# Mindfulness Research Monthly

Providing monthly research updates on mindfulness

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## Contents




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## Interventions

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

Alkoby, A., Pliskin, R., Halperin, E., Levit-Binnun, N. (2018). **An 8-week MBSR workshop increases regulatory choice flexibility**. *Emotion.* [link]

Armani Kian, A., Vahdani, B., Noorbala, A. A.,...Nakhjavani, M. (2018). **The impact of MBSR on emotional wellbeing and glycemic control of patients with type 2 diabetes mellitus**. *Journal of Diabetes Research*. [link]

Baltar, Y. C., Filgueiras, A. (2018). **The effects of mindfulness meditation on attentional control during off-season among football players**. *SAGE Open*. [link]

Barrett, B., Hayney, M. S., Muller, D.,...Coe, C. L. (2018). **Meditation or exercise for preventing acute respiratory infection (MEPARI-2): A RCT**. *PLoS ONE*. [link]

Bayot, M., Vermeulen, N., Kever, A., Mikolajczak, M. (2018). **Mindfulness and empathy: Differential effects of explicit and implicit Buddhist teachings**. *Mindfulness.* [link]

Ceravolo, D., Raines, D. A. (2018). **The impact of a mindfulness intervention for nurse managers**. *Journal of Holistic Nursing.* [link]

Cillessen, L., Schellekens, M. P., de Ven, M. O.,...Speckens, A. E. (2018). **Consolidation and prediction of long-term treatment effect of group and online MBCT for distressed cancer patients**. *Acta Oncologica.* [link]

Compen, F., Bisseling, E., Schellekens, M.,...Speckens, A. (2018). **Face-to-face and internet-based MBCT compared with treatment as usual in reducing psychological distress in patients with cancer: A multicenter RCT**. *J Clinical Oncology.* [link]

Cottingham, A. H., Beck-Coon, K., Bernat, J. K.,...Johns, S. A. (2018). **Addressing personal barriers to advance care planning: Qualitative investigation of a MBI for adults with cancer and their family caregivers**. *Pall Supp Care.* [link]

Crescentini, C., Matiz, A., Cimenti, M.,...Fabbro, F. (2018). **Effect of mindfulness meditation on personality and psychological well-being in patients with MS**. *International J MS Care.* [link]

Daigle, S., Talbot, F., French, D. J. (2018). **MBSR training yields improvements in well-being and rates of perceived medical errors among hospital nurses**. *Journal Advanced Nursing.* [link]

Davis, J. P., Berry, D., Dumas, T. M.,...Roberts, B. W. (2018). **Substance use outcomes for MBRP are partially mediated by reductions in stress: Results from a randomized trial**. *Journal of Substance Abuse Treatment*. [link]

Garrison, K. A., Pal, P., O'Malley, S. S.,...Brewer, J. A. (2018). **Craving to quit: A RCT of smartphone app-based mindfulness training for smoking cessation**. *Nicotine & Tobacco Research.* [link]

Hecht, F. M., Moskowitz, J. T., Moran, P.,...Weng, H. (2018). **A RCT of MBSR in HIV infection**. *Brain, Behavior, and Immunity.* [link]

Hodgson, R., Graham, E. M., McGough, A. (2018). **Improving the well-being of staff through mindfulness at the tees, esk, and wear valleys NHS foundation trust**. *Global Business and Organizational Excellence*. [link]

Jasbi, M., Bahmani, D. S., Karami, G.,...Brand, S. (2018). **Influence of adjuvant MBCT on symptoms of PTSD in veterans: results from a RCT**. *Cognitive Behaviour Therapy.* [link]

Lee, C. W., Ree, M. J., Wong, M. Y. (2018). **Effective insomnia treatments: Investigation of processes in mindfulness and cognitive therapy**. *Behaviour Change.* [link]

Lemberger-Truelove, M. E., Carbonneau, K. J., Atencio, D. J.,...Palacios, A. F. (2018). **Self-regulatory growth effects for young children participating in a combined social and emotional learning and MBI**. *J Couns Dev*. [link]

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Li, Y., Liu, F., Zhang, Q.,...Wei, P. (2018). **The effect of mindfulness training on proactive and reactive cognitive control**. *Frontiers Psych*. [link]

