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David S. Black, Ph.D.

Highlights by  
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American Mindfulness  
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## Interventions

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

Abrkar, Z., Ghasemi, M., Mazhari Manesh, E., ...& Bakhshi Ardakani, M. (2023). **The effectiveness of adolescent-oriented mindfulness training on academic burnout and social anxiety symptoms of students.** *Annals of Medicine and Surgery.* [\[link\]](#)

Agius, H., Luoto, A.-K., Backman, A., ...& Hirvikoski, T. (2023). **Mindfulness-based stress reduction for autistic adults: A feasibility study in an outpatient context.** *Autism.* [\[link\]](#)

Cladder-Micus, M. B., Vrijisen, J. N., Fest, A., ...& Speckens, A. E. M. (2023). **Follow-up outcomes of Mindfulness-Based Cognitive Therapy (MBCT) for patients with chronic, treatment-resistant depression.** *Journal of Affective Disorders.* [\[link\]](#)

Deegan, O., Fullen, B. M., Casey, M.-B., ...& Doody, C. (2023). **Mindfulness Combined with Exercise Online (MOVE) Compared with a Self-Management Guide for Adults with Chronic Pain: A Feasibility Randomised Controlled Trial.** *The Clinical Journal of Pain.* [\[link\]](#)

Ellerbroek, H., Hanssen, I., Lathouwers, K., ...& Schellekens, A. F. A. (2023). **Mindfulness-based cognitive therapy for chronic noncancer pain and prescription opioid use disorder: A qualitative pilot study of its feasibility and the perceived process of change.** *Brain and Behavior.* [\[link\]](#)

Fazia, T., Bubbico, F., Nova, A., ...& Bernardinelli, L. (2023). **Improving stress management, anxiety, and mental well-being in medical students through an online Mindfulness-Based Intervention: A randomized study.** *Scientific Reports.* [\[link\]](#)

Gu, Y.-Q., & Zhu, Y. (2023). **A randomized controlled trial of mindfulness-based cognitive therapy for body dysmorphic disorder: Impact on core symptoms,**

**emotion dysregulation, and executive functioning.** *Journal of Behavior Therapy and Experimental Psychiatry.* [\[link\]](#)

Kao, L. S., & Diller, M. L. (2023). **Embedding Mindfulness-Based Resiliency Curricula Into Surgical Training to Combat Resident Burnout and Improve Wellbeing.** *The American Surgeon™.* [\[link\]](#)

Konrad, A. C., Engert, V., Albrecht, R., ...& Kanske, P. (2023). **A multicenter feasibility study on implementing a brief mindful breathing exercise into regular university courses.** *Scientific Reports.* [\[link\]](#)

Leng, L. L., Yin, X. C., Chan, C. L. W., & Ng, S. M. (2023). **Antenatal mobile-delivered mindfulness-based intervention to reduce perinatal depression risk and improve obstetric and neonatal outcomes: A randomized controlled trial.** *Journal of Affective Disorders.* [\[link\]](#)

Mathew, A. R., Avery, E. F., Cox, C., Nwanah, P., Kalhan, R., Hitsman, B., & Powell, L. H. (2023). **Development of a targeted behavioral treatment for smoking cessation among individuals with Chronic Obstructive Pulmonary Disease.** *Journal of Behavioral Medicine.* [\[link\]](#)

Mehel Tutuk, S. P., & Budak, F. (2023). **The effect of mindfulness-based psychoeducation on internalized stigma and substance abuse proclivity in individuals with substance use disorder.** *Journal of Substance Use.* [\[link\]](#)

Pandya, S. P. (2023). **Women Undergoing IVF: Mitigating Anxiety and Stress and Building Infertility Self-Efficacy and Resilience Through Mindfulness Care.** *Women's Reproductive Health.* [\[link\]](#)

Yagi, S. R., Napa, W., Awirutworakul, T., ...& Hartelius, G. (2023). **Effects of a brief interpersonal mindfulness program embedded in a psychiatric nursing practicum: A controlled pilot study.** *Journal of Professional Nursing.* [\[link\]](#)

