Mindfulness Research Monthly

Providing monthly research updates on mindfulness

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April 2020

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Interventions

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

Arden-Close, E., Mitchell, F., Davies, G.,...Yeoh, C. C. (2020). **Mindfulness-based interventions in recurrent ovarian cancer: A mixed-methods feasibility study**. *Integrative Cancer Therapies*. [link]

Bai, S., Elavsky, S., Kishida, M.,...Greenberg, M. T. (2020). **Effects of mindfulness training on daily stress response in college students: Ecological momentary assessment of a RCT**. *Mindfulness.* [link]

Basler, J., Lancaster, R. J., Schmitt, C. A.,...Wallace-Leece, J. (2020). **Mindfulness and patient safety simulation in third-year baccalaureate students**. *Clinical Simulation in Nursing.* [link]

de Bruin, E. I., Valentin, S., Baartmans, J. M.,...Bögels, S. M. (2020). **Mindful2Work the next steps: Effectiveness of a program combining physical exercise, yoga and mindfulness, adding a wait-list period, measurements up to one year later and qualitative interviews**. *Complementary Therapies in Clinical Practice*. [link]

Corti, L., Gelati, C. (2020). **Mindfulness and coaching to improve learning abilities in university students: A pilot study**. *Internat J Environmental Res Public Health*. [link]

Fabbro, A., Fabbro, F., Capurso, V.,...Crescentini, C. (2020). **Effects of mindfulness training on school teachers' self-reported personality traits as well as stress and burnout levels**. *Perceptual and Motor Skills.* [link]

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Gür, G. C., Yilmaz, E. (2020). **The effects of mindfulness-based empathy training on empathy and aged discrimination in nursing students: A RCT**. *Complementary Therapies in Clinical Practice*. [link]

Henrich, J. F., Gjelsvik, B., Surawy, C.,...Martin, M. (2020). **A randomized clinical trial of MBCT for women with irritable bowel syndrome-effects and mechanisms**. *Journal of Consulting and Clinical Psychology*. [link]

Hill, A., Schücker, L., Hagemann, N., Strauß, B. (2020). **The influence of mindfulness training on running economy and perceived flow under different attentional focus conditions-an intervention study**. *International Journal of Sport and Exercise Psychology.* [link]

Holas, P., Krejtz, I., Wisiecka, K.,...Nezlek, J. B. (2020). **Modification of attentional bias to emotional faces following MBCT in people with a current depression**. *Mindfulness*. [link]

De la Torre, G. G., Mato, I., Doval, S.,...Hidalgo, V. (2020). **Neurocognitive and emotional status after one-year of mindfulness-based intervention in patients with relapsing-remitting multiple sclerosis**. *Applied Neuropsychology.* [link]

Minkler, T. O., Glass, C. R., Hut, M. (2020). **Mindfulness training for a college team: Feasibility, acceptability, and effectiveness from within an athletic department**. *Journal of Applied Sport Psychology.* [link]

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Montero-Marin, J., Kuyken, W., Gasión, V.,...Campayo, J. G. (2020). **Feasibility and effectiveness of a workplace-adapted mindfulness-based programme to reduce stress in workers at a private sector logistics company: An exploratory mixed methods study**. *International J Environmental Research Public Health*. [link]

Nadler, R., Carswell, J. J., Minda, J. P. (2020). **Online mindfulness training increases well-being, trait emotional intelligence, and workplace competency ratings: A randomized waitlist-controlled trial**. *Frontiers in Psychol*ogy [link]

Seminowicz, D. A., Burrowes, S. A., Kearson, A.,...Haythornthwaite, J. A. (2020). **Enhanced mindfulness based stress reduction (MBSR+) in episodic migraine: A randomized clinical trial with MRI outcomes**. *Pain.* [link]

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Zarifsanaiey, N., Jamalian, K., Bazrafcan, L.,...Shahraki, H. R. (2020). **The effects of mindfulness training on the level of happiness and blood sugar in diabetes patients**. *J Diabetes Metabolic Disorders.* [link]

Associations

Articles examining the correlates and mechanisms of mindfulness

Bhanushali, D., Tyagi, R., Limaye, N., Anand, A. (2020**). Effect of mindfulness meditation protocol in subjects with various psychometric characteristics at high altitude**. *Brain and Behavior*. [link]