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Mosalanejad, F., Afrasiabifar, A., Zoladl, M. (2018). **Investigating the combined effect of pelvic floor muscle exercise and mindfulness on sexual function in women with multiple sclerosis: A RCT**. *Clinical Rehabilitation.* [link]

Ogata, K., Koyama, K. I., Amitani, M.,...Inui, A. (2018). **The effectiveness of CBT with mindfulness and an internet intervention for obesity: A case series**. *Frontiers Nutrition*. [link]

Plummer, C., Cloyd, E., Doersam, J. K.,...Hande, K. A. (2018). **Mindfulness in a graduate nursing curriculum: A randomized controlled study**. *Holistic Nursing Practice*. [link]

Price, C. J., Thompson, E. A., Crowell, S. E.,...Hooven, C. (2018). **Immediate effects of interoceptive awareness training through mindful awareness in body-oriented therapy (MABT) for women in substance use disorder treatment**. *Substance Abuse.* [link]

## Associations

*Articles examining the correlates and mechanisms of mindfulness*

Andreotti, E., Congard, A., Vigouroux, S. L.,...Antoine, P. (2018). **Rumination and mindlessness processes: Trajectories of change in a 42-day MBI**. *J Cogn Psychoth*. [link]

Chesin, M., Cascardi, M. (2018). **Cognitive-affective correlates of suicide ideation and attempt: Mindfulness is negatively associated with suicide attempt history but not state suicidality**. *Archives of Suicide Research.* [link]

Chesin, M. S., Brodsky, B. S., Beeler, B.,...Stanley, B. (2018). **Perceptions of adjunctive MBCT to prevent suicidal behavior among high suicide-risk outpatient participants**. *Crisis.* [link]

Duan, W., Wang, Z. (2018). **Dispositional mindfulness promotes public health of the obesity population by reducing perceived discrimination and weight stigma concerns**. *Journal of Public Health.* [link]

Dummel, S., Stahl, J. (2018). **Mindfulness and the evaluative organization of self-knowledge**. *Mindfulness.* [link]

Goodman, V., Wardrope, B., Myers, S.,...Kinsella, E. A. (2018). **Mindfulness and human occupation: A scoping review**. *Scand J Occup Therapy.* [link]

Hambour, V. K., Zimmer-Gembeck, M. J., Clear, S.,...Avdagic, E. (2018). **Emotion regulation and mindfulness in adolescents: Conceptual and empirical connection and associations with social anxiety symptoms**. *Person Indiv Diff.* [link]

Hicks, L. M., Dayton, C. J., Victor, B. G. (2018). **Depressive and trauma symptoms in expectant, risk-exposed, mothers and fathers: Is mindfulness a buffer?** *J Affective Disord*. [link]

Hunecke, M., Richter, N. (2018). **Mindfulness, construction of meaning, and sustainable food consumption**. *Mindfulness.* [link]

Iani, L., Lauriola, M., Chiesa, A., Cafaro, V. (2018). **Associations between mindfulness and emotion regulation: The key role of describing and nonreactivity**. *Mindfulness.* [link]

Jarunratanakul, P., Jinchang, K. (2018). **Does sexism affect Thai women's psychological and behavioural responses? The stereotype threat-buffering effect of mindfulness**. *Journal of Pacific Rim Psychology*. [link]

Jones, E. E., Wirth, J. H., Ramsey, A. T., Wynsma, R. L. (2018). **Who is less likely to ostracize? Higher trait mindfulness predicts more inclusionary behavior**. *Personality & Social Psychology Bulletin.* [link]

Ju, Y. J., Lien, Y. W. (2018). **Who is prone to wander and when? Examining an integrative effect of working memory capacity and**

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**mindfulness trait on mind wandering under different task loads**. *Conscious Cognition*. [link]

Kantrowitz-Gordon, I., Abbott, S., Hoehn, R. (2018). **Experiences of postpartum women after mindfulness childbirth classes: A qualitative study**. *J Midwif Women Health.* [link]

Kerry, M. J., Ander, D. S. (2018). **Mindfulness fostering of interprofessional simulation training for collaborative practice**. *BMJ Simulation Technology Enhanced Learning.* [link]

Malpass, A., Feder, G., Dodd, J. W. (2018). **Understanding changes in dyspnoea perception in obstructive lung disease after mindfulness training**. *BMJ Open Resp Res*. [link]

