**INTERVENTIONS**

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

- Bakosh, L. (2018). **Audio-guided mindfulness training in schools and its effect on academic attainment: Contributing to theory and practice. Learning and Instruction.** [link]


Contents

70 New Cites p1
22 Interventions
19 Associations
12 Methods
10 Reviews
7 Trials
Highlights p5


Warriner, S., Crane, C., Dymond, M., Krusche, A. (2018). An evaluation of mindfulness-based childbirth and parenting courses for pregnant women and prospective fathers/partners within the UK NHS. Midwifery. [link]


ASSOCIATIONS

Articles examining the correlates and mechanisms of mindfulness


Highlights


- Tortella-Feliu, M., Soler, J., Burns, L., García-Campayo, J. (2018). Relationship between effortful control and facets of mindfulness in meditators, non-meditators and individuals with borderline personality disorder. Personality and Mental Health. [link]


- Yavuz, B. G., Yavuz, M., Onal, A. (2018). Examining the factors that are correlated with mindfulness with a focus on attention deficit hyperactivity symptoms. Persp Psyc Care. [link]

Methods

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


- Trombka, M., Demarzo, M., Bacas, D. C., Garcia-Campayo, J. (2018). Study protocol of a multicenter RCT of mindfulness training to reduce burnout and promote quality of life in police officers. BMC Psychiatry. [link]

- Verhaegen, P. (2018). The mindfulness manifold: Exploring how self-preoccupation,
self-compassion, and self-transcendence translate mindfulness into positive psychological outcomes. *Mindfulness*. [link]

---

**REVIEWS**

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

Al Daken, L. I., Ahmad, M. M. (2018). The implementation of MBIs and educational interventions to support family caregivers of patients with cancer: A systematic review. *Perspectives in Psychiatric Care*. [link]


---

**TRIALS**

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

Miriam Hospital (E. Salmoirago-Blotcher, PI). *Role of mindfulness training in the promotion of medication adherence in heart failure outpatients*. NIH/NHLBI project #1R21HL140492-01. [link]

Sepulveda Research Corporation (S. Taylor, PI). *Complementary and integrative health for pain in the VA: A national demonstration project*. Veteran Affairs project #1IU1HX002607-01. [link]

University of Rochester (J. Moynihan, PI). *MBSR for family caregivers of dementia patients*. NIH/NIA project #5R01AG052495-03. [link]

University of Southern California (D. Black, PI). *Neural mechanisms in women’s treatment and early recovery*. NIH/NIDA project #5R01DA038648-04. [link]

Wake Forest University (F. Zeidan, PI). *Brain mechanisms supporting mindfulness meditation-based chronic pain relief*. NIH/NCCIH project #1R01AT009693-01. [link]

Wake Forest University (A. Adler, PI). *Effects of mindfulness meditation on pain and heart rate variability*. NIH/NCCIH project #5F30AT009165-03. [link]

Washington University (T. Braver. PI). *Neural mechanisms of mindfulness: Discordant twin design*. NIH/NCCIH project #5R21AT009483-02. [link]
Work-related stress contributes to a variety of health ailments including anxiety, depression, heart disease, and adult-onset diabetes. Up to 8% of U.S. health care costs are attributable to work-related stress. Mindfulness-based Interventions (MBIs) can reduce stress, but finding qualified teachers, allocating meeting spaces, and arranging for employees to attend sessions can be challenging. Consequently, it remains difficult to scale-up MBIs to meet the needs of larger corporations.

Bostock et al. (Journal of Occupational Health Psychology) conducted a randomized, controlled study of whether a mindfulness app, as a lower-cost alternative to in-person training, could reduce work-related stress among corporate employees.

The researchers randomly assigned 238 office workers (average age = 35 years; 59% female) from two United Kingdom Fortune 500 companies to a mindfulness group or a wait-list control. Mindfulness participants were provided access to an app called Headspace, containing several short introductory mindfulness videos and 45 guided mindfulness meditation sessions lasting 10-20 minutes. Sessions offer sequential, graduated instruction on key aspects of mindfulness practice. Participants were instructed to listen to one session per day for 45 days. They were assessed on psychological measures, job strain, perceived workplace social support, and blood pressure at baseline, post-intervention, and 2 months after the intervention had ended.

