

## Intensive Mindfulness Training and the Reduction of Psychological Distress: A Preliminary Study

Brian D. Ostafin, Neharika Chawla, Sarah Bowen, Tiara M. Dillworth, Katie Witkiewitz, and G. Alan Marlatt  
*University of Washington*

*There is increasing evidence for the utility of mindfulness training as a clinical intervention. Most of this research has examined secular-based mindfulness instruction. The current study examined the effects of a 10-day Buddhist mindfulness meditation course on the psychological symptoms of 53 participants. A repeated-measures analysis of variance indicated reductions in overall psychological distress from the pre-course baseline to a 3-month follow-up. Correlation analyses indicated that the reported reduction in psychological distress was not influenced by social desirability bias and that the effect was not dependent on daily meditation between course completion and follow-up. Issues regarding modality of mindfulness training (secular versus Buddhist) are discussed.*

CLINICAL RESEARCHERS have shown increasing interest in mindfulness meditation as an intervention (Marlatt, 2002; Robins, 2002; Salmon et al., 2004; Toneatto, 2002). Mindfulness (also known as insight or *vipassana* meditation; Rosenberg, 1998) has been most developed in Buddhism (Hahn, 1999) and can be defined as a state of “awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p. 145). Thus, the goal of mindfulness is not to change the content of thoughts, as in cognitive therapy, but to develop a different attitude or relationship to thoughts as they occur (Bishop et al., 2004). Kabat-Zinn (2003) notes that all humans have access to this state and that it can be cultivated through practice. A growing number of studies indicate that the cultivation of mindfulness may have beneficial effects on psychological and physical well-being (Baer, 2003; Grossman, Niemann, Schmidt, & Walach, 2004).

The increasing interest in mindfulness has raised the issue of how to best teach it (Hayes & Shenk, 2004). One way that training modalities can be differentiated is by whether they are presented in a Buddhist or secularized context (Dimidjian & Linehan, 2003).<sup>1</sup> One fundamental way in which Buddhist and secular contexts differ regards the ultimate goal of training. When asked to summarize his teachings in one

sentence, the Buddha stated that “Nothing is to be clung to as I, me, or mine” (cited in Kabat-Zinn, 2005, p. 53). This goal of realizing the impermanence of self in the Buddhist context contrasts with the goal of realizing the impermanence of thoughts and emotions related to the self (e.g., “I am worthless”) in the secular context. A second way that the contexts differ is that Buddhist mindfulness training typically involves intensive retreats (for a history of this practice, see Armstrong, 2001). Though secular and Buddhist contexts may differ on these and other dimensions, there is evidence that both types of training may reduce psychological symptoms.

The majority of mindfulness research has been conducted with secular programs. Most of this research has utilized a variant of Kabat-Zinn’s (1990) Mindfulness-Based Stress Reduction (MBSR) program, which typically consists of an 8-week course meeting once per week for 2 to 3 hours, daily mindfulness homework, and a 6-to-8-hour meditation retreat toward the end of the course. Two recent meta-analyses of over 20 primarily MBSR-influenced treatment studies found that interventions led to reductions in anxiety, depression relapse, and ratings of chronic pain (Baer, 2003; Grossman et al., 2004).

Although sparse, a few studies have examined the relation between Buddhist mindfulness training and

<sup>1</sup> When the term “Buddhist context” is used in this paper, it will refer primarily to the Theravadan tradition of Buddhism as the courses were taught from this perspective. Theravadan Buddhism can be distinguished from other Buddhist traditions in the emphasis it places on the practice of *vipassana* (mindfulness) meditation and in its lack of metaphysical theories and magical practices that can be found in other forms of Buddhism (Basham, 1972).

psychological outcomes. Cross-sectional research has found that experienced *vipassana* meditators (3 or more years of experience) reported more positive relative to negative affect than beginning meditators (Easterlin & Cardeña, 1998). Similar effects have been found in experimental research. One study found that immediately after a 10-day *vipassana* retreat, meditators reported less anxiety and depression than did those in a nonmatched control group (Al-Hussaini et al., 2001). Two unpublished studies examining the effect of a 10-day *vipassana* retreat on prisoners in India also found beneficial effects on psychological symptoms (Chandiramani, Verma, & Dhar, 1995). Bowen et al. (in press) recently examined the effects of a 10-day *vipassana* retreat on the substance use of an incarcerated sample. The results indicated that at a 3-month (after jail release) follow-up, meditators demonstrated reductions in psychological symptoms and alcohol and drug use.

