Interventions

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


Lorenz, R. A., Auerbach, S., Nisbet, P.,...,Chang, Y. P. (2020). Improving Sleep among Adults with Multiple Sclerosis using Mindfulness
plus Sleep Education. *Western Journal of Nursing Research.* [link]


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**Associations**

*Articles examining the correlates and mechanisms of mindfulness*


Tortella-Feliu, M., Luís-Reig, J., Gea, J.,...Soler, J. (2020). *An Exploratory Study on the Relations Between Mindfulness and
Mindfulness-Based Intervention Outcomes. *Mindfulness.* [link]


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**Methods**

Articles developing empirical procedures to advance the measurement and methodology


Caletti E., Pagliari C., Vai B.,...Brambilla, P. (2020). **Which are the best questionnaires to longitudinally evaluate mindfulness skills in personality disorders?** *Journal of Affective Disorders.* [link]

Goetz, M., Schiele, C., Müller, M.,...Wallwiener, S. (2020). **Effects of a Brief Electronic Mindfulness-Based Intervention on Relieving Prenatal Depression and Anxiety in Hospitalized High-Risk Pregnant Women: Exploratory Pilot Study.** *Journal of Medical Internet Research.* [link]

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Hazlett-Stevens, H. (2020). **MBSR for Health Care Staff: Expanding Holistic Nursing Paradigms to the Whole System.** *Holistic Nursing Practice.* [link]

Lahtinen, O., Salmivalli, C. (2020). **An Effectiveness Study of a Digital Mindfulness-Based Program for Upper Secondary Education Students.** *Mindfulness.* [link]


Pilla, D., Qina’au, J., Patel, A.,...Saskin, M. (2020). **Toward a Framework for Reporting and Differentiating Key Features of Meditation-and Mindfulness-Based Interventions.** *Mindfulness.* [link]


Rose, S. E., Lomas, M. H. R. (2020). **The Potential of a Mindfulness-Based Coloring Intervention to Reduce Test Anxiety in Adolescents.** *Mind, Brain, and Education.* [link]
Reviews

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


Trials

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

Beth Israel Deaconess Medical Center (M. Andermann, PI). Look inward: Brainstem and cortical circuits for boosting interoceptive attention. NIH/NIMHHD project # 5DP1AT010971-02 [link]

Columbia University (S. Garbers, PI). Development and pilot testing of sleeping healthy: A comprehensive sleep intervention for adolescents in urban SBHCS. NIH/NIMHHD project # 1R21MD013991-01A1 [link]

University of California, San Diego (F. Zeidan, PI). The role of endogenous opioids in mindfulness-based chronic pain relief. NIH/NIMHHD project # 5R21AT010352-02 [link]
Psychological counseling as a profession can be emotionally taxing, and counseling trainees may experience compassion fatigue and elevated stress. Counseling training programs focus on teaching counseling skills, yet they often are insufficient to support trainee self-care and wellness. Teaching trainees mindfulness may enhance their professional growth and increase their resistance to vocational stressors.

Chan et al. [Patient Education and Counseling] conducted a randomized crossover study to test the effects of Mindfulness-Based Cognitive Therapy (MBCT) on wellness and perceived vocational competencies among undergraduate counseling trainees.

The researchers randomly assigned 50 undergraduate counseling trainees (60% female; age range 18-23 years) at a Hong Kong university to either MBCT or a wait-list control. MBCT was delivered once per week for 8 weeks in 2-hour group sessions. Trainees were assessed at baseline and 3 months on self-report measures of empathy, self-compassion, psychological distress, counseling self-efficacy, and mindfulness (Five Facet Mindfulness Questionnaire). Self-efficacy assessed trainee self-confidence in applying helping skills (e.g., being attentive, listening, reflecting feelings, asking open-ended questions) and managing boundaries and problematic client behaviors.

Brain and physiology were also assessed. Trainees had their brain EEG frontal midline theta-wave activity (a measure of internal attention), and their respiration rate and skin conductance (measures of autonomic arousal) measured while resting listening to either classical music or a guided meditation audiotape. At baseline both groups listened to classical music, and at 3-month assessment the MBCT group listened to the meditation audiotape while the control group listened to classical music. After the 3-month assessment, the wait-list controls then completed MBCT as part of the crossover design. Both groups were then reassessed on all measures at 6 months after baseline. At the 6-months, both groups listened to the meditation audiotape during the physiological assessment.

The results showed that at 3 months, the MBCT group had significantly higher levels of mindfulness (partial $\eta^2 = .13$), empathic perspective-taking (.24), self-compassion (.29), psychological distress (.32), and self-efficacy in helping skills (.28) and session management (.26). The MBCT group had higher levels of frontal midline theta activity (.09), lower respiration rates (.21) and lower skin conductance levels (.18).

At six months (after crossover), the differences enumerated above were no longer significant as the crossover group caught up with the original study group. For the total sample, increases in mindfulness from baseline to 6 months were associated with gains in helping skills ($r^2 = .42$), session management (.29) and counseling challenge skills self-efficacy (.47).

The study shows that MBCT can increase undergraduate counseling trainees’ confidence in their counseling skills as well as increase their psychological well-being. The study findings are limited by an inactive control group to rule out time and attention influences, a small sample size, and an early career cohort that might not generalize to more experienced trainees.
Meditation practice reportedly affects the gray (cell bodies) and white matter (axons) of the brain. However, cross-sectional studies comparing meditators to non-meditators are inconclusive, while many longitudinal studies employ multiple meditation techniques. This makes it difficult to pinpoint the meditation practices responsible for specific brain changes.

Lenhart et al [Behavior Brain Research] tested for brain changes in gray and white matter in meditation-naïve adults who completed a seven-week focused-attention meditation training.

The researchers studied 27 meditation-naïve adult Austrian participants (63% female; average age=43 years) who attended all fourteen 45-minute sessions of a seven-week focused-attention meditation training program. The program taught a breath-body-mind centered raja yoga method that involved elements of focused attention to breathing (pranayama) and retraction of the senses (pratyahara). The training also required 15-30 minutes of daily home practice.

Participants underwent magnetic resonance imaging (MRI) before and after the training program. They also completed a pre- and post-training self-report assessment of anxiety symptoms. Gray matter volume changes were assessed using whole-brain voxel-based morphometry, and white matter integrity changes were assessed using fractional anisotropy.

Results showed significant gray matter volume increases in the anterior insula, inferior frontal gyrus, superior frontal gyrus, caudate nucleus, and right cerebellum after the intervention. Significant gray matter volume decreases were detected in inferior parietal lobe, superior and middle temporal gyri, inferior frontal gyrus, medial prefrontal cortex, parahippocampal gyrus, and posterior cingulate cortex.

White matter showed increased integrity in the right basal ganglia, right hippocampus, and supraventricular region after the intervention.

The sample had a significant decrease in anxiety after the intervention, and decreases in anxiety were significantly associated with gray matter volume changes in the right-mid cingulate cortex, posterior cingulate cortex, and medial prefrontal cortices.

The study shows that intensive focused-attention meditation practice is associated with both gray and white matter changes in the brain. The researchers hypothesized these changes reflect how focused meditation reorganizes the fronto-insular brain regions responsible for sustained attention, self-control, and self-awareness.

The study is limited by the lack of a comparison group controlling for the socializing effects of a group-based intervention and other skills requiring intense focus for a similar amount of time.