INTerventions

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


Britton, W., Davis, J., Loucks, E., Lindahl, J. (2017). Dismantling MBCT: Creation and validation of 8-week focused attention and open monitoring interventions within a 3-armed RCT. Behaviour Research & Therapy. [link]


Malboeuf-Hurtubise, C., Taylor, G., Lefrançois, D., Lacourse, E. (2017). The impact of a mindfulness-based intervention on happiness: A reflection on the relevance of integrating a positive psychology framework within...
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Editor-in-Chief
David S. Black, PhD, MPH

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Seth Segall, PhD

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mindfulness research in youth. *International Journal of Applied Positive Psychology.* [link]


Vrana, C., Killeen, T., Brant, V., ... Baker, N. L. (2017). Rationale, design, and implementation of a clinical trial of a MBRP protocol for the treatment of women with comorbid post traumatic stress disorder and substance use disorder. Contemporary Clinical Trials. [link]


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**METHODS**

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

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**REVIEWS**

Articles reviewing content areas of mindfulness or conducting meta-analyses of published research


Ball, E. F., Nur Shafina, E., Franklin, G., Rogożinska, E. (2017). Does mindfulness meditation improve...
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**TRIALS**
Research studies newly funded by the National Institutes of Health (SEP 2017)

Delaware State University (M. Gawrysiak, PI). MBRP for opiate use disorders: Brain and behavioral changes associated with treatment response. NIH/NIGMS project #2P20GM103653-06. [link]

Iris Media, Inc. (A. Wendt, PI). Culturally responsive stress reduction: Mobile mindfulness app to support health promotion for African Americans. NIH/NIMHHD project #1R43MD012284-01. [link]

Johns Hopkins University (T. Mendelson, PI). A trauma intervention to improve mental health and school success for urban eight graders. NIH/NICHD project #1R01HD090022-01. [link]

Kent State University (D. Fresco, PI). MBSR for high blood pressure: A two-site RCT. NIH/NHLBI project #3R01HL119977-04S1. [link]

Oregon Health and Science University (J. Proulx, PI). Exploring the adoption of mindfulness in Native American communities to address diabetes. NIH/NCCIH project #1K99AT009570-01. [link]

Photozig, Inc. (B. Kajiyama, PI). Mindfulness based cognitive coping mobile app intervention for caregivers of individuals with Alzheimer’s disease. NIH/NIA project #1R43AG058277-01. [link]

Ralph Johnson VA Medical Center (K. Brady, PI). Mindfulness-based recovery in veterans with substance use disorders. VA project #5I01RX001292-04. [link]

University of Massachusetts Medical School (J. Brewer, PI). Mechanisms of mindfulness for smoking cessation. NIH/NCCIH project #S61AT009337-02. [link]

University of Pittsburgh (J. Jakicic, PI). Integration of yoga and mindfulness for the treatment of obesity in adults. NIH/NCCIH project #1R34AT009361-01. [link]

University of Utah (J. Fritz, PI). Smart stepped care management for low back pain in military health system. NIH/NCCIH project #1U01GM109363-01. [link]

University of Utah (E. Garland, PI). Effects of a mindfulness-oriented intervention on endogenous opioid mechanisms of hedonic regulation in chronic pain. NIH/NCCIH project #5R61AT009296-02. [link]

University of Wisconsin-Madison (R. Davidson, PI). Wisconsin center for the neuroscience and psychophysiology of meditation. NIH/NCCIH project #5P01AT004952-10. [link]
Highlights

A summary of select studies from the issue, providing a snapshot of some of the latest research

Roughly half of all substance use program graduates relapse within six months. This has led researchers to seek better ways of reducing the frequency and severity of relapses after treatment. Mindfulness-Based Relapse Prevention (MBRP) is a program offered after residential or intensive outpatient treatment to prevent relapse. It teaches mindfulness skills to help substance users cope more effectively with their cravings. Rather than treating cravings as a danger to be avoided, MBRP approaches cravings as transient mental states that can be investigated and tolerated without triggering relapse.

Using data from a previously published MBRP trial, Enkema & Bowen [Drug and Alcohol Dependence] investigated whether MBRP actually weakened the association between craving and substance use. They reasoned that if it did, the link between craving and subsequent use would be weakest for those who practiced mindfulness meditation the most.

The 57 study participants (77% male, 63% Caucasian, average age = 38 years) had been randomly assigned to the MBRP arm of a parent study comparing MBRP to other aftercare programs. The participants had completed either an inpatient or intensive outpatient substance use program before starting MBRP. In the previously published parent study, MBRP participants showed a 54% reduced risk of drug use and a 59% decreased risk of heavy drinking compared with the participants in comparison treatments.