In sum, there is a growing literature on the effects of mindfulness interventions on psychological distress. Because the majority of this research has been conducted with secular mindfulness training programs, it is unclear whether other modalities for teaching mindfulness may be useful. Findings from a small number of studies suggest that Buddhist mindfulness training may have beneficial effects on psychological symptoms, but the paucity of this research and the general lack of follow-up assessment indicate a need for more such studies.

### Overview of the Current Study

The current study was designed to assess changes in psychological distress following participation in an intensive 10-day *vipassana* meditation course. Positive findings in this study would suggest both the utility of teaching mindfulness in a Buddhist context and avenues for future research. To accomplish this aim, a sample of meditation participants completed assessment packets before a course and at a 3-month follow-up. The primary hypothesis was that participants would report reductions in psychological distress at follow-up; the secondary hypothesis was that frequency of meditation between the course and follow-up would be correlated with greater reductions in psychological distress.

## Method

### Participants

Participants were recruited from four *vipassana* centers associated with S. N. Goenka's *vipassana* training program (see Hart, 1987). Of the 128 participants who completed the baseline measures, 98 provided locator information for the follow-up assessment and 53 completed the measures at the follow-up. Of the 53 (26 females) completers, mean participant age was 40.40 years old ( $SD = 11.46$ ). Four participants did not report age. The majority self-identified as

European American ( $n = 40$ ), with the rest self-identifying as Asian American ( $n = 6$ ), Multi-ethnic ( $n = 3$ ), Asian Indian-American ( $n = 1$ ), and African American ( $n = 1$ ). Two participants did not report race.

### Measures

**Psychological distress.** The Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983), a 53-item measure of symptoms over the past 2 weeks, uses a Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). The BSI can be scored both as an overall index of psychological distress and as nine scales that assess specific areas of distress. The BSI has demonstrated adequate psychometric properties (Boulet & Boss, 1991; Derogatis & Melisaratos, 1983).

The General Severity Index reflects overall distress and demonstrated adequate internal reliability in this sample (coefficient alpha = .95). The nine individual scales and their internal reliability follow: (a) the Somatization Scale reflects distressful reactions to perceived bodily dysfunction (coefficient alpha = .69); (b) the Obsessive-Compulsive Scale reflects distressful reactions to unwanted thoughts and actions (coefficient alpha = .78); (c) the Interpersonal Sensitivity Scale reflects feelings of self-inadequacy (coefficient alpha = .86); (d) the Depression Scale reflects depressive affect (coefficient alpha = .85); (e) the Anxiety Scale reflects anxious affect (coefficient alpha = .69); (f) the Hostility Scale reflects hostile thoughts, feelings, and behaviors (coefficient alpha = .62); (g) the Phobic Anxiety Scale reflects fear responses to particular stimuli (coefficient alpha = .60); (h) the Paranoid Ideation Scale reflects symptoms of projection, hostility, suspiciousness, and fear of loss of autonomy (coefficient alpha = .76); and (i) the Psychoticism Scale reflects symptoms ranging from feeling alienated to experiencing delusions (coefficient alpha = .68).

**Social desirability.** Reynolds (1982) developed a short form of the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) consisting of 13 true-false items to assess individual differences in response biases to obtain social approval. The short form (Form C) has demonstrated good psychometric properties (Reynolds, 1982) and adequate internal reliability (coefficient alpha = .74) in our sample.

**Meditation frequency.** Frequency of meditation between the retreat and the 3-month follow-up was assessed with the item "I meditate on a daily basis." This question was presented via a Likert scale (1 = *strongly disagree* to 5 = *strongly agree*).

**Mindfulness retreat experience.** Past experience with *vipassana* meditation was assessed with an open-ended question regarding the number of previous retreats attended.

**Procedure.** We contacted four *vipassana* centers so that the retreat structure could be standardized (e.g., time of waking, meditation practice, videotaped lectures). Each

center provided a study liaison. On the first day of each course, each liaison set up a table with consent forms and the baseline assessments. After attendees arrived and signed in, they were informed about our study examining *vipassana* meditation and various health concerns. Interested attendees spoke to the liaison and those who chose to participate gave informed consent and completed the baseline assessment (including demographics and the BSI and social desirability measures) before the course began.

