

INTRODUCTION

- At-risk adolescents experience notably higher rates of community violence, youth delinquency, drug abuse, incarceration, and pregnancy, leading to high stress, poor academic performance, and negative health outcomes (Compas, Orosan, & Grant, 1993; Kessler et al., 2005; Spear, 2000).
- Schools serving the needs of at-risk youth have a particular responsibility to promote students' positive coping skills and capacities such as emotion regulation, behavior regulation, and executive functions that have the potential to promote resilience and positive coping (McLaughlin & Hatzenbuehler, 2009).
- A growing body of research has demonstrated that mindfulness meditation can lead to mental health benefits. Mindfulness is operationally defined as non-elaborative and non-judgmental awareness of the present moment (Kabat-Zinn, 2003).
- Mindfulness-based interventions (MBIs) have been shown to affect brain structure, psychology, and behavior in a wide range of samples.
 - Improvements in executive attention (Flook et al., 2010; Jha et al., 2007; Zeidan et al., 2010).
 - Greater emotion regulation skills (Baer, 2012; Brown et al., 2013; Goldin et al., 2009; Robins et al., 2012).
 - Reductions in anxiety symptoms, stress, and depression (Hofmann et al., 2010; Chiesa and Serretti, 2009; Bohlmeijer et al., 2010).
- The goal of this feasibility study was to (a) develop a brief, in-class mindfulness training appropriate for at-risk youth and which integrated the school's science curriculum; and (b) test initial exploratory hypotheses concerning whether mindfulness training bolstered social-emotional resilience.

PREDICTIONS

- Youth trained in mindfulness (versus placebo and control conditions) will show:
 - decreases in state and trait anxiety
 - increases in emotion regulation, attentional control, and the adaptive use of coping strategies in response to stressful events
- Additionally, we tested whether adolescents acting as research assistants on the project would show positive educational effects (improved attendance and grades).

METHOD

Participants

- Sixty three students (aged 16-21) participated in the study and were placed into the experimental ($n = 30$), control ($n = 16$) or placebo group ($n = 17$). 14 students acted as research assistants (RAs).

Mindfulness Training

- The experimental group received mindfulness training five times per week for nine weeks. Each mindfulness session lasted for three minutes. Teachers read a new mindfulness induction script each week to the students.
- The scripts varied each week, however sitting up straight, being present, and refocusing one's attention to the breath were universal themes among the scripts.
- The placebo group was asked to sit still and relax five times per week for nine weeks and the control group did not receive any instructions or training.

Trait Anxiety

- Trait Anxiety was measured using the State-Trait Anxiety Inventory (STAI; Spielberger, 1983). The STAI is a 40-item questionnaire that asks subjects to respond with how they generally feel for each given statement. A higher score indicates greater levels of anxiety.

Emotion Regulation

- The Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski & Kraaij, 2007) is a 36-item questionnaire that assess nine cognitive emotion regulation strategies: self-blame, blaming others, acceptance, refocusing on planning, rumination, positive appraisal, putting into perspective, and catastrophizing. It asks participants how they respond to negative events

Coping

- The COPE Inventory (Carver et al., 1989) is a 60-item questionnaire that measures thirteen coping strategies: positive reinterpretation and growth, mental disengagement, focus on and venting of emotions, use of instrumental social support, active coping, denial, religious coping, humor, behavioral disengagement, restraint, use of emotional social support, substance use, acceptance, suppression of competing activities, planning.

Attention

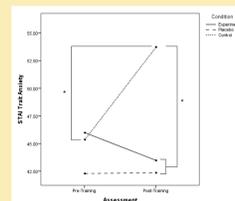
- Attentional control was measured by the Attentional Control Scale (ACS; Derryberry and Reed, 2002). This 20-item questionnaire measures two types of attentional control: focusing and shifting.

Attendance and Grades

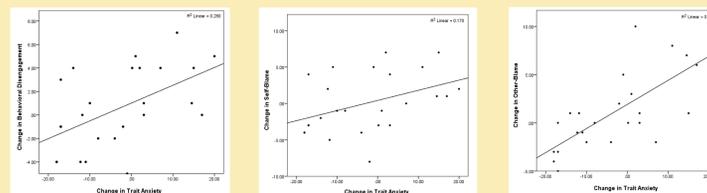
- Attendance and average course grades were collected for all students (participants and research assistants) before and after the study was conducted. Grades were calculated as the average for all classes each student took.

RESULTS

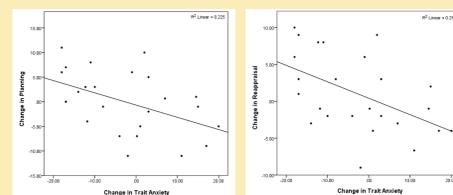
- Control participants showed increases in trait anxiety from pre-training to post-training while the Experimental and Placebo groups did not.
- The Experimental and Placebo groups had lower trait anxiety than the control group at post-training.



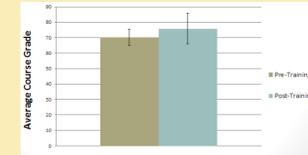
- For adolescents who completed mindfulness training, decreases in trait anxiety were associated with decreases in less adaptive coping strategies [behavioral disengagement ($r = .53, p = .006$), self-blame ($r = .41, p = .04$), and other-blame ($r = .73, p < .001$).



- For adolescents who completed mindfulness training, decreases in trait anxiety were associated with *increases* in adaptive coping and emotion regulation [planning ($r = -.47, p = .02$) and reappraisal ($r = -.50, p = .01$)].



- Average course grades showed increases from pre-training ($M = 70.12, SD = 7.09$) to post-training ($M = 75.82, SD = 9.82$) at the level of a trend for the student RAs, $t(13) = -2.03, p = .06$.



DISCUSSION

- Findings suggest that brief mindfulness training sessions promote emotional resilience in at-risk adolescents.
- While the mindfulness and placebo groups showed similar patterns of emotional resilience (decreased anxiety), the beneficial impact of this resilience may be more far-reaching among teens learning mindfulness (as measured by coping and emotion regulation skills).
- Student RAs showed an increase in grade point average from pre- to post-training at the level of a trend.
- This program also facilitated the growth of a "culture of mindfulness" in the school. Following the study, the school spontaneously created a meditation garden and several teachers initiated a syllabus change to include academic material related to the idea of mindfulness and relaxation (such as reading Siddhartha).
- This shift in the larger culture of the school may be part and parcel of increasing both the potential effectiveness of mindfulness training and increase social-support and stress reduction resources.
- These interventions have the potential to change the way educators approach mental health in school, suggesting that a "mindful classroom" can facilitate the tools necessary to help students pay attention and get the most of their classroom experience.

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