Providing monthly research updates on mindfulness www.goAMRA.org

AUG 2017

Contents

79 New Cites p1

30 Interventions

14 Associations

13 Methods

16 Reviews

6 Trials

Highlights p6

Editor-in-Chief David S. Black. PhD. MPH

Highlights by Seth Segall, PhD

Subscribe at

goAMRA.org/publications

AMERICAN MINDFULNESS
RESEARCH ASSOCIATION



INTERVENTIONS

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

Ahmadpanah, M., Akbari, T., Akhondi, A.,...Brand, S. (2017). **Detached mindfulness reduced both depression and anxiety in elderly women with major depressive disorders.** *Psychiatry Research.* [link]

Ahmadpanah, M., Nazaribadie, M., Aghaei, E.,...Jahangard, L. (2017b). Influence of adjuvant detached mindfulness and stress management training compared to pharmacologic treatment in primiparae with postpartum depression. Archives of Women's Mental Health. [link]

Bajaj, J. S., Ellwood, M., Ainger, T.,...Wade, J. B. (2017). MBSR therapy improves patient and caregiver-reported outcomes in cirrhosis. Clinical and Translational Gastroenterology. [link]

Bannirchelvam, B., Bell, K. L., Costello, S. (2017). A qualitative exploration of primary school students' experience and utilisation of mindfulness. *Contemporary School Psychology*. [link]

Berk, L., Hotterbeekx, R., van Os, J., van Boxtel, M. (2017). MBSR in middle-aged and older adults with memory complaints: A mixed-methods study. Aging & Mental Health. [link]

Burger, K. G., Lockhart, J. S. (2017). **Meditation's effect on attentional efficiency, stress, and mindfulness characteristics of nursing students.** *Journal of Nursing Education*. [link]

Chan, J., Churcher Clarke, A.,...Spector, A. (2017). A mindfulness program manual for people with dementia. *Behavior Modification*. [link]

Coo Calcagni, C., Salanova Soria, M. (2017). Mindfulness can make you happy-andproductive: A mindfulness controlled trial and its effects on happiness, work engagement and performance. Journal of Happiness Studies. [link]

Crescentini, C., Matiz, A., Cimenti, M.,...Fabbro, F. (2017). The effect of mindfulness meditation on personality and psychological well-being in patients with multiple sclerosis. *International Journal of MS Care*. [link]

Day, M. A., Thorn, B. E. (2017). **MBCT for** headache pain: An evaluation of the long-term maintenance of effects. *Complementary Therapies in Medicine*. [link]

Forbes, L., Gutierrez, D., Johnson, S. K. (2017). **Investigating adherence to an online introductory mindfulness program.** *Mindfulness.* [link]

Freedenberg, V. A., Hinds, P. S., Friedmann, E. (2017). MBSR and group support decrease stress in adolescents with cardiac diagnoses: A randomized two-group study. *Pediatric Cardiology*. [link]

Gannon, M., Mackenzie, M., Kaltenbach, K., Abatemarco, D. (2017). **Impact of mindfulness-based parenting on women in treatment for opioid use disorder**. *Journal of Addiction Medicine*. [link]

Garland, E. L., Baker, A. K., Larsen, P.,...Nakamura, Y. (2017). RCT of brief mindfulness training and hypnotic suggestion for acute pain relief in the hospital setting. *Journal of General Internal Medicine*. [link]

Heo, S., McSweeney, J., Ounpraseuth, S.,...Moser, D. K. (2017). **Testing a holistic meditation** intervention to address psychosocial distress in patients with heart failure: A pilot study. *Journal of Cardiovascular Nursing.* [link]

Herman, P. M., Anderson, M. L., Sherman, K. J.,...Cherkin, D. C. (2017). **Cost-effectiveness of MBSR vs CBT or usual care among adults with chronic low-back pain.** *Spine.* [link]

Providing monthly research updates on mindfulness www.goAMRA.org

AUG 2017

Contents

79 New Cites p1

30 Interventions

14 Associations

13 Methods

16 Reviews

6 Trials

Highlights p6

Editor-in-Chief David S. Black, PhD. MPF

Highlights by Seth Segall, PhI

Subscribe at

goAMRA.org/publications

AMERICAN MINDFULNESS
RESEARCH ASSOCIATION



Keng, S. L., Tan, J. X. (2017). Effects of brief mindful breathing and loving-kindness meditation on shame and social problem solving abilities among individuals with high borderline personality traits. Behaviour Research and Therapy. [link]