The courses were standardized 10-day residential retreats. Meditation practice during the first 3 days consisted of developing concentration by focusing attention to the sensations of breathing. Each time a thought, emotion, or body sensation distracted from attention to the breath, participants were to nonjudgmentally (e.g., without criticizing themselves as being bad meditators) acknowledge the distraction and to return their attention to the breath. Meditation practice during the final 7 days consisted of developing nonjudgmental awareness of body sensations by systematically focusing attention to each area of the body while both avoiding the labeling of sensations as “good” or “bad” and letting go of an agenda to maintain or change the experience. Each time labeling, an agenda, or other thoughts occurred in the mind, participants were to nonjudgmentally acknowledge the distraction and return their attention to the body sensations. Participants also attended daily hour-long videotaped lectures on Buddhist principles (e.g., the role of aversion and attachment in suffering; the nature of the impermanence of self). See Table 1 for a typical daily schedule.

Locator information for the 3-month follow-up was collected either on the last day of the course or by the participants mailing this information to our lab. Participants who completed the baseline assessment and who provided locator information were mailed a 3-month follow-up assessment that contained another BSI. Participants were not paid for the baseline assessment, but received 10 dollars for completion of the 3-month follow-up.

## Results

### Follow-up Completers Versus Noncompleters

Participants who completed the 3-month follow-up measures and those who did not demonstrated similar baseline scores on the psychological measures of interest. Analyses indicated that the groups did not differ on the General Severity Index of the BSI ( $t = .24$ ,  $p = .81$ ) or the Marlowe-Crowne Social Desirability Scale ( $t = -.65$ ,  $p = .52$ ). This suggests that the participants who completed the follow-up assessment did not do so because they had less severe psychological distress or

Table 1  
Typical daily schedule for meditation retreat participants

| Time            | Activity                                                         |
|-----------------|------------------------------------------------------------------|
| 4:00 A.M.       | Wake-up                                                          |
| 4:30–6:30 A.M.  | Silent meditation                                                |
| 6:30–8:00 A.M.  | Breakfast and personal time<br>(e.g., shower, sleep, walk, etc.) |
| 8:00–11:00 A.M. | Silent meditation/instruction                                    |
| 11:00–1:00 P.M. | Lunch, personal time, and meetings<br>with instructor            |
| 1:00–5:00 P.M.  | Silent meditation/instruction                                    |
| 5:00–6:00 P.M.  | Tea/fruit                                                        |
| 6:00–7:00 P.M.  | Silent meditation/instruction                                    |
| 7:00–8:00 P.M.  | Discourse                                                        |
| 8:00–9:00 P.M.  | Silent meditation/instruction                                    |
| 9:00–10:00 P.M. | Return to residence or<br>questions/answers with instructor      |
| 10:00 P.M.      | Lights out                                                       |

because they were especially motivated to indicate that the retreat had beneficial effects. Additionally, analyses indicated that the groups did not differ on the number of past *vipassana* retreats ( $t = .34$ ,  $p = .74$ ). This suggests that follow-up completers were not more experienced, and perhaps more interested in the study, than noncompleters (though past retreat experience is admittedly not the only measure of meditation experience).

### Change in Psychological Distress

The primary hypothesis was that participants who completed the meditation retreat would report less psychological distress at the 3-month follow-up. A series of within-subjects repeated-measures analysis of variance tests were conducted to examine this hypothesis. We first examined the effect of the retreat on the General Severity Index of the BSI, as Derogatis and Melisaratos (1983) have noted that it represents the best overall measure of distress. The results indicated that overall psychological distress was lower 3 months after the retreat,  $F(1, 52) = 11.78$ ,  $p = .001$ . We next examined the individual BSI scales and found reductions in Somatization,  $F(1, 52) = 5.92$ ,  $p = .02$ ; Obsessive-Compulsivity,  $F(1, 52) = 9.17$ ,  $p = .004$ ; Interpersonal Sensitivity,  $F(1, 52) = 12.03$ ,  $p = .001$ ; Depression,  $F(1, 52) = 6.65$ ,  $p = .003$ ; Anxiety,  $F(1, 52) = 13.61$ ,  $p = .001$ ; and Hostility,  $F(1, 52) = 5.01$ ,  $p = .03$ . No changes were observed in Paranoia,  $F(1, 52) = 3.08$ ,  $p = .09$ ; Phobia,  $F(1, 52) = 2.19$ ,  $p = .15$ ; or Psychoticism,  $F(1, 52) = 1.54$ ,  $p = .22$ . Overall, these results indicate that meditation participants reported reductions in psychological distress from baseline (which were slightly greater [ $1 SD$  or less] than the nonpatient sample in Derogatis and Melisaratos (1983)) to a 3-month follow-up. These results and their corresponding effect sizes ( $d$ , calculated as the difference between baseline and follow-up divided by the pooled

