Mindfulness Research Monthly

Providing monthly research updates on mindfulness

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Contents

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David S. Black, Ph.D.

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Seth Segall, Ph.D.

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Interventions

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

Alsubaie, M., Dickens, C., Dunn, B. D.,...Kuyken, W. (2018). **Feasibility and acceptability of MBCT compared with MBSR and treatment as usual in people with depression and cardiovascular disorders: A three-arm RCT**. *Mindfulness.* [link]

Alvarez-Jimenez, M., Gleeson, J. F., Bendall, S.,...Miles, C. (2018). **Enhancing social functioning in young people at ultra high risk for psychosis: A pilot study of a novel strengths and mindfulness-based online social therapy**. *Schizophrenia Research.* [link]

Amutio, A., Justo, C. F., Sánchez, L. C.,...Molero, M. D. M. (2018). **Effects of mindfulness training on sleep problems in patients with fibromyalgia**. *Frontiers in Psychology.* [link]

Atreya, C. E., Kubo, A., Borno, H. T.,...Dhruva, A. (2018). **Being present: A single-arm feasibility study of audio-based mindfulness meditation for colorectal cancer patients and caregivers**. *PLoS ONE.* [link]

Brown, S. M., Bender, K. A., Bellamy, J. L.,...Jenson, J. M. (2018). **A pilot randomized trial of a mindfulness-informed intervention for child welfare-involved families**. *Mindfulness.* [link]

Chung, A. S., Felber, R., Han, E.,...Likourezos, A. (2018). **A targeted mindfulness curriculum for medical students during their emergency medicine clerkship experience**. *Western Journal of Emergency Medicine.* [link]

Coelho, B. A., de Paiva, S. P., da Silva Filho, A. L. (2018). **Extremely brief mindfulness interventions for women undergoing breast biopsies: A RCT**. *Breast Cancer Research and Treatment.* [link]

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Kumar, S., Croghan, I. T., Biggs, B. K.,...Sood, A. (2018). **Family-based mindful eating intervention in adolescents with obesity: A pilot RCT**. *Children.* [link]

Louise, S., Rossell, S. L., Thomas, N. (2018). **The acceptability, feasibility and potential outcomes of an individual mindfulness-based intervention for hearing voices**. *Behavioural and Cognitive Psychotherapy.* [link]

Mahfouz, J. (2018). **Mindfulness training for school administrators: Effects on well-being and leadership**. *Journal of Educational Administration.* [link]

Moosavi Nejad, M., Shahgholian, N., Samouei, R. (2018). **The effect of mindfulness program on general health of patients undergoing hemodialysis**. *J Education and Health Promotion.* [link]

Remmers, C., Zimmermann, J., Buxton, A.,...Michalak, J. (2018). **Emotionally aligned: Preliminary results on the effects of a mindfulness-based intervention for depression on congruence between implicit and explicit mood**. *Clinical Psychology & Psychotherapy.* [link]

Senders, A., Hanes, D., Bourdette, D.,...Shinto, L. (2018). **Impact of MBSR for people with multiple sclerosis at 8 weeks and 12 months: A RCT**. *Multiple Sclerosis Journal.* [link]

Sundquist, J., Palmér, K., Memon, A. A.,...Sundquist, K. (2018). **Long-term improvements after mindfulness-based group therapy of depression, anxiety and stress and adjustment disorders: A RCT**. *Early Intervention in Psychiatry.* [link]

Turanzas, J. A., Cordón, J. R., Choca, J. P., Mestre, J. M. (2018). **Evaluating the APAC (mindfulness for giftedness) program in a Spanish sample of gifted children: A pilot study**. *Mindfulness.* [link]

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Associations

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Braun, S. S., Roeser, R. W., Mashburn, A. J., Skinner, E. (2018). **Middle school teachers' mindfulness, occupational health and well-being, and the quality of teacher-student interactions**. *Mindfulness.* [link]

Brooks, J. M., Blake, J., Iwanaga, K.,...Chan, F. (2018). **Perceived mindfulness and depressive symptoms among people with chronic pain**. *Journal of Rehabilitation*. [link]

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Calvete, E., Morea, A., Orue, I. (2018). **The role of dispositional mindfulness in the longitudinal associations between stressors, maladaptive schemas, and depressive symptoms in adolescents**. *Mindfulness.* [link]

Elreda, L. M., Jennings, P. A., DeMauro, A. A.,...Brown, J. L. (2018). **Protective effects of interpersonal mindfulness for teachers' emotional supportiveness in the classroom**. *Mindfulness.* [link]

