleep at night."
- "It helped me a lot — with the mindfulness, breathing, the stretching... it definitely helps to 'still' my body... if something hurts, I can do something to help it out."
- "It made me less stressed... helped me relax... just getting your mind off everything and just listening to your breathing."
- "It got me out of the house every week. And it motivated me to actually be a bit more active than usual."
- "I liked having the time to make for myself to go to the class... to have time to focus on myself."
- "I had some stressful things happen in my pregnancy... the mindfulness helped me to actually enjoy my own pregnancy... to focus on the experience."
NEXT STEPS – WELLNESS FOR 2

• Finish the trial! Examine primary outcome – maternal depression
• Secondary outcomes: anxiety, sleep, functioning, pain, attachment to infant
• Medical outcomes: safety/ adverse events, birth outcomes
• Mechanisms: mindfulness, inflammation

• Possible future research:
  – Long term child outcomes?
  – Long term maternal outcomes?

LESSONS LEARNED

Importance of interdisciplinary team

Value of treatment development process

(1) Patient Survey
(2) Manual, Open Trial
(3) Small Pilot RCT
(4) Larger Full Scale RCT
THANK YOU

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