**Interventions**

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


a group-based Mahayana Buddhist intervention. *Mindfulness.* [link]


**ASSOCIATIONS**
*Articles examining the correlates and mechanisms of mindfulness*


Murnieks, C. Y., Arthurs, J. D., Cardon, M. S., ... Haynie, J. M. (2019). **Close your eyes or open your mind: Effects of sleep and mindfulness exercises on entrepreneurs’ exhaustion. Journal of Business Venturing.** [link]


Tickell, A., Ball, S., Bernard, P., ... Crane, C. (2019). **The effectiveness of MBCT in real-world healthcare services. Mindfulness.** [link]


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

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substance use disorder-study protocol for a RCT. Trials. [link]
Goldin, P. R., Lindholm, R., Ranta, K.,...Raevuori, A. (2019). Feasibility of a therapist-supported, mobile phone--delivered online intervention for depression: Longitudinal observational study. JMIR Formative Research. [link]

REVIEWS

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

Extensions of the mindfulness-to-meaning theory and applications to addiction and chronic pain treatment. *Current Opinion in Psychology.* [link]


Rosenkranz, M. A., Dunne, J. D., Davidson, R. J. (2019). The next generation of mindfulness-based intervention research: What have we learned and where are we headed? *Current Opinion in Psychology.* [link]


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**TRIALS**

Research studies newly funded by the National Institutes of Health (Jan 2019)

Kent State University (A. Sato, PI). *Reducing emotional eating in obese low-income adolescents with mindfulness-based behavioral weight management.* NIH/NICHD project #1R21HD095099-01A1. [link]

University of North Carolina (S. Gaylord, PI). *Easing the burden of dementia caregiving: A telephone delivered mindfulness intervention for rural, African American families.* NIH/NIA project #1R21AG061728-01. [link]

Vanderbilt University (R. Gupta, PI). *Effect of MBCT on ERP markers of attentional bias in anxiety.* NIH/NCCIH project #1F31AT010299-01. [link]
Highlights

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

Nearly half of all 15-19 year-olds drink alcohol, at least on occasion, despite laws prohibiting its use by minors. Increased alcohol consumption by teenagers is linked to problems with attention, memory, and cognition. Impulsive teenagers are at higher risk for alcohol use, and interventions that reduce impulsivity may also reduce their likelihood of drinking. Public schools can serve as important venues for health programs aimed at lessening alcohol-related harm.

Patton et al. [Journal of Consulting and Clinical Psychology] tested whether including mindfulness meditation in a school-based cognitive behavioral therapy intervention adds to its effectiveness in decreasing teenage alcohol use.

The researchers randomly assigned 404 Australian 9th and 10th graders (62% female; average age = 15 years) to either a cognitive behavioral therapy intervention combined with mindful breathing (CBT+MM), a cognitive behavioral therapy intervention combined with progressive muscle relaxation (CBT+PMR), or an assessment-only control. The interventions were delivered in three group-based sessions lasting an average of 58 minutes each, and were taught by graduate-level psychology students.

Mindfulness training consisted of one session that included an introduction to mindfulness, a mindful eating exercise, and a mindfulness of the body and breath exercise, and a second session that included an exercise involving mindfulness of thoughts. Cognitive behavioral training consisted of one session that included an introduction to the cognitive model and identifying cognitive distortions, and a second session in which the cognitive model was applied to thoughts about alcohol. All students were assessed before the intervention, at post-intervention, and at 3- and 6-month follow-up on self-report measures of alcohol use, impulsivity, mindfulness (using the Mindful Attention Awareness Scale), positive and negative beliefs about the effects of alcohol, and confidence in being able to refuse alcohol in a variety of circumstances.

Students in both active interventions reported significantly lower levels of increased drinking behavior over time compared to controls (Cohen’s $d = -0.14$). Intervention groups did not differ from one another in their drinking behavior. There were no differences between the three groups in terms of impulsivity, mindfulness, or confidence in being able to refuse alcohol. Students in the two active interventions had increased levels of both positive and negative beliefs about how alcohol might affect them compared to controls.

The results suggest that brief CBT-based interventions, including either mindfulness or progressive muscle relaxation, reduce the increase in student drinking behavior over the course of six months. It is not clear whether mindfulness or progressive muscle relaxation contributed to this effect. There is also no evidence that the CBT+MM intervention improved self-reported levels of mindfulness.

The main limitations of the study include the brevity of the intervention, the absence of a CBT-only control to determine if mindfulness and muscle relaxation contributed to the effect on alcohol, and its reliance on minimally-trained mindfulness instructors.
The death of a loved one is a powerful stressor. Bereavement is not only painful and distressing, but can also trigger the onset of a variety of mental and medical disorders. Bereaved individuals may experience difficulty regulating their emotions and intrusive unpleasant thoughts and feelings that can disrupt cognitive functioning. Huang et al. [Frontiers in Human Neuroscience] tested whether Mindfulness-Based Cognitive Therapy (MBCT) can improve emotional regulation and executive cognitive functioning in bereaved individuals.

The researchers recruited 23 participants reporting unresolved grief (91% female; average age = 48) who had lost at least one significant relative in the previous four years. All the participants attended an 8-week MBCT program. Self-report measures of grief, anxiety, depression, emotional regulation difficulty, and mindfulness (using the Five Facet Mindfulness Questionnaire) were obtained pre- and post-intervention. Neurocognitive functioning was assessed before and after the intervention by having participants perform a Stroop task while monitoring their brain activity with functional magnetic resonance imaging. The Stroop task required participants to judge which of two visually presented digits was numerically larger. In each presentation, the relative physical sizes of the digits were either congruent or incongruent with their relative numerical size. People usually take longer to correctly respond on incongruous Stroop trials. Their reaction time on those trials was used as a measure of executive cognitive function—the ability to make judgments in the presence of conflicting information.

After MBCT, participants reported significantly reduced grief (Cohen’s $d = -0.89$), anxiety ($d = -0.65$), depression ($d = -1.17$), and emotional regulation difficulty ($d = -0.76$), as well as increased mindfulness ($d = 0.80$). Post-MBCT mindfulness scores were significantly associated with lower post-MBCT grief ($r = -0.52$), anxiety ($r = -0.70$), depression ($r = -0.59$) and emotional regulation difficulty ($r = -0.91$). The participants' average reaction times to incongruous Stroop task presentations also significantly decreased from 624 milliseconds before MBCT to 608 milliseconds after MBCT.

There were significant reductions in posterior cingulate cortex (PCC) and precuneus activity during post-intervention incongruous Stroop trials, suggesting that the trials now required less cognitive effort. Higher levels of PCC activity were significantly associated with higher levels of grief ($r = 0.34$), as were higher levels of thalamic activity ($r = 0.33$). PCC activity was also significantly correlated with anxiety ($r = 0.36$). To summarize, the greater a participant’s negative emotions, the higher the level of dorsal attentional system neurological activation required to successfully perform the Stroop.

The study demonstrates large within-group decreases in grief and emotional regulation difficulty, large increases in mindfulness, and significantly improved executive functioning in bereaved participants following MBCT.

Improved executive functioning was accompanied by a decrease in the level of dorsal attentional network activation needed to perform accurately on incongruous Stroop trials. The lack of a control group makes it hard to determine if treatment effects would be similar for any group-based type of intervention or if they were simply due to the passage of time. Nonetheless, it is important to note that prior research with the grief scale used in this study suggests that changes of this order of magnitude usually take place over a matter of years rather than a matter of weeks.