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David S. Black, Ph.D.

Highlights by
Seth Segall, Ph.D.

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Interventions

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

Ahmadyar, K., Robinson, E., Tapper, K. (2023). **The effect of a mindfulness-based body scan exercise on food intake during TV watching.** *Appetite*. [\[link\]](#)

Alzahrani, A. M., Hakami, A., AlHadi, A., ...Almigbal, T. H. (2023). **The effectiveness of mindfulness training in improving medical students' stress, depression, and anxiety.** *PLOS ONE*. [\[link\]](#)

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Boch, C., Cappaert, T., Shotwell, M. P., Schmelzer, C. (2023). **Investigating the Impact of Mindfulness Meditation on Stress Reduction and Self-Compassion of Nursing Health Care Professionals in a Small Community Hospital in the Midwest: A Pilot Study.** *Holistic Nursing Practice*. [\[link\]](#)

Bringmann, H. C., Berghöfer, A., Jeitler, M., ...Haller, H. (2023). **Meditation-Based Lifestyle Modification in Mild-to-Moderate Depression: Outcomes and Moderation Effects of Spirituality.** *Journal of Integrative and Complementary Medicine*. [\[link\]](#)

Brown, C. K., Vazquez, J., Metz, S. M., McCown, D. (2023). **Effects of an 8-Week Mindfulness Course in People With Voice Disorders.** *Journal of Voice*. [\[link\]](#)

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De Jaegere, E., Dumon, E., van Heeringen, K., ...Portzky, G. (2023). **Mindfulness-Based Cognitive Therapy for Individuals Who Are Suicidal: A RCT.** *Archives of Suicide Research*. [\[link\]](#)

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Felver, J. C., Clawson, A. J., Ash, T. L., Wang, Q. (2023). **Effects of brief mindfulness practice on reading performance among racially minoritized adolescents.** *School Psychology*. [\[link\]](#)

Ibici Akca, E., Cengizhan, S. O., Gokbulut, N. (2023). **Effectiveness of a MBSR Program on Stress, Anxiety, and Prenatal Attachment for High-Risk Pregnant Women: A RCT.** *Mindfulness*. [\[link\]](#)

Khatib, L., Dean, J. G., Oliva, V., ...Zeidan, F. (2023). **The role of endogenous opioids in mindfulness and sham mindfulness-meditation for the direct alleviation of evoked chronic low back pain: A RCT.** *Neuropsychopharmacology*. [\[link\]](#)

Kummar, A. S., Correia, H., Tan, J., ...Fujiyama, H. (2023). **An 8-week compassion and mindfulness-based exposure therapy program improves posttraumatic stress symptoms.** *Clinical Psychology & Psychotherapy*. [\[link\]](#)

Loucks, E. B., Kronish, I. M., Saadeh, F. B., ...Schuman-Olivier, Z. (2023). **Adapted Mindfulness Training for Interoception and**

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Adherence to the DASH Diet: A Phase 2 RCT. *JAMA Network Open.* [\[link\]](#)

Motamed-Jahromi, M., Kaveh, M. H., Mohammadi, M., ...Louis Iparraguirre, J. (2023). **Promoting self-care behavior among older adults with type 2 diabetes by the combined mindfulness and self-regulatory intervention via social media: A three-arm cluster RCT.** *Educational Gerontology.* [\[link\]](#)

van Steensel, F. J. A., Veringa-Skiba, I. K., Sauer, A. R., ...Bögels, S. M. (2023). **Cost-Effectiveness of the Mindfulness-Based Childbirth and Parenting Program for Pregnant Women With Fear of Childbirth.** *Journal Obstetric, Gynec Neonatal Nurs.* [\[link\]](#)

Associations

Articles examining the correlates and mechanisms of mindfulness

Krause, J. T., & Brown, S. M. (2023). **Mindfulness Intervention Improves Coping and Perceptions of Children's Behavior among Families with Elevated Risk.** *International Journal of Environmental Research and Public Health.* [\[link\]](#)

Laubacher, C., Kral, T. R. A., Imhoff-Smith, T., ...Rosenkranz, M. A. (2023). **Resting state functional connectivity changes following MBSR predict improvements in disease control for patients with asthma.** *Brain, Behavior, and Immunity.* [\[link\]](#)

Liu, X., Lei, L., Zheng, Y., Deng, Y., ...Chen, J. (2023). **Alleviating learning burnout of Chinese middle school students by school-based mindfulness training: The mediating role of psychological resilience.** *Psychology in the Schools.* [\[link\]](#)

