The Effectiveness of a Yoga-Based Intervention Program on the Health and Well-Being of Youth in Alternative School Settings

Jennifer L. Frank, Ph.D & Bidyut Bose, Ph.D
Patricia A. Jennings, Ph.D
Patricia Broderick, Ph.D
Transformative Life Skills

» Universal classroom-based program designed to reduce stress and increase youth adaptive coping skills through instruction in centering meditation, breath awareness and yoga.

» Three core practices are referred to as the ABC’s
  » Action-Breathing-Centering

» Four Units: Stress Management, Body and Emotional Awareness, Self Regulation, and Building Healthy Relationships.
Transformative Life Skills

» Delivered as an 18-week semester-long program

» Each unit includes 12 lessons that can be delivered in 15, 30, or 60 minute segments.

» Scripted lesson plans, integrated video demonstration segments (if required), fidelity checklists, and student activity workbooks.
The full TLS curriculum is 48 lessons divided into 4 units. TLS can be implemented as versions for:
- 15-minutes
- 30-minutes
- 60-minutes

In most typical implementation scenarios, 3 lessons per week are delivered. Lessons focus on mastery of a particular mindful movement, breathing, and centering techniques.

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Action</th>
<th>Breathing</th>
<th>Centering *</th>
<th>Lesson Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Understanding what stress is about</td>
<td>Mountain Pose</td>
<td>4:8 breath</td>
<td>Learn what the stress response is and why it is important; tools to deactivate it when not helpful</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Centering: Using your pulse to recognize the relaxation response on the exhale</td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>Recognizing stress in your body</td>
<td>Crescent Moon</td>
<td>Deep breathing</td>
<td>Recognize physical signs; practice noticing body sensations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Centering: Noticing what moves as you breathe</td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td>Knowing what stresses you</td>
<td>Forward Warrior</td>
<td>4:8 breath</td>
<td>Know your stressors; practice noticing uncomfortable sensations while remaining calm</td>
</tr>
<tr>
<td>1.4</td>
<td>How stress affects your breath</td>
<td>Side Warrior</td>
<td>Smooth, long breaths</td>
<td>Notice how stress affects your breath; practice noticing your breathing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Centering: Counting number of breaths per minute</td>
<td></td>
</tr>
</tbody>
</table>
Content Units

» Four Content Units

» Each unit contains 12 coordinated lesson plans

» Unit Themes
  » Stress Response
  » Physical and Emotional Awareness
  » Self Regulation
  » Healthy Relationships
Lesson Overview

» Designed to be implemented by variety of individuals

» Provide introductory professional development session

» Each lesson has overview, objectives, materials, activities, and timelines

» Fidelity Checklists
Lesson Overview

» Manualized administration

» Predictable instructional sequence
  » Review Expectations
  » Daily Agenda
  » Background Knowledge
  » Action-Breathing-Centering
  » Wrap Up
  » Extension Activities

Mindful Movement and Pose of the Week (6 minutes)

Arm Movement with Hands Clasped (Seated)

Say: If it feels comfortable, sit up a little bit straighter. Clasp your hands together in front of you. As you breathe in, reach your palms up toward the ceiling as high as feels comfortable. As you breathe out, watch your hands as they come back down to your lap. As we do this, we’ll breathe in for 4 counts and out for 8 counts. Breathe in 1, 2, 3, 4, breathe out 1, 2, 3, 4, 5, 6, 7, 8.

Lead students in 4-5 rounds of rhythmic 4:8 breathing while demonstrating the movement. Then invite them to let relax their arms and go back to breathing normally, letting their hands just rest on their lap or desk.

Robin (Seated)

Say: For the next movement, feel free to start really small, and experiment with making the movement bigger as you feel comfortable. When you breathe in, draw the shoulders back. When you breathe out, bring the shoulders forward and the chin down.

Guide students while they try a few rounds.

Say: If you want to get more of a stretch in your back: when you breathe in, take the shoulders back and lift the center of your chest. And when you breathe out: round the back, pulling the belly in and letting the head drop forward. Try a few more rounds, noticing what this movement feels like in your body.
Extension Activities

» Student workbook help personalize, extend, or transfer content learned during lesson

» Often involve some sort of critical thinking or academic-related skills

» Content provides forum for group discussions
Reflective Implementation

» Instructors monitor fidelity and engagement throughout

» Re-teaching is built into the program to ensure maximum dosage
What it Looks Like in Practice

» Instruction occurs in-class or in other classroom setting

» Both mat or non-mat based options
Goal: investigate whether exposure to TLS investigate the effectiveness of TLS on indicators of mental health and well-being among a population of high-risk youth attending an alternative school setting.