standard deviation), which fall in the small-to-medium range (Cohen, 1992), are reported in Table 2.

We next examined whether the effects were influenced by social desirability. It is possible that participants would overreport the benefits of the retreat because they perceived reductions in psychological distress to be desired by the meditation staff or researchers. To examine this, we conducted correlation analyses between the Marlowe-Crowne Social Desirability Scale and the change scores of the BSI scales that changed from baseline. With larger Marlowe-Crowne values representing greater levels of social desirability and larger BSI change scores representing greater reductions in the BSI, the results indicated that social desirability was not correlated with reductions in the BSI, including the General Severity Index ( $r = .09$ ,  $p = .54$ ), Somatization ( $r = .08$ ,  $p = .58$ ), Obsessive-Compulsivity ( $r = .03$ ,  $p = .83$ ), Interpersonal Sensitivity ( $r = .08$ ,  $p = .59$ ), Depression ( $r = .07$ ,  $p = .63$ ), Anxiety ( $r = -.01$ ,  $p = .93$ ), and Hostility ( $r = -.24$ ,  $p = .10$ ). These results suggest that the reductions in psychological distress were not influenced by a social desirability bias.

The secondary hypothesis was that amount of meditation practice would correlate with greater reductions in psychological distress. In order to examine this hypothesis, we conducted correlation analyses between meditation frequency and the change scores of the BSI scales that changed from baseline. Results indicated that meditating on a daily basis was not associated with greater reductions in the BSI change scores, including the General Severity Index ( $r = -.20$ ,  $p = .15$ ), Somatization ( $r = -.11$ ,  $p = .45$ ), Obsessive-Compulsivity ( $r = -.21$ ,  $p = .13$ ), Depression ( $r = -.07$ ,  $p = .64$ ), Anxiety ( $r = -.20$ ,  $p = .14$ ), and Hostility ( $r = .12$ ,  $p = .36$ ). There was an

unexpected finding that meditating on a daily basis was associated with less reduction in interpersonal sensitivity ( $r = -.30$ ,  $p = .03$ ). In sum, the results suggest that daily meditation practice following the course did not influence reductions in psychological distress.

## Discussion

The current study examined the hypothesis that an intensive 10-day *vipassana* meditation course would be related to reductions in psychological distress. The results indicate that meditators experienced reductions in overall distress 3 months following the retreat. This improvement encompassed a spectrum of specific psychological symptoms, including levels of depression, anxiety, hostility, feelings of inferiority and distressful reactions both to perceived bodily dysfunction and to unwanted thoughts and impulses. These effects are notable given that the focus of the retreat instruction was not to decrease specific psychological symptoms, but was to simply develop nonjudgmental awareness of one's experience. Additionally, reductions in psychological distress were not associated with social desirability bias. This suggests that participants did not overreport the benefit of the retreat, adding confidence to the findings.

The secondary hypothesis was that frequency of meditation following the course would correlate with greater reductions in psychological distress, but the results did not bear this out. Although this hypothesis makes intuitive sense, past research is equivocal about the influence of meditation frequency on outcome variables (Astin, 1997; Kristeller & Hallett, 1999). A potential explanation for the null finding is that the frequency question was limited by not assessing both frequency and duration of meditation. Also, the question implied sitting meditation and may have missed frequency of practicing mindfulness in daily activities. It may be that an intensive 10-day course is a strong enough dose to learn a new way of responding to affective states and that the benefits of mindfulness are more a function of applying it in one's life than of formal sitting practice.