Maloney, S., Montero-Marin, J., & Kuyken, W. (2023). **Pathways to mental well-being for graduates of mindfulness-based cognitive therapy (MBCT) and MBSR: A mediation**

analysis of an RCT. *Psychotherapy Research.* [\[link\]](#)

Matko, K., & Sedlmeier, P. (2023). **Which Meditation Technique for Whom? An Experimental Single-Case Study Comparing Concentrative, Humming, Observing-Thoughts, and Walking Meditation.** *Mindfulness.* [\[link\]](#)

Mirabito, G., & Verhaeghen, P. (2023). **Changes in State Mindfulness are the Key to Success in Mindfulness Interventions: Ecological Momentary Assessments of Predictors, Mediators, and Outcomes in a Four-Week Koru Mindfulness Intervention.** *Psychological Reports.* [\[link\]](#)

Pickard, J. A., Deane, F. P., & Gonsalvez, C. J. (2023). **Effects of a brief mindfulness intervention program: Changes in mindfulness and self-compassion predict increased tolerance of uncertainty in trainee psychologists.** *Training and Education in Professional Psychology.* [\[link\]](#)

Ray, S., Bhanji, J., Kennelly, N., Fox, H. C., ...Garland, E. L. (2023). **Mindfulness-oriented recovery enhancement in opioid use disorder: Extended emotional regulation and neural effects and immediate effects of guided meditation in a pilot sample.** *EXPLORE.* [\[link\]](#)

Renaghan, E., Wishon, M. J., Wittels, H. L., ...Wittels, S. H. (2023). **The effects of relaxation techniques following acute, high intensity football training on parasympathetic reactivation.** *Frontiers in Sports and Active Living.* [\[link\]](#)

Salvesen, K. T., Stige, S. H., Wästlund, M., & Vrabel, K. (2023). **Change despite obstacles: A mixed-methods pilot study of a trauma-sensitive mindfulness and compassion intervention.** *European Journal of Trauma & Dissociation.* [\[link\]](#)

Tennor, M., Gioia, D., Anderson, J., ...Satchell, S. (2023). **Mindfulness and mothering in**

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Baltimore city: How mindfulness training impacts black women's transition into motherhood. *Social Work in Mental Health.* [\[link\]](#)

Velde, J. V. de, Levecque, K., Weijters, B., & Laureys, S. (2023). **Doing what matters in times of stress: No-nonsense meditation and occupational well-being in COVID-19.** *PLOS ONE.* [\[link\]](#)

Wagner, A. P., Galante, J., Dufour, G., ...Jones, P. B. (2023). **Cost-effectiveness of providing university students with a mindfulness-based intervention to reduce psychological distress: Economic evaluation of a pragmatic RCT.** *BMJ Open.* [\[link\]](#)

Wang, M., Chen, D., & Xu, W. (2023). **Is Mindful Parenting Associated with School-Aged Children's Meta-Mood? Exploring the Role of Children's Mindfulness.** *Psychological Reports.* [\[link\]](#)

Weisbaum, E., Chadi, N., & Young, L. T. (2023). **Improving physician wellness through the Applied Mindfulness Program for Medical Personnel: Findings from a prospective qualitative study.** *Canadian Medical Association Open Access Journal.* [\[link\]](#)

Yue, W. L., Ng, K. K., Koh, A. J., ...Lim, J. (2023). **Mindfulness-based therapy improves brain functional network reconfiguration efficiency.** *Translational Psychiatry.* [\[link\]](#)

Methods

Articles developing empirical procedures to advance the measurement and methodology

Fenning, R. M., Neece, C. L., Sanner, C. M., & Morrell, H. E. R. (2023). **Efficacy and Implementation of Stress-Reduction Interventions for Underserved Families of Autistic Preschoolers Across In-Person and Virtual Modalities.** *Mindfulness.* [\[link\]](#)

Finck, C., Avila, A., Jiménez-Leal, W., Botero, J. P., ...Andonova, V. (2023). **A multisensory mindfulness experience: Exploring the promotion of sensory awareness as a mindfulness practice.** *Frontiers in Psychology.* [\[link\]](#)

Gasión, V., Barceló-Soler, A., Beltrán-Ruiz, M., ...Montero-Marin, J. (2023). **Effectiveness of an amygdala and insula retraining program combined with mindfulness training to improve the quality of life in patients with long COVID: A RCT protocol.** *BMC Complementary Medicine and Therapies.* [\[link\]](#)

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Hassdenteufel, K., Müller, M., Abele, H., ...Wallwiener, S. (2023). **Using an Electronic Mindfulness-based Intervention (eMBI) to improve maternal mental health during pregnancy: Results from a RCT.** *Psychiatry Research.* [\[link\]](#)

