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Editor-in-Chief
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

Compen, F., Adang, E., Bisseling, E.,...Speckens, A. (2019). **Cost-utility of individual internet-based and face-to-face MBCT compared to treatment as usual in reducing psychological distress in cancer patients.** *Psycho-Oncology.* [\[link\]](#)

Garland, E. L., Atchley, R. M., Hanley, A. W.,...Froeliger, B. (2019). **Mindfulness-oriented recovery enhancement remediates hedonic dysregulation in opioid users: Neural and affective evidence of target engagement.** *Science Advances.* [\[link\]](#)

Geiger, S. M., Fischer, D., Schrader, U., Grossman, P. (2018). **Meditating for the planet: Effects of a mindfulness-based intervention on sustainable consumption behaviors.** *Environment and Behavior.* [\[link\]](#)

Jalambadani, Z., Borji, A., Bakaeian, M. (2019). **Examining the effect of mindfulness-based art therapy (MBAT) on stress and lifestyle of Iranian pregnant women.** *Journal of Obstetrics and Gynaecology.* [\[link\]](#)

Jennings, P. A., Doyle, S., Oh, Y.,...Brown, J. L. (2019). **Long-term impacts of the CARE program on teachers' self-reported social and emotional competence and well-being.** *Journal of School Psychology.* [\[link\]](#)

Joss, D., Khan, A., Lazar, S. W., Teicher, M. H. (2019). **Effects of a mindfulness-based intervention on self-compassion and**

psychological health among young adults with a history of childhood maltreatment. *Frontiers in Psychology.* [\[link\]](#)

Maddali-Bongi, S., Orlandi, M., Pollina, A., El Aoufy, K. (2019). **Mindfulness program in sjögren's syndrome and non-sjögren's sicca syndrome patients: A pilot study on quality of life and psychological distress.** *Alternative & Complementary Therapies.* [\[link\]](#)

Masih, T., Dimmock, J. A., Epel, E., Guelfi, K. J. (2019). **An 8-week relaxation program consisting of progressive muscle relaxation and mindfulness meditation to reduce stress and attenuate stress-driven eating.** *Applied Psychology: Health and Well-Being.* [\[link\]](#)

Munro, S., Komelski, M., Lutgens, B.,...Detweiler, M. (2019). **Improving the health of veterans through moving meditation practices: A mixed-methods pilot study.** *Journal of Veterans Studies.* [\[link\]](#)

Nissen, E. R., O'Connor, M., Kaldo, V.,...Mehlsen, M. (2019). **Internet-delivered MBCT for anxiety and depression in cancer survivors: A RCT.** *Psycho-Oncology.* [\[link\]](#)

Nissim, R. S., Roth, A., Gupta, A. A., Elliott, M. (2019). **MBCT intervention for young adults with cancer: A pilot mixed-method study.** *Journal of Adolescent and Young Adult Oncology.* [\[link\]](#)

Pan, W. L., Chang, C. W., Chen, S. M., Gau, M. L. (2019). **Assessing the effectiveness of mindfulness-based programs on mental health during pregnancy and early motherhood-a RCT.** *BMC Pregnancy and Childbirth.* [\[link\]](#)

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Poletti, S., Razzini, G., Ferrari, R.,...Luppi, M. (2019). **MBSR in early palliative care for people with metastatic cancer: A mixed-method study.** *Complementary Therapies in Medicine.* [\[link\]](#)

Santa Maria, D., Cuccaro, P., Bender, K.,...Sibinga, E. (2019). **Feasibility of a mindfulness-based intervention with sheltered youth experiencing homelessness.** *Journal of Child and Family Studies.* [\[link\]](#)

Schanche, E., Vøllestad, J., Binder, P. E.,...Sørensen, L. (2019). **Can clinical psychology students benefit from brief and intensive mindfulness training?** *Counselling and Psychotherapy Research.* [\[link\]](#)

Williams, S. N., Parkins, M. M., Benedict, B., Waelde, L. C. (2019). **A pilot study of A meditation mindfulness program with detained juveniles: An adaptation of inner resources for teens.** *Journal of Forensic Psychology Research and Practice.* [\[link\]](#)

Wupperman, P., Burns, N., Pugach, C. P., Edwards, E. (2019). **Treatment for individuals with severe mental illness who use illicit drugs while maintained on methadone: Mindfulness and modification therapy.** *Journal of Nervous and Mental Disease.* [\[link\]](#)