## Modality of Mindfulness Training

Most mindfulness research has utilized secular training modalities. Although this research has yielded important information regarding the efficacy of mindfulness interventions (Baer, 2003), recent commentaries have suggested a need for studying alternative modalities for teaching mindfulness (Hayes & Shenk, 2004). Some researchers advocate the development of nonmeditation techniques (Hayes & Shenk, 2004), but it may also be beneficial to reintegrate meditation into a Buddhist context. Strategies developed by Buddhist instructors over millennia may aid in the instruction of mindfulness within cognitive behavioral therapies (Dimidjian &

Table 2  
Psychological distress at baseline and 3-month follow-up

| Variable      | Baseline |     | 3-Month Follow-up |     | Repeated Measures ANOVA |           |          | Effect size <i>d</i> |
|---------------|----------|-----|-------------------|-----|-------------------------|-----------|----------|----------------------|
|               | Mean     | SD  | Mean              | SD  | <i>F</i>                | <i>df</i> | <i>p</i> |                      |
| GSI           | .49      | .39 | .33               | .29 | 11.78                   | 52        | .001     | .44                  |
| Somatization  | .29      | .33 | .19               | .26 | 5.92                    | 52        | .02      | .35                  |
| OCD           | .82      | .68 | .57               | .48 | 9.17                    | 52        | .004     | .43                  |
| Interpersonal | .84      | .80 | .49               | .63 | 12.03                   | 52        | .001     | .49                  |
| Depression    | .65      | .63 | .47               | .49 | 6.65                    | 52        | .003     | .33                  |
| Anxiety       | .39      | .38 | .20               | .26 | 13.61                   | 52        | .001     | .59                  |
| Hostility     | .38      | .41 | .26               | .30 | 5.01                    | 52        | .03      | .33                  |
| Phobia        | .16      | .31 | .10               | .19 | 2.19                    | 52        | .15      | .22                  |
| Paranoia      | .41      | .53 | .29               | .44 | 3.08                    | 52        | .09      | .26                  |
| Psychoticism  | .34      | .48 | .26               | .35 | 1.54                    | 52        | .22      | .18                  |

Note. GSI = General Severity Index.



Linehan, 2003). For example, intensive retreats are typically used in Buddhist mindfulness training. These retreats are intensive both in duration (e.g., 7 to 10 days) and in minimization of distraction (i.e., holding the courses in silence; banning television and reading and writing materials). This sort of intensive intervention modality may be helpful in treating psychological disorders.

In this vein, recent evidence supports the utility of a short (8-day), intensive cognitive-behavioral therapy intervention for individuals with panic disorder with agoraphobia (Morissette, Spiegel, & Heinrichs, 2005). Intensive interventions may be efficacious simply because they provide the same treatment dose as interventions spread out over a longer time. Alternatively, because the alteration of maladaptive cognitive and affective responses may require prolonged activation of the memory structures underlying them (Foa & Kozak, 1986), the efficacy of intensive interventions may be due to the opportunity for extended exposure (and the learning of new responses) that they provide. Future research would benefit by examining the optimal intensity of mindfulness training (which may differ by disorder).

As secular and Buddhist contexts of mindfulness training have different goals (realizing the impermanence of self-related mental content versus the impermanence of self), they may differ in the psychological processes they influence. A cybernetic model of affect and depression (Carver & Scheier, 1982; Pyszczynski & Greenberg, 1987) may help to illuminate the potentially different mechanisms of action. In this model, much of human behavior (e.g., pursuing standards of value such as financial success or physical attractiveness) is understood as serving to create and maintain a sense of self-esteem. A discrepancy between self and a standard of value may elicit negative affect and self-focused attention. If the standard is important and the discrepancy cannot be reduced (i.e., the standard of value attained), self-focus may become self-criticism, with the initial negative affect escalating into a depressive state marked by low self-esteem.

Because secular mindfulness training has the goal of realizing the impermanence of thoughts and emotions related to the self, such training could reduce psychological distress by influencing processes that occur after a discrepancy has elicited negative affect and cognition. Suppressing post-discrepancy mental content, such as the self-concept of “me-bad,” may increase the accessibility of that content and its influence on mood (Wegner & Smart, 1997). Changing the relation to aversive mental content from avoidance to acceptance should lead to several consequences. One consequence is that decreases in thought suppression should lead to reductions in the chronic accessibility of negative self-

concepts. This could be examined with an implicit task assessing the automatic associations between self and negative evaluation concepts (Gemar, Segal, Sagrati, & Kennedy, 2001; Rudman, Greenwald, & McGhee, 2001; also see Marlatt & Ostafin, 2005, for a discussion on mindfulness and automatic processes). A second consequence is that mental content may be realized as “passing events in the mind rather than as inherent aspects of the self or valid reflections on reality” (Bishop et al., 2004, p. 234). This realization has been called *decentering* (Teasdale et al., 2002) and *cognitive defusion* (Blackledge & Hayes, 2001) and could be examined by assessing how believable self-statements are rated to be (Masuda, Hayes, Sackett, & Twohig, 2004).