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Palmer, R., Roos, C., Vafaie, N., & Kober, H. (2023). **The effect of ten versus twenty minutes of mindfulness meditation on state**

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mindfulness and affect. *Scientific Reports.* [\[link\]](#)

Senda, M. C., Johnson, K. A., Taylor, I. M., ...Kozel, F. A. (2023). **A Pilot Trial of Stepwise Implementation of Virtual Reality Mindfulness and Accelerated Transcranial Magnetic Stimulation Treatments for Dysphoria in Neuropsychiatric Disorders.** *Depression and Anxiety.* [\[link\]](#)

Siraji, M. A., Rahman, M., Saha, B., & Haque, S. (2023). **Validation of the Five Facet Mindfulness Questionnaire-Bangla Using Classical Test Theory and Item Response Theory.** *Mindfulness.* [\[link\]](#)

Yüksel Doğan, R., Demir, E., Öz, S., & Demircioğlu, H. (2023). **A Reliability Generalization Meta-Analysis of the Child and Adolescent Mindfulness Measure (CAMM).** *Psychological Reports.* [\[link\]](#)

Reviews

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

Dinesh, T. K., & Shetty, A. (2023). **Mindfulness-based Interventions as a Breakthrough on Occupational Stress of Working Professionals: A Trilogical Approach.** *Vision.* [\[link\]](#)

Gao, J., Chang, C., Zou, L., & Tsang, E. W. (2023). **Meditative practice and behavioral neuroscience.** *Frontiers in Behavioral Neuroscience.* [\[link\]](#)

Greenthal, K., & Spatz, D. (2023). **The Effects of Mindfulness on Lactation: An Integrative Review.** *Breastfeeding Medicine.* [\[link\]](#)

Holas, P., & Kamińska, J. (2023). **Mindfulness meditation and psychedelics: Potential synergies and commonalities.** *Pharmacological Reports.* [\[link\]](#)

Kander, T. N., Lawrence, D., Fox, A., Houghton, S., & Becerra, R. (2024). **Mindfulness-based**

interventions for preadolescent children: A comprehensive meta-analysis. *Journal of School Psychology.* [\[link\]](#)

Kusko, D. A., Blake, J., & Williams, R. (2023). **A Narrative Review of the Effects of Mindfulness on Sleep and Hypertension.** *Current Hypertension Reports.* [\[link\]](#)

Miles, E., Matcham, F., Strauss, C., & Cavanagh, K. (2023). **Making Mindfulness Meditation a Healthy Habit.** *Mindfulness.* [\[link\]](#)

Paschali, M., Lazaridou, A., Sadora, J., ...Edwards, R. R. (2023). **MBIs for Chronic Low Back Pain: A Systematic Review and Meta-analysis.** *The Clinical Journal of Pain.* [\[link\]](#)

Prohaska, S., & Matthias, K. (2023). **Effectiveness of MBSR as a non-drug preventive intervention in patients with migraine – a systematic review with meta-analyses.** *Complementary Medicine Research.* [\[link\]](#)

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Wu, J., & Zhao, Q. (2023). **The contribution of mindfulness in the association between L2 learners' engagement and burnout.** *Heliyon.* [\[link\]](#)

Trials

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

VA Northern CA Health Care System (J. Baldo, PI). **MBSR to Improve Neuropsychological Functioning in Acquired Brain Injury.** VA project # 5I01RX002951-05. [\[link\]](#)

VA San Diego Health Care System (D. Schiehser, PI). **MBSR for Parkinson's Disease: A Longitudinal Study.** VA project # 5I01RX003154-05. [\[link\]](#)

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Highlights

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

The incidence of psychological symptoms in adolescents and young adults has risen significantly over the past decade, placing increased stress on university counseling resources. Mindfulness-based interventions may be less staff and time intensive than many traditional mental health interventions. Further, they might achieve positive outcomes at lower cost.

Wagner et al. [BMJ Open] evaluated the cost-effectiveness of a Mindfulness Skills for Students (MSS) program added to mental health services-as-usual to a control group that had access solely to mental health services-as-usual alone.

The researchers randomly assigned 616 British university students (mean age = 23 years; 63% female) with an expressed interest in the MSS program to either the MSS program with access to mental health services-as-usual when needed, or a control group with access to treatment-as-usual when needed. The control group was guaranteed slots in the following year's MSS program.

The MSS program consisted of 8 weekly 75-90 minute group sessions, each incorporating two periods of meditation, as well as opportunities for reflection and inquiry. Students were encouraged to dedicate 8-25 minutes of daily home practice. Mental health services-as-usual involved access to university individual and group counseling services, along with counseling service workshops. The MSS program was offered during the winter and spring semesters, with results reported separately for these cohorts.