The employees completed an average of 17 of the 45 meditation sessions: 13% completed 0 sessions, 74% completed at least 6 sessions, 68% completed at least 10 sessions, 23% completed at least 25 sessions, and 2% completed all 45 sessions. The mindfulness group showed significantly greater improvement on wellbeing (partial $\eta^2=.04$), mood (partial $\eta^2=.04$), depression (partial $\eta^2=.03$), anxiety (partial $\eta^2=.05$), job strain (partial $\eta^2=.04$), and perceived workplace social support (partial $\eta^2=.07$). Further analysis of job strain showed that perceived job control improved even though perceived job demands remained the same. The mindfulness group also showed a trend towards lower systolic blood pressure (partial $\eta^2=.002$).

Improvements in wellbeing (partial $\eta^2=.05$), mood (partial $\eta^2=.06$), depression (partial $\eta^2=.06$), and anxiety (partial $\eta^2=.15$) were significantly associated with the number of meditation sessions participants completed. Only employees who completed more than 10 meditations during the 45 days significantly improved. Employees in the mindfulness group maintained their improvement on wellbeing, job strain, and depression at 2 months post-intervention.

The results show that using a meditation app at least 10 times over the course of a month-and-a-half can improve wellbeing and perceived job control in healthy office-workers. These effects were dose-dependent and persisted up to 2 months after the intervention. The study is limited by the absence of an active control group, and the brevity of its follow-up period.

Mindful people have the generalized tendency to be aware of the present moment with an attitude of openness in day-to-day life. Researchers are interested in discovering whether mindful people exhibit a unique pattern of brain activity. Lim et al. [NeuronImage] used brain imaging to explore the dynamic functional connectivity within and between brain networks of people with high versus low mindfulness levels. Functional connectivity is a measure of the degree to which different brain regions vary their activity together in synchrony. The researchers measured how the
functional connections between different brain networks varied over time.

The researchers selected participants from a pool of 125 people who had previously completed a breath-counting task. For this task, participants counted their breaths from 1 to 9 repeatedly for twenty minutes while the researchers tracked how often they lost count. Participants who performed in the top third on this task were identified as highly mindful, while those in the lower third were designated as less mindful.

The high and low mindfulness participants were then invited back to the lab for functional magnetic resonance (fMRI) scans while in a resting state. Data were obtained for 21 high (average age = 24 years; 38% male) and 18 low mindfulness participants (average age = 22 years; 28% male). Participants also completed the Five Facet Mindfulness Questionnaire, or FFMQ. The researchers studied three fMRI scan variables: the total time spent in different brain states, the number of transitions between states, and the average dwell time within each state.

There are two types of brain connectivity: within- and between-network connectivity. Within-network connectivity is the degree to which the components of a network synchronize their activity, while between-network connectivity is the degree to which different networks either coordinate their activity or remain segregated from each other.

The researchers further identified two distinct brain connectivity states. One, labeled the “task ready” state, showed strong within-network correlations for the Default Mode (DMN) and Salience (SAL) networks, and a strong dissociation between the DMN and the combined (SAL) and Executive Control (ECN) networks. The other state, labeled the “idling” state, showed weaker within-network correlations and a smaller degree of dissociation between the DMN and other networks. The “task ready” state is an alert state of readiness to perform a task, while the “idling” state is a state of low attentiveness in which cognitive resources are conserved.

The results showed that the high mindfulness group spent significantly more time in the task ready state and less time in the idling state than the low mindfulness group. The high mindfulness group also significantly transitioned between states more often. The FFMQ correlated with total time in the task ready state (r = .32), but the correlation was no longer significant when corrected for multiple comparisons.

When the degree of connectivity was averaged for the within and between networks over time as a measure of static connectivity, the high mindfulness group showed stronger within-network connectivity for the DMN and SAL and a stronger degree of segregation of the DMN from the dorsal attention network.

This study shows that highly mindful people have a unique pattern of brain activity compared to those who are less mindful. Mindful people transition more frequently between brain states and spend more time in the task ready state. This suggests both greater attentiveness and preparedness to engage in tasks, and greater flexibility in shifting attentional focus. Mindful people also show greater within-network integration and between-network segregation, which may indicate increased attentional focus and decreased mind-wandering. These results reinforce previous findings regarding the default mode, executive control, and salience networks, and their central role in the neurobiology of mindfulness.

The study is limited by the degree to which the breath-counting task can be seen as an adequate measure of mindfulness, as opposed to being a measure of just one component of mindfulness, namely concentration.