Martelli, A. M., Chester, D. S., Warren Brown, K.,...Nathan DeWall, C. (2018). **When less is more: Mindfulness predicts adaptive affective responding to rejection via reduced prefrontal recruitment**. *Social Cognitive and Affective Neuroscience.* [link]

Reed, P. (2018). **Mechanisms of mindfulness in those with higher and lower levels of autism traits**. *Mindfulness.* [link]

Sheinman, N., Hadar, L. L., Gafni, D., Milman, M. (2018). **Preliminary investigation of whole-school mindfulness in education programs and children's mindfulness-based coping strategies**. *Journal Child Family Studies.* [link]

Stevenson, J. C., Millings, A., Emerson, L. -M. (2018). **Psychological well-being and coping: The predictive value of adult attachment, dispositional mindfulness, and emotion regulation**. *Mindfulness.* [link]

Teal, C., Downey, L. A., Lomas, J. E.,...Stough, C. (2018). **The role of dispositional mindfulness and emotional intelligence in adolescent males**. *Mindfulness.* [link]

Valley, M., Stallones, L. (2018). **A thematic analysis of health care workers' adoption of mindfulness practices**. *Workplace Health Safety.* [link]

Zapolski, T. C., Faidley, M. T., Beutlich, M. R. (2018). **The experience of racism on behavioral health outcomes: The moderating impact of mindfulness**. *Mindfulness.* [link]

## Methods

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

Bostanov, V., Ohlrogge, L., Britz, R.,...Kotchoubey, B. (2018). **Measuring mindfulness: A psychophysiological approach**. *Frontiers in Human Neuroscience*. [link]

Crivelli, D., Fronda, G., Venturella, I., Balconi, M. (2018). **Supporting mindfulness practices with brain-sensing devices: cognitive and electrophysiological evidences**. *Mindfulness.* [link]

Farver-Vestergaard, I., O'Connor, M., Smith, N. C.,...Zachariae, R. (2018). **Tele-delivered MBCT in chronic obstructive pulmonary disease: A mixed-methods feasibility study**. *Journal of Telemedicine and Telecare.* [link]

Jensen, M. P., Battalio, S. L., Chan, J. F.,...Ehde, D. M. (2018). **Use of neurofeedback and mindfulness to enhance response to hypnosis treatment in individuals with multiple sclerosis: Results from a pilot RCT**. *Intern J Clin Exper Hypn.* [link]

Jiga, K., Kaunhoven, R. J., Dorjee, D. (2018). **Feasibility and efficacy of an adapted MBI in areas of socioeconomic deprivation**. *Mindfulness.* [link]

Kechter, A., Amaro, H., Black, D. S. (2018). **Reporting of treatment fidelity in mindfulness-based intervention trials: A review and new tool using NIH behavior change consortium guidelines**. *Mindfulness.* [link]

Kladnitski, N., Smith, J., Allen, A.,...Newby, J. M. (2018). **Online mindfulness-enhanced CBT for anxiety and depression: Outcomes of a pilot trial**. *Internet Interventions.* [link]

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Rodriguez, V. H., Medrano, C. T., Plaza, I. (2018). **Wearable sensors for measuring movement in short sessions of mindfulness sitting meditation: A pilot study**. *J Healthc Engin*. [link]

Smit, S., Martens, C., Ackland, P., Mikami, A. Y. (2018). **Combining attachment and mindfulness to improve family functioning: Pilot of an attachment-based mindfulness program**. *Journal of Family Psychotherapy.* [link]

Son, H. G., Choi, E. O. (2018). **The effects of mindfulness meditation-based complex exercise program on motor and non-motor symptoms, and quality of life in patients with Parkinson's disease**. *Asian Nurs Research.* [link]

Vieten, C., Laraia, B. A., Kristeller, J.,...Epel, E. (2018). **The mindful moms training: Development of a MBI to reduce stress and overeating during pregnancy**. *BMC Preg Childbirth.* [link]

Wilde, S., Sonley, A., Crane, C.,...Kuyken, W. (2018). **Mindfulness training in UK secondary schools: A multiple case study approach to identification of cornerstones of implementation**. *Mindfulness.* [link]