Emge, G., Pellowski, M. W. (2018). **Incorporating a mindfulness meditation exercise into a stuttering treatment program: A case study**. *Communication Disorders Quarterly.* [link]

Fang, Y., Kang, X., Feng, X.,...Li, P. (2018). **Conditional effects of mindfulness on sleep quality among clinical nurses: The moderating roles of extraversion and neuroticism**. *Psychology, Health, Medicine.* [link]

Fucci, E., Abdoun, O., Caclin, A.,...Lutz, A. (2018). **Differential effects of non-dual and focused attention meditations on the formation of automatic perceptual habits in expert practitioners**. *Neuropsychologia.* [link]

Fujino, M., Ueda, Y., Mizuhara, H.,...Nomura, M. (2018). **Open monitoring meditation reduces the involvement of brain regions related to memory function**. *Scientific Reports.* [link]

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Jones, D. R., Graham-Engeland, J. E., Smyth, J. M., Lehman, B. J. (2018). **Clarifying the associations between mindfulness meditation and emotion: Daily high-and low-arousal emotions and emotional variability**. *Applied Psychology: Health and Well-Being.* [link]

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Kral, T. R., Schuyler, B. S., Mumford, J. A.,...Davidson, R. J. (2018). **Impact of short-and long-term mindfulness meditation training on amygdala reactivity to emotional stimuli**. *NeuroImage.* [link]

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Mioduszewski, O., MacLean, H., Poulin, P. A.,...Walker, L. A. (2018). **Trait mindfulness and wellness in multiple sclerosis**. *Canadian Journal of Neurological Sciences.* [link]

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Moir, S., Skues, J., Theiler, S. (2018). **Exploring the perspectives of psychologists who use mindfulness in therapeutic practice**. *Australian Psychologist.* [link]

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Temme, L. J., Wang, D. (2018). **Relationship between five facets of mindfulness on mood and substance use relapse**. *Families Soc.* [link]

Tubbs, J. D., Savage, J. E., Adkins, A. E.,...Dick, D. M. (2018). **Mindfulness moderates the relation between trauma and anxiety symptoms in college students**. *J Amer College Health.* [link]

Voss, M. J., Zukosky, M., Wang, R. F. (2018). **A new approach to differentiate states of mind wandering: Effects of working memory capacity**. *Cognition.* [link]

Webb, C. A., Beard, C., Forgeard, M., Björgvinsson, T. (2018). **Facets of mindfulness predict depressive and anxiety symptom improvement above CBT skills**. *Mindfulness.* [link]

Wu, I. H., Buchanan, N. T. (2018). **Pathways to vitality: The role of mindfulness and coping**. *Mindfulness.* [link]

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Methods

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

Beattie, M., Hankonen, N., Salo, G.,...Volanen, S. M. (2018). **Applying behavioral theory to increase mindfulness practice among adolescents: An exploratory intervention study using a within-trial RCT design**. *Mindfulness.* [link]

Birdee, G. S., Wallston, K. A., Ayala, S. G.,...Sohl, S. J. (2018). **Development and psychometric properties of the self-efficacy for mindfulness meditation practice scale**. *J Health Psych.* [link]

Brady, B., Kneebone, I. I., Bailey, P. E. (2018). **Validation of the five facet mindfulness questionnaire among community-dwelling older adults**. *Mindfulness.* [link]

Fletcher, K., Foley, F., Thomas, N.,...Murray, G. (2018). **Web-based intervention to improve quality of life in late stage bipolar disorder (ORBIT): RCT protocol**. *BMC Psychiatry.* [link]

Hunter, M. A., Lieberman, G., Coffman, B. A.,...Romero, V. (2018). **Mindfulness-based training with transcranial direct current stimulation modulates neuronal resource allocation in working memory: A randomized pilot study with a nonequivalent control group**. *Heliyon.* [link]

Kim, E., Krägeloh, C. U., Medvedev, O. N.,...Singh, N. N. (2018). **Interpersonal mindfulness in parenting scale: Testing the psychometric**

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Pang, D., Ruch, W. (2018). **Scrutinizing the components of mindfulness: Insights from current, past, and non-meditators**. *Mindfulness.* [link]

Rees, C., Craigie, M.,...Hegney, D. (2018). **Mindful self-care and resiliency: Protocol for a pilot trial of a brief mindfulness intervention to promote occupational resilience in rural general practitioners**. *BMJ Open.* [link]

