

# Integrating Mindfulness Meditation and Cognitive Behavioral Traditions for the Long-Term Treatment of Addictive Behaviors

Sarah Bowen, PhD, Katie Witkiewitz, PhD, Neha Chawla, PhD, and Joel Grow, MS

## ABSTRACT

- **Objective:** To review the evidence supporting mindfulness meditation–based therapies for addictive disorders, with a focus on Mindfulness-Based Relapse Prevention.
- **Methods:** Review of the literature.
- **Results:** There have been several studies over the past 4 decades on the application of meditation techniques in the treatment of problematic substance abuse. More recently, however, the focus has shifted to “mindfulness” meditation practices, and the addition of mindfulness meditation to existing empirically supported treatments for substance abuse and dependence. Several common mechanisms by which meditation may impact alcohol and other drug use have been suggested, including increasing recognition of and ability to tolerate negative affective states, alleviation of stress, reduction of craving, and enhanced ability to cope with craving. Mindfulness-Based Relapse Prevention integrates mindfulness meditation practices with cognitive behavioral relapse prevention techniques for clients in early abstinence. The program is aimed at raising awareness, cultivating compassion, and increasing the ability to relate differently to challenging cognitive, emotional and physical experiences, particularly those previously associated with relapse.
- **Conclusion:** Although the extant studies show promise, future studies identifying the active mechanisms and target populations for mindfulness-based treatments will help our understanding and further development of these treatments.

The last several decades have witnessed the application and evaluation of various meditation techniques for treatment of alcohol and other drug use disorders. Studies have included practices from

traditions including transcendental meditation (TM) [1–3], the traditional Buddhist practice called vipassana [4], and more recently, secularized practices referred to as “mindfulness meditation” [5], often based on vipassana [6]. There is considerable variability in both form and technique across these practices. While TM involves focusing attention on a phrase or mantra, traditional vipassana and mindfulness meditation practices involve cultivating an intentional, nonjudgmental observation of present experience [7]. The more recent mindfulness meditation practices exclude reference to religious or spiritual roots while maintaining several of the core practices from the vipassana tradition. These include both “formal” meditation practices such as sitting and walking meditation, as well as “informal” practices, such as “mini-meditations” in daily life.

Several mechanisms by which meditation may impact alcohol and other drug use have been suggested. Substance use is often an attempt to cope with, or “self-medicate,” other psychological problems [8]. Meditation practice may increase both awareness of these affective states and the ability to tolerate associated discomfort [9]. Additionally, regular practice may alleviate stress and thus lessen the strength or occurrence of negative affective states [10]. Craving is another factor highly characteristic of addictive behavior and strongly related to relapse [11]. Decreased craving, or enhanced ability to cope with craving, may be another mechanism by which meditation helps reduce relapse risk [6]. Specifically, the heightened state of present-focused awareness encouraged by meditation may directly counteract the conditioned automatic response to use substances in response

*From the University of Washington, Seattle, WA (Dr. Bowen, Dr. Chawla, Mr. Grow) and Washington State University Vancouver, Vancouver, WA (Dr. Witkiewitz).*

to craving, creating a pause in the otherwise automatic chain of reactions. Additionally, mindfulness meditation practices often encourage acceptance of one's current experience, including aversive states such as discomfort, craving, or tension. This may help reduce substance use as a means of experiential avoidance, or as an attempt to avoid or escape unwanted internal experiences despite psychological costs of doing so [12]. This awareness and acceptance may not only encourage greater tolerance of difficult emotional states, a factor strongly related to initial relapse [13], but may also support a more compassionate view of one's actions, reducing the likelihood of spiraling into a full-blown relapse following a stressful event or initial instance of substance use.

One of the earliest attempts to assess the application of meditation for problematic substance use was a study conducted by Marlatt and Marques [2], who evaluated TM as an intervention for high-risk college-student drinkers. The promising initial results led Marlatt and colleagues [3] to conduct a randomized trial comparing TM with muscle relaxation and daily quiet recreational reading in a group of male heavy social drinkers. Results indicated that all treatment conditions were effective in reducing alcohol use and associated problems [3]. A second trial comparing meditation and daily aerobic exercise found equivalent reductions in alcohol consumption across the 2 groups relative to a no-treatment control group [14]. More recently, Bowen and colleagues [4] conducted a study evaluating the effectiveness of a 10-day vipassana meditation course among inmates in a minimum-security jail. Results indicated that those who completed the course demonstrated significantly less alcohol and drug use 3 months following release from incarceration, as compared with a control group who did not take the course. Since these early studies, numerous studies have been conducted applying mindfulness-based interventions in the treatment of substance use disorders [15]. Zgierska and colleagues' 2009 systematic review of mindfulness meditation for substance use disorders found 25 eligible studies including 8 randomized controlled trials. Included studies used varied approaches to mindfulness training. The authors concluded that mindfulness approaches to the treatment of substance use disorders produced mostly positive outcomes, but that further systematic research was necessary. Since then, there have been a few additional trials of manualized mindfulness-based treatments.