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## Associations

Articles examining the correlates and mechanisms of mindfulness

Baumgartner, J. N., & Schneider, T. R. (2023). **Acute Biopsychosocial Stress Responses in Mindfulness Meditators and Non-Meditators: The Mediating Role of Closeness.** *Mindfulness.* [\[link\]](#)

Brami, C., Sultan, S., Robieux, L., ...& Zenasni, F. (2023). **Understanding students' motivations for participating in a mindfulness course: A qualitative analysis of medical students' views.** *BMC Complementary Medicine and Therapies.* [\[link\]](#)

Fagioli, S., Pallini, S., Mastandrea, S., & Barcaccia, B. (2023). **Effectiveness of a Brief Online Mindfulness-Based Intervention for University Students.** *Mindfulness.* [\[link\]](#)

Jakary, A., Lupo, J. M., Mackin, S, ...& Li, Y. (2023). **Evaluation of major depressive disorder using 7 Tesla phase sensitive neuroimaging before and after mindfulness-based cognitive therapy.** *Journal of Affective Disorders.* [\[link\]](#)

Lathan, E. C., Guelfo, A., La Barrie, D. L., ...& Fani, N. (2023). **Differing associations of depersonalization with physiological response during rest and breath-focused mindfulness in a trauma-exposed female population.** *Journal of Psychiatric Research.* [\[link\]](#)

Liebmann, C., Konrad, A. C., Singer, T., & Kanske, P. (2023). **Differential reduction of psychological distress by three different types of meditation-based mental training programs: A randomized clinical trial.** *International Journal of Clinical and Health Psychology.* [\[link\]](#)

Martín, J., García, S., Anton-Ladislao, A., ...& Group, the C. (2023). **Variables related to health-related quality of life among breast cancer survivors after participation in an**

**interdisciplinary treatment combining mindfulness and physiotherapy.** *Cancer Medicine.* [\[link\]](#)

Melis, M., Blommaert, J., Radwan, A., ...& Sunaert, S. (2023). **Structural Brain Changes After a Mindfulness-Based Intervention in Breast Cancer Survivors with Cognitive Complaints.** *Mindfulness.* [\[link\]](#)

Mendelson, T., Webb, L., Artola, A., ...& Sibinga, E. (2023). **An Online Mindfulness Program for Teachers: A Feasibility Study of the DeStress Monday at School Program.** *Mindfulness.* [\[link\]](#)

Muñoz Bohorquez, J., Parra, D. C., Saperstein, S. L., ...& Green, K. M. (2023). **Feasibility of Implementing a Mindfulness-Based Online Program for Latina Immigrants and the Staff that Work with Them.** *Mindfulness.* [\[link\]](#)

Skrzynski, C. J., Bryan, A. D., & Hutchison, K. E. (2023). **Mindfulness mechanisms in alcohol use: Comparing top-down and bottom-up processes.** *Psychology of Addictive Behaviors.* [\[link\]](#)

Smith, K. S., Kinsella, E. A., Moodie, S., ...& Teachman, G. (2023). **Mindfulness in paediatric occupational therapy practice: A phenomenological inquiry.** *Disability and Rehabilitation.* [\[link\]](#)

Strong, S. D. (2023). **Mindfulness Practice in Recovery From Bipolar Disorder: Qualitative Study Results and Humanistic Implications.** *Journal of Humanistic Psychology.* [\[link\]](#)

Sullivan, M., Huberty, J., Chung, Y., & Stecher, C. (2023). **Mindfulness Meditation App Abandonment During the COVID-19 Pandemic: An Observational Study.** *Mindfulness.* [\[link\]](#)

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Wang, Y., Garland, E. L., & Farb, N. A. S. (2023). **An experimental test of the mindfulness-to-meaning theory: Casual pathways between decentering, reappraisal, and well-being.** *Emotion*. [\[link\]](#)

Zheng, M., Song, X., Zhao, H., ...& Zhou, J. (2023). **Can Short-term Mindfulness Training Improve Response Inhibition: A Pilot ERP Study.** *Mindfulness*. [\[link\]](#)

