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David S. Black, Ph.D.

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Interventions

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

Anderson, S., Haraldsdottir, K., Sanfilippo, J., ...Watson, A. (2023). **Mindfulness training is associated with improved quality of life in female collegiate athletes.** *Journal of American College Health.* [\[link\]](#)

Duncan, L. G., Zhang, N., Santana, T., ...Bardacke, N. (2023). **Enhancing Prenatal Group Medical Visits with Mindfulness Skills: A Pragmatic Trial with Latina and BIPOC Pregnant Women Experiencing Multiple Forms of Structural Inequity.** *Mindfulness.* [\[link\]](#)

Feruglio, S., Panasiti, M. S., Crescentini, C., ...Ponsi, G. (2023). **Training the Moral Self: An 8-Week Mindfulness Meditation Program Leads to Reduced Dishonest Behavior and Increased Regulation of Interoceptive Awareness.** *Mindfulness.* [\[link\]](#)

Hendrix, E. W., Frost, C. J., Castillo, J. T., ...Gren, L. H. (2023). **Mindfulness-based Interventions to Improve Relational and Mental Health of Firefighters: A Mixed Methods Feasibility Study.** *Clinical Social Work Journal.* [\[link\]](#)

Kirk, U., Staiano, W., Hu, E., ...Lee, L. (2023). **App-Based Mindfulness for Attenuation of Subjective and Physiological Stress Reactivity in a Population With Elevated Stress: RCT.** *JMIR mHealth and uHealth.* [\[link\]](#)

Kou, H., Luo, W., Liu, X., ...Bi, T. (2023). **Mindfulness training modifies attentional bias to facial emotion and emotional symptoms.** *Journal of Psychiatric Research.* [\[link\]](#)

Lang, T., Daniel, K., Inskip, M., ...Fiatarone Singh, M. A. (2023). **Caring for Informal Dementia Caregivers and Their Loved Ones Via the HOMeCARE Exercise and**

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Lucas-Thompson, R. G., Prince, M. A., Rigsby, B. A., ...Shomaker, L. (2023). **Preliminary Evaluation of Learning to BREATHE PLUS for University Students: Does a Multi-Modal Adaptive Supplement Strengthen Effects of a Mindfulness-Based Intervention?** *Mindfulness.* [\[link\]](#)

Moreira, M. de F., Gamboa, O. L., Oliveira, M. A. (2023). **Mindfulness intervention effect on endometriosis-related pain dimensions and its mediator role on stress and vitality: A path analysis approach.** *Archives of Women's Mental Health.* [\[link\]](#)

Öztürk, Ş. (2023). **The effect of a distance-delivered mindfulness-based psychoeducation program on the psychological well-being, emotional intelligence and stress levels of nursing students in Turkey: A randomized controlled study.** *Health Education Research.* [\[link\]](#)

Pareek, S., Jain, G., Gupta, R. K. (2023). **Efficacy of Mindfulness Meditation as a Therapeutic Tool in Problematic Pornography Consumption.** *Sexual Health & Compulsivity.* [\[link\]](#)

Qi, W., Zhao, F., Huang, S., ...Hu, J. (2023). **Effects and Feasibility of a Mindfulness-Based Guqin Music Intervention During Pregnancy on Postpartum Anxiety and Depression: A Pilot RCT.** *Mindfulness.* [\[link\]](#)

Regev, S., Goren, G., Slonim-Nevo, V., ...Sarid, O. (2023). **Effectiveness of Cognitive-Behavioral and Mindfulness Intervention in Improving Life Satisfaction of Patients with Crohn's Disease: Evaluating Stress, Interpersonal Sensitivity, and Social**

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Support as Mechanisms of Change.