Rieger, K. L., Lobchuk, M. M., Duff, M. A.,...West, C. H. (2018). **Effectiveness of mindfulness-based arts interventions on psychological wellbeing and fatigue in adults with a physical illness: A systematic review protocol**. *JBI Database of Systematic Reviews.* [link]

Shiyko, M. P., Siembor, B., Greene, P. B.,...Burkhalter, J. E. (2018). **Intra-individual study of mindfulness: Ecological momentary perspective in post-surgical lung cancer patients**. *Journal of Behavioral Medicine.* [link]

REVIEWS

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

Cavicchioli, M., Movalli, M., Maffei, C. (2018). **The clinical efficacy of mindfulness-based treatments for alcohol and drugs use disorders: A meta-analytic review of randomized and nonrandomized controlled trials**. *European Addiction Research.* [link]

Graser, J., Stangier, U. (2018). **Compassion and loving-kindness meditation: An overview and prospects for the application in clinical samples**. *Harvard Review of Psychiatry.* [link]

Halladay, J. E., Dawdy, J. L.,...Munn, C. (2018). **Mindfulness for the mental health and well-being of post-secondary students: A systematic review and meta-analysis**. *Mindfulness.* [link]

Lovas, D. A. (2018). **MBCT for bipolar disorder: A systematic review**. *Journal of Affective Disorders.* [link]

McKeering, P., Hwang, Y. S. (2018). **A systematic review of mindfulness-based school interventions with early adolescents**. *Mindfulness.* [link]

Miao, C., Humphrey, R. H., Qian, S. (2018). **The relationship between emotional intelligence and trait mindfulness: A meta-analytic review**. *Personality and Individual Differences.* [link]

Michalak, J., Heidenreich, T. (2018). **Dissemination before evidence? What are the driving forces behind the dissemination of mindfulness-based interventions?** *Clinical Psychology: Science and Practice.* [link]

TRIALS

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

Moffit Cancer Center, Tampa (C, Vinci, PI). **Development of a mindfulness based treatment for the reduction of alcohol use and smoking cessation**. NIH/NCCIH #1R34AT009689-01A1. [link]

Northwester University (I. Burnett-Zeigler, PI). **Effectiveness and implementation of a mindfulness intervention for depressive symptoms among low-income minority adults**. NIH/NIMHHD #1R01MD012236-01A1. [link]

University of Colorado (S. Dimidjian, PI). **Preventing depressive relapse in pregnant women with recurrent depression**. NIH/NIMH project #1R01MH117251-01. [link]

University of Kentucky (B. Reynolds, PI). **Using mindfulness training to reduce delay discounting in rural adult smokers**. NIH/NIDA project #1R21DA046551-01. [link]

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HIGHLIGHTS

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

Multiple sclerosis is a central nervous system disorder in which the body's immune system attacks the fatty layer of insulation surrounding nerve cells. Symptoms may include visual and sensory disturbances, muscle weakness and discoordination, fatigue, pain, and problems with mood and cognition. Stress can worsen these symptoms, and stress management can reduce the risk of the illness spreading to other brain regions. **Senders et al. [*Multiple Sclerosis Journal*]** tested the feasibility of using Mindfulness-Based Stress Reduction (MBSR) with multiple sclerosis patients, and whether MBSR worked better than an active control intervention in improving psychological symptoms and wellbeing.

The researchers randomly assigned 67 patients with multiple sclerosis (average age = 53 years, 77% female, 97% Caucasian) to a standard 8-week MBSR intervention or to an education control group matched for time and attention. The control group curriculum covered topics such as medication, symptom management, financial planning, knowing one's rights, and connecting with resources.

The groups were assessed on a variety of self-report measures of psychological symptoms, stress, and wellbeing at baseline, immediately after program completion, and at twelve months post-intervention. Attention and cognition were assessed using a serial addition task in which participants listened to an audio recording of single digits presented at three-second intervals. Participants had to add each newly presented digit to the previously presented one. Participant expectations for the success of their respective interventions were assessed at baseline, with MBSR assignees having significantly higher expectations.

In regard to feasibility, 85% of the MBSR patients attended at least 6 of the 8 group sessions, thus meeting the author's standard for course completion. They completed their at-home meditation on 55% of the assigned days for an average of 38 minutes per meditation. There were only two MBSR-related adverse events: a case of muscle cramps after a body scan meditation, and a case of anxiety and migraine following the six-hour retreat. It was unclear if these were due to MBSR activities or random occurrences.