ASSOCIATIONS

Articles examining the correlates and mechanisms of mindfulness

Banks, J. B., Jha, A. P., Hood, A. V.,...Craig, L. L. (2019). **Reducing the tuts that hurt: The impact of a brief mindfulness induction on emotionally valenced mind wandering.** *Journal of Cognitive Psychology.* [\[link\]](#)

Bisseling, E., Cillessen, L., Spinhoven, P.,...Speckens, A. (2019). **Development of the therapeutic alliance and its association with internet-based MBCT for distressed cancer patients: Secondary analysis of a multicenter RCT.** *Journal of Medical Internet Research.* [\[link\]](#)

Blanco, I., Roca, P., Duque, A.,...Vazquez, C. (2019). **The effects of a 1-month meditation retreat on selective attention towards emotional faces: An eye-tracking study.** *Mindfulness.* [\[link\]](#)

Droit-Volet, S., Chaulet, M., Dutheil, F., Dambrun, M. (2019). **Mindfulness meditation, time judgment and time experience: Importance of the time scale considered (seconds or minutes).** *PloS One.* [\[link\]](#)

Maddock, A., Hevey, D., D'Alton, P., Kirby, B. (2019). **Testing a moderated mediation model of MBCT's effects for psoriasis patients.** *Mindfulness.* [\[link\]](#)

Müller, G., Pfänder, M., Schmahl, C.,...Lyssenko, L. (2019). **Cost-effectiveness of a mindfulness-based mental health promotion program: Economic evaluation of a nonrandomized controlled trial with propensity score matching.** *BMC Public Health.* [\[link\]](#)

Russell, B. S., Guite, J. W. (2019). **Parenting impacts from a mindfulness-based pilot intervention for families facing pediatric**

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chronic pain. *Journal of Child and Family Studies.* [link]

Shuai, R., Bakou, A. E., Hardy, L., Hogarth, L. (2019). **Ultra-brief breath counting (mindfulness) training promotes recovery from stress-induced alcohol-seeking in student drinkers.** *Addictive Behaviors.* [link]

Velten, J., Brotto, L. A., Chivers, M. L.,...Margraf, J. (2019). **The power of the present: Effects of three mindfulness tasks on women's sexual response.** *Clinical Psychological Science.* [link]

Xiao, Q., Zhao, X., Bi, G.,...Cui, L. (2019). **Alterations of regional homogeneity and functional connectivity following short-term mindfulness meditation in healthy volunteers.** *Frontiers in Human Neuroscience.* [link]

METHODS

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

Andrade, C., Arriaga, P., Carvalho, M. (2019). **The psychometric properties of the Portuguese version of the state mindfulness scale.** *Mindfulness.* [link]

Brintz, C. E., Miller, S., Olmsted, K. R.,...Gaylord, S. A. (2019). **Adapting mindfulness training for military service members with chronic pain.** *Military Medicine.* [link]

Eberth, J., Sedlmeier, P., Schäfer, T. (2019). **PROMISE: A model of insight and equanimity as the key effects of**

mindfulness meditation. *Frontiers in Psychology.* [link]

Heintz, H., Hawkes, E., Vahia, I. V. (2019). **Digitally-enhanced art therapy and mindfulness in older adults.** *American Journal of Geriatric Psychiatry.* [link]

Johnson, D. A., Ivers, N. N., Avera, J. A., Frazee, M. (2019). **Supervision guidelines for fostering state-mindfulness among supervisees.** *Clinical Supervisor.* [link]

Lebares, C. C., Guvva, E. V., Desai, A.,...O'Sullivan, P. (2019). **Key factors for implementing mindfulness-based burnout interventions in surgery.** *American Journal of Surgery.* [link]

Lecuona, O., García-Garzón, E., García-Rubio, C., Rodríguez-Carvajal, R. (2019). **A psychometric review and conceptual replication study of the five facets mindfulness questionnaire latent structure.** *Assessment.* [link]

Lopez-Montoyo, A., Quero, S., Montero-Marin, J.,...Garcia-Campayo, J. (2019). **Effectiveness of a brief psychological mindfulness-based intervention for the treatment of depression in primary care: Study protocol for a randomized controlled clinical trial.** *BMC Psychiatry.* [link]

Molloy, M. A. (2019). **Enhancing situational awareness by using mindfulness during simulation.** *Nurse Educator.* [link]

Palacios, A. F., Lemberger-Truelove, M. E. (2019). **A counselor-delivered mindfulness and social-emotional learning intervention for early childhood**

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educators. *Journal of Humanistic Counseling.* [link]