The most frequently cited method of meditation training in the medical context is Mindfulness-Based

Stress Reduction (MBSR) [7], originally developed for the management of chronic pain and stress-related disorders. The MBSR curriculum in turn served as a model for the manualized Mindfulness-Based Cognitive Therapy (MBCT) program to prevent relapse in recurrent depression [16] and the Mindfulness-Based Relapse Prevention (MBRP) program for outpatient clients with substance use disorders [17]. These treatments integrate formal meditation practices and cognitive-behavioral relapse prevention protocols to increase awareness of and create changes in patterns of reactive behavior that commonly lead to relapse. Other meditation- and mindfulness-based interventions for substance use disorders include acceptance-based treatments [18], Dialectical Behavior Therapy [19], and Spiritual Self-Schema Therapy [20]. However, MBSR, MBCT, and MBRP are unique in their use of formal mindfulness meditation practice as the primary foundation on which the treatment is built. The current paper focuses specifically on MBRP.

### DEVELOPMENT OF MBRP

Several decades ago, Marlatt and colleagues developed Relapse Prevention (RP) therapy as an aftercare treatment for substance use disorders [21–23]. RP is a cognitive-behavioral approach to the treatment of addictive behaviors that provides tools and strategies useful in maintaining positive change [21]. The RP model posits that maladaptive drinking and drug use are learned behaviors, with biological, psychological, and social determinants and consequences. Within this model, relapse is conceptualized as the linear progression of responses in high-risk situations [24]. RP begins by identifying the interpersonal, intrapersonal, and environmental characteristics of these high-risk situations, all of which can vary from person to person and within each individual [25]. RP then provides a menu of intervention strategies, which can be grouped into 3 categories: coping skills training (ie, how to effectively cope with high-risk situations and enhance self-efficacy), cognitive therapy (eg, viewing habit change as a learning process, and introducing coping imagery to deal with cravings), and lifestyle modification (eg, exercise and spiritual practices) [24]. RP thus incorporates global and specific strategies that allow the client and therapist to address each step of the relapse process.

The Mindfulness-Based Relapse Prevention integrates formal meditation practices and cognitive-behavioral relapse prevention treatment. MBRP is a manualized,

structured protocol consisting of 8 sessions, each approximately 2 hours long and each designed to build upon the theme, practices, and experiences of the previous week. In addition to in-session practices, clients are given a set of audio recordings to use between sessions to begin integrating meditation practices and mindfulness skills into their daily lives.

### MBRP TREATMENT ELEMENTS

The core intentions of the mindfulness practices in MBRP are twofold. The first is to cultivate awareness of both internal (emotions, thoughts, sensations) and external (eg, environmental) cues previously associated with substance use [6], creating opportunities to “respond” to triggering situations rather than react in habitual and potentially self-defeating ways. The second is to provide training and practice in “being with” affective, cognitive, or physical discomfort, thereby allowing the client to observe these experiences without reactively seeking an escape. Through in-session and daily-life practice, clients increase their ability to make more skillful behavioral choices, enhancing their self-efficacy in the context of substance use cues or craving. RP components further enhance identification of triggers and high-risk situations through traditional cognitive-behavioral exercises, as well as provide concrete alternative activities and coping skills to decrease contact with high-risk situations, that clients can use in the event of encountering such situations.

Similar to MBSR and MBCT, the MBRP course begins with an experiential introduction to the tendency to operate throughout our daily lives on “automatic pilot.” This is contrasted with a more mindful awareness of activities in which we are engaged. Based on traditional vipassana or insight meditation practices, MBRP mindfulness practices begin with simply bringing the focus of attention to a chosen object of attention, such as the physical sensations of breathing (eg, chest rising and falling, or temperature of the air in the nostrils). When the client notices the mind wandering away from the breath, the instruction is simply to notice this occurrence, and then bring the attention back to sensations of breathing. This noticing and returning to the breath is repeated as many times as needed.

