Effects of Yoga on Blood Pressure, Stress, and Physical Activity in Overweight, African-American Women

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Background

- Perceived chronic stress leads to changes in eating habits which have an influence on weight status [1].
- Over 80% of African-American women are overweight or obese and approximately 50% of African-American women are diagnosed with hypertension [2, 3].
- African-American females have higher death rates from coronary heart disease compared to white females (Figure 1).
- Evidence suggests yoga is an effective therapy for individuals with hypertension [4].
- Due to the lack of research in specific practices of yoga, there is not one practice of yoga recommended for those who have hypertension [4].
- The knowledge of how yoga impacts stress, blood pressure, and engagement in physical activity can help prevent weight-related chronic conditions in African-American women.

Significance of the Study

- Innovative strategies that address excess weight status in African-American women are needed.
- Few studies have examined physical activity levels of adult African-American women.

Research Statement

Primary Aim

- Compare the physiological, psychological, and behavioral effects of a 12-week yoga intervention to a delayed-intervention control group in a sample of 50 overweight, sedentary African-American women

Secondary Aim

- Conduct focus groups with selected 12-week yoga intervention participants based on attendance to explore perceptions of intervention receptivity and acceptability

Methodology

Participant Recruitment

- Recruitment through local churches, community centers/organizations, and libraries
- Social media outlets: Facebook, Instagram, and Twitter
- 200 women will be recruited with the target of 50 eligible participants

Intervention

- 12-week intervention for African-American women over age 18
- 50 participants will be randomized to the intervention group or delayed-intervention control group
- Participants will attend three 60-minute yoga sessions per week
- Each in-person yoga session will be recorded and made available on a private YouTube channel
- Participants will log participation in a secure Google Docs form after each yoga session
- Intervention and delayed-intervention control participants will wear accelerometers to record physical activity levels

Delayed-Intervention Control

- Participants are asked to maintain their sedentary physical activity levels
- Will have access to 12-weeks of yoga videos and YouTube videos after the post-intervention assessments

Post-intervention Focus Group

- Multiple focus groups with intervention participants with the highest and lowest attendance rates
- Will be audio recorded and transcribed by research staff

Expected Results

Compared to the control group, participants in the intervention group will have a significant:
1) Decrease in blood pressure as measured by an automated blood pressure monitor
2) Decrease in stress as assessed by self-reported measures
3) Increase in physical activity as measured by accelerometry

Results will be used as pilot data for a NIH R21 or R01 application and will be submitted to the 2017 American College of Sports Medicine annual meeting and related peer-reviewed journals.

Table 1. Study Activities

<table>
<thead>
<tr>
<th>Table 1. Study Activities</th>
<th>Timeline: July 1, 2015 – Jan 15, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRB application</td>
<td>Q1</td>
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<tr>
<td>Participant recruitment &amp; informed consent</td>
<td>X</td>
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<td>Intervention planning</td>
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<td>Intervention implementation</td>
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<td>Data analysis</td>
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<td>Abstract submission for presentation at 2017 ACSM annual meeting</td>
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<tr>
<td>Preparation of manuscript &amp; R01 resubmission</td>
<td>X</td>
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Table Footnotes:
- Q1=July-Sept 2015; Q2=Oct-Dec 2015; Q3=Jan-Mar 2016; Q4=Apr-June 2016; Q5=July-Sept 2016; Q6=Oct-Jan 2017

References:

Figure 1: Age-adjusted death rates for coronary heart disease (CHD), stroke, and lung and breast cancer for white and black females (United States: 2011) [3].