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Salamin, V., Rigucci, S., Rougemont-Bücking, A., ...Missonnier, P. (2023). **Attention-Related Neurophysiological Changes After an 8-Week MBCT Intervention: A Pilot Follow-up Study.** *International Journal of Cognitive Therapy.* [\[link\]](#)

Smith, C. D., Gutierrez, I. A., Nassif, T. H., ...Adler, A. B. (2023). **Impact of mindfulness training and yoga on injury and pain-related impairment: A group randomized trial in basic combat training.** *Frontiers in Psychology.* [\[link\]](#)

Stecher, C., Pagni, B. A., Cloonan, S., ...Braden, B. B. (2023). **App-based meditation habits maintain reductions in depression symptoms among autistic adults.** *Autism.* [\[link\]](#)

Treves, I. N., Olson, H. A., Ozernov-Palchik, O., ...Gabrieli, J. D. E. (2023). **At-Home use of App-Based Mindfulness for Children: A Randomized Active-Controlled Trial.** *Mindfulness.* [\[link\]](#)

Tripathi, S. K., Mulkey, D. C. (2023). **Implementing Brief Mindfulness-Based Interventions to Reduce Compassion Fatigue.** *Critical Care Nurse.* [\[link\]](#)

Zhu, L., Xie, Y.-H., Tan, H.-L., ...Chang, S. (2023). **Effects of brief mindfulness on anxiety-provoked adverse events during ultrasound-guided fine-needle aspiration biopsy of thyroid nodules.** *Behaviour Research and Therapy.* [\[link\]](#)

Associations

Articles examining the correlates and mechanisms of mindfulness

Bailey, N. W., Baell, O., Payne, J. E., ...Fitzgerald, P. B. (2023). **Experienced Meditators Show Multifaceted Attention-**

Related Differences in Neural Activity.

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

Brown, K. W., Aliev, F., Eley, T. C., ...Sawyers, C. (2023). **A multivariate twin study of the genetic association between present moment attention and subjective wellbeing.** *Scientific Reports.* [\[link\]](#)

Crawford, M. T., Marsh, C., Clegg, J. (2023). **Be Here Now: Dispositional Mindfulness Enhances Fading Affect Bias.** *Mindfulness.* [\[link\]](#)

James, D. L., Larkey, L. K., Evans, B., ...Sears, D. D. (2023). **Mechanisms of improved body composition among perimenopausal women practicing Meditative Movement: A proposed biobehavioral model.** *Menopause.* [\[link\]](#)

Kempf, K., Havlik, S., Yee, T., Schmidt, C. (2023). **"You Feel a Lot of Different Emotions:" Examining a Mindfulness-Based Group for Elementary School Students.** *Journal of Child and Adolescent Counseling.* [\[link\]](#)

Knudsen, R. K., Ammentorp, J., Storkholm, M. H., ...Timmermann, C. (2023). **The influence of mindfulness-based stress reduction on the work life of healthcare professionals—A qualitative study.** *Complementary Therapies in Clinical Practice.* [\[link\]](#)

Nakaki, A., Crovetto, F., Urru, A., ...Gratacos, E. (2023). **Effects of Mediterranean Diet or MBSR on fetal and neonatal brain development A secondary analysis of a RCT (IMPACT BCN).** *American Journal of Obstetrics & Gynecology.* [\[link\]](#)

Price, C. J., Sevinc, G., Farb, N. A. (2023). **Within-Person Modulation of Neural Networks following Interoceptive Awareness Training through Mindful Awareness in Body-Oriented Therapy (MABT): A Pilot Study.** *Brain Sciences.* [\[link\]](#)

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Simonsson, O., Osika, W., Stenfors, C. U. D., ...Hendricks, P. S. (2023). **Longitudinal associations between psychedelic use and meditation practices in the United States and the United Kingdom.** *Psychological Medicine.* [\[link\]](#)

Wan, A. H. Y., Ho, R. T. H., Yau, J. C. Y., Yau, E. F. (2022). **Start With the Body or the Mind? Differential Benefits of Mindfulness and Qigong Practices for Colorectal Cancer Survivors: A Qualitative Study.** *Cancer Nursing.* [\[link\]](#)

