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

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Northeastern University (S. Whitfield-Gabrieli, PI). **Targeting adolescent depression symptoms using network-based real-time fMRI neurofeedback and mindfulness meditation.** NIH/NIMH project #1R61MH132072. [link]

University of Texas MD Anderson (D. Cho, PI). **Randomized controlled trial to test feasibility of a culturally adapted meditation-based support intervention for Black patients dealing with advanced cancer.** NIH/NCCIH project #1R34AT012360. [link]

Yeshiva University (M. Sala, PI). **Digital Mindfulness Meditation-enhanced Cognitive Behavioral Therapy (CBT-MM) for Binge Eating Disorder.** NIH/NCCIH project #1K23AT012126. [link]

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Highlights

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

Our mental health system is unable to provide care to all who need it: there are too few providers, and many clients cannot afford or access it. There is a need to creatively rethink how to offer care to more in need. One way is through self-help workbooks that allow clients to work on problems at their own pace while assisted by limited paraprofessional support.

British National Health Service guidelines currently endorse practitioner-supported Cognitive Behavioral Therapy Self-Help (CBT-SH) for depression. The National Health Service currently offers CBT-SH to over 100,000 clients annually, but the intervention suffers from a high drop-out rate.

Practitioner-supported Mindfulness-Based Cognitive Therapy Self-Help (MBCT-SH) is one possible alternative to CBT-SH, but its comparative efficacy is unknown. **Strauss et al. [*JAMA Psychiatry*]** conducted a randomized controlled trial comparing CBT-SH to MBCT-SH on clinical outcomes and cost effectiveness.

The researchers randomly assigned 410 clients with mild-to-moderate depression (62% female; 86% Caucasian; median age = 32) to practitioner-supported CBT-SH or MBCT-SH. Initial diagnosis and level of depression was established by structured clinical interview and self-report.

Participants were handed CBT or MBCT self-help workbooks and provided with six structured face-to-face or telephone 30-45 minute sessions with a psychological well-being practitioner focused on workbook material. "Psychological well-being practitioner" is a paraprofessional designation created through the British National Health Service's Improving Access to Psychological Services (IAPS) initiative.

The CBT workbook used in this study was one already in wide use in IAPS programs. The MBCT workbook was *The Mindful Way Workbook: An 8-Week Program to Free Yourself from Depression and Emotional Distress* written by the MBCT co-founders. Participants were given up to 16 weeks to complete the workbook curricula. Participants were assessed on measures of depression, anxiety, quality of life and mindfulness at baseline, 16 weeks (post-intervention) and 42-week follow-up. Drop-out rates for both groups were similar (28%).

MBCT-SH participants reported greater reductions in depression at post-intervention than CBT-SH participants (*d*=-0.36) but the group difference was no longer significant at 42 weeks. MBCT-SH participants also reported greater improvement in anxiety than CBT-SH participants at postintervention (d=-0.23), but not at 42 weeks. The absence of significant differences at 42 weeks reflects a continued improvement in depression for both groups.

The direct costs of providing treatment were $209 for MBCT-SH and $202 for CBT-SH. Other health care and social costs were higher for the CBT-SH group ($1,684) than the MBCT-SH group ($923). The increased CBT-SH costs were due to participants receiving more individual psychotherapy outside of the program, receiving more general practitioner visits, and the higher psychotropic medication usage.

The results show MBCT-SH superior to CBT-SH as a treatment for mild-moderate depression in terms of post-intervention mental health outcome and lower health care and social costs. Findings make a case for considering MBCT-SH to be at least as effective as CBT-SH and including it within the IAPS initiative.

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Studies of the short-term effects of mindfulness meditation on cognitive performance often show conflicting findings. These differences in study findings may result from heterogeneity in the populations, meditation methods, cognitive tasks, and study designs used, and the extent of participant's prior meditation experience.

Sleimen-Malkoun, et al. *[PLOS One*] attempted to clarify the effects of short-term mindfulness meditation on cognitive performance by comparing it to a control intervention and studying its effect on cognitive reaction time in both experienced and novice meditators.

Forty-two healthy French adults, including 22 experienced meditators (64% female; mean age = 49 years) and 20 meditation-naïve participants (55% female; mean age = 42 years), were enrolled in the study. Experienced meditators meditated at least 3 times weekly over an average of over 5 years (range = 5-250 months), while meditation-naïve participants had no prior meditation experience.

Participants' resting heart rates were recorded and they then performed a baseline Stroop task. Afterwards, half the participants engaged in 10 minutes of guided breath-focused mindfulness meditation while the other half actively listened to a 10 minute pre-recorded audio on the history, origins, and philosophy of mindfulness meditation without guided practice.

Participants then performed a repeat Stroop task. At this point, participants initially in the mindfulness condition were now assigned to the listening condition, and vice versa so that participants served as their own controls. Participants then completed a third Stroop task. Heart rate was monitored during both interventions.

The Stroop task was a cognitive performance task that involved showing participants computer-presented slides of colored words. Sometimes the words spelled the names of colors (e.g., "RED"), and when that happened, sometimes the text color agreed with the word name (congruent condition), and at other times text color and word name were discordant (incongruent condition). There were also times when the words named parts of the body, so that their color was irrelevant (neutral condition).

Participants were asked to identify the color the words were printed in and their reaction times were recorded. The Stroop task is a commonly used measure of participants' attentiveness and ability to ignore distracting information.

The results showed Stroop reaction times to congruent and incongruent color word presentations were significantly faster after mindfulness meditation than after active listening. Average heart rates were significantly slower during active listening than while at rest, and significantly slower still while meditating.

The extent of participants' prior meditation experience did not interact with experimental condition to affect Stroop reaction time or heart rate.

The study shows that a brief 10-minute mindfulness meditation is associated with slowed heart rate and improved Stroop task reaction times in both experienced and novice meditators. Acute cognitive benefit accrues after a brief meditation, even for novices. The study is limited by its reliance on the Stroop task as the single outcome measure representing cognitive performance.