Yip, B. H., Li, X., Leung, C. H.,...Wong, S. Y. (2018). **The use of MBI for improving bracing compliance for adolescent idiopathic scoliosis patients: Protocol for a RCT**. *J of Physiotherapy.* [link]

## Reviews

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

Abujaradeh, H., Safadi, R., Sereika, S. M.,...Cohen, S. M. (2018). **MBIs among adolescents with chronic diseases in clinical settings: A systematic review**. *Journal of Pediatric Health Care.* [link]

Anheyer, D., Leach, M. J., Klose, P.,...Cramer, H. (2018). **MBSR for treating chronic headache: A systematic review and meta-analysis**. *Cephalalgia.* [link]

Bamber, M. D., Morpeth, E. (2018). **Effects of mindfulness meditation on college student anxiety: A meta-analysis**. *Mindfulness.* [link]

Berk, L., Warmenhoven, F., van Os, J., van Boxtel, M. (2018). **Mindfulness training for people with dementia and their caregivers: Rationale, current research, and future directions**. *Frontiers in Psychology*. [link]

Braun, S. E., Kinser, P. A., Rybarczyk, B. (2018). **Can mindfulness in health care professionals improve patient care? An integrative review and proposed model**. *Translat Behav Med.* [link]

Chi, X., Bo, A., Liu, T.,...Chi, I. (2018). **Effects of MBSR on depression in adolescents and young adults: A systematic review and meta-analysis**. *Frontiers in Psychology*. [link]

Lin, Y., Callahan, C. P., Moser, J. S. (2018). **A mind full of self: Self-referential processing as a mechanism underlying the therapeutic effects of mindfulness training on internalizing disorders**. *Neurosc Biobehavioral Reviews.* [link]

MacKenzie, M. B., Abbott, K. A., Kocovski, N. L. (2018). **MBCT in patients with depression: Current perspectives**. *Neuropsyc Dis Treat.* [link]

Murray, R., Amann, R., Thom, K. (2018). **MBIs for youth in the criminal justice system: A review of the research literature**. *Psych Law.* [link]

Priya, G., Kalra, S. (2018). **Mind-body interactions and mindfulness meditation in diabetes**. *European Endocrinology*. [link]

Schumer, M. C., Lindsay, E. K., Creswell, J. D. (2018). **Brief mindfulness training for negative affectivity: A systematic review and meta-analysis**. *J Consult Clin Psych*. [link]

## TRIALS

*Research studies newly funded by the National Institutes of Health (JUN 2018)*

UC San Francisco (J. Felder, PI). **Optimizing a MBI for poor sleep quality during pregnancy**. NIH/NCCIH project #1K23AT009896-01. [link]

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## HIGHLIGHTS

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

**A**cute respiratory infections including colds and flu affect over 50% of the population annually. Interestingly, our psychological states and behaviors can affect our susceptibility to these infections. People who are under stress or otherwise unhappy are more likely to catch acute respiratory infections, while people who exercise regularly are less likely to catch them.

**Barrett et al. [*PLOS One*]** conducted a randomized controlled study to test the effects of Mindfulness-Based Stress Reduction (MBSR) and moderate intensity sustained exercise on the frequency, duration, and severity of colds and flu compared to a control group.

The researchers recruited 413 volunteers (average age = 50 years, 76% female, 85% white, 77% college educated) and randomly assigned them to a MBSR, exercise, or non-active control group. The MBSR and exercise interventions were matched on group size, program length, session frequency, and the amount of home practice (20-45 minutes).

The interventions were conducted in the fall, and participants were monitored for colds and flu from autumn through spring. During this time, participants completed weekly health reports. If participants developed an infection, they completed daily reports until symptoms abated. Additionally, they provided oral and nasal swabs to assess their immune response and identify viruses. Participants completed a variety of mental health and personality measures at baseline and at various points along the study timeline. Absenteeism, the number of respiratory infection-related medical appointments, and illness related costs were also assessed.

The study found that the MBSR and exercise groups both reduced acute respiratory infection incidence, duration, and severity. Compared to controls, the MBSR group showed a 16%, reduction in incidence, a 14% reduction in duration, and a 21% reduction in severity. Compared to controls, the exercise group showed a 10% reduction in incidence, a 16% reduction in duration, and a 31% reduction in severity. All these reductions were statistically significant at $p<.05$.

