Interventions

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


Warth, M., Koehler, F., Aguilar-Raab, C.,...Kessler, J. (2020). Stress-reducing effects of a brief mindfulness intervention in palliative care:
Results from a randomised, crossover study. *European Journal of Cancer Care.* [link]


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**Associations**

Articles examining the correlates and mechanisms of mindfulness


depression: A 15 months follow-up study. *Cognitive Therapy and Research.* [link]


**Methods**

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


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**Reviews**

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


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**Trials**

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

Oregon Research Behavioral Intervention Strategies, Inc. (D. Smith, PI). Mindfulness mobile app to reduce adolescent substance use. NIH/NIDA project #5R44DA043288-03. [link]

University of Rochester (K. Heffner, PI). MBSR for family caregivers of dementia patients. NIH/NIDA project #5R01AG052495-05. [link]
Multiple sclerosis (MS) is an autoimmune disease of the central nervous system affecting around one million Americans. Depending on the areas in the brain and spinal cord involved, MS can cause alterations in sensation, balance, muscle strength, coordination, autonomic nervous system activity, mood, and cognition. Cognitive symptoms may include impairments in attention, processing speed, working memory, and executive function. Computerized cognitive training is often employed in MS rehabilitation programs, but the results for improved cognitive function have been variable.

Mindfulness-based interventions offer potential promise in MS rehabilitation because of their proven effects on brain areas involved in attention and executive function. Manglani et al. [Neuropsychology] tested the efficacy of mindfulness training compared to computerized cognitive training and a wait-list control on improving working memory and processing speed among persons with MS.

The researchers randomly assigned 61 persons with MS (77% female; 72% Caucasian; average age = 46 years) to mindfulness training, computerized cognitive training, or a wait-list control. The four-week mindfulness training was an abbreviated version of the Mindfulness-Based Stress Reduction (MBSR) program involving the body scan, breath awareness, awareness of sensations, thoughts and emotions, and choiceless awareness. Patients met weekly in groups for two hours, and were encouraged to engage in 40 minutes of daily home mindfulness practice. The computerized cognitive training group also met in groups every week for two hours over the course of four weeks. The first hour of each group was devoted to didactic material on cognitive deficits and allowed for group sharing of experiences. The second hour consisted of computer game playing designed to maximize working memory and processing speed. The games required increasing degrees of attention, identification of stimuli, and memory.

Participants were assessed before and after intervention on a computerized neuropsychological battery that included symbol digit substitution and serial addition tasks. The symbol digit substitution task required participants to quickly use an answer key of matched symbols and numbers to look up the numerals correctly matching symbols flashed on a computer screen. The serial addition task required participants to listen to an audiotaped series of numbers, and mentally calculate the sum of the last two numbers they heard. The researchers compared performance across groups on these tasks and tested the effects of several moderating variables including baseline neuropsychological performance, amount of mindfulness or computer practice, and improvements in mindfulness disposition.

The results demonstrated that only the mindfulness group showed significantly improved performance on the symbol digit substitution task which measured processing speed. Their average symbol digit score improved by 8.8 points, whereas the cognitive training group improved by 0.2 points and wait-list group improved by 1.2 points. Serial addition scores, which measure working memory, improved for all three groups (\( \eta^2 = 0.44 \)) by an average of 8 points, without any significant group differences. The fact that the waitlist group also improved suggests this improvement is due to the practice effect of having taken the pretest. Neither baseline neuropsychological performance nor the amount of mindfulness or computer game practice affected processing speed or working memory improvement. Within the mindfulness group, increases in mindfulness disposition scores were correlated with improvements in working memory (r = .52), but not processing speed (r = -.11). Within the cognitive training group, improvements in game performance were not significantly correlated with processing speed or working memory.
The results suggest that mindfulness training can increase cognitive processing speed in MS patients compared to cognitive training or a waitlist control. The study is limited by a small sample size, reliance on single measures to assess processing speed and working memory, and uncertainty about whether improvements on a processing speed task translate into day-to-day improvements in adaptive functioning for persons with MS.

The diagnosis and treatment of breast cancer is a major stressor, and many breast cancer survivors (24-46%) suffer from insomnia with persistent difficulty in falling and staying asleep. Mindfulness training may help insomnia by promoting relaxation and by enhancing present-moment focusing, which can reduce sleep-interfering thoughts and emotions.

Mindfulness-Based Therapy for Insomnia (MBTI) is an integrated therapeutic intervention that offers mindfulness training along with cognitive-behavioral strategies for stress management and sleep hygiene. Zhao et al. [European Journal of Cancer Care] tested the effectiveness of MBTI compared to a wait-list control for improving sleep quality in a large sample of breast cancer survivors.

The researchers randomly assigned 136 Chinese women (average age = 53 years) diagnosed with breast cancer who had completed surgery, adjuvant chemotherapy and radiotherapy, and who met the American Academy of Sleep Medicine criteria for insomnia to an MBTI program or a wait-list control. The six-week MBTI program was delivered in weekly, 90-minute group sessions, with instructions for 20-40 minutes of daily home mindfulness practice. Seventy percent of group session time was devoted to meditation practice using the body scan, yoga, sitting and walking meditations. The remainder of the time involved didactic material on stress management, sleep hygiene, and cognitive strategies to change one’s thinking.

Participants kept sleep diaries and meditation practice logs and were assessed at baseline, post intervention, and at 3- and 6-month follow-up on self-report measures of insomnia and mindfulness using the Five Facet Mindfulness Questionnaire. They also donned wrist-worn actigraphs for three consecutive nights during each of the four assessment periods to measure their nighttime movement activity. Actigraphic data yielded measures of sleep latency, sleep awakenings, total time asleep, and sleep efficiency (the percentage of time in bed someone is actually asleep).

The results showed that the MBTI group significantly decreased their self-reported insomnia symptoms compared to controls (d=-1.32). Significant improvements were maintained from post-intervention through 6-month follow up. The percentage of MBTI participants reporting moderate-to-severe insomnia decreased from 69% to 9.5% over the six months, whereas the percentage of participants reporting either no insomnia or subclinical insomnia increased from 31% to 91%.

Actigraphic data also showed significant improvement for MBTI participants over controls with regards to sleep onset latency (d=-0.10), waking after falling asleep onset (d=-1.82), total sleep time (d=0.56) and sleep efficiency (d=1.44). The improvements in latency of waking after sleeping, total sleep time, and sleep efficiency persisted through 6-month follow-up. MBTI participants also showed a significant improvement in mindfulness disposition scores compared to controls (d=1.03) that persisted through 6-month follow-up.

The study shows that a mindfulness-based intervention adapted for insomnia improves self-reported sleep quality as well as objectively measured sleep maintenance, total sleep time, and sleep efficiency compared to a wait-list control. Effect sizes were large and maintained through 6-month follow-up. Study limitations include the lack of an active control comparator or information on any sedative medications participants may have used during the study.
Are you interested in learning more about the delivery of **APPLIED MINDFULNESS**?

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<th>12 credits</th>
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<tr>
<td>12 credits</td>
<td>3 courses that focus on mindfulness interventions and curriculum development</td>
<td>1 capstone course that provides a supervised opportunity to apply skills</td>
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### The Courses

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- **Applied Mindfulness II**  
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- **Applied Mindfulness Practicum**  
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Certificate curriculum designed by Donald McCown, program director, faculty member, and primary author of *Teaching Mindfulness: A Practical Guide for Clinicians and Educators; Resources for Teaching Mindfulness: An International Handbook;* and *The Ethical Space of Mindfulness in Clinical Practice.*