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Kwak, S., Kim, S. Y., Bae, D.,...Kwon, J. S. (2019). **Enhanced attentional network by short-term intensive meditation**. *Front Psychol*. [link]

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Mrazek, A. J., Mrazek, M. D., Calcagnotto, L. A.,...Schooler, J. W. (2020). **Familiarity, attitudes, and self-regulatory challenges related to mindfulness**. *Mindfulness.* [link]

Ross, S. J., Owens, K., Roberts, A.,...Mylrea, M. (2020). **Mindfulness training: Success in reducing first year health professional students' study and exam related stress**. *Health Professions Education.* [link]

Stinson, C., Curl, E. D., Hale, G.,...Wright, C. (2020). **Mindfulness meditation and anxiety in nursing students**. *Nursing Education Perspectives.* [link]

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Sundquist, K., Palmér, K., Memon, A. A.,...Wang, X. (2020). **Macrophage migration inhibitory factor as a predictor for long-term improvements after mindfulness-based group therapy or treatment as usual for depression, anxiety or stress and adjustment disorders**. *Mindfulness.* [link]

Wells, R. E., Collier, J., Posey, G.,...Zeidan, F. (2020). **Attention to breath sensations does not engage endogenous opioids to reduce pain**. *Pain.* [link]

Methods

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

Aeschbach, V. M., Fendel, J. C., Göritz, A. S., Schmidt, S. (2020). **Mindfulness-based programme for residents: Study protocol of a RCT**. *BMJ Open*. [link]

Baeza-Velasco, C., Genty, C., Jaussent, I.,...Olié, E. (2020). **Study protocol of a multicenter RCT of mindfulness-based intervention versus relaxation to reduce emotional exhaustion in medical students in france: The "must prevent" study**. *BMC Psychiatry*. [link]

Ball, E., Newton, S., Rohricht, F.,...Rivas, C. (2020). **MHealth: Providing a mindfulness app for women with chronic pelvic pain in gynaecology outpatient clinics: Qualitative data analysis of user experience and lessons learnt**. *BMJ Open*. [link]

Christopher, M., Bowen, S., Witkiewitz, K. (2020). **Mindfulness-based resilience training for aggression, stress and health in law enforcement officers: Study protocol for a multisite, randomized, single-blind clinical feasibility trial**. *Trials*. [link]

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Karl, J. A., Prado, S. M., Gračanin, A.,...Fischer, R. (2020). **The cross-cultural validity of the five-facet mindfulness questionnaire across 16 countries**. *Mindfulness.* [link]

Marks, E., Smith, P., McKenna, L. (2020). **Stop fighting it! An interpretative phenomenological analysis of patient experiences of mindfulness based cognitive therapy for tinnitus**. *Frontiers in Psychology* [link]

Pitt, K., Feder, G. S., Gregory, A.,...Lewis, N. V. (2020). **The comfort study of a trauma-informed mindfulness intervention for women who have experienced domestic violence and abuse: A protocol for an intervention refinement and individually randomized parallel feasibility trial**. *Pilot and Feasibility Studies*. [link]

Seabrook, E., Kelly, R., Foley, F.,...Nedeljkovic, M. (2020). **Understanding how virtual reality can support mindfulness practice: Mixed methods study**. *J Medical Internet Res*. [link]

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invariance of the child and adolescent mindfulness measure (CAMM) and psychometric properties in three greek-speaking youth samples. *Mindfulness.* [link]

Yu, B. C., Mak, W. W., Chio, F. H. (2020). **Promotion of well-being by raising the awareness on the interdependent nature of all matters: Development and validation of the interconnectedness scale**. *Mindfulness.* [link]

Reviews

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

Bigliassi, M., Bertuzzi, R. (2020). **Exploring the use of meditation as a valuable tool to counteract sedentariness**. *Frontiers in Psychology* [link]

Butterfield, K. M., Roberts, K. P., Feltis, L. E., Kocovski, N. L. (2020). **What is the evidence in evidence-based mindfulness programs for children?** *Advances in Child Development and Behavior*. [link]