Klatt, M. D., Weinhold, K., Taylor, C. A.,...Sieck, C. J. (2017). A pragmatic introduction of mindfulness in a continuing education setting: Exploring personal experience, bridging to professional practice. *Explore*. [link]

Malboeuf-Hurtubise, C., Joussemet, M., Taylor, G., Lacourse, E. (2017). Effects of a mindfulness-based intervention on the perception of basic psychological need satisfaction among special education students. *International Journal of Disability, Development and Education*. [link]

Orellana-Rios, C. L., Radbruch, L., Kern, M.,...Schmidt, S. (2017). Mindfulness and compassion-oriented practices at work reduce distress and enhance self-care of palliative care teams: A mixed-method evaluation of an on the job program. BMC Palliative Care. [link]

Raja-Khan, N., Agito, K., Shah, J.,...Legro, R. S. (2017). **MBSR in women with overweight or obesity:** A RCT. *Obesity.* [link]

Reiser, J. E., McCarthy, C. J. (2017). **Preliminary** investigation of a stress prevention and mindfulness group for teachers. *The Journal for Specialists in Group Work.* [link]

Rush, K. S., Golden, M. E., Mortenson, B. P.,...Horger, M. (2017). The effects of a mindfulness and biofeedback program on the on-and off-task behaviors of students with emotional behavioral disorders. *Contemporary School Psychology*. [link]

Shore, R., Strauss, C., Cavanagh, K.,...Ellett, L. (2017). A randomised controlled trial of a brief online mindfulness-based intervention on paranoia in a non-clinical sample.

Mindfulness. [link]

Simpson, R., Byrne, S., Wood, K.,...Mercer, S. W. (2017). **Optimising MBSR for people with multiple sclerosis.** *Chronic Illness.* [link]

Suyi, Y., Meredith, P., Khan, A. (2017). Effectiveness of mindfulness intervention in reducing stress and burnout for mental health professionals in Singapore. *Explore*. [link]

Valley, M. A., Stallones, L. (2017). Effect of MBSR training on health care worker safety: A randomized waitlist controlled trial. Journal of Occupational and Environmental Medicine. [link]

Wetherell, J. L., Hershey, T., Hickman, S.,...Lenze, E. J. (2017). MBSR for older adults with stress disorders and neurocognitive difficulties: A RCT. The Journal of Clinical Psychiatry. [link]

Zgierska, A. E., James Ircink, B. B.,...Mundt, M. P. (2017). Cost of opioid-treated chronic low back pain: Findings from a pilot RCT of mindfulness meditation-based intervention. *Journal of Opioid Management*. [link]

Zhang, R., Yin, J., Zhou, Y. (2017). Effects of mindfulness-based psychological care on mood and sleep of leukemia patients in chemotherapy. *International Journal of Nursing Sciences*. [link]

ASSOCIATIONS

Articles examining the correlates and mechanisms of mindfulness

Becker, B. D., Gallagher, K. C., Whitaker, R. C. (2017). **Teachers' dispositional mindfulness and the quality of their relationships with children in head start classrooms.** *Journal of School Psychology*. [link]

Boelen, P. A., Lenferink, L. I. (2017). **Experiential acceptance and trait-mindfulness as predictors of analogue post-traumatic stress**. *Psychology and Psychotherapy: Theory, Research and Practice*. [link]

Providing monthly research updates on mindfulness www.goAMRA.org

AUG 2017

Vol. 8 - No. 8

Contents

79 New Cites p1

30 Interventions

14 Associations

13 Methods

16 Reviews

6 Trials

Highlights p6

Editor-in-Chief
David S. Black, PhD. MPH

Highlights by Seth Segall. PhI

Subscribe at

goAMRA.org/publications

AMERICAN MINDFULNESS
RESEARCH ASSOCIATION



Bravo, A. J., Pearson, M. R., Kelley, M. L. (2017). Mindfulness and psychological health outcomes: A latent profile analysis among military personnel and college students. *Mindfulness*. [link]

Bravo, A. J., Pearson, M. R., Wilson, A. D., Witkiewitz, K. (2017). When traits match states: Examining the associations between self-report trait and state mindfulness following a state mindfulness induction. *Mindfulness*. [link]