Methods

Articles developing empirical procedures to advance the measurement and methodology

Bitar, Z., Fekih Romdhane, F., Rogoza, R., ...Hallit, S. (2023). **Psychometric properties of the short form of the Freiburg Mindfulness Inventory in the Arabic language.** *International Journal of Environmental Health Research.* [\[link\]](#)

Buhk, A. H., Schultz, H., Bullock, W. A. (2023). **What Are They Measuring? Testing the Convergent Validity of State and Trait Mindfulness Measures Across Two Independent Samples.** *Journal of Psychopathology and Behavioral Assessment.* [\[link\]](#)

Choo, S., Gonzalez, B., Hazelton, J.,...Hoffe, S. (2023). **Toward Burnout Prevention: Can One Short Virtual Reality Relaxation and Mindfulness Training Session for Staff and Patients Decrease Stress and Improve Subjective Sense of Wellbeing?** *International J of Radiation Oncology, Biology, Physics.* [\[link\]](#)

Duarte, C., Spilker, R. L. F., Paiva, C., ...Pinto, A. M. (2023). **MITIG.RA: Study protocol of a tailored psychological intervention for managing fatigue in rheumatoid arthritis RCT.** *Trials.* [\[link\]](#)

Jones, G., Castro-Ramirez, F., McGuire, T., ...Herrmann, F. (2023). **A Digital Music-Based Mindfulness Intervention (“healing attempt”) for Race-Based Anxiety in Black Americans.** *Journal of Medical Internet Research.* [\[link\]](#)

McCloy, K., Hughes, C., Dunwoody, L., ...Gracey, J. (2023). **Evaluating the effectiveness of mindfulness alone compared to exercise and mindfulness on fatigue in women with gynaecology cancer (GEMS): Protocol for a randomised feasibility trial.** *PLoS One.* [\[link\]](#)

Min, B., Park, H., Kim, J. I., ...Kim, J.-H. (2023). **The Effectiveness of a Neurofeedback-Assisted Mindfulness Training Program Using a Mobile App on Stress Reduction in Employees: RCT.** *JMIR mHealth and uHealth.* [\[link\]](#)

Olarza, A., Soroa, G., Aritzeta, A., Mindeguia, R. (2023). **Basque Adaptation of the Reduced Kentucky Inventory of Mindfulness Skills (KIMS-R).** *Mindfulness.* [\[link\]](#)

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Presciutti, A. M., Woodworth, E., Rochon, E., ...Hwang, D. Y.-G. (2023). **A Mindfulness-Based Resiliency Program for Caregivers of Patients With Severe Acute Brain Injury Transitioning Out of Critical Care: Protocol for an Open Pilot Trial.** *JMIR Research Protocols.* [\[link\]](#)

Skovbjerg, S., Sumbundu, A., Kolls, M., ...Fjorback, L. (2023). **The effect of an adapted MBSR program on mental health, maternal bonding and birth outcomes in psychosocially vulnerable pregnant women: A study protocol for a RCT in a Danish**

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hospital-based outpatient setting. *BMC Complementary Medicine Therapies.* [[link](#)]

Tuteja, S., Dhaliwal, A. (2023). **Impact of meditation on mindfulness among the young adults: The psychometric assessment of the Mindful Attention Awareness Scale.** *The Humanistic Psychologist.* [[link](#)]

Woodworth, E. C., Briskin, E. A., Plys, E., ...Vranceanu, A.-M. (2023). **Mindfulness-Based App to Reduce Stress in Caregivers of Persons With Alzheimer Disease and Related Dementias: Protocol for a Single-Blind Feasibility Proof-of-Concept RCT.** *JMIR Research Protocols.* [[link](#)]

Yang, W. F., Scolari, M. (2023). **Trait Mindfulness is Associated with Dynamic Affective Qualities of Free-Moving Thought.** *Mindfulness.* [[link](#)]

