**Interventions**

*Articles testing the applied science and implementation of mindfulness-based interventions*


lifestyle approach in early psychosis. Early Intervention Psychiatry. [link]


ASSOCIATIONS

Articles examining the correlates and mechanisms of mindfulness


Leonard, H. D., Campbell, K., Gonzalez, V. M. (2018). The relationships among clinician self-
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American Mindfulness Research Association

report of empathy, mindfulness, and therapeutic alliance. *Mindfulness.* [link]


Methods

Articles developing empirical procedures to advance the measurement and methodology of mindfulness

Economides, M., Martman, J., Bell, M. J., Sanderson, B. (2018). Improvements in stress, affect, and irritability following brief use of a mindfulness-based smartphone app: A RCT. Mindfulness. [link]


Martinez, T., Zhao, Y. (2018). The impact of mindfulness training on middle grades students’ office discipline referrals. RMLE Online. [link]


TRIALS

Research studies newly funded by the National Institutes of Health (MAR 2018)

UMASS Medical School (J. Brewer, PI). Mechanisms of mindfulness for smoking cessation. NIH/NCCIH project #3R61AT009337-02S1. [link]

University of Colorado (K. Hutchinson, PI). Dismantling MBRP: Identifying critical neuroimmune mechanisms of action. NIH/NIAAA project #5R01AA024632-03. [link]
Previous learning sometimes interferes with our ability to learn new things. For example, when we memorize one poem and then another, we may mistakenly include words from the first poem when reciting the second. This problem is called proactive interference (PI). People may be able to reduce PI by focusing on the present while screening out competing thoughts and memories—in other words, by mindfulness.

Previous research suggests that reduced PI depends on activation of a brain structure known as the hippocampus. The hippocampus plays an important role in learning and memory, and helps us distinguish old learning from new. Prior research shows that mindfulness training can increase the size of the hippocampus. Greenberg et al. [Brain Imaging and Behavior] investigated whether mindfulness training reduces PI, and whether that reduction is associated with increases in hippocampal size.

The researchers randomly assigned 79 participants (70% female; average age = 27 years; 65% Caucasian) to a 4-week mindfulness-training program or a 4-week creative writing program. Of those, 67 participants were scanned using magnetic resonance imaging (MRI) before and after training to assess hippocampal volume.

Both the mindfulness and creative writing programs were offered in four 1-hour group sessions using a web-based technology that enabled participants to see and communicate with instructors and fellow participants. The mindfulness program offered training in focused-attention and open monitoring meditation. Participants were asked to practice learned mindfulness skills on their own for 30 minutes five times a week. The creative writing participants wrote short essays in response to photos or texts, and were asked to write on their own for 30 minutes five times a week.

PI was assessed before and after training by having participants memorize sets of 6 letters shown briefly on a computer screen. They were then shown a single letter and asked if it had been in the set of 6 letters just seen. This process was repeated using 144 six-letter sets. Each new set contained 3 letters seen in the previous trial together with 3 novel letters. Researchers measured errors in identifying whether the singly presented letters were included in the most recent set of six.

Mindfulness trainees showed significantly lower PI error rates after training than the writing group, after controlling for differences in pre-training error rates (partial $\eta^2=.08$). Mindfulness trainees’ PI error rates decreased from 4.9 to 3.0%, while creative writing group error rates increased from 1.7 to 7.1%. Reduced PI rates were not correlated with the extent of home practice outside of class. There was no significant difference between groups with respect to hippocampal volume change after the training period. However, within the mindfulness group only, increases in left hippocampal volume were significantly correlated with decreases in PI scores ($r=.43$).