In sessions 2 and 3, the target of observation begins to shift from body sensations and sensations of breathing to include other aspects of current experience, such as sound and sight. Clients begin to apply awareness prac-

tices to triggers and urges for substance use and relapse, using specific “mini-meditation” exercises throughout the day to step out of “automatic” mode, both in daily life and in stressful and high-risk situations.

In sessions 4 through 6, mindfulness of thoughts and emotions is introduced. Clients identify individual risk profiles, including specific thoughts and emotions that have historically led to substance use, paying particular attention to judgmental thoughts (eg, “I am bad at this”). They are instructed to simply notice these thoughts and perhaps any associated body sensations or emotions that might arise, while remaining grounded in the present moment. They subsequently apply these practices to their daily lives, bringing awareness to thoughts (eg, “Screw it. I can’t do this anymore.”) and emotions (eg, anger or loneliness) that may have previously led to relapse. This can increase recognition of the reactivity that is occurring, helping them step out of a previously habitual cycle of behavior. This may allow the time and space to make a more mindful, skillful choice. The final 2 sessions widen the focus to the bigger picture of creating and maintaining a lifestyle that will support both recovery and mindfulness practice.

Groups are typically led by 2 therapists. Each session begins with a period of guided mindfulness practice, followed by “inquiry,” a discussion process centered on present-moment experiences that arise during the practices. The style of discussion is inspired by Socratic questioning, motivational interviewing [26], and MBCT [16]. Therapists keep the focus of discussion on the client’s direct experience, with the goal of helping clients differentiate between direct experience and ideas *about* or *reactions to* that experience (eg, stories or judgments). Therapists also inquire about ways in which the meditation experiences are familiar or unfamiliar (eg, “Have you previously noticed this about your mind?”), and how the experiences relate to clients’ lives and to the relapse process.

Clients are often accustomed to telling stories *about* their experience. The inquiry process is different, and reflects a core intention of mindfulness practice itself: to notice what is actually arising in the moment, rather than being caught in interpretations and stories about the experience. Therapists carefully attend to instances when clients are pulled into the content, and when this occurs, therapists encourage the client to return to the present-moment experience (eg, “So in this exercise that we just did, what did you notice?” or “What do you notice right

now as you're speaking?"). As such, the inquiry process mirrors the practice of mindfulness meditation, with a similar focus on current experience and continual redirection of attention to direct experience. By emphasizing experiential practice and allowing clients to discover the purpose of the practices through direct experience and facilitated discussion, core principles of the approach are explored, and themes are elicited from clients, rather than taught didactically.

### OUTCOMES

Research on programs integrating formal meditation practice with evidence-based cognitive behavioral therapies specifically for substance use disorders is still relatively young. However, a handful of independent studies over the past 3 years have evaluated effectiveness of MBRP in the treatment of substance use disorders [6,27–30]. The first published evaluation of a mindfulness-based relapse prevention intervention for alcohol dependence was conducted by Zgierska and colleagues [28], who examined the feasibility of implementing a manualized 8-week meditation course based on MBRP as part of an intensive outpatient treatment program for alcohol dependence. The sample ( $n = 15$ ) was approximately half female (53%), with 84% identified as Caucasian, 74% with a high school diploma, and 68% employed at least half-time. Results from the study indicated that 15 (out of 19 recruited) individuals completed the course and all participants reported at least some meditation up to 2 months following the 8-week course, with 53% of participants meditating 4 or more days per week. Using a pre-post design, results indicated significantly fewer heavy drinking days 1 month following the course, and significant reductions in stress, depression, and anxiety up to 2 months following the course. All of the participants endorsed a high level of satisfaction with the course and found meditation to be a helpful therapeutic tool.

The findings of Zgierska and colleagues [28] were recently extended in a similar population of individuals with alcohol dependence. Vieten and colleagues [29] found that 23 individuals who received a manualized 8-session Acceptance-Based Coping for Relapse Prevention program, pulling from several mindfulness-based treatments, reported significant decreases in craving, negative affect, emotional reactivity, and perceived stress, as well as significant increases in positive affect, psychological well-being, and mindfulness immediately following the intervention. Participants did not report significant re-

ductions in drinking frequency. Garland and colleagues [27] assessed short-term cognitive, affective, and physiological factors that may be key mechanisms in relapse in a randomized pilot trial of a 10-session mindfulness-based treatment for alcohol dependence in a sample of 53 adults. Compared to an active control group, participants in the mindfulness group showed decreases in stress and thought suppression and improved physiological recovery following alcohol-related cues. Additionally, mindfulness participants showed decreases in attentional bias towards brief visual alcohol cues.

