INTERVENTIONS

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


Hamlet-West, K., Pellatt-Higgins, T., Pillai, N. (2018). Does a modified MBCT course have the potential to reduce stress and burnout in NHS gps? Feasibility study. Primary Health Care Research & Development. [link]


and psychology students; results from a RCT. *PLoS ONE.* [link]

Wong, C., Yip, B. H., Gao, T., ... Wong, S. Y. S. (2018). **MBSR or psychoeducation for the reduction of menopausal symptoms: A randomized, controlled clinical trial.** *Scientific Reports.* [link]


**ASSOCIATIONS**

*Articles examining the correlates and mechanisms of mindfulness*


Fulton, C. L. (2018). **Self-compassion as a mediator of mindfulness and compassion for others.** *Counseling and Values.* [link]


Jaiswal, S., Tsai, S. Y., Juan, C. H., ... Muggleton, N. G. (2018). **Better cognitive performance is associated with the combination of high trait mindfulness and low trait anxiety.** *Frontiers in Psychology.* [link]


Murphy, L., Murphy, G. (2018). **Time to drive: Present vs. Future orientation and self-reported driving behaviour.** *Transportation Research.* [link]


**METHODS**

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


Noone, C., Hogan, M. J. (2018). A RCT to examine the effects of an online mindfulness intervention on executive control, critical thinking and key thinking dispositions in a university student sample. BMC Psychol. [link]


Seth Segall

Highlights

David S. Black, Editor

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MINDFULNESS RESEARCH MONTHLY

Seth T. M., Reynolds, H. R., Dickson, V. V., Hochman, J. S. (2018). Telephone-based mindfulness training to reduce stress in women with myocardiographic infarction: Rationale and design of a multicenter RCT. American Heart Journal. [link]


TRIALS

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

University of Massachusetts (R. van Lutterveld, PI). Mindfulness meditation and real-time brain activity in schizophrenia. NIA/NIMH project #5R03MH112040-02. [link]

University of Michigan (A. King, PI). Whole brain connectivity and connectomics of MBCT for PTSD. NIH/NIMH project #1K23MH112852-01A1. [link]

University of New Mexico (B. McCrady, PI). Neurocognitive and neurobehavioral mechanisms of change following psychological treatment for alcohol use disorder. NIH/NIAAA project #1R01AA025762-01A1. [link]

University of Pittsburgh (H. Thomas, PI). Adaptation and pilot testing of a MBI for older women with low sexual desire. NIH/NIA project #5K23AG052628-02. [link]

Veterans Affairs Medical Center San Francisco (J. Ford, PI). Identifying biomarkers of rumination and mindfulness through concurrent EEG and fMRI studies of schizophrenia and depression. VA project #2101CX000497-05. [link]
Most mindfulness research studies do not follow participants long after the intervention ends. At best, a few studies have followed their participants for up to two years. As a result, little is known about whether the effects of mindfulness-based interventions persist, strengthen, or fade over time. To address this limitation, de Vibe et al. [PLOS One] followed participants for six years after completing a Mindfulness-Based Stress Reduction (MBSR) program.

The researchers randomly assigned 288 Norwegian medical and psychology graduate students (76% female, average age = 24 years) to a slightly abridged form of MBSR or a no-intervention control. The MBSR program consisted of seven 1.5-hour weekly group sessions and required 20 minutes of daily home practice. Participants were assessed on dispositional mindfulness (using the Five Facet Mindfulness Questionnaire), subjective wellbeing, problem-focused coping and avoidance-focused coping at baseline, one month post-intervention, and at 1, 2, 4, and 6-year follow-up. Problem-focused coping involves facing one’s problems head-on by actively addressing them, while avoidance-focused coping consists of avoiding one’s problems or suppressing thoughts and emotions about them.

Participants also had the opportunity to enroll in a 1.5-hour mindfulness “booster” class each semester. While most attended at least one booster class, 46% never attended any. There were dropouts at each assessment time-point, with 61% of the participants having dropped out of the study by year six. There was no difference between MBSR and control group dropout rates, but participants with higher baseline avoidance-focused coping were significantly more likely to drop out.