Clari, M., Conti, A., Fontanella, R.,...Matarese, M. (2020). **Mindfulness-based programs for people with chronic obstructive pulmonary disease: A mixed methods systematic review**. *Mindfulness*. [link]

Crowther, L., Anderson, E. S., Robertson, N. (2020). **Mindfulness for undergraduate health and social care professional students: Findings from a qualitative scoping review using the 3P model**. *Medical Education.* [link]

Essary, A. C., Lussier, M., Stone, N.,...Hamilton, G. (2020). **Reflections on the integration of a narrative medicine and mindfulness program in hospice and palliative care**. *Progress in Palliative Care.* [link]

Sos, T., Melton, B. (2020). **Incorporating mindfulness into occupational stress management programming for nursing staff**. *Workplace Health & Safety*. [link]

Thomas, R., Chur-Hansen, A., Turner, M. (2020). **A systematic review of studies on the use of mindfulness-based cognitive therapy for the treatment of anxiety and depression in older people**. *Mindfulness.* [link]

Vonderlin, R., Biermann, M., Bohus, M., Lyssenko, L. (2020). **Mindfulness-based programs in the workplace: A meta-analysis of RCTs**. *Mindfulness.* [link]

Wasson, R. S., Barratt, C., O'Brien, W. H. (2020). **Effects of mindfulness-based interventions on self-compassion in health care professionals: A meta-analysis**. *Mindfulness.* [link]

You, T., Ogawa, E. F. (2020). **Effects of meditation and mind-body exercise on brain-derived neurotrophic factor: A literature review of human experimental studies**. *Sports Med Health Science.* [link]

TRIALS

Research studies newly funded by the National Institutes of Health (MAR 2020)

Texas Tech University (Y.Y. Tang, PI). **Brain mechanisms of reducing poly-substance use following a novel body-mind intervention**. NIH/NCCIH project #5R61AT010138-02. [link]

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Highlights

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

People with major depressive disorder (MDD) show an attentional bias in which they over-attend to negative information while often ignoring positive information. This attentional bias feeds, reinforces, and prolongs depressive thought patterns, and serves as an underlying risk factor for depressive symptom onset and relapse.

Mindfulness-Based Cognitive Therapy (MBCT) is an approach to psychotherapy that combines features of mindfulness meditation and cognitive behavioral therapy. The program has been shown to effectively reduce the odds of depressive relapse among people with MDD. Less is known about the efficacy of the program for alleviating current depressive symptoms. **Holas et al. [*Mindfulness*]** conducted a randomized controlled trial to test if MBCT reduces attentional bias and depressive symptoms in patients with current MDD.

The researchers randomly assigned 53 adults with untreated current major depressive episodes (100% Polish Caucasian; 74% female; average age = 35 years) to an 8-week MBCT program or a wait-list control. Participants completed a self-report measure of depressive symptoms (CESD) and were assessed on an eye movement tracking task, measuring attentional bias immediately before and after the intervention period.

In that task, participants viewed slides with sad, angry, happy, and neutral faces in each of the four quadrants of the slide while their eye movements and fixations were recorded in milliseconds. This enabled researchers to calculate the relative amount of time participants spent gazing at each of the different faces.

The results showed that MBCT affected how long participants gazed at the various faces. Participants in the MBCT group significantly increased the amount of time they gazed at happy faces from pretest to posttest (η_p^2=.23) and decreased their gaze at sad (η_p^2=.09) and angry (η_p^2=.14) faces, whereas controls showed no changes on these measures.

At pretest, the MBCT group gazed at the happy faces an average of 2.234 seconds and at posttest they gazed at the them for 2.965 seconds. At pretest MBCT participants spent 27% of their time per slide gazing at happy faces, and at posttest 35% of their time. In addition, the MBCT group gazed significantly longer at happy faces (η_p^2=.25) and shorter at sad faces (η_p^2=.18) than controls at posttest. MBCT participants also reported significantly fewer depressive symptoms after intervention (η_p^2=.15) than controls.

This study finds that MBCT significantly decreases depression-related attentional bias as well as current self-reported depressive symptoms immediately following intervention. These findings are important because attentional bias is thought to be an underlying risk factor in initiating and prolonging recurring depressive states. The eye fixation measure is a particularly good measure of attentional bias because it reflects behavior largely outside of conscious control.