Compared to the control group, MBSR and exercise both resulted in significant improvements in a variety of mental health and personality variables including general mental health, perceived stress, sleep quality, depressive symptoms, and self-efficacy. MBSR and exercise groups both improved mindfulness scores on the Mindful Attention Awareness Scale.

In terms of biological measures, the MBSR and exercise group participants who developed an infection both showed a stronger interferon-gamma-induced protein 10 (IP-10) response to infection than the control group participants. IP-10 is part of the body's response to viral infection and is correlated with reduced viral load and recovery from infection.

The study shows that MBSR and exercise both significantly reduce cold and flu frequency, length, and severity, along with providing general mental health benefits. The authors suggest that the magnitude of MBSR and exercise benefit may be similar to that of other preventative interventions such as flu vaccination. Depending on the year and the variable under study, the reduction of flu incidence and severity due to vaccination ranges from 13-70%. By way of comparison, MBSR cold and flu incidence, duration, and severity reduction rates in this study and one previous study ranges from 14-60%.

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Social rejection can be hurtful, but people differ in how distressed they become following rejection. People also vary in the strategies they use to reduce distress. Some people subdue feelings of distress by employing a "top-down" strategy in which cognitive-related brain centers suppress the activity of emotion-related brain centers. This "top-down" strategy is taxing on cognitive resources, and if those resources become depleted, feelings of distress can re-emerge. Other people employ "bottom-up" strategies such as mindfulness of negative emotions that do not require suppression by cognitive-related brain centers.

**Martelli et al. [*Social Cognitive and Affective Neuroscience*]** studied whether highly mindful people feel less distress when socially rejected, and examined whether cognitive- and emotion-related brain responses to rejection varied according to levels of mindfulness.

The researchers assessed dispositional mindfulness levels among 40 participants (54% male, average age = 19 years) using the Mindful Attention Awareness Scale. Participants then played a computerized Cyberball game while undergoing functional magnetic resonance imaging. Cyberball involves a pair of computer-generated characters playing virtual catch with the participant. Participants are misled into believing the computer-generated characters are avatars for real people playing the game. Initially, the computer-generated characters toss the ball between themselves and the participant equally, but in the final minute of play, they toss the ball only between themselves, effectively excluding the participant from the social interaction. Approximately an hour after the game, participants completed a questionnaire measuring their level of social distress. Participants also completed a manipulation check that showed they believed they were playing Cyberball with live co-participants.

The neurobiology of distress and its suppression is complicated. Feelings of distress are associated with increased activity in the dorsal anterior cingulate cortex (dACC), the anterior insula (AI) and the amygdala, while activity in the left ventrolateral prefrontal cortex (VLPFC) down-regulates distress. One might think that the more the VLPFC down-regulates distress, the better we would feel, but things are not that simple. If the VLPFC becomes over-activated, its down-regulatory effect is followed by a refractory period accompanied by rebound distress. This is why top-down VLPFC regulation may not be the best strategy.

The results showed that mindfulness scores were significantly and negatively correlated with distress (r=-.43) an hour after rejection, and with VLPFC (r=-0.53), left amygdala (r=-0.44) right amygdala (r=-0.37) and dACC (r=-0.34) activity during rejection. More mindful participants showed decreased functional connectivity between the VLPFC and the bilateral amygdala and dACC during moments of rejection in the game. The inverse relationship between mindfulness and distress scores was mediated by decreased VLPFC activity during rejection.

The study demonstrates that mindful people are less prone to distress after experiencing social exclusion. Results also show that mindful people are less likely to depend on VLPFC suppression to cope with rejection-related distress. This is important because VLPFC suppression is a "top-down" strategy that taxes adaptive coping resources and, if resources are exhausted, paradoxically leads to increased distress. Higher mindfulness was accompanied by lower levels of amygdala and dACC activity supporting the hypothesis that mindfulness exerts a beneficial effect on lower emotional centers independent of the VLPFC. The study is limited by not adjusting for important covariates of mindfulness such as neuroticism. In addition, the one-hour delay between playing Cyberball and measuring distress limits our understanding of whether VLPFC suppression was initially more successful at reducing distress and only subsequently increased distress, or whether it was an inferior strategy from the start.