### Methods

Articles developing empirical procedures to advance the measurement and methodology

Altgassen, E., Geiger, M., & Wilhelm, O. (2023). **Do you mind a closer look? A jingle-jangle fallacy perspective on mindfulness.** *European Journal of Personality*. [\[link\]](#)

Barillot, L., Chauvet, C., Besnier, M., ...& Chatard, A. (2023). **Effect of environmental enrichment on relapse rates in patients with severe alcohol use disorder: Protocol for a randomised controlled trial.** *BMJ Open*. [\[link\]](#)

Correa, P., Michelini, Y., Bravo, A. J., ...& Pilatti, A. (2023). **Validation of the Spanish Version of the Five Facet Mindfulness Questionnaire in a Sample of Argentinian College Students.** *Mindfulness*. [\[link\]](#)

Curl, E. L., & Hampton, L. H. (2023). **Virtual Mindfulness Workshops for Parents of Children on the Autism Spectrum.** *Journal of Early Intervention*. [\[link\]](#)

Garland, E. L., Gullapalli, B. T., Prince, K. C., ...& Rahman, T. (2023). **Zoom-Based Mindfulness-Oriented Recovery Enhancement Plus Just-in-Time Mindfulness Practice Triggered by Wearable Sensors for Opioid Craving and Chronic Pain.** *Mindfulness*. [\[link\]](#)

He, Y., Tang, Z., Sun, G., ...& Bao, Z. (2023). **Effectiveness of a Mindfulness Meditation App Based on an Electroencephalography-Based Brain-Computer Interface in Radiofrequency Catheter Ablation for Patients With Atrial Fibrillation: Pilot Randomized Controlled Trial.** *JMIR MHealth and UHealth*. [\[link\]](#)

Juberg, M., Stoll, N., Goldin, P., & Bell, J. (2023). **Investigating the Feasibility and Effects of an Online Mindfulness Family Caregiver Training Program.** *Mindfulness*. [\[link\]](#)

Medvedev, O., & Krägeloh, C. (2023). **Harnessing Artificial Intelligence for Mindfulness Research and Dissemination: Guidelines for Authors.** *Mindfulness*. [\[link\]](#)

Priore, L. B. D., Perez, V. O., Briani, R. V., ...& de Azevedo, F. M. (2023). **Effects of an online program including mindfulness, exercise therapy and patient education compared to online exercise therapy and patient education for people with Patellofemoral Pain: Protocol for a randomized clinical trial.** *BMC Musculoskeletal Disorders*. [\[link\]](#)

Saba, S. K., & Black, D. S. (2023). **Psychometric Assessment of the Applied Mindfulness Process Scale (AMPS) Among a Sample of Women in Treatment for Substance Use Disorder.** *Mindfulness*. [\[link\]](#)

Sanchez-Lara, E., Vazquez Justo, E., Perez-Garcia, M., & Caracuel, A. (2023). **Efficacy of computerized cognitive training and mindfulness for improving cognition and mood in older adults: Better together than separately.** *Journal of Mental Health*. [\[link\]](#)

She, Y., Wang, Q., Liu, F., ...& Hu, B. (2023). **An interaction design model for virtual reality mindfulness meditation using imagery-based transformation and positive feedback.** *Computer Animation and Virtual Worlds*. [\[link\]](#)

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## Reviews

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

Ainsworth, B., Atkinson, M. J., AlBedah, E., ...& Underhill, R. (2023). **Current Tensions and Challenges in Mindfulness Research and Practice.** *Journal of Contemporary Psychotherapy.* [\[link\]](#)

da Silva, C. C. G., Bolognani, C. V., Amorim, F. F., & Imoto, A. M. (2023). **Effectiveness of training programs based on mindfulness in reducing psychological distress and promoting well-being in medical students: A systematic review and meta-analysis.** *Systematic Reviews.* [\[link\]](#)

Goldberg, S. B., Anders, C., Stuart-Maver, S. L., & Kivlighan, D. M. (2023). **Meditation, mindfulness, and acceptance methods in psychotherapy: A systematic review.** *Psychotherapy Research.* [\[link\]](#)