Cillessen, L., van de Ven, M. O., Karremans, J. C. (2017). The role of trait mindfulness in quality of life and asthma control among adolescents with asthma. *Journal of Psychosomatic Research*. [link]

Clevenger, K. A., Pfeiffer, K. A., Yee, K. E.,...Selby, S. (2017). Mindfulness and children's physical activity, diet, quality of life, and weight status. *Mindfulness*. [link]

Fisher, N. R., Mead, B. R., Lattimore, P., Malinowski, P. (2017). **Dispositional mindfulness and reward motivated eating:**The role of emotion regulation and mental habit. *Appetite*. [link]

Held, P., Owens, G. P., Monroe, J. R., Chard, K. M. (2017). Increased mindfulness skills as predictors of reduced trauma-related guilt in treatment-seeking veterans. *Journal of Traumatic Stress.* [link]

Kerin, J. L., Webb, H. J., Zimmer-Gembeck, M. J. (2017). Resisting the temptation of food: Regulating overeating and associations with emotion regulation, mindfulness, and eating pathology. Australian Journal of Psychology. [link]

Kratzer, L., Heinz, P., Pfitzer, F.,...Schennach, R. (2017). Mindfulness and pathological dissociation fully mediate the association of childhood abuse and PTSD symptomatology. European Journal of Trauma & Dissociation. [link]

Panno, A., Giacomantonio, M., Carrus, G.,...Mannetti, L. (2017). **Mindfulness, pro-**

environmental behavior, and belief in climate change: The mediating role of social dominance. Environment and Behavior. [link]

Tovote, K. A., Schroevers, M. J., Snippe, E.,...Fleer, J. (2017). What works best for whom? CBT and MBCT for depressive symptoms in patients with diabetes. *PLoS ONE*. [link]

Warren, M. T., Wray-Lake, L., Syvertsen, A. K. (2017). Becoming who they want to be: A crossnational examination of value-behavior concordance and mindfulness in adolescence. *The Journal of Positive Psychology.* [link]

Zvolensky, M. J., Paulus, D. J., Bakshaie, J.,...Lemaire, C. (2017). Subjective social status and mindful attention in terms of anxiety and depressive symptoms and disorders among Latinos in primary care. *Mindfulness*. [link]

METHODS

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

Carlson, L. E., Zelinski, E. L., Speca, M.,...Vohra, S. (2017). Protocol for the MATCH study (mindfulness and tai chi for cancer health): A preference-based multi-site randomized comparative effectiveness trial of mindfulness-based cancer recovery vs. Tai chi/qigong for cancer survivors. Contemporary Clinical Trials. [link]

Cook-Cottone, C. P., Guyker, W. M. (2017). The development and validation of the mindful self-care scale (MSCS): An assessment of practices that support positive embodiment. *Mindfulness.* [link]

Gardiner, P. M., McCue, K. D., Negash, L. M.,...Bickmore, T. W. (2017). Engaging women with an embodied conversational agent to deliver mindfulness and lifestyle recommendations: A feasibility RCT. Patient Education and Counseling. [link]

Providing monthly research updates on mindfulness www.goAMRA.org

AUG 2017

Contents

79 New Cites p1

30 Interventions

14 Associations

13 Methods

16 Reviews

6 Trials

Highlights p6

Editor-in-Chief
David S. Black, PhD. MPH

Highlights by Seth Segall. PhI

Subscribe at

goAMRA.org/publications

AMERICAN MINDFULNESS
RESEARCH ASSOCIATION



Gil, M. N., Marco, C. E., Montero-Marín, J.,...Campayo, J. G. (2017). Efficacy of neurofeedback on the increase of mindfulness-related capacities in healthy individuals: A controlled trial. *Mindfulness*. [link]

Kantrowitz-Gordon, I. (2017). Factor structure and external validity of the five facet mindfulness questionnaire in pregnancy. *Mindfulness*. [link]

Krägeloh, C. U., Bergomi, C., Siegert, R. J., Medvedev, O. N. (2017). Response shift after a mindfulness-based intervention:

Measurement invariance testing of the comprehensive inventory of mindfulness experiences. *Mindfulness*. [link]

Lengacher, C. A., Reich, R. R., Ramesar, S.,...Rodriguez, C. S. (2017). Feasibility of the mobile MBSR for breast cancer program for symptom improvement among breast cancer survivors. *Psycho-Oncology*. [link]