Sample: 49 students in grades 9-11 in a diverse alternative school in California
- 54% female
- 33% African American, 33.3% Hispanic, 4.2% Native American, 6.2% Asian, 2.1% Caucasian, 20.8% Mixed Race

Quasi-experimental pre-post design

Fidelity of implementation monitored regularly by trained observers – exceeded 95%
Measures

» Affect Valence Scale (Diener & Emmons, 1984)
  » Positive Affective Valence $\alpha = 0.84$
  » Negative Affective Valence $\alpha = 0.86$

» Brief Symptom Inventory (BSI-18)
  » Depression $\alpha = 0.88$
  » Anxiety $\alpha = 0.77$
  » Hostility $\alpha = 0.91$
  » Global Symptom Index (GSI) $\alpha = 0.89$

» Responses to Stress Questionnaire (Connor-Smith et al., 2000)
  » Rumination $\alpha = 0.79$
  » Intrusive Thoughts $\alpha = 0.85$
  » Emotional Arousal $\alpha = 0.74$
  » Involuntary Action $\alpha = 0.83$

» Transgression-Related Interpersonal Motivations Scale (TRIM-12; McCullough et al., 1998)
  » Revenge Motivation $\alpha = 0.81$
Analysis

» Paired t-tests to examine significant changes pre to post within treatment group

» P-values were corrected for multiple pairwise comparisons using Benjamini-Hochberg (BH) correction

» Attrition of 6 students (5.8% of total sample) due to mid-year school transfers, or inability to complete post-assessment questionnaires
## Results

<table>
<thead>
<tr>
<th></th>
<th>Unadjusted Means</th>
<th>t value</th>
<th>p-value</th>
<th>Adj. p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Affect</td>
<td>54.02</td>
<td>56.39</td>
<td>0.71</td>
<td>0.48</td>
<td>0.48</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>32.53</td>
<td>27.21</td>
<td>-1.56</td>
<td>0.13</td>
<td>0.15</td>
</tr>
<tr>
<td>Anxiety</td>
<td>1.55</td>
<td>1.42</td>
<td>-3.51</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Somatization</td>
<td>1.70</td>
<td>1.58</td>
<td>-1.49</td>
<td>0.14</td>
<td>0.15</td>
</tr>
<tr>
<td>Depression</td>
<td>1.83</td>
<td>1.59</td>
<td>-3.29</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Global GSI</td>
<td>1.85</td>
<td>1.55</td>
<td>-2.69</td>
<td>0.01</td>
<td>0.01</td>
</tr>
</tbody>
</table>
# Results

<table>
<thead>
<tr>
<th>Unadjusted Means</th>
<th>t value</th>
<th>p-value</th>
<th>Adj. p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involuntary Engagement</td>
<td>1.97</td>
<td>1.41</td>
<td>-7.23</td>
<td>0.01</td>
</tr>
<tr>
<td>Involuntary Action</td>
<td>1.94</td>
<td>1.50</td>
<td>-3.78</td>
<td>0.01</td>
</tr>
<tr>
<td>Rumination</td>
<td>2.04</td>
<td>1.34</td>
<td>-8.18</td>
<td>0.01</td>
</tr>
<tr>
<td>Intrusive Thoughts</td>
<td>2.07</td>
<td>1.44</td>
<td>-5.91</td>
<td>0.01</td>
</tr>
<tr>
<td>Physical Arousal</td>
<td>1.67</td>
<td>1.25</td>
<td>-4.49</td>
<td>0.01</td>
</tr>
<tr>
<td>Emotional Arousal</td>
<td>2.12</td>
<td>1.42</td>
<td>-6.88</td>
<td>0.01</td>
</tr>
</tbody>
</table>
## Results

<table>
<thead>
<tr>
<th></th>
<th>Unadjusted Means</th>
<th>t value</th>
<th>p-value</th>
<th>Adj. p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenge Motivation</td>
<td>2.72</td>
<td>2.00</td>
<td>-5.05</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Hostility</td>
<td>2.00</td>
<td>1.74</td>
<td>-2.28</td>
<td>0.03</td>
<td>0.03</td>
</tr>
</tbody>
</table>
Discussion

» TLS is a promising intervention for enhancing several aspects of well-being among youth at risk.
  » Reductions in: anxiety, depression and global psychological distress
  » Reductions in: rumination, intrusive thoughts, physical arousal, and emotional arousal.
  » Less likely to endorse revenge-motivation orientations in response to interpersonal transgressions.
  » Overall less hostility

» No effects were found for measures of somatization or general affect.
Thank You for Your Participation

Comments or Questions?

For additional information
Please Contact Jennifer L. Frank (jfrank@psu.edu)

http://www.prevention.psu.edu/projects/PEACE_Area2.html