Kaisti, I., Kulmala, P., Hintsanen, M., ...& Jääskeläinen, E. (2023). **The effects of mindfulness-based interventions in medical students: A systematic review.** *Advances in Health Sciences Education.* [\[link\]](#)

Lin, H.-W., Tam, K.-W., & Kuan, Y.-C. (2023). **Mindfulness or meditation therapy for Parkinson's disease: A systematic review and meta-analysis of randomized controlled trials.** *European Journal of Neurology.* [\[link\]](#)

Michaelsen, M. M., Graser, J., Onescheit, M., ...& Esch, T. (2023). **Mindfulness-Based and Mindfulness-Informed Interventions at the Workplace: A Systematic Review and Meta-Regression Analysis of RCTs.** *Mindfulness.* [\[link\]](#)

Pickerell, L. E., Pennington, K., Cartledge, C., ...& Curtis, F. (2023). **The Effectiveness of School-Based Mindfulness and Cognitive Behavioural Programmes to Improve Emotional Regulation in 7-12-Year-Olds: A**

## Systematic Review and Meta-Analysis.

*Mindfulness.* [\[link\]](#)

Simione, L., & Saldarini, F. (2023). **A Critical Review of the Monitor and Acceptance Theory of Mindfulness.** *Mindfulness.* [\[link\]](#)

Verhaeghen, P. (2023). **Mindfulness and Academic Performance Meta-Analyses on Interventions and Correlations.** *Mindfulness.* [\[link\]](#)

Wang, R., Gu, X., Zhang, Y., ...& Zeng, X. (2023). **Loving-kindness and compassion meditations in the workplace: A meta-analysis and future prospects.** *Stress and Health.* [\[link\]](#)

Williams, M., Honan, C., Skromanis, S., ...& Matthews, A. J. (2023). **Psychological Outcomes and Mechanisms of Mindfulness-Based Training for Generalised Anxiety Disorder: A Systematic Review and Meta-Analysis.** *Current Psychology.* [\[link\]](#)

Yosep, I., Mardhiyah, A., & Sriati, A. (2023). **Mindfulness Intervention for Improving Psychological Wellbeing Among Students During COVID-19 Pandemic: A Scoping Review.** *Journal of Multidisciplinary Healthcare.* [\[link\]](#)

## Trials

*Research studies newly funded by the National Institutes of Health (MAY 2023)*

None reported.

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## Highlights

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

About 10% of patients who are prescribed opioids for their chronic pain go on to develop opioid use disorders, which are characterized by urges to use, difficulty in tapering off use, and impairment in daily activities. Given that mindfulness-based interventions have been used for the treatment of chronic pain and substance abuse disorders, they may also offer potential benefits to people who are diagnosed with both disorders concurrently.

**Ellerbroek et al. [*Brain and Behavior*]** conducted a pilot study aimed at assessing the feasibility of using Mindfulness-Based Cognitive Therapy (MBCT) among patients with co-occurring chronic pain and opioid use disorder.

The researchers recruited 23 Dutch patients (60% female; average age = 48 years) who had dual diagnoses of chronic pain and opioid use disorder and were hospitalized for the initiation of opioid-agonist buprenorphine/naloxone treatment. All participants were given the opportunity to participate in outpatient MBCT three months after their hospitalization. MBCT was delivered in the standard curriculum format of 8-week 2.5 hour group sessions and a 6-hour retreat. The MBCT groups were not restricted to study patients alone, but also included patients with other psychiatric diagnoses.

Study patients were interviewed prior to the start of MBCT to assess factors that might facilitate or hinder their participation. Patients who initially agreed to participate in MBCT but later declined were interviewed on two occasions. Patients who participated in MBCT were also interviewed post-intervention to assess their perception of whether and how they had changed. Interviews were audiotaped, transcribed, coded, and thematically analyzed.

