Long-Term Effects of Yoga for Major Depressive Disorder and Opportunities for Promoting Mental Health in Underserved Populations

Patricia Kinser PhD, RN, WHNP-BC
Disclosures & Acknowledgement

• No financial payments or relevant disclosures

• Funding:
  • 5P60MD002256 (Strauss, PI), VCU NIMHD Comprehensive Center of Excellence: Clinical Faculty Scholar Program; National Institute on Minority Health and Health Disparities, NIH; 2015-2017
  • American Nurses Foundation Research Grant (Kinser, PI); 2015-2016
  • Sigma Theta Tau International/Southern Nursing Research Society Research Grant (Kinser, PI); 2015-2016
  • UL1TR000058; VCU CCTR Endowment Fund grant (Kinser, PI), National Center for Advancing Translational Sciences; 2014-2016
  • P30 NR011403 (Grap, PI), Center of Excellence for Biobehavioral Approaches to Symptom Management: SON intramural funds; National Institute of Nursing Research, NIH, 2012-2014
Background

• Major depressive disorder (MDD)
  – common cause of mental suffering and disability
  – most individuals with depression report only a 50% decrease in symptoms with the use of the typical allopathic treatments
  – many individuals often seek complementary health approaches for symptom relief
Why yoga for depression?

• Yoga:
  – is relatively easily available in the United States; in the top 10 most practiced complementary modalities in U.S.
  – is a mind-body modality that combines physical movements, breathing practices, relaxation/mindfulness practices
  – has minimal side effects
  – can be self-administered or experienced in a group setting
  – can be adapted to one’s mood
  – may address limitations of biomedical model (focus on wellness rather than illness)
Why yoga for depression? (cont)

- The literature suggests that yoga in various populations may
  - have positive psychological effects: decrease psychological, physical, or cognitive symptoms of depression, stress, and anxiety; improve perceived well-being, coping, mindfulness, empowerment
  - have positive physiological effects: sympathetic/parasympathetic balance, increase GABA levels, stimulate vagal nerve, decrease inflammation, influence brain regions of interest
Study #1: Research Aims

• Evaluate feasibility and acceptability of an 8-week yoga intervention as a therapeutic modality for women with severe MDD despite the usual care

• Evaluate preliminary effects on psychological outcomes at end of intervention and 1 year later
Figure 1. CONSORT diagram

Enrollment

Assessed for eligibility (n=48)
- Eligible, but declined participation due to schedule conflicts (n=2)
- Ineligible, not meeting inclusion criteria (n=7)
- Did not complete screening or consent visits (n=11)

Excluded (n=21)

Consented & Randomized (n=27)

Allocation

Yoga group (n=15)
- Received allocated 8-week intervention (n=12)
- Did not receive allocated 8-week intervention (n=3)
  - dropped out before start of classes (n=2)
  - dropped out in first week of class (n=1)

Health-education control group (n=12)
- Received allocated 8-week intervention (n=6)
- Did not receive allocated 8-week intervention (n=6)
  - dropped out before start of classes (n=5)
  - dropped out in 2nd week of classes (n=1)

One Year Follow-Up

Participated in follow-up at one year (n=7)
- Lost to follow-up (n=8)

Participated in follow-up at one year (n=2)
- Lost to follow-up (n=10)

Analysis

Analyzed for short-term outcomes (n=12)
- Excluded from analysis because did not receive allocated intervention (n=3)

Analyzed for long-term outcomes (n=7)
- Excluded from analysis because did not participate in follow-up (n=5)

Analyzed for short-term outcomes (n=6)
- Excluded from analysis because did not receive allocated intervention (n=6)

Analyzed for long-term outcomes (n=2)
- Excluded from analysis because did not participate in follow-up (n=10)
Results

Fig 2. Adjusted means and standard errors by group assignment over time (baseline, 2, 4, 6, 8, and 52 weeks [1 year])

<table>
<thead>
<tr>
<th></th>
<th>Depression (PHQ9)*</th>
<th>Stress (PSS)</th>
<th>Ruminations (RRS)*</th>
<th>State Anxiety (STAI)</th>
<th>Quality of Life (SF-12)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yoga 14.9(1.3)</td>
<td>Yoga 38.5(2.1)</td>
<td>Yoga 27.4(1.6)</td>
<td>Yoga 52.5(3.5)</td>
<td>Yoga 24.5(2.8)</td>
</tr>
<tr>
<td></td>
<td>Control 16.4(1.5)</td>
<td>Control 38 (2.3)</td>
<td>Control 24.9(1.8)</td>
<td>Control 55.1(3.9)</td>
<td>Control 25.8(3.2)</td>
</tr>
<tr>
<td>2</td>
<td>11.6(1.4)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>7.9(1.4)</td>
<td>35.6(2.2)</td>
<td>24.1(1.7)</td>
<td>47.1(3.7)</td>
<td>36.8(3)</td>
</tr>
<tr>
<td>6</td>
<td>7.1(1.4)</td>
<td>7.7(1.9)</td>
<td>-</td>
<td>-</td>
<td>33.3(4.3)</td>
</tr>
<tr>
<td>8</td>
<td>4.8(1.4)</td>
<td>8.4(1.9)</td>
<td>31.7(2.3)</td>
<td>41.5(3.8)</td>
<td>45.9(3.1)</td>
</tr>
<tr>
<td>52</td>
<td>6.6(1.7)</td>
<td>21.3(2.8)</td>
<td>37.3(2.9)</td>
<td>38.5(4.7)</td>
<td>36.8(4.2)</td>
</tr>
</tbody>
</table>