Mak, C., Whittingham, K., Cunnington, R., Boyd, R. N. (2017). MiYoga: A RCT of a mindfulness movement programme based on hatha yoga principles for children with cerebral palsy: A study protocol. *BMJ Open*. [link]

Rudkin, E., Medvedev, O. N., Siegert, R. J. (2017). The five-facet mindfulness questionnaire: Why the observing subscale does not predict psychological symptoms. *Mindfulness*. [link]

Taylor, S. L., Giannitrapani, K. F., Yuan, A., Marshall, N. (2017). What patients and providers want to know about complementary and integrative health therapies. Journal of Alternative and Complementary Medicine. [link]

van Lutterveld, R., van Dellen, E., Pal, P.,...Brewer, J. (2017). **Meditation is associated with increased brain network integration.** *NeuroImage.* [link]

Wylde, C. M., Mahrer, N. E., Meyer, R. M., Gold, J. I. (2017). **Mindfulness for novice pediatric**

nurses: Smartphone application versus traditional intervention. Journal of Pediatric Nursing. [link]

Zhuang, K., Bi, M., Li, Y.,...Qiu, J. (2017). A distinction between two instruments measuring dispositional mindfulness and the correlations between those measurements and the neuroanatomical structure. Scientific Reports. [link]

REVIEWS

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

Bühlmayer, L., Birrer, D., Röthlin, P.,...Donath, L. (2017). Effects of mindfulness practice on performance-relevant parameters and performance outcomes in sports: A meta-analytical review. Sports Medicine. [link]

Christodoulou, G., Black, D. S. (2017). Mindfulness-based interventions and sleep among cancer survivors: A critical analysis of RCTs. Current Oncology Reports. [link]

Dean, S., Peng, W., Zaslawski, C.,...Pappas, E. (2017). Mindfulness in physical and occupational therapy education and practice: A scoping review. *Physical Therapy Reviews.* [link]

Feliu-Soler, A., Cebolla, A., McCracken, L. M.,...Pérez-Aranda, A. (2017). Economic impact of third-wave cognitive behavioral therapies: A systematic review and quality assessment of economic evaluations in RCTs. Behavior Therapy. [link]

Fischer, D., Stanszus, L., Geiger, S.,...Schrader, U. (2017). Mindfulness and sustainable consumption: A systematic literature review of research approaches and findings. *Journal of Cleaner Production*. [link]

García-Campayo, J., Demarzo, M., Shonin, E., Van Gordon, W. (2017). **How do cultural factors influence the teaching and practice of**

Providing monthly research updates on mindfulness www.goAMRA.org

AUG 2017

Vol. 8 - No. 8

Contents

79 New Cites p1

30 Interventions

14 Associations

13 Methods

16 Reviews

6 Trials

Highlights p6

Editor-in-Chief
David S. Black, PhD. MPF

Highlights by Seth Segall. PhI

Subscribe at-

goAMRA.org/publications

AMERICAN MINDFULNESS
RESEARCH ASSOCIATION



mindfulness and compassion in Latin countries? Frontiers in Psychology. [link]

Gilmartin, H., Goyal, A., Hamati, M. C.,...Chopra, V. (2017). Brief mindfulness practices for healthcare providers-a systematic literature review. *The American Journal of Medicine*. [link]

Grant, S., Colaiaco, B., Motala, A.,...Hempel, S. (2017). Mindfulness-based relapse prevention for substance use disorders: A systematic review and meta-analysis. *Journal of Addiction Medicine*. [link]

Haller, H., Winkler, M. M., Klose, P.,...Cramer, H. (2017). Mindfulness-based interventions for women with breast cancer: An updated systematic review and meta-analysis. *Acta Oncologica*. [link]

Kabat-Zinn, J. (2017). Too early to tell: The potential impact and challenges - ethical and otherwise -inherent in the mainstreaming of dharma in an increasingly dystopian world. *Mindfulness*. [link]

Karunamuni, N., Weerasekera, R. (2017). Theoretical foundations to guide mindfulness meditation: A path to wisdom. *Current Psychology*. [link]

Mak, C., Whittingham, K., Cunnington, R., Boyd, R. N. (2017). Efficacy of mindfulness-based interventions for attention and executive function in children and adolescents—a systematic review. *Mindfulness*. [link]

