

## Peer-Directed, Brief Mindfulness Training with Adolescents: A Pilot Study

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### Abstract

This pilot study studied the impact of brief mindfulness meditation training with adolescents. Whereas adult mindfulness training programs typically entail weekly 2.5 hour sessions over an eight week period, this program delivered four 50-minute sessions within a three week period. Each session was comprised of two mindfulness exercises delivered by a peer facilitator. In addition to subjective self-reports of stress reduction, the outcome measures showed a 30% reduction in general anxiety as measured by the Beck Anxiety Inventory and a 9% reduction in social anxiety as measured by the Interaction Anxiety Scale. Notably, the mindfulness intervention showed a 55% reduction on the Cognitive subscale of the BAI, but only an 11% reduction on the Physiological subscale, suggesting that the strongest short-term effect of mindfulness training may be in reducing or counteracting negative cognitions such as self-deprecation and excessive worrying.

Mindfulness is defined as being fully aware of your immediate present experience and accepting yourself as you are in this moment without judgment. Rooted in ancient Buddhist spiritual practices, the techniques and philosophy of mindfulness were first introduced to the field of mental health in 1979 and it has become a widely accepted method in the fields of psychotherapy and wellness. Mindfulness is useful for the treatment of a variety of mental disorders as well as for relief from normal life stressors and for promoting positive self-acceptance (Carmony & Baer, 2008, 2009; Segal, Williams & Teasdale, 2002). Yet, for all its success, the application of mindfulness to adolescents is a relatively new development.

As explained by Apsche and Jennings (2013), it is necessary to modify mindfulness training with youth to accommodate their differing developmental needs and interests. First, and most importantly, training and practice exercises use a lot of guided imagery. Secondly, it is recommended to make mindfulness more fun and engaging by offering a variety of mindfulness exercises and activities that have an innate appeal to youth, such as sports, nature, adventure, and discovery. Third, compared to adults, it is helpful to reduce the didactic class time and the time spent doing the mindfulness exercises. Whereas adults are often expected to sit for 2.5 hours in a typical mindfulness training class, this pilot program was delivered in 50-minute sessions. Finally, to better accommodate the differing learning styles and preferences of individual teens, it is helpful to offer multiple pathways for learning mindfulness skills.

Typically, adult programs for mindfulness training require about eight weeks (Sass, Berenbaum & Abrams, 2013). Two notable program examples are Mindfulness-Based Stress Reduction (MBSR, Kabat-Zinn, 1990) and Mindfulness-Based Cognitive Therapy (Segal, et al., 2002). Given the prohibitive time demands of attending an eight week program (e.g., MBSR entails one 6 hour class and eight 2.5 hour classes), other researchers have attempted mindfulness interventions that require fewer class hours and/or a shorter period of time to complete. For example, one study reduced the

MBSR mindfulness training model to four sessions in four weeks (Mackenzie, Poulin & Seidman-Carlson, 2006); another conducted six 1-hour sessions in six weeks (Klatt, Buckworth, & Malarkey, 2009) and a third delivered four 1.5 hour sessions (Jain, Shapiro, Swanick, Roesch, Mills, Bell and Schwartz, 2007). In fact, a recent review showed no evidence that shortened versions of MBSR were any less effective than longer formats (Carmony & Baer, 2009).

The present pilot study was designed to assess the effectiveness of both (1) mindfulness training with adolescents and (2) brief mindfulness training. In this instance, the present study delivered four 50-minute sessions within a three week period.

### METHOD

#### Participants

A total of five male and three female adolescents, aged 17 to 18 years, participated in the pilot study. The peer facilitator and all subjects were European American high school seniors with no prior experience with meditation and mindfulness. The subjects volunteered to participate for the purposes of the peer facilitator's high school senior graduation project and were willing to commit to four sessions in a three week time period.