In terms of psychological outcomes, MBSR and educational group participants both showed significant improvements on measures of perceived stress, emotional wellbeing, anxiety, depression, fatigue, resilience, and serial addition proficiency immediately after the intervention. While improvement scores were generally higher for MBSR participants, group differences failed to reach statistical significance. Within-group effect sizes for MBSR ranged from $d = 0.56$ on the serial addition task to $d = 0.77$ on anxiety. Within-group effect sizes for the control group ranged from $d = 0.28$ on the serial addition task to $d = 0.75$ on anxiety. Improvements on stress, anxiety, depression, fatigue, and resilience remained significant at 12-month follow-up for both groups.

The results showed that MBSR was a safe and feasible intervention for multiple sclerosis patients. Both interventions showed improvements on psychological measures up to a year after the intervention. Although MBSR improvements tended to be slightly larger than the active control, the difference did not reach statistical significance. The study's small sample size may have lacked sufficient statistical power to reveal significant differences between groups. The absence of a no-treatment control and a mindfulness measure makes it impossible to tell whether improvements were spontaneous, due to group support effects, or associated with the specific content of the interventions.

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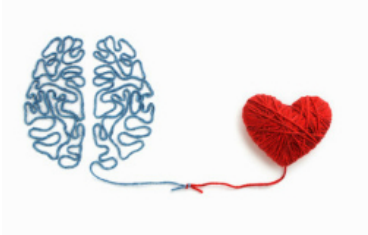
Mindfulness-based interventions can enhance emotional regulation and improve mood, but we are only just beginning to understand the brain mechanisms responsible for these benefits. **Kral et al. [*Neuroimage*]** compared the brain activity of long-term meditators, short-term meditators, and non-meditators in response to emotionally positive, negative, and neutral images. The researchers sought to discover whether or not the amount of an individual's meditation practice correlated with their response to emotional stimuli.

The researchers recruited a sample of 31 long-term Vipassana mediators (average age = 50 years, 55% female, average meditation practice = 9,000 hours) and compared them to a sample of 127 meditation-naive recruits. Following initial data collection, 86 of the meditation-naive recruits (average age = 48, 63% female) were randomly assigned to a standard 8-week MBSR program or a Health Enhancement program (HEP) which served as a time-and-attention control.

The long-term mediators and the meditation-naive participants spent a day in the laboratory prior to the meditation-naive group's random assignment to intervention. Following intervention, the meditation-naive group returned to the laboratory for re-assessment. In the laboratory, participants were shown emotionally positive, negative, and neutral images while undergoing functional magnetic resonance imaging (fMRI), a procedure that measures metabolic activity in different regions of the brain. The researchers measured fMRI activity in two specific brain regions: the amygdala, which plays a role in generating emotion, and the ventromedial prefrontal cortex (VMPFC), which plays a role in regulating emotion. Participants also completed a self-report measure of mindfulness, the Five Facet Mindfulness Questionnaire (FFMQ).

Results from the pre-intervention data showed that meditation-naive participants had significantly greater right amygdala activity in response to positive images than long-term meditators. While there were no overall group differences in response to negative images, long-term mediators with the most lifetime Vipassana retreat hours had the smallest right amygdala response to negative images (r = -.47). For all participants, higher scores on the FFMQ Non-reactivity scale ("When I have distressing thoughts or images I just notice them and let them go") were associated with less right amygdala reactivity to positive images (r = .24). Long-term meditators had significantly higher FFMQ Non-reactivity scores than meditation-naive participants. HEP control group participants showed significantly greater right amygdala activity in response to positive images than the MBSR participants immediately after the interventions.



The researchers also looked at the degree of functional connectivity (the degree to which activity varied in tandem) between the amygdala and the VMPFC. Long-term meditators showed significantly greater amygdala-VMPFC connectivity in response to negative images than to neutral images. Meditation-naive participants failed to show the same pattern, but the between-group difference was not significant. MBSR participants showed significantly greater amygdala-VMPFC connectivity during positive and negative as opposed to neutral images than HEP controls.

The study shows that short-term meditation practice reduces emotional reactivity by VMPFC dampening of amygdala activity. Long-term meditators, however, regulate their amygdala activity without VMPFC dampening and report superior levels of emotional non-reactivity. The authors suggest that amygdala activity reflects the tendency to hold on to or avoid stimuli rather than the tendency to experience them as pleasant or unpleasant. Long-term meditators may have developed the capacity to attend to stimuli without grasping at them or pushing them away. This differs from the short-term meditators suppression of emotional reactivity after the fact of its occurrence. The results also suggest that meditation retreats are more effective than non-retreat daily practice in developing this non-reactive capacity.