Reviews

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

Demina, A., Petit, B., Meille, V., Trojak, B. (2023). **Mindfulness interventions for craving reduction in substance use disorders and behavioral addictions: Systematic review and meta-analysis of RCTs.** *BMC Neuroscience.* [[link](#)]

Eaton, A. D., Rourke, S. B., Craig, S. L., ...Walmsley, S. L. (2023). **Mindfulness and cognitive training interventions that address intersecting cognitive and aging needs of older adults.** *Journal of Social Work.* [[link](#)]

Galante, J., Friedrich, C., Dalglish, T., ...White, I. R. (2023). **Systematic review and individual participant data meta-analysis of RCTs assessing mindfulness-based programs for mental health promotion.** *Nature Mental Health.* [[link](#)]

Linardon, J. (2023). **Rates of attrition and engagement in RCTs of mindfulness apps: Systematic review and meta-analysis.** *Behaviour Research and Therapy.* [[link](#)]

López-Ramón, M. F., Moreno-Campos, V., Alonso-Esteban, Y., ...Alcantud-Marín, F. (2023). **Mindfulness Interventions and Surveys as Tools for Positive Emotional Regulation During COVID-19: A Scoping Review.** *Mindfulness.* [[link](#)]

Mitsea, E., Drigas, A., Skianis, C. (2023). **Virtual Reality Mindfulness for Meta-Competence Training among People with Different Mental Disorders: A Systematic Review.** *Psychiatry International.* [[link](#)]

Muñoz-Mireles, G., Mantzios, M., Schellinger, J. N., ...Marroquín, E. (2023). **Mindful Eating as a Tool for Diabetes Prevention and Management: A Review of Potential Mechanisms of Action.** *Mindfulness.* [[link](#)]

Santa Maria, D., Cuccaro, P., Bender, K., ...Fine, M. (2023). **Adapting an evidence-based mindfulness-based intervention for sheltered youth experiencing homelessness.** *BMC Complementary Medicine and Therapies.* [[link](#)]

Siew, S., Yu, J. (2023). **Mindfulness-based RCTs led to brain structural changes: An anatomical likelihood meta-analysis.** *Scientific Reports.* [[link](#)]

Sperling, E. L., Hulett, J. M., Sherwin, L. B., ...Bettencourt, B. A. (2023). **The effect of mindfulness interventions on stress in medical students: A systematic review and meta-analysis.** *PLOS ONE.* [[link](#)]

Trials

Research studies newly funded by the National Institutes of Health (OCT 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

Mindfulness-based interventions (MBIs) can enhance attention and emotional regulation in certain practitioners, but can they also foster ethical behavior? Studies examining the effects of MBIs on helping behavior, cheating, generosity, compassion, or willingness to inflict harm have produced mixed results. Some studies show MBIs can facilitate prosocial behavior, while others suggest MBIs may make people more self-focused.

Feruglio et al. [*Mindfulness*] conducted a randomized, controlled study to discover whether a MBI could reduce lying for financial gain in a card game.

The researchers randomly assigned 69 Italian university students (average age = 26; 80% female) who had expressed an interest in participating in a MBI to either a MBI or waitlist control. The MBI was an on-line 8-week course modeled after the Mindfulness-Based Stress Reduction curriculum, delivered in 8 weekly 2-hour sessions via participants' personal computers. Each session included 30-minute guided meditations incorporating elements of breath-focused, body scan, and open-monitoring meditation. Participants were also instructed to engage in daily home meditation practice using a guided audio recording.

Participants were assessed before and after intervention using the Multidimensional Assessment of Interoceptive Awareness (MAIA) and the Five Facet Mindfulness Questionnaire (FFMQ). They were also evaluated pre- and post-intervention on their willingness to lie while playing 48 hands of a computer-administered zero-sum card game against an ostensible live opponent, which was actually a computer algorithm. Players were informed of the monetary value of each hand in the card game. The computer opponent initially chose a card, either the Ace

of Hearts or Ace of Spades, which was concealed from the opponent player so it could not see the card's face value. The Ace of Hearts always won.