#### Measures

The Beck Anxiety Inventory (Beck, et al., 1988) and the Interaction Anxiousness Scale (Leary, 1983) were used to establish baseline ("pre-treatment") measures of anxiety and were repeated at the completion of the fourth session of mindfulness training. Subjects completed the inventories anonymously. The Beck Anxiety Inventory (BAI) is a commonly used self-report inventory of anxiety symptoms. The BAI originally conceived of anxiety as comprising two components of "cognitive" and "physiological" symptoms (Beck, et al., 1988). The cognitive subscale is comprised of six items dealing with fearful thoughts and impaired cognitive functioning, while the somatic subscale has 19 items measuring physiological symptoms like nausea, diarrhea, sweating, etc. (Creamer, Foran & Bell, 1995, Armstrong & Khawaja, 2002).

The Interaction Anxiousness Scale (IAS) has also been used widely and has a body of research data to support its validity (Leary & Kowalski, 1993). It is a 15-item self-report measure of social anxiety that demonstrates high test-retest and internal reliability and correlates well with other general and interpersonal measures of anxiety. Social anxiety is defined as anxiety that arises from interpersonal evaluations of real or imaginary social interactions (Leary, 1983).

At the completion of the training, subjects were also given an open-ended prompt to "write anything" about their experience of mindfulness.

#### Procedure

Using a mindfulness training manual designed for youth (Apsche and Jennings, 2013), the 17 year-old peer facilitator received several hours of individual training in mindfulness meditation with an experienced adult meditator to achieve basic competency. The peer facilitator then led a series of four mindfulness group sessions in a period of three weeks. Each session consisted of two experiential exercises in mindfulness meditation selected from the mindfulness training manual as follows:

**Session One:** The first group session began with "Counting Breaths" (Exercise 4-3), which is focused concentration on breathing. This was followed by "Fog Rolling In" (Exercise 7-1), which is a guided meditation that imagines a calm and peaceful situation and then introduces more tension or danger to the scenario. The goal is for the youth to stay focused in the moment and maintain a calm state of relaxed mindfulness despite changes or disruptions that occur.

**Session Two:** The peer facilitator conducted the second session outdoors with the peer group sitting on a large rock in a gentle stream. The session began by repeating the "Counting Breaths" exercise. This was followed by the "Seeing and Sensing in the Outdoors" (Exercise 5-1), in which the participants select and focus on an object in nature, such as a tree, rock or flower.

**Session Three:** The third session also repeated the "Counting Breaths" exercise. This was followed a guided meditation called the "Day at the Beach" (Exercise 6-1), which provides a sample of an idyllic "safe place" that the teen can create for him/herself in his/her imagination to feel safe, happy and relaxed.

**Session Four:** The fourth session consisted of two guided meditation exercises. The first, "Climbing Mount Everest" (Exercise 8-4), induced the teenagers to focus on the immediate present of each step and trust in the climbing team in order to reach a goal. The second guided meditation, "Dark Clouds" (Exercise 7-2), induced the teenagers to stay in the moment and "accept" the disruption of a rain shower that might otherwise ruin a sunny day at the beach.

### RESULTS

This pilot study assessed pre - and post-training scores on self-reported anxiety measures for brief mindfulness training with normal high school seniors (Table 1). The first analysis assessed scores on the Beck Anxiety Inventory. The average baseline score was 16.75 with a standard deviation of 12.5.

**Table 1.** Descriptive Statistics

Measure	N	Mean	Std Dev	Min	Max	% Reduction
Baseline BAI overall anxiety	8	16.76	12.5	0	37	
Post-training BAI overall anxiety	6	12.0	5.6	2	32	30%
Baseline BAI cognitive anxiety	8	6.6	4.4	0	13	
Post-training BAI cognitive anxiety	6	3.0	1.5	0	10	55%
Baseline BAI physiological anxiety	8	10.1	8.3	0	24	
Post-training BAI physiological anxiety	6	9.0	4.5	1	22	11%
Baseline IAS social anxiety	8	38.9	9.6	28	54	
Post-training IAS social anxiety	6	35.5	8.2	26	49	9%

This was nearly 15% higher than the national norm average of 14.58 (Figure 1). There was a 30% reduction in anxiety scores to the post-training mean of 12.0 with a standard deviation of 5.6.