Outcome differences were observed even though half of the MBSR participants no longer practiced formal meditation by year six, and those who did only practiced for an average of 15 minutes weekly. Additionally, about one-third of the controls subsequently attended courses in qigong, tai chi, yoga, or meditation that they also practiced for an average of 15 minutes weekly.

Increases in mindfulness were moderately correlated with increases in problem-focused coping (r=.67) and decreases in avoidance-focused coping (r=-.72). Increases in problem-focused coping were in turn correlated (r=.67) with increases in subjective well-being, making it the best predictor of wellbeing.

The study shows that the psychological benefits of MBSR persist and increase over a six-year interval in a young, educated, non-clinical sample. It also demonstrates that most subjective improvements in wellbeing come from increased reliance on problem-focused coping, which is correlated with increased mindfulness. Generalizations from this sample are limited by the relatively high long-term follow-up dropout rate, and by the lack of an active control.
Mindfulness-Based Stress Reduction (MBSR) and Relaxation Response (RR) training are both well-established mind-body interventions designed to reduce stress. While there is some overlap between these modalities—both involve meditative attention to bodily sensations—there are also significant differences. MBSR emphasizes non-judgmental awareness to increase acceptance of the present moment, while RR employs muscle relaxation to induce a parasympathetic state that interferes with the fight-or-flight response. To understand the ways in which these two programs function, Sevínć et al. [Psychosomatic Medicine] tested for commonalities and differences in terms of psychological effects and brain correlates.

The researchers randomly assigned 50 volunteers (64% female, average age = 38 years) to either MBSR or RR with 40 of the volunteers completing the programs. Both programs involved 8 weekly 2-hour group sessions with 20 minutes of daily home practice. RR included a body scan meditation emphasizing muscle relaxation along with breath-focused and mantra-focused meditations. Participants were assessed at baseline and after the intervention on self-report measures of mindfulness (using the Five Facet Mindfulness Questionnaire or FFMQ), perceived stress, self-compassion, and rumination.

After the intervention, participants underwent fMRI brain scanning while at rest and while engaging in the body scan meditation specific to each program: the RR body scan emphasized relaxing various muscle groups, whereas the MBSR body scan emphasized mindful awareness of body sensations. The researchers were interested in exploring changes in functional connectivity in specific brain regions of interest. Brain regions exhibiting simultaneous increases and decreases in activity are said to be functionally connected. Usable fMRI data was obtained from 34 participants.

The results showed that both programs significantly reduced perceived stress (RR Cohen’s $d=0.5$; MBSR $d=1.0$). After the intervention, RR participants showed significant FFMQ increases on the Describing, Acting with Awareness, Observing, and Non-reactivity sub-scales, while MBSR participants showed significant increases on the Observing and Non-reactivity sub-scales. MBSR participants also showed a significant increase in self-compassion and a decrease in rumination, but these group differences did not reach statistical significance.

The fMRI results showed that the MBSR and RR body scans both induced a common increased functional connectivity between the brain's ventromedial prefrontal cortex, which plays a role in attention, and the brain's supplementary motor areas, which play a role in voluntary muscle control.

Brain differences by group were also identified. RR practice produced stronger functional connectivity between the right inferior parietal gyrus and the supplementary motor areas, reflecting greater intentional inhibition and control of muscle relaxation. MBSR practice significantly increased functional connectivity between the anterior insula and the Anterior Cingulate Cortex (ACC), reflecting enhanced bodily awareness and regulation of limbic-mediated emotionality. This did not significantly differentiate the MBSR practice from the RR practice, which may be attributed to their shared emphasis on enhanced bodily awareness.

This is one of the first head-to-head comparisons of mind-body practices using both self-report and brain imaging data. Both MBSR and RR reduce stress levels and increase aspects of mindfulness. Their unique pattern of brain commonalities and differences makes sense given that MBSR emphasizes non-judgmental awareness, while RR emphasizes parasympathetic relaxation along with attention to muscular sensations. The results also support the idea that mindfulness is not identical to relaxation: the two have their own unique neurological signatures. The study is limited by its small sample size and lack of an attention-only control.