Pelham, W. E., Gonzalez, O., Metcalf, S. A.,...Mackinnon, D. P. (2019). **Evaluating the factor structure of each facet of the five facet mindfulness questionnaire.** *Mindfulness.* [link]

Rickert, N. P., Skinner, E. A., Roeser, R. W. (2019). **Development of a multidimensional, multi-informant measure of teacher mindfulness as experienced and expressed in the middle school classroom.** *International Journal of Behavioral Development.* [link]

Wells, C., Malins, S., Clarke, S.,...Levene, J. (2019). **Using smart-messaging to enhance mindfulness-based cognitive therapy for cancer patients: A mixed methods proof of concept evaluation.** *Psycho-oncology.* [link]

REVIEWS

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

Goldfarb, E. V., Sinha, R. (2019). **Fighting the return of fear: Roles of MBSR and the hippocampus.** *Biological Psychiatry.* [link]

Kearney, D. J. (2019). **Mindfulness training for primary care patients promotes chronic disease self-management behaviours.** *Evidence-Based Nursing.* [link]

Manno, F. A. (2019). **Monk on fire: The meditative mind of a burning monk.** *Cogent Psychology.* [link]

McCaw, C. T. (2019). **Mindfulness 'thick' and 'thin'—a critical review of the uses of mindfulness in education.** *Oxford Review of Education.* [link]

Perlini, C., Bellani, M., Rossetti, M. G.,...Brambilla, P. (2019). **Mindfulness-based interventions in the early phase of affective and non-affective psychoses.** *Journal of Affective Disorders.* [link]

Rademaker, M., Stegeman, I., Ho-Kang-You, K.,...Smit, D. (2019). **The effect of mindfulness-based interventions on tinnitus burden. A systematic review.** *Frontiers in Neurology.* [link]

Reilly, K. T., Haesebaert, F., Brunelin, J. (2019). **Clinical effects of mindfulness-based intervention in patients with first episode psychosis and in individuals with ultra-high risk for transition to psychosis: A review.** *Frontiers in Psychiatry.* [link]

Zarate, K., Maggin, D. M., Passmore, A. (2019). **Meta-analysis of mindfulness training on teacher well-being.** *Psychology in the Schools.* [link]

TRIALS

Research studies newly funded by the National Institutes of Health (OCT 2019)

VA San Diego Healthcare System (D. Schiehser, PI). **MBSR for Parkinson's disease: A longitudinal study.** Veterans Affairs project #1I01RX003154-01A1. [link]

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HIGHLIGHTS

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

Over 15 million Americans report having an opioid use disorder, and opioid-related deaths currently exceed 45,000 per year. As people become addicted to opioids, they become more emotionally responsive to drug-related cues and less emotionally responsive to cues signaling the availability of naturally occurring rewards. Naturally occurring rewards include those that come from relationships, accomplishments, and aesthetic appreciation.

It is possible to measure this shift in cue responsiveness using an electro-encephalogram (EEG). The Late Positive Potential (LPP) is an EEG wave that arises 400-800 milliseconds after a stimulus is presented. LPPs originate in the emotional processing centers of the brain and are down-regulated by the cognitive processing centers. Opiate users show larger LPPs to drug-related cues than to natural reward cues. Moreover, larger LPPs in response to drug-related cues are associated with stronger drug-related cravings and an increased likelihood of opioid misuse. Interventions that reduce the salience of drug-related cues and restore the salience of natural reward cues can help in opioid abuse recovery.

Garland et al. [Science Advances] conducted four experiments to assess whether Mindfulness-Oriented Recovery Enhancement (MORE) could help opioid users reduce their emotional responsiveness to drug-related images (e.g., pills and pill bottles) and restore their responsiveness to images of naturally occurring rewards (e.g., social affiliation, natural beauty, sports victories). Emotional responsiveness was assessed using LPP magnitudes and participants' subjective ratings of craving and positive affect.

The researchers randomly assigned three samples of middle-aged chronic prescription opioid users (total number of participants = 135; average opioid use duration = 10 years; 51% female; 84% Caucasian) to an 8-week

Mindfulness-Oriented Recovery Enhancement (MORE) program or an 8-week support group control. The MORE program included training in mindfulness, savoring, and reappraisal skills to help shift attention from drug-related to natural reward cues and to interrupt the automaticity of the craving-drug misuse cycle. The support group was based on Rogerian non-directive empathic listening.