Further analysis was performed on the difference between baseline and post-training scores on the cognitive and physiological subscales of the BAI. The baseline mean on the cognitive subscale was 6.6 with a total standard deviation of 4.4 and 10.1 on the physiological subscale with a standard deviation of 8.3. There was a 55% reduction in the cognitive anxiety to the post-training mean of 3.0 with a standard deviation of 1.5 and an 11% reduction in physiological anxiety to a post-training mean of 9.0 with a standard deviation of 4.6 (Figure 2).

Further analysis was performed on the difference between baseline and post-treatment rates of social anxiety as measured by the Interaction Anxiousness Scale (IAS). The baseline mean was 38.9 with a total standard deviation of 9.6, which is the same as the reported national average (Figure 3). There was a 9% reduction in the ratings of social anxiety to the post-training mean of 35.5 with a standard deviation of 8.2.

An item analysis looked at the most salient differences in improvement on specific items from both the BAI and the IAS (Figure 4). The seven items are presented in order of magnitude from largest to the seventh largest improvements in item scores.

The three largest reductions in Beck Anxiety Inventory items were from the cognitive subscale and notably included “fear that the worst will happen” and “fear of losing control.” The most salient reductions

in social anxiety on the IAS were observed for the following items: “I often feel nervous even in casual get-togethers,” “I usually feel comfortable when I’m in a group of people I don’t know,” “Parties often make me feel anxious and uncomfortable,” and “I sometimes feel tense when talking to people of my own sex if I don’t know them very well.”

Finally, the pilot study included an open-ended prompt to the participants to “write anything” they wanted about their mindfulness experience. The following subjective self-reports of the benefits of mindfulness were obtained:

**S#1 (male):** “I felt like I was in almost a state of trance while also being in a state of tranquility (on the beach). I felt more and more relaxed throughout and by the time I opened my eyes, I felt 100% stress-free... I like mindfulness because it’s a good way to relax and I feel like I have a completely different outlook on everything afterwards. It makes me want to do different things than before the meditation.”

**S#2 (male):** “Sitting on the beach with white sand, I felt its warmth under my legs and radiating through my body. I felt the smooth sand between my feet. It felt peaceful and quiet. I felt relaxed... Meditation is a great break from our fast-paced lifestyle and constant entertainment. It’s a good feeling to walk away from meditation stress-free and zen.”

**S#3 (female):** “Having recently been backpacking and to the beach and the fact that it was raining, it really made the experience believable. During both scenarios, I felt completely relaxed and engrossed in my mental imagery of being at the beach and