The study shows that mindfulness training reduces the interference effect of previous learning on current learning. For mindfulness trainees, this reduction is associated with increased left hippocampal size. This study is important because it demonstrates a relationship between changes in hippocampal size after mindfulness-training and enhanced attention and learning. The brevity of the study’s mindfulness training may have limited its ability to detect significant hippocampal change as compared to a control condition. Previous studies that demonstrated significant hippocampal change used an 8-week training paradigm.
Attention-Deficit Hyperactivity Disorder (ADHD) is a childhood developmental disorder that can persist into adulthood, affecting 2.5% of the adult population. Adult ADHD symptoms include inattentiveness, distractibility, and difficulty staying organized. Stimulant medications remain the standard first-line treatment for adult ADHD, sometimes supplemented by cognitive-behavioral interventions. Some adults object to stimulant medication, experience adverse medication-related side-effects, and some fail to achieve complete symptom remission through its use.

As a result, there is interest in developing psychosocial treatments as adjunctive or alternative treatments. Mindfulness-based interventions may be good candidates for such treatments, as they improve attentional regulation in healthy populations, and strengthen the brain regions associated with it.

Janssen et al. [Psychological Medicine] tested the efficacy of Mindfulness-Based Cognitive Therapy (MBCT) as an adjunctive treatment for adults with ADHD in a multi-center, randomized, controlled study.

Researchers recruited 120 participants (50% male; average age = 39 years) from three Dutch specialty outpatient clinics for adult ADHD, as well as through media recruitment, physician referral, and a patient support-and-advocacy group. Participants were randomly assigned to either treatment-as-usual (TAU) or treatment-as-usual plus MBCT. TAU consisted of medication for 59% of participants, while 59% received previous or current psycho-educational/skills training, and 55% received previous or current psychosocial treatment. MBCT was offered in 8 weekly 2.5-hour group sessions and a 6-hour silent retreat.

Modifications were made in the standard MBCT format: the length of meditations gradually increased to 30 minutes, and material relevant to depression was replaced by material relevant to ADHD. There was also greater emphasis on mindfulness in daily life, mindful listening, and mindful speaking. Participants were encouraged to practice at home 6 days a week.

Participants were assessed at baseline, post-treatment, and at 3- and 6-month follow-up using both blind clinician and self-report ratings of ADHD symptoms, as well as self-report measures of executive function, general functioning, emotional and social wellbeing, self-compassion, and mindfulness (using the Five Facet Mindfulness Questionnaire).

At post-treatment, clinicians rated MBCT participants as exhibiting significantly fewer ADHD symptoms (Cohen’s d=.41) than controls. More MBCT participants (31%) were rated as significantly clinically improved than TAU participants (5%). On self-report measures, MBCT participants showed significantly greater improvements in ADHD symptoms (d=.37), mindfulness (d = .36), self-compassion (d=.42) and emotional and social wellbeing (d=.32) than controls.

Clinician-rated differences persisted and remained stable through 6-month follow-up. Between group differences in self-rated ADHD symptoms increased over time, with Cohen’s d increasing to .79 at 6-months. MBCT group executive functioning improved from post-treatment to 6-month follow-up, first becoming statistically significant at 6 months (d=.49).

The study shows adjunctive MBCT alleviates both clinician-rated and self-rated ADHD symptoms and improves self-rated mindfulness, self-compassion and emotional and social wellbeing in adults with effects lasting up to 6 months. The study is limited by its use of a TAU control rather than an active control because of the possible variations in TAU between treatments, as well as the lack of control for extra attention received by the MBCT group.
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More information at http://learning2breathe.org  kbc29@kbc29.com

Learning to BREATHE is an adaptable, mindfulness-based, group program that helps teenagers sustain focus and curiosity, ease anxiety, reduce depression and somatic symptoms. It enables them to recognize, accept and modulate emotions, cultivate compassion for themselves and others, and improve their own health and emotional well-being. A number of published research studies have demonstrated its benefits for adolescents and young adults. http://learning2breathe.org/curriculum/research.

This three-day, four-night workshop offers the established L2B protocol in a comfortable rural setting. The residential program combines three components: a review of the rationale and research informing the L2B structure (Foundation Training); direct hands-on practice in teaching the curriculum (Intensive Training); and mindfulness practice for teachers. https://www.trinitywallstreet.org/about/trinity-retreat-center

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