Participants were shown images on a computer screen of drug-related and neutral cues (experiments 1 and 2) or natural reward cues (experiments 3 and 4) before and after intervention. In experiments 1-3, EEGs were recorded while images were presented. EEGs were not recorded in experiment 4. Participants were first asked to view the images passively. Then, in experiments 1 and 2, they were asked to try to decrease their reactivity to drug-related cues using mindfulness (non-reactive metacognitive awareness of thoughts, feelings, and sensations). In experiments 3 and 4, participants were asked to increase their responsiveness to natural reward cues by savoring pleasant aspects of the presented images.

In experiment 1, MORE participants decreased LPP reactivity to drug-related cues to a significantly greater degree than controls ($\eta_{\text{partial}}^2=0.12$) under passive and mindful viewing conditions. Mindful viewing did not enhance this effect. In experiment 2, MORE participants were more effective in using mindfulness to down-regulate their LPPs to drug-related cues than were controls ($\eta_{\text{partial}}^2=0.26$). In experiment 3, MORE participants showed larger LPP increases to natural reward cues than controls ($\eta_{\text{partial}}^2=0.16$). In experiment 4, MORE participants reported a greater decrease in cravings in response to drug-related cues ($\eta_{\text{partial}}^2=0.15$) and greater positive affect in response to natural reward cues ($\eta_{\text{partial}}^2=0.09$) than controls. Decreased craving to drug cues was significantly associated with increased positive affect in response to natural reward cues ($r=-.41$) for all participants. There

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were significant correlations between the amount of time participants spent practicing mindfulness skills and decreased LPP opioid cue reactivity ($r=-.73$), the capacity to increase LPPs to natural reward cues through mindfulness ($r=.63$), and reduced cravings while savoring natural reward cues ($r=-.49$).

The results show that MORE decreases responsiveness to drug-related stimuli while restoring responsiveness to natural rewards. This shift in cue responsiveness reduces cravings and has the potential to decrease opioid misuse. The study's limitations include small sample sizes and a limited number of stimulus block presentations.

National health care spending for mental disorders in the United States exceeds \$200 billion a year. Public health promotion programs that aim to reduce the incidence of mental disorders have the potential to reduce the direct and indirect social and health care costs involved in mental health care. A previous study showed that a mindfulness-based universal health promotion program called the Life Balance program prevented the emergence of new psychological symptoms in 1 of every 16 people treated at one year follow up. While these results were promising, this study did not address whether the program was cost-effective. Müller et al. [*BMC Public Health*] used insurance fund cost data and a measure of anxiety and depressive symptoms to analyze the program's cost-effectiveness over the course of a year.

The Life Balance program, a mindfulness-based health promotion program implemented in the German state of Baden-Württemberg in 2014, trained 240 health coaches to deliver preventative mental health services at 80 different health care centers. The Life Balance program consisted of 6 weekly 90-minute group sessions drawing on strategies from Acceptance and Commitment Therapy, Dialectical Behavioral Therapy, and Compassion-Focused Therapy.

A total of 583 Life Balance participants who were associated with a statutorily mandated health insurance fund (average age = 50 years; 85% female) agreed to participate in the study.

They were compared to a group of 583 controls drawn from the same insurance fund pool and matched on Hospital Anxiety and Depression Scale (HADS) scores, age, sex, health status, activity level, and prior health care costs. HADS scores were collected at baseline, post-intervention, and 6- and 12-month follow-up. Costs for medications, hospital stays, outpatient and rehabilitation visits, and lost work days were obtained from insurance fund records.



At baseline, the intervention and control groups did not differ on either HADS scores or health care costs. At 12-month follow-up, direct medical costs for Life Balance were \$200.91 USD higher than for controls, half of which was due to the \$103.52 developmental and operating costs of the intervention itself. Average HADS post-intervention scores were significantly lower for the intervention group (12.4) than controls (14.4). HADS scores of 11-15 indicate moderate levels of anxiety and depression. Considering direct healthcare costs as well as the cost of lost workdays, the intervention saved an average of \$63.27 per participant relative to controls, translating into an incremental cost effectiveness ratio of -\$32.19 for each one-point improvement on the HADS.

The results show that a mindfulness-based public health promotion program can lower symptoms of anxiety and depression in a general population in a cost-effective manner. There is a 95% chance that the cost effectiveness ratios found in the study fall within estimates of society's "willingness-to-pay" for degrees of improvement. This is the first cost effectiveness study of a mindfulness-based universal program. Universal programs have certain advantages over targeted programs in that they do not incur screening costs, require highly trained professionals, or stigmatize program users. The study's limitations include a lack of randomization and reliance on a single outcome measure.