Bowen and colleagues [6] examined the efficacy of MBRP in comparison to standard care at a private, nonprofit agency that provided a continuum of care for substance use disorders. Therapists were trained by and received ongoing supervision from the treatment developers. Participants ( $n = 168$ ) were recruited following completion of inpatient or intensive outpatient treatment programs and then randomized to receive 8 weeks of MBRP (provided in group format, with 120 minutes per group) or 8 weeks of the standard aftercare programming provided by the agency, which consisted of psychoeducational, process-oriented, and 12-step-based groups. The majority of the final sample was male (64%). Over half identified as Caucasian (52%), with the other half identifying as African American (29%), Native American (8%), and multiple races (15%). Approximately 72% had a high school diploma, 59% were at least partially employed, and 33% reported receiving public assistance. Substances of abuse included alcohol (45%), cocaine/crack (36%), methamphetamine (14%), opiates (7%), and marijuana (5%), with 19% reporting polysubstance abuse. Results indicated that individuals who were assigned to MBRP had significantly fewer days of alcohol or other drug use at 2 months following the intervention (MBRP mean = 2.1 days of use; standard care mean = 5.4 days of use), although differences were no longer significant 4 months following the intervention. The MBRP group also evinced significant reductions in craving and greater increases in acceptance, as measured by the Acceptance and Action Questionnaire [31], compared to the standard care condition. As in the trial by Zgierska and colleagues [28], the majority of MBRP participants (86%) reported practicing meditation with 54% reporting continued practice at the 4-month follow-up for an average of 4.7 days per week and 29.9 minutes per meditation session. Participants were highly satisfied with the course and rated it highly important to their recovery.

The first evaluation of mindfulness training as a stand-alone treatment in comparison with an established empirically supported cognitive-behavioral treatment for substance use disorders was conducted by Brewer and colleagues [30], using a manualized protocol adapted from the MBRP manual. Thirty-six individuals who had alcohol and/or cocaine use disorders were recruited via media advertisements and clinical referrals and were randomized to either 9 weeks of group mindfulness training ( $n = 21$ ) or 12 weeks of group cognitive-behavioral treatment ( $n = 15$ ). Participants in the study were mostly male (72%) and were Caucasian (64%), African American (24%) and Hispanic (12%). Only 48% had a high school diploma or equivalency degree and 40% were unemployed. Rates of treatment completion were low across both groups, with 9 completing mindfulness training (43%) and only 5 completing cognitive-behavioral treatment (33%). Those who completed treatment rated their assigned treatment as highly satisfactory. Differences between treatment groups on substance use during treatment were not significant; however, psychological and physiological reactivity measures indicated that individuals who received mindfulness training were significantly less reactive to a stress provocation following treatment, as compared to individuals who received cognitive-behavioral treatment.

Given the strong association between stress and relapse [32], the effect of mindfulness training on reducing reactivity to a stress provocation described by Brewer and colleagues [30] is an important finding. Similarly, secondary analyses of data from the study by Bowen and colleagues [6] found that individuals who received MBRP were less likely to experience craving in response to depressed mood [9]. The decrease in the relation between depressed mood and subsequent craving also predicted fewer days of substance use up to 4 months following treatment for those who received MBRP. Based on both of these studies [9,30], reducing a person's reactivity to negative affect (including depressed mood and psychological stress) could be an important mechanism of change following mindfulness-based treatments.

## CONCLUSION

Empirical studies of mindfulness-based relapse prevention as a primary or aftercare treatment for substance use disorders, to date, have provided evidence that mindfulness interventions are feasible and rated as satisfactory among clients. Additionally, the group-based

format provides a potentially cost-efficient treatment option for maintaining treatment gains following inpatient or intensive outpatient treatment. In addition, results from several studies have provided preliminary support for the efficacy of MBRP, in comparison with standard care, in reducing alcohol and other drug use days following treatment. The research in this area is still in its early stages and is limited by small sample sizes [6,28,33], short follow-ups [6,28,29,33], and the lack of active treatment comparison groups [6,28,33]. While promising, more full-scale clinical trials are needed to determine effectiveness in comparison with other established relapse prevention treatments. The authors of the current manuscript are currently near completion of a randomized clinical trial of MBRP as a treatment for substance use disorders designed to address the above limitations.