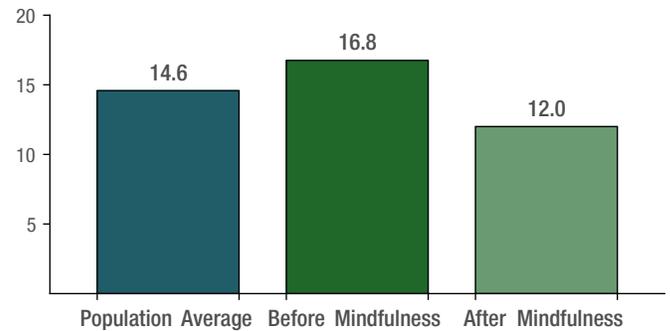
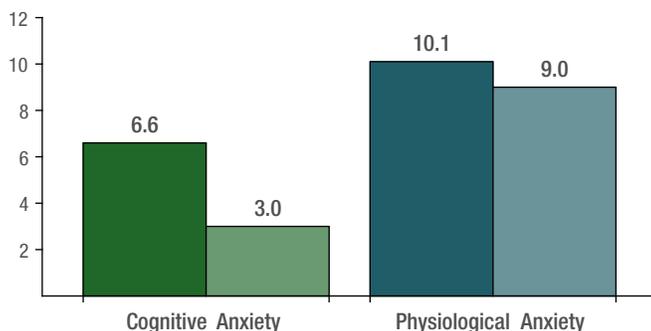
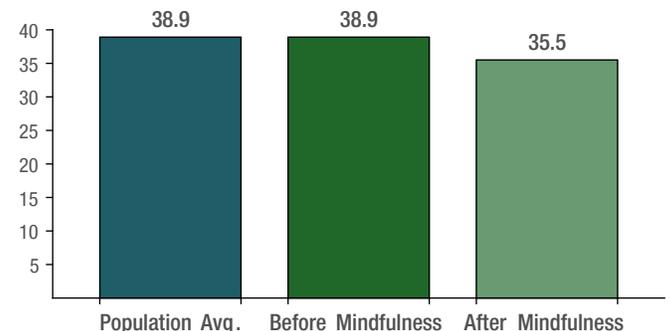
feeling the rain, also with climbing a mountain. The experience really made me feel at peace with where I was and what I was doing.”

**S#4 (female):** “I felt very empowered when I was lying on the beach in the rain. I felt in-the-moment; alive. Normally, rain ruins a beach day, but the rain made me feel refreshed and happy. I was happy when the rain came and happy when it left also. I’m not exactly sure how that all worked or if that even makes sense... I really like mindful meditation. I like how it relaxes me and slows down my breathing and my heart rate. It’s incredibly refreshing and I’ve looked forward to every meditation.”

## DISCUSSION

The results of the pilot study provide a promising indication that brief mindfulness training can have a positive short-term effect of reducing cognitive, physiological and social anxiety in normal high school seniors. Specifically, the greatest improvement was observed in the areas of cognitive anxiety and group anxiety. Cognitive anxiety is defined as anxiety in the form of negative cognitions, such as fear of losing of control and fear that the worst will happen, rather than physical symptoms such as diarrhea, nausea, shaking and sweating.

Group anxiety is defined as anxiety related to being in groups. Although the Interpersonal Anxiousness Scale does not have a “group anxiety” subscale, item analysis shows that three of the four most salient reductions in IAS test items related to feeling anxious in groups as distinguished from IAS items about interacting one-to-one with teachers, au-

**Figure 1.** Beck General Anxiety Scores - Normal Population vs. Before & After Mindfulness Training**Figure 2.** Beck Cognitive and Physiological Anxiety Scores - Before and After Mindfulness Training**Figure 3.** Interpersonal Anxiety Scores - Normal Population vs. Before & After Mindfulness Training