Additionally, the findings support the utility of MBCT in treating people who are currently depressed, extending previous research findings focused on the prevention of depression relapse in people who are already recovered. The study implications are limited by the absence of an active comparator group and longer-term follow-up.

Migraines, marked by intense, throbbing headaches, nausea, vomiting, and sensitivity to light, affect 13% of the adult population and are the sixth most frequent cause of disability. Migraines are known to be accompanied by changes in brain structures involved with cognitive aspects of pain processing including the insula, cingulate, and prefrontal cortices. This is an area of interest because mindfulness training is

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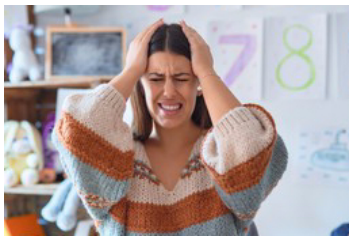
thought to work, in part, by altering one's thoughts and attitudes towards pain. **Seminowicz et al. [*Pain*]** conducted a randomized controlled trial to test if mindfulness training reduces migraines and determine whether it alters brain structure and function in regions related to cognitive aspects of pain processing.

The researchers randomly assigned 98 migraineurs (average age = 36 years; 72% Caucasian; 91% female) who had experienced 4-14 days of headache in the past month to either enhanced Mindfulness-Based Stress Reduction (MBSR) or a stress management program. Both programs met in 2-hour weekly groups for the first 8 weeks, and biweekly for the following 8 weeks. MBSR differed from the conventional standard in its addition of four group sessions after the initial 8 weeks. These additional sessions emphasized developing qualities of self-compassion, gratitude, equanimity, and sympathetic joy, and applying mindfulness skills before, during, and after migraines. The stress management control offered didactic content focused on understanding stress, triggers, pain, sleep hygiene, and medications along with group support and muscle stretching exercises. Attendance to all scheduled groups sessions and/or individual make-up sessions was high (86% in MBSR and 83% in the control group).

All participants completed headache questionnaires at baseline and at week 10, 20, and 52. In addition, they completed fMRI brain scans at baseline and week 10 and 20 at rest, while exposed to painful heat stimuli, and while undergoing a cognitive challenge in order to activate areas of the brain implicated in cognitive aspects of pain perception. The cognitive challenge involved observing sets of three alphanumeric characters and rapidly identifying which of the characters differed from the other two by button press.

The results showed that at week 10 (after 8 MBSR sessions), MBSR participants had significantly fewer mean headache days (5.5) than controls (6.9). At week 20 (2 weeks following intervention completion), the difference remained significant with the MBSR group having an average of 4.6 headache days per month (a decrease of 3.2 days from baseline) compared to 6.0 days for controls (a decrease of 1.7 days from baseline). At week 20, 52% of MBSR participants had at least a 50% improvement in their headaches compared to 23% of controls. At week 20, the MBSR group reported significantly less headache-related disability. Although the MBSR group had fewer headache days per month than controls at week 52 (4.6 vs. 5.6), the group difference did not reach statistical significance.



No treatment group differences were found at any point in time for regions-of-interest in brain gray matter volume, activation during pain or cognitive tasks, or resting state connectivity. Both groups showed significantly decreased anterior mid-cingulate volume and decreased insula connectivity to the cognitive task network over time. Whole brain analyses showed some significant between-group changes during cognitive activation reflecting decreased activation of a portion of the visual cortex and an area surrounding the insula, and changes in functional connectivity between a portion of the insula and regions in the parietal and occipital cortex. The researchers suggest these changes may reflect increased cognitive efficiency due to either meditative practice or decreased days in pain.

The study shows that a lengthened MBSR intervention reduces the number of days with a headache and headache-related disability in migraine sufferers two weeks following intervention. The observed magnitude of improvement in the short term equals that achieved by first-line prophylactic pharmaceutical interventions such as valproic acid. The beneficial effect was not sustained at one-year follow-up, suggesting a need to actively continue mindfulness practice. MBSR did not impact unique brain activity and structure in the regions of interest related to pain perception. Participants were reportedly highly educated and motivated, and thus might not be representative of the general population with migraines.

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