Over the decades, there have been several treatment protocols and research studies aimed at reducing risk of relapse following substance abuse treatment. The recent studies of mindfulness-based treatments have shown promise but these treatments are still in the early stages of development and assessment. Trials of mindfulness-based treatments for other medical and psychological disorders have produced encouraging results (for a review, see Keng 2011 [34]), often due to decreased reactivity to initial triggers [35] or symptoms [36,37]. Through a client's increased awareness of individual processes that have historically led to relapse, and through repeated practice of relating less reactively to triggers, mindfulness-based treatments offer promise for a fundamental change in an individual's approach to and experience of the day-to-day challenges of early abstinence.

Although the extant studies show promise, future studies identifying the active mechanisms and target populations for mindfulness-based treatments will help our understanding and further development of these treatments. How do these treatments work? What factors are changing over the course of treatment that are affecting client outcomes? For whom are these treatments most helpful? For example, are they more suited for clients in early or later stages of recovery? Are there personality traits or other individual characteristics that might indicate for whom this treatment would be most beneficial?

To date, MBRP has only been evaluated as an intervention for adults with alcohol and/or drug use disorders; however, studies are beginning to explore other

applications. For example, an adaptation of MBRP as a treatment for pathological gambling is currently underway, and preliminary data suggest that the treatment is acceptable to individuals with gambling disorders. There is also evidence to suggest that MBRP might be particularly effective for individuals with substance use disorders and co-occurring depression [9]. Finally, MBRP may be useful in adolescent populations, given recent evidence that training in mindfulness may be a beneficial component of adolescent substance abuse treatment [38]. Building upon these initial empirical foundations, the field of substance abuse treatment will be strengthened by continued exploration and assessment of mindfulness-based therapies.

*Corresponding author: Sarah Bowen, PhD, Univ. of Washington, Dept. of Psychology, Box 351629, Seattle, WA 98195, swbowen@u.washington.edu.*

*Funding/support: This research was supported by National Institute on Drug Abuse Grant R21 DA010562.*

*Financial disclosures: None.*

## REFERENCES

- Alexander CN, Robinson P, Rainforth M. Treating alcohol, nicotine, and drug abuse through Transcendental Meditation: a review and statistical meta-analysis. *Alcohol Treat Q* 1994;11:11–84.
- Marlatt GA, Marques JK. Meditation, self-control, and alcohol use. In: Stuart RB. *Behavioral self-management*. New York: Brunner/Mazel; 1977:117–53.
- Marlatt GA, Pagano RR, Rose RM, Marques JK. Effects of meditation and relaxation training on alcohol use in male social drinkers. In: Sapiro DH, Walsh RN. *Meditation: Classic and contemporary perspectives*. New York: Aldine; 1984:105–20.
- Bowen S, Witkiewitz K, Dillworth T, et al. Mindfulness meditation and substance use in an incarcerated population. *Psychol Addict Behav* 2006;20:343–7.
- Kabat-Zinn J. *Wherever you go, there you are*. New York: Hyperion; 1994.
- Bowen S, Chawla N, Collins SE, et al. Mindfulness-based relapse prevention for substance use disorders: a pilot efficacy trial. *Subst Abuse* 2009;30:295–305.
- Kabat-Zinn J. *Full catastrophe living*. New York: Delacorte; 1990.
- Khantzian EJ. The self-medication hypothesis of substance use disorders: a reconsideration and recent applications. *Harvard Rev Psychiat* 1997;4:231–44.
- Witkiewitz K, Bowen, D. Depression, craving and substance abuse following a randomized trial of mindfulness-based relapse prevention. *J Consult Clin Psych* 2010;78:362–74.
- Brown KW, Ryan RM. The benefits of being present: mindfulness and its role in psychological well-being. *J Pers Soc Psychol* 2003;84:822–48.
- Sayette MA, Shiffman S, Tiffany ST, et al. The measurement of drug craving. *Addiction* 2000;95:189–210.
- Hayes SC, Wilson KG, Gifford EV, et al. Emotional avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *J Consult Clin Psychol* 1996;64:1152–68.
- Witkiewitz K, Villarroel NA. Dynamic association between negative affect and alcohol lapses following alcohol treatment. *J Consult Clin Psychol* 2009;77:633–44.
- Murphy TJ, Pagano RR, Marlatt GA. Lifestyle modification with heavy alcohol drinkers: effects of aerobic exercise and meditation. *Addict Behav* 1986;11:175–86.
- Zgierska A, Rabago D, Chawla N, et al. Mindfulness meditation for substance use disorders: A systematic review. *Subst Abuse* 2009;30:266–94.
- Segal Z, Williams JMG, Teasdale JD. *Mindfulness-based cognitive therapy for depression: a new approach to preventing relapse*. New York: Guilford Press; 2002: 175–97.
- Bowen S, Chawla N, Marlatt GA. *Mindfulness-based relapse prevention for addictive behaviors*. New York: Guilford Press; 2010.
- Hayes SC, Follette VM, Linehan MM, editors. *Mindfulness and acceptance: expanding the cognitive-behavioral tradition*. New York: Guilford Press; 2004.
- Linehan MM, Dimeff LA. *Dialectical behavior therapy for substance abuse treatment manual*. Seattle, WA: University of Seattle; 1997.
- Avants SK, Beitel M, Margolin A. Making the shift from “addict self” to “spiritual self.” Results from a stage 1 study of Spiritual Self-Schema (3-S) therapy for the treatment of addiction and HIV risk behavior. *Mental Health Religion Culture* 2005;8:167–77.
- Marlatt GA, Gordon JR. *Relapse prevention: maintenance strategies in the treatment of addictive behaviors*. New York: Guilford Press; 1985.
- Irvin JE, Bowers CA, Dunn ME, Wang MC. Efficacy of relapse prevention: a meta-analytic review. *J Consult Clin Psychol* 1999;67:563–70.
- Carroll KM. Relapse prevention as a psychosocial treatment: a review of controlled clinical trials. *Exp Clin Psychopharm* 1996;4:46–54.
- Larimer ME, Palmer RS, Marlatt GA. Relapse prevention: an overview of Marlatt’s cognitive-behavioral model. *Alcohol Res Health* 1999;23:151–60.
- Witkiewitz K, Marlatt GA. Relapse prevention for alcohol and drug problems: that was Zen, this is Tao. *Am Psychol* 2004;59:224–35.
- Miller WR, Rollnick S. *Motivational interviewing: preparing people for change*. New York: Guilford Press; 2002.
- Garland EL, Gaylord SA, Boettiger CA, et al. Mindfulness training modifies cognitive, affective, and physiological mechanisms implicated in alcohol dependence: Results of a randomized controlled pilot trial. *J Psychoactive Drugs* 2010;42:177–92.
- Zgierska A, Rabago D, Zuelsdorff M, et al. Mindfulness