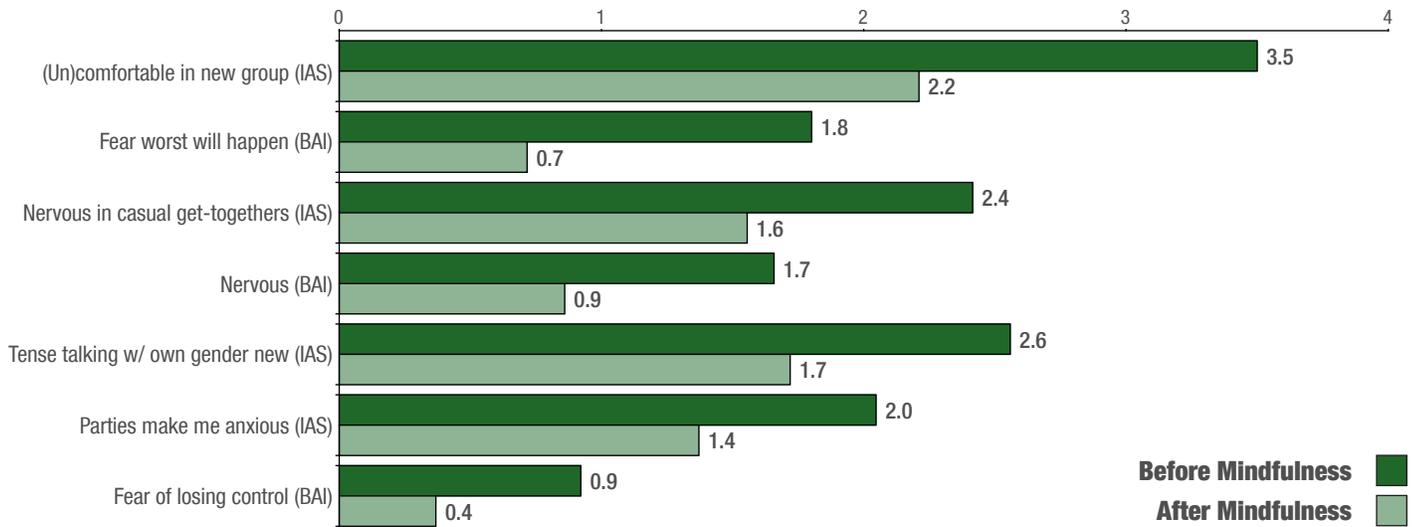


Figure 4. Areas of Most Salient Improvement

thorities, and peers or self-perceptions of shyness and confidence. To the degree that the mindfulness training was experienced as a very positive group experience, it makes sense that the adolescents would report less anxiety and greater comfort in groups.

The pilot study also lends support to the assertion that adult mindfulness training should be modified in ways that are better suited to the differing developmental needs of youth (Apsche & Jennings, 2013). Indirect support for the benefits of mindfulness with adolescents derives from the sizeable clinical research literature on the effectiveness of Mode Deactivation Therapy, which utilizes many of these mindfulness techniques as part of its treatment methodology (Apsche, Bass & DiMeo, 2011; Apsche, 2010). MDT has been proven highly effective with emotionally disturbed and aggressive adolescents. In fact, mindfulness was used specifically to deal with “treatment-resistant” youth by giving them a more varied choice of “fun” exercises.

In addition to showing the potential value of mindfulness stress reduction for adolescents, the pilot study showed support for the efficacy of “low-dose” mindfulness training in general (Carmody & Baer, 2008). This study used just four 50-minute sessions in three weeks compared to adult mindfulness training programs that require as much as 26 hours and eight 2.5-hour classes over 8 weeks (Kabat-Zinn, 1990). Although shorter sessions may be recommended to accommodate the developmental differences of youth, the results are consistent with the findings of other researchers who have questioned the need for lengthy, time-consuming mindfulness stress reduction training.

At the same time, several factors limit the conclusions that can be drawn from the pilot study outcomes. First, the size of the training group was very small. Second, the results were obtained in a community setting and may not find replication in clinical or treatment settings for adolescents. Third, the peer facilitator already knew his subjects

in advance of the study and they were motivated by friendship to cooperate. Therefore it is likely that this familiarity and motivation enabled the adolescents to relax and learn more quickly and/or easily during the mindfulness exercises and draw more benefits from the experience.

Another limiting factor is the level of competence of the peer facilitator. Best efforts were made to give the peer facilitator as much exposure to mindfulness and the actual protocols he would later use with the peer group. But it remains unknown whether outcomes could have been better, or worse, if the mindfulness training was delivered by an adult clinician or even by a peer facilitator who did not know his subjects.

The strength of the outcomes could be further enhanced with the inclusion of additional outcome measures and, ideally, long-term follow-up of the youth who participated in the study. The author hopes that future research may attempt to replicate these findings with larger sample groups of adolescents and apply randomized trials in similar or clinical settings.

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