The present study made use of MBRP participants’ reports of the quantity and frequency of their substance use (if any) during the six-month period following completion of the program. The participants also indicated the intensity of their cravings and the extent of their formal (e.g., seated meditation) and informal (e.g., using mindfulness to “urge surf” cravings) mindfulness practice within the week of completing the 8-week MBRP program. The study used the cravings and mindfulness practice data at post-intervention to predict substance use during the six months following MBRP completion.

The intensity of craving at post-intervention was significantly related to the extent of substance use during the six months following program completion. For every single point increase in craving (on a 30-point craving scale), participants used substances an additional 13 days during six-month follow-up.

More frequent and longer periods of formal mindfulness practice significantly weakened the degree of association between cravings and substance use. In other words, for those who practiced more, levels of craving at post-intervention were less predictive of the extent of substance use during follow-up. Informal practice, on the other hand, did nothing to weaken the relationship between cravings and use.

The results are consistent with the theory that mindfulness practice helps substance users maintain their sobriety by weakening the automatic connection between craving and subsequent use. This conclusion is subject to the limitation that the relationship between formal practice and resistance to craving may be due to factors other than mindfulness. For example, participants who are more motivated to practice may also be more motivated to resist relapse.

Meditation involves the processes of focusing attention, recognizing when the mind has wandered off, and re-establishing focus. Neuropsychologists tell us these processes are associated with three large-scale brain networks: a Default Mode Network (DMN) associated with mind-wandering, a Salience and Emotion Network...
(SEN) associated with present-centered awareness, and a Central Executive Network (CEN) that helps shift, restore, and maintain focus. When two or more networks change activity in a coordinated manner, they are said to be functionally connected.

Positive functional connectivity occurs when two networks increase or decrease activity in tandem. Negative functional connectivity occurs when increased activity in one network is matched by decreased activity in the other. The degree of functional connectivity between networks is usually averaged over time to yield a single measure. The problem with averaged measures is that they give the illusion that the functional connectivity between networks is static, when in fact, it is ever-changing and dynamic.

Marusak et al. [Behavioral Brain Research] studied both the average and the dynamic functional connectivity between these brain networks in children, as well as how these networks are related to childrens' self-reported levels of mindfulness and mental health symptoms.

The researchers recruited an economically and racially diverse cohort of 42 children and adolescents (55% female, average age = 10 years, age range = 6-17 years). Many of the children were at economic disadvantage and/or at risk for exposure to violence, abuse, and intensive medical treatment. The participants completed self-report measures of mindfulness (using the Child and Adolescent Mindfulness Measure), anxiety and depression. The majority of participants (65%) exceeded the thresholds on these measures for pathological levels of anxiety and/or depression.

All participants underwent functional magnetic resonance imaging (fMRI) while in a resting state. After imaging, the children were questioned about their present, past, and future-centered thinking as well as self-centered and body-centered thinking while undergoing imaging.

The researchers identified five separate states of dynamic functional connectivity between networks. For example, State 2 was characterized by positive connectivity between the DMN and the CEN, negative connectivity between the SEN and the CEN, and negative connectivity between the DMN and the SEN. In comparison, State 4 was characterized by positive connectivity between all networks, while State 5 was characterized by weak connectivity between all networks.

Higher levels of dispositional mindfulness were significantly associated with lower levels of anxiety (r = -.49) and higher levels of present-centered thinking (r = .36) during imaging. More mindful children spent significantly less time in State 2 (r = -.36) and made a significantly greater number of transitions (r = .34) back-and-forth between the five states. More anxious children, on the other hand, made significantly fewer state transitions (r = -.54) and spent a significantly greater time in State 2 (r = .34).

Higher levels of present-centered thought were significantly associated with dispositional mindfulness (r = .36) and with spending less time in State 2 (r = -.35), while past-centered thinking was associated with State 3 (r = .34), and self-centered thinking with State 5 (r = .34).

These results are consistent with mindful children being better able to redirect attention from mind-wandering and self-referential states to present-centered and/or body-centered states. This increased flexibility in transitioning between states may reduce anxiety by preventing children from "getting stuck" in rumination. The fact that mindful children spend less time in State 2 makes sense given that State 2 has high levels of Default Mode Network connectivity, a neurological correlate of mind-wandering. This study is important because it is the first study of mindfulness and dynamic functional connectivity, as well as the first study exploring the neural correlates and mental health benefits of mindfulness disposition in children.