Sedlmeier, P., Loße, C., Quasten, L. C. (2017). **Psychological effects of meditation for healthy practitioners: An update.** *Mindfulness.* [link]

Serfaty, S., Gale, G., Beadman, M.,...Kamboj, S. K. (2017). Mindfulness, acceptance and defusion strategies in smokers: A systematic review of laboratory studies. *Mindfulness*. [link]

Tomlinson, E. R., Yousaf, O., Vittersø, A. D., Jones, L. (2017). **Dispositional mindfulness and**

psychological health: A systematic review. *Mindfulness.* [link]

Warren, J. M., Smith, N., Ashwell, M. (2017). A structured literature review on the role of mindfulness, mindful eating and intuitive eating in changing eating behaviours: Effectiveness and associated potential mechanisms. *Nutrition Research Reviews.* [link]

TRIALS

Research studies newly funded by the National Institutes of Health (JUL 2017)

Columbia University Health Sciences (C.E. Monk, PI). **Preventing postpartum depression: A dyadic approach adjunctive to obstetric care.** NIH/NIHCCH project #1R01HD092062-01. [link]

Northwestern University at Chicago (D. Victorson, PI). Creating and optimizing mindfulness meaures to enhance and normalize clinical evaluation (COMMENCE). NIH/NCCIH project #1R01AT009539-01. [link]

Ohio State University (R.S. Prakash, PI). **Mindfulness training for mitigating age-related cognitive decline in the elderly.** NIH/NIA project #1R01AG054427-01. [link]

UC, San Francisco (F.A. Jain, PI). Mindfulness and guided imagery for depressed family caregivers of patients with Alzheimer's disease and related dementias. NIH/NIA project #5R21AG051970-02. [link]

University of New Mexico (K. Witkiewitz, PI). Mindfulness-based intervention and transcranial direct current brain stimulation to reduce heavy drinking. NIH/NIAAA project #5R21AA024926-02. [link]

University of Washington (M.P. Jensen, PI). **Hypnosis and meditation for pain management in veterans.** NIH/NCCIH project #5R01AT008336-04. [link]

Providing monthly research updates on mindfulness www.goAMRA.org

AUG 2017

Vol. 8 - No. 8

Contents

79 New Cites p1

30 Interventions

14 Associations

13 Methods

16 Reviews

6 Trials

Highlights p6

Editor-in-Chief
David S. Black, PhD. MPH

Highlights by Seth Segall, PhI

Subscribe at

goAMRA.org/publications

AMERICAN MINDFULNESS



HIGHLIGHTS

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

Being a good preschool teacher is no easy matter. Good teachers are both self-aware and socially aware. They are sensitive to children's developmental levels, learning styles, familial and cultural contexts, and social and emotional competencies. Good teachers must simultaneously self-regulate their inner emotional states and vigilantly monitor the complexities of classroom process while maintaining a focus on educational goals.

All of this is important because teacher's social and emotional competencies play a crucial role in facilitating preschoolers' personal and academic growth. This raises the question of how to help teachers develop the personal qualities they need to foster optimum teacherpupil relationships.

One way might be to help teachers develop higher levels of dispositional mindfulness, or nonjudgmental moment-by-moment attentiveness. This may be especially important when workplace stress—the combined effect of high job difficulty, low perceived support, and low sense of control—makes preschool teaching even harder.

Becker et al. [Journal of School Psychology] analyzed data from an online survey of preschool teachers to test the relationships between teachers' dispositional mindfulness, their perception of their degree of closeness and conflict with their pupils, and their levels of depression and perceived workplace stress.

The researchers explored data from an online staff wellness survey of 1,001 preschool teachers (98% female; 89% Caucasian; 51% college graduates) working for Head Start in Pennsylvania. The teachers completed self-report measures of the perceived quality of their relationships with their students (closeness vs. conflict), dispositional

mindfulness (as measured by the Cognitive and Affective Mindfulness Scale-Revised), depressive symptoms, and perceived workplace stress.

Results showed that higher levels of dispositional mindfulness were significantly associated with higher levels of perceived closeness with students (r = .20) and negatively associated with perceived conflict with students (r = -.28), depressive symptoms (r = -.55), and workplace stress (r = -.25).