Nine patients initially declined to participate in MBCT. Their reasons included previous MBI experience, being in too much pain, fear that participation could exacerbate pain and negative mood, challenges related to travel and scheduling conflicts with sessions, and a general lack of interest in psychosocial interventions. Twelve patients initially expressed interest in participating, but during the three months leading up to the start of the intervention, eight of them changed their minds. Many of those thought MBCT was occurring too late in their treatment process or were anticipating practical difficulties that would hinder their attendance.



Four patients participated in MBCT: one attended all 8 sessions, two attended 7 sessions, one attended 6 sessions, and all attended the 6-hour retreat. Participants reported being more in touch with their emotions and better able to focus their attention, diminished self-blame, anxiety, and anger, and a greater ability to experience happiness and calm. While their pain levels did not generally decrease, they reported coping better with pain by employing strategies of acceptance, letting go, and seeking distraction.

The researchers concluded that although patients derived benefits from participating in the intervention, MBCT was not feasible for most individuals with co-occurring chronic pain and opioid use disorder. Offering MBCT earlier in the treatment cycle, providing a trial session prior to requiring a commitment, or offering MBCT in an individualized online format were noted as potential strategies to address barriers to feasibility. The study is limited by its small number of participants and lack of objective outcome measures.

**T**he relation between major depressive disorder and brain iron concentrations remains speculative. The brain requires iron for various

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functions, including dopamine synthesis, myelin formation, oxygen transport, and energy metabolism. However too much iron can cause inflammation and neurotoxicity. Studies have shown that depressed patients have increased concentrations of iron in their hair and nails and decreased concentrations of iron in their blood, but these studies tell us nothing about iron levels in the brain. Since iron is ferromagnetic, Magnetic Resonance Imaging (MRI) offers a non-invasive method to measure brain iron concentrations. Several studies employing older MRI technology demonstrated elevated levels of iron in specific brain regions among patients with severe depression.

**Jakary et al. [Journal of Affective Diseases]** used a newer and more powerful ultra-high field 7 Tesla MRI method, which offers increased sensitivity in measuring brain iron concentration. The researchers used this technology to quantify brain iron concentrations in individuals with major depressive disorder participating in Mindfulness-Based Cognitive Therapy (MBCT) and compared their iron levels and cognitive functioning to that of healthy controls.

The researchers recruited 17 medication-free patients diagnosed with major depressive disorder (76% female; average age = 31) and 14 age- and gender-matched healthy controls. Participants with depression were assessed for brain iron concentrations, depressive symptoms, and cognitive functioning before and after participating in MBCT. The regions of interest for MRI brain analysis included the anterior cingulate cortex, caudate, putamen, globus pallidus, and thalamus.

The MRI measurements involved assessing local field shifts (LFS) in gradient-recalled echo phase images, where lower LFS values indicate higher iron concentration levels. MBCT was delivered in 8 weekly 2.5 hour group sessions with 30-45 minutes of daily home practice. Twelve of the patients successfully completed MBCT and all the MRI assessments. Healthy controls did not

participate in MBCT and were assessed on all measures at baseline only.



The results showed that, at baseline, depressed patients exhibited significantly higher iron concentrations in the left global pallidus and putamen, as well as significantly slower information processing speed on cognitive tests compared to healthy controls. Depressive severity in depressed patient group was correlated with significantly higher iron concentrations in five brain regions of interest. All MBCT participants experienced a meaningful improvement in their depressive symptoms after MBCT, with six individuals experiencing complete depression remission. Depressed patients also significantly improved on measures of executive function and attention after MBCT.

Brain iron concentrations did not change significantly from baseline to post-treatment, and changes in values were uncorrelated with improvements in depression scores. However, patients with higher iron concentrations in the right caudate nucleus at baseline showed significantly greater posttreatment improvement in depressive symptoms. In addition, patients with higher iron concentrations in three regions of interest at baseline showed significantly greater improvement on a measure of verbal learning and memory after MBCT.

The study demonstrates that using the ultra-high field MRI method enables the detection of brain iron concentrations in specific regions of interest, which can serve as biomarkers for depression and its response to MBCT. The study is limited by technical factors (e.g., how myelin alterations may affect LFS values) that may reduce the validity LFS values as a surrogate measure of iron concentration and the absence of a no-treatment control.