*significant difference between groups over time, p<.05

Note: lower scores indicate decreased symptoms in the PHQ9, PSS, RRS, and STAI; in the mental component score of the SF-12, a higher score indicates better mental health

Results (cont)

Fig 3. Changes in depression over time (unadjusted means & SE)

Results (cont)

Fig 4. Changes in **ruminations** over time (unadjusted means & SE)

“It’s a mindfulness thing. When you’re being anxious and forget to breathe or are not mindful, or in your head and somewhere else, yoga brings you back, you say ‘I’m going to breathe now…’”

“I feel good about myself more often than before the yoga. I learned to focus on the positive, instead of what I did wrong, didn’t do, or can’t do anything about anyway.”

“I am more than my depression”

“Yoga is a tool in my toolbox”
Recruitment & Retention

- Some interested individuals were lost b/t initial contact & consent
- Referrals from healthcare providers are key
- Yoga group had higher retention rate
- Many attention-control group were lost to follow-up
- Small sample size and related issues limits analyses & generalizability

Acceptability & Feasibility of Yoga

- All of the yoga group participants stated that they preferred group classes over home practice and class handouts over DVD
Conclusion

This pilot study suggests that yoga is a promising complementary health approach for women with depressive symptoms:

– Yoga practice had both short and long-term positive effects on depressive symptoms and ruminations
– Yoga intervention was feasible and acceptable for the study population
– Sustained yoga practice, even if infrequent, led to continued improvements in depressive symptoms, stress, and ruminations over time
– “Exposure” to yogic practices carried a sustained effect
Next steps?

- We considered populations at great need for non-pharmacologic support for depressive sxs
Background

- Adverse maternal-child effects of perinatal depression and stress
  - Preterm birth, intrauterine growth restriction, low birth weight
  - Substance abuse, comorbidities
  - Poor maternal-fetal/child attachment
  - Poor parenting behaviors
  - Poor neurocognitive development of child
  - Increased risk of chronic illness later in life for both mother and child

Focus Group Studies:
Exploring non-pharmacologic strategies for managing prenatal depression and stress in underserved women

**Study #2:** To explore pregnant, urban, African-American adolescents’ perceptions of stress and depression and their interest in mind-body therapies

- Study sample: $n=17$ currently pregnant adolescents, age 14-21 (mean 17.5± 1.3)

**Study #3:** To explore women’s experiences with prenatal yoga for stress & depression symptom self-management

- Study sample: $n=14$ currently or recently pregnant women, age ≥18 and above who participated in prenatal yoga in some form within the past 6 months
Findings - Study #2

Experience of urban, AA pregnant adolescent

- Pervasive stress and depression symptoms
- Sense of isolation

Perception of stress/depression management

Any intervention must:
- be group-based & interactive
- include others of similar age and background
- be facilitated by someone who "understands"
- provide information about managing difficult emotions

Yoga is perceived to be appealing because it may:
- decrease stress
- prevent isolation
- decrease physical discomforts of pregnancy
- enhance relationship-building with others

Findings - Study #3

**Lived Experience of Prenatal Yoga**

**Theme #1:** attracted to yoga because of stress and depressive symptoms

**Theme #2:** Psychological & Physical Benefits
- Psychological Benefit: self-care
- Psychological Benefit: community-building
- Physical Benefit: ultimately creates psychological strength

**Theme #3:** Prenatal yoga more beneficial than other prenatal groups

Discussion

• We cannot ignore stress and depression symptoms in these populations
• Researchers/healthcare providers must listen to the specific needs of underserved populations when designing interventions
• Our next steps:
  – Understanding biobehavioral mechanisms (social, environmental, epigenetic) of perinatal depression
  – Evaluating yoga interventions for self-management of stress and depression in diverse pregnant women and adolescents
Next Steps?

• Understand biobehavioral mechanisms of perinatal depression in diverse women
  – Current study: Social, environmental, and epigenetic mechanisms underlying perinatal depression
Next Steps? (cont)

• Integrate yoga into prenatal care programs
  – Current Study: Centering Pregnancy Care + Yoga for Diverse Women at Richmond Health Department (Kinser, PI)
    • Psychobehavioral & biomarker outcomes (e.g. salivary NGF, a non-invasive stress marker)

• Involve professionals at the “front lines” into referring patients to appropriate activities, such as yoga, for mental health
  – Upcoming study: nurse-patient partnership for enhancing awareness of depressive symptoms and engagement in prenatal yoga (Kinser, PI)
    • Psychobehavioral & biomarker outcomes (e.g., DNAm)
Conclusion

• Underserved women are interested in prenatal yoga for mental health/symptom management

• Prenatal yoga may be useful in the management of psychological distress and in development of a sense of community among diverse pregnant women
Questions?

Contact:

kinserpa@vcu.edu
804-828-9140
Selected References


Kinser, P., Masho, S. (2015, in press). “Yoga was my saving grace”: The experience of women who practice prenatal yoga. *JAPNA.*