A path analysis showed that mindfulness's positive association with student closeness was an entirely direct one, and not indirectly due to mindfulness's relationships with depressive symptoms or workplace stress. Mindfulness's negative association with student conflict was primarily direct but there was also an indirect pathway meditated by mindfulness's association with fewer depressive symptoms.

The study shows that preschool teachers who report being more mindful also report having closer, less conflictual relationships with students, and feeling less stressed and depressed. It adds support to the hypothesis that improving teacher's mindfulness may improve teacher morale and mental health, as well as teacher-pupil relations.

The study is limited by the absence of a measure of social desirability bias. Additionally, its measure of student-teacher relationships only ascertains teacher perceptions of those relationships. The fact that teachers rated their relationships with students "in general," makes the results especially vulnerable to reporting bias.

Providing monthly research updates on mindfulness www.goAMRA.org

AUG 2017

Contents

79 New Cites p1

30 Interventions

14 Associations

13 Methods

16 Reviews

6 Trials

Highlights p6

Editor-in-Chief
David S. Black, PhD. MPH

Highlights by Seth Segall, PhD

Subscribe at:

goAMRA.org/publications

AMERICAN MINDFULNESS
RESEARCH ASSOCIATION



EIderly anxiety and depression sufferers often report subjective problems with memory and cognition. They also perform more poorly on objective measures of short-term memory, verbal fluency, and the ability to ignore irrelevant cues while focusing on a task.

Stress can play an important role in worsening anxiety and depression and also in degrading cognitive function. There is evidence that cortisol, a hormone secreted during stress, can have a harmful effect on brain cells in the hippocampus, which may in turn negatively affect memory and cognition. Reducing stress may therefore yield a double benefit: reducing anxiety and depression, and improving memory and cognition.

Wetherell et al. [Journal of Clinical

Psychiatry] explored whether Mindfulness-Based Stress Reduction (MBSR) could improve clinical symptoms and cognitive functioning better than a control group in elderly people suffering from anxiety and/or depression who also experience subjective cognitive difficulties.

The researchers randomly assigned 103 elderly patients (average age = 72 years; 75% Female; 83% Caucasian) with clinical diagnoses of anxiety and/or depressive disorders and with subjective cognitive complaints to either an 8-week group MBSR intervention or an 8-week Health Education control intervention. The Health Education groups met for the same frequency and duration as the MBSR groups, but focused on understanding and managing anxiety and depression, eating well, managing medications, and communicating with one's heath care providers.

Patients were assessed at baseline, at the end of the intervention, and at 3-and-6-month follow-ups. Outcomes were assessed on measures of psychiatric symptoms, verbal memory, verbal fluency, the ability to ignore distracting cues and stay focused on a task, mindfulness (as measured by the Cognitive and Affective Mindfulness Scale-Revised), and average peak salivary cortisol. Despite randomization, the health education controls were, on the average, two years older than the MBSR participants, had a higher burden of illness, and were twice as likely to be prescribed antidepressants.

Results showed that MBSR participants had a significantly greater improvement in their immediate verbal recall of words on a list (effect size = 0.28) and information contained in stories (effect size = 0.42) than controls. They also showed significantly greater improvements in depression (effect size = 0.46), worry (effect size = 0.42), and mindfulness (effect size = 0.57).

Blinded raters rated 47% of the MBSR participants as either "much" or "very much clinically improved," compared to 27% of the health education participants. This greater clinical improvement for MBSR patients was maintained at 3-and-6-month follow-up, when a significant improvement in anxiety also emerged for MBSR participants.



No group differences were found for either verbal fluency or the ability to ignore distracting irrelevant cues. There was no overall group difference in peak cortisol level, but a group difference emerged when only the data from participants with baseline cortisol levels above the median were analyzed. MBSR participants above the median significantly reduced their cortisol levels, while control participants above the median trended towards even higher levels.

The study demonstrates that MBSR significantly improves psychiatric symptoms and immediate verbal recall in elderly patients with depression and anxiety, and lowers peak cortisol levels for patients with high baseline peaks. The failure to document improvement on the other cognitive measures may reflect the insensitivity of the paper-and-pencil measures used. Computer administered tests might have proved more sensitive to change. The study is also limited by baseline differences between the treatment groups. The fact that health education participants were somewhat older, sicker, and more likely to be on medication may account for some of the differences in group improvement.