Buddhist mindfulness training also includes mindfulness of self-related mental content and so should influence the same processes as secular training. However, because Buddhist mindfulness training has the ultimate goal of realizing the impermanence of self, it may also reduce psychological distress by influencing pre-discrepancy processes. That is, if the self is experienced as lacking substance, discrepancies between it and a standard of value may be less likely to elicit negative affect. This idea is suggested by recent findings that increasing self-awareness (i.e., reminding subjects of their “self” by placing them in front of a mirror) increases the correlation between self-discrepancies and negative emotion (Phillips & Silvia, 2005). Future research may examine whether the extent to which meditators realize the impermanence of self similarly reduces the relation between self-discrepancies and negative affect.

### Limitations

The use of a one-group pretest-posttest design limits the ability to make causal inferences about the effects of a meditation retreat on psychological distress. Measures of psychological distress similar to the BSI have demonstrated good 3-month test-retest reliability (Maruish, Bershadsky, & Goldstein, 1998), suggesting that reductions in psychological symptoms would not be expected in a control group. However, the absence of a control group creates the possibility that the effects could be a function of extraneous factors such as simply being away from typical environmental stressors for 10 days or the volunteers being more ready to make changes in the factors that contribute to their psychological distress (see Prochaska & Prochaska, 1999). Future research utilizing a randomized control trial design is needed to demonstrate the efficacy of mindfulness-based interventions.

Additionally, participant attrition calls into question whether the reduction in psychological distress was a function of the retreat or of a characteristic unique to

follow-up completers. Analyses indicate that completers were not more experienced meditators and did not exhibit greater baseline psychological distress or social desirability than noncompleters. Even so, other factors may have influenced the results, such as completers experiencing greater reductions in psychological distress than noncompleters. Alternatively, attrition may have been influenced by inadequate compensation for participation (i.e., no payment at baseline and \$10 at follow-up). Participant retention would likely be improved in future studies by increasing compensation.

Last, because the participants had only mildly elevated levels of baseline psychological distress and came from a group that had chosen to take the retreat, it is unclear whether the beneficial results would generalize to other samples, such as a clinical sample or a sample lacking an intrinsic interest in mindfulness taught in a Buddhist context. It is also unclear whether the stresses of the retreat (e.g., early rising, length of meditation practice) would be too difficult for individuals with severe psychopathology. However, recent research in our lab indicates that a 10-day retreat can reduce the substance use behavior of high-risk substance users (Bowen et al., in press; Marlatt et al., 2004), indicating that this type of intervention may be useful with a clinical sample.

### Conclusion

The current study provides preliminary evidence that teaching mindfulness in a Buddhist meditation retreat may reduce psychological distress. Past *vipassana* research found beneficial effects of mindfulness training immediately after the meditation retreats. The current study contributes to this literature as it examined psychological symptoms at a 3-month follow-up and found the results to be free of social desirability response bias. One implication of this study is that clinicians may consider suggesting retreats to appropriate clients—clients who won't find the rigors of the retreat too stressful and who are open to Buddhist perspectives of the mind. Alternatively, clinicians may choose to utilize aspects of mindfulness practice in their work (e.g., creating homework of nonjudgmentally observing how thoughts and emotions emerge and pass away in order to create a decentered relationship with mental content). The findings also suggest future areas of research, including whether intensive mindfulness training is more, less, or equally effective as training spaced out over 8 weeks and whether different types of mindfulness training influence different psychological mechanisms.

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Address correspondence to Brian D. Ostafin, Addictive Behaviors Research Center, Department of Psychology, Box 351525, University of Washington, Seattle, WA 98195, USA; e-mail: [ostafin@u.washington.edu](mailto:ostafin@u.washington.edu).

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