Participants underwent assessments using self-report questionnaires measuring psychological distress and well-being at time of recruitment, post-intervention, during exam week, and at 12 month follow-up. The psychological distress questionnaire formed

the basis for computing quality-adjusted life years (QALYs), a standard metric for evaluating quality of life in cost-effectiveness studies. The cost of the MSS program was determined by calculating the staff time cost per participant. Meanwhile, the cost of treatment-as-usual was calculated based on the staff cost for delivering services at the university counseling center per participant, derived from counseling center records. A small percentage of the participants (<18%) used counselling center resources, and there was no difference in usage between the study groups.



The results indicated that MSS groups had lower levels of distress than the control group at all three outcomes assessments. These differences were statistically significant at all three times for the winter cohort, and at post-intervention and exam time for the spring cohort. Well-being scores were significantly higher for MSS group than controls at all assessment times.

A cost-benefit analysis revealed that the MSS group achieved significantly better mental health outcomes at significantly higher cost than controls. On average, the cost for each MSS participant was \$84.96 USD, whereas for those in the control group, it was \$24.66 USD. Using the British National Institute for Health and Care Excellence estimates of willingness to pay for an increase of one quality-adjusted life year, the MSS program was deemed by the authors to be cost-effective.

The study shows that the Mindfulness Skills for Students program significantly decreases psychological distress and improves well-being in university students in a cost-effective manner compared to treatment-as-usual. The study is limited by relying on students with an interest in mindfulness and the absence of another short-term treatment as a comparator.

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At any given time, 8% of adults experience chronic low back pain. Some studies indicate that mindfulness meditation can alleviate the pain and disability associated with this condition. However, the precise mechanism behind this benefit is not clear. Does it involve engaging the body's endogenous opioid system, teaching individuals to become psychologically non-reactive, or operating through a placebo effect?

Khatib et al. [*Neuropsychopharmacology*] tested the effects of mindfulness meditation versus sham mindfulness meditation, both with and without the opioid antagonist Naloxone, on evoked chronic low back pain.

The researchers randomly assigned 71 patients (average age = 46 years; 51% female; 87% Caucasian) experiencing chronic low back pain persisting for at least 3 months to either mindfulness or sham mindfulness meditation groups. Both groups participated in four 20-minute meditation training sessions. The mindfulness training focused on accepting thoughts and feelings, recognizing their transient nature, and returning attention to the breath. In contrast, sham meditation training emphasized breathing slowly and deeply in a meditative posture without additional instructions.

Participants met with researchers seven times. The first session was a pre-intervention assessment. During sessions 1, 6, and 7, the researchers induced pain in participants using a straight leg raise procedure. Participants lay supine while the researchers raised one of their legs to a 90-degree angle while keeping the knee straight. Participants alerted researchers when their pain rose by 2 points on a 10-point scale. Researchers continued to raise their legs up to 6 times until a 2-point increase in pain was induced. Patients then rated post-leg raise pain on a 10-point scale.

Participants practiced mindfulness or sham mindfulness meditation during sessions 2-5 and completed questionnaires of pain

severity, catastrophizing, and disability before and after each session. During sessions 6 and 7, pain was evoked by straight leg raises after seven minutes of rest. Participants then received either intravenous Naloxone (which blocks the endogenous opioid system) or saline (a placebo). Participants then meditated or sham meditated for 7 minutes before once again reporting evoked pain both before and after leg raises.



The results indicated that both mindfulness and sham meditation significantly reduced evoked pain following both Naloxone and saline administration. However, the mindfulness group reported significantly lower evoked pain after rest, Naloxone, and saline compared to the sham meditation group (partial $\eta^2 = .09$). Sixty percent of the mindfulness group reported practicing non-reactive attention during meditation, while 20% of the sham mindfulness group did. Practicing non-reactive attention during meditation was associated with lower evoked pain in the mindfulness group ($r = -.35$) but not in the sham group ($r = .04$).

The study shows that both mindfulness and sham meditation effectively decrease evoked pain in chronic low back pain patients. However, mindfulness meditation outperformed sham meditation in this aspect. The finding that Naloxone fails to block this effect suggests that meditation does not rely on endogenous opioids to achieve pain reduction. This does not rule out contributions from non-opioid systems like the dopaminergic, glutaminergic, or endocannabinoid systems. The correlation between non-reactive attention and pain reduction suggests that mindfulness meditation's pain-reduction effect is due, at least partially, to non-reactive reappraisal processes.