- meditation for alcohol relapse prevention: a feasibility pilot study. *J Addict Met* 2008;2:165-73.
29. Vieten C, Astin JA, Buscemi R, Galloway GP. Development of an acceptance-based coping intervention for alcohol dependence relapse prevention. *Subst Abuse* 2010;31:108-16.
  30. Brewer JA, Sinha R, Chen JA, et al. Mindfulness training and stress reactivity in substance abuse: results from a randomized, controlled stage I pilot study. *Subst Abuse* 2009;30:306-17.
  31. Hayes SC, Strosahl K, Wilson KG, et al. Measuring experiential avoidance: a preliminary test of a working model. *Psychol Rec* 2004;54:553-78.
  32. Sinha R. Chronic stress, drug use, and vulnerability to addiction. *Ann NY Acad Sci* 2008;1141:105-30.
  33. Dakwar E, Levin FR. The emerging role of meditation in addressing psychiatric illness, with a focus on substance disorders. *Harvard Rev Psychiat* 2009;17:254-67.
  34. Keng S-L, Smoski MJ, Robins CJ. Effects of mindfulness on psychological health: A review of empirical studies. *Clin Psychol Rev*, 13 May 2011.
  35. Kuyken W, Watkins E, Holden E, et al. How does mindfulness-based cognitive therapy work? *Behav Res Ther* 2010;48:1105-12.
  36. Dahl J. ACT and health conditions. In: Blackledge J, Ciarrochi J, Deane F, editors. *Acceptance and commitment therapy: contemporary theory, research and practice*. Bowen Hills: Australian Academic Press; 2009.
  37. Segal ZV, Bieling P, Young T, et al. Antidepressant monotherapy vs sequential pharmacotherapy and mindfulness-based cognitive therapy, or placebo, for relapse prophylaxis in recurrent depression. *Arch Gen Psychiat* 2010;67:1256-64.
  38. Britton WB, Bootzin RR, Cousins JC et al. The contribution of mindfulness practice to a multicomponent behavioral sleep intervention following substance abuse treatment in adolescents: a treatment-development study. *Subst Abuse* 2010;31:86-97.

Copyright 2011 by Turner White Communications Inc., Wayne, PA. All rights reserved.