Participants, however, could see the card faces and choose to lie or tell the truth to the opponent about which card the opponents had selected and whether they had won. Players earned money for each hand they claimed to have won.



The results showed that the MBI group had significantly increased scores on the MAIA Self-Regulation (partial $\eta^2 = 0.33$), Attention Regulation (partial $\eta^2 = 0.21$), Body Listening (partial $\eta^2 = 0.14$) and FFMQ Non-Reactive (partial $\eta^2 = 0.10$) subscales more than the control group.

Additionally, the MBI group showed decreased frequency of lying in the card game ($d = 0.41$), while the control group did not ($d = 0.16$). More meditative practice minutes during the course was linked with less lying, but only among those MBI participants who scored at least one standard deviation above the mean on the MAIA Attention Regulation subscale.

The study demonstrates that a MBI can reduce deceit for minimal financial gain in a simulated card game. This decreased deceit is correlated with improved interoceptive awareness. Further, this reduction in deceit appears to be partly dependent on more minutes of meditation practice. Study limitations include enrolling participants already interested in a MBI, the absence of an active control group, and the lack of a post-assessment to determine whether participants believed they were playing against a live opponent rather than a computer simulation during the card game.

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Inadequate maternal diet and high stress during pregnancy are risk factors for poorer cognitive and social development in early childhood. In a study previously highlighted in the September 2023 issue of the Mindfulness Research Monthly, Crovetto et al. investigated the effects of Mindfulness-Based Stress Reduction (MBSR) or a Mediterranean diet on toddlers whose mothers received treatment during pregnancy.

As a secondary outcome of that trial, **Nakaki et al. [American Journal of Obstetrics and Gynecology]** newly examined fetal MRI and infant neurobehavioral outcomes from a subsample of participants in the original study.

The original study recruited 1,221 pregnant women from Barcelona who were assessed as being at risk for delivering low birthweight infants. The expectant mothers were randomly assigned to one of three study groups: usual treatment, usual treatment plus MBSR, or usual treatment plus a Mediterranean diet.

MBSR consisted of eight 2.5 hour weekly group sessions, a full-day retreat, and home practice. It followed a MBSR syllabus that included a specialized focus on maternal yoga and mothers' relationships with their fetuses. The Mediterranean diet intervention involved monthly 30-minute assessments and 1-hour group sessions conducted by trained nutritionists. Participants received monthly supplies of extra virgin olive oil and walnuts, along with weekly suggested shopping lists, detailed meal plans, and menus. The usual care group received pregnancy care following current institutional protocols.

A randomly selected subset of 692 infants from the original trial underwent assessment using the Neonatal Neurobehavioral Assessment Scale (NBAS) at 1-3 months of age. The NBAS provides measures of infant sensory, motor, arousal, and autonomic nervous system development. Additionally, a smaller subset of 90 mothers underwent MRI

scanning at 35-39 weeks into their pregnancies to assess brain development of their unborn fetus.

The results showed that fetuses of mothers who participated in the Mediterranean Diet intervention had significantly larger total brain volumes, corpus callosa, and right frontal lobes compared to fetuses of mothers in the usual treatment group. Fetuses of mothers who received MBSR had significantly larger left anterior cingulate gyri than fetuses in the usual treatment group.



There were no significant differences in fetal brain development between MBSR and Diet groups.

Mediterranean Diet infants scored higher on NBAS measures of autonomic stability, attentiveness to external stimuli, and range of arousal compared to infants in the usual treatment group, while MBSR infants scored higher on arousal regulation.

The study reveals that maternal Mediterranean Diet and MBSR interventions during pregnancy each both yield observable structural and behavioral effects on fetal and infant development phases. The limitations of this analysis include the evaluation of only a small subset of the original study participants, and the possibility that findings applicable to a higher-risk population of expectant mothers may not hold in the broader population.