

MINDFULNESS AND SELF-REGULATION: A COMPARISON OF LONG-TERM TO SHORT-TERM MEDITATORS

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ABSTRACT: While Western researchers have mostly conceived of mindfulness as a way of regulating negative affect, Buddhist tradition and some recent studies suggest that mindfulness could be useful in regulating impulses as well. It was hypothesized that long-term meditators (≥ 5 years of committed practice) would demonstrate greater self-regulatory skills as measured by the Self Regulation Questionnaire (SRQ) than short-term meditators. However, no significant differences were found between the groups. Experienced and novice meditators could have different motivations for practicing mindfulness, and this could have affected both groups' SRQ scores in various ways. Also, it is possible that if mindfulness does decrease impulsive behavior, it does so by mechanisms other than those proffered by the social cognitive view of self-regulation as represented by the SRQ.

Over the past 20 years, and particularly over the past five years, mental health clinicians and researchers have become interested in mindfulness based interventions (MBIs). A 2003 issue of *Clinical Psychology: Science and Practice* was devoted to mindfulness, and three compendia of writings on the therapeutic potential of mindfulness have recently been published (Baer, 2006; Hayes, Follette, & Linehan, 2004; Orsillo & Roemer, 2005). While much academic interest in mindfulness has been theoretical in nature, some of the interest has resulted in empirical research. Meta-analyses conducted by Baer (2003), Bishop (2002), and Grossman, Niemann, Schmidt, and Walach (2004) show that most MBI studies have examined the effects of MBIs on stress and anxiety, and that MBIs are "probably efficacious" in the treatment of those conditions (Baer).

Mindfulness is commonly defined as the observing of mental phenomena in a nonjudgmental manner (see, for example, Bishop et al., 2004). So far, the mental phenomena in which researchers have shown most interest are emotions; mindfulness is widely viewed as a way to regulate affect. Although the mechanism of action is not known, several researchers suggest that mindfulness increases tolerance for negative emotions (see for example, Lynch, Chapman, Rosenthal, Kuo, & Linehan, 2006). According to this view, mindfulness, like exposure therapy, does not cure a patient of stress or anxiety

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but prevents stress or anxiety from escalating via familiarity with the associated unwanted sensations, thoughts, and feelings. The brain imaging studies of Davidson et al. (2003) and Lazar et al. (2005) support the general belief that mindfulness is a means of regulating affect. Buddhist tradition, from which current MBIs are derived, likewise predicts that a sustained mindfulness practice will decrease negative affect (Rinpoche, 1999).

Also predicted by Buddhist tradition as an outcome of regular meditation, though, is behavioral regulation. In Buddhist psychology, an important outcome of meditation is the capacity to refrain from acting on (while also not suppressing) impulses. This is fully described in the Abidharma teachings on the twelve *nidanas*, or links – the subtle, rapid, usually unconscious process by which individuals perceive and conceive of something, develop an inclination toward or against it, then act on that inclination (Ray, 2000). Through sitting quietly and observing mental phenomena with a neutral attitude, the movement of the twelve nidanas – that is, of the mind – becomes “slowed-down,” allowing one to be fully aware of impulses without acting on them (Ray, p. 386). Thus, in addition to increasing tolerance for negative emotions, mindfulness is said to increase tolerance for impulses that would lead to negative actions. Indeed, not only negative actions but many apparently neutral or positive actions are viewed by Buddhists as conditioned responses that are similarly susceptible to the liberating mechanisms of mindfulness. McLeod (2001) states that all mindfulness practices have only one end: “the freedom that comes from dismantling conditioned patterns” (p. 204).

If mindfulness can increase tolerance for impulses, then it is possibly useful in treating an array of clinical disorders. The ability to regulate response to impulses, not just emotions, is probably essential to overcoming eating disorders, gambling disorders, substance use disorders, aggression, attention deficit disorders, compulsive behavior, and borderline personality features (Vohs & Baumeister, 2004). While stress is likely to exacerbate the impulses that underlie these disorders, it does not account for the entire process by which impulses are felt to be irresistible. Thus, an intervention that targets impulse tolerance as well as affect tolerance could be valuable in treating numerous clinical disorders.

Researchers have demonstrated that individuals can subordinate impulses to willed goals (see, for example, Mischel & Ayduk, 2004). Derived from and informing this research are social cognitive models that attempt to address the etiology and treatment of the above clinical disorders as well as other failures of will (Károly, 1993). Typically, social cognitive models of intentional change posit an executive self that conceives of a desired end state, measures one’s current state against the desired state, and acts to reduce the discrepancy between current and desired states; this process is known as self-regulation (Schmeichel & Baumeister, 2004). Such social cognitive self-regulation models are the basis for change strategies now widely used in clinical settings; for example, such a model underlies Prochaska and DiClemente’s (1982) model of stages of change, now ubiquitous in treatment clinics (Kanfer, 1986). However, while all children learn to self-regulate their behavior to some extent, it is not known if and how adults continue to develop self-regulatory skills (Mischel & Ayduk). Mindfulness may be one way of doing so.

There is currently an abundance of theories attempting to explain why mindfulness should increase self-regulation. Social cognitive theorists Baumeister and Heatherton (1996) note that the ability to monitor internal and external cues is essential to the ability to override impulses and thus implement willed goals. Mindfulness skills would seem to increase the ability to monitor both progress toward a desired goal and the urges that interfere with such progress. Furthermore, three well-established MBI programs rely on mindfulness for increased behavioral, in addition to affect, regulation. Mindfulness-Based Relapse Prevention (MBRP), Dialectical Behavioral Therapy (DBT), and Acceptance and Commitment Therapy (ACT) each posit a central role for mindfulness in increasing a client's ability to overcome impulses so that desired behavioral changes may occur (Baer & Krietemeyer, 2006). Marlatt (2002) and Linehan (1993), founders of MBRP and DBT respectively, discuss mindfulness as a way to manage urges; both employ a wave-surfing metaphor to describe how a client can perceive but not act upon the flux of strong impulses. The founder of ACT, Hayes (1999), similarly explains that mindfulness allows a client to perceive the transitory and nonbinding nature of the mental phenomena that appear to be obstacles to goal achievement. These theoretical discussions of the use of mindfulness in behavioral self-regulation are largely in accord with the traditional Buddhist theory of mindfulness, as described above. Empirical support for these theories, while not as abundant as the theories themselves, is growing.

Four recent MBI studies suggest that mindfulness can increase behavioral self-regulation. These studies targeted specific populations diagnosed with impulse disorders and used behavioral measures to determine the effects of mindfulness on the impulsive behavior. Bowen et al. (2006) examined post incarceration substance use in prisoners that received an MBI with a comparison group that received standard substance use psychoeducation (N=173); the mindfulness group had significantly lower rates of substance use. The MBI in this study consisted of a 10-day intensive meditation retreat conducted in a prison by a Buddhist teacher. Seven substance abuse and psychosocial functioning measures were administered at baseline and at 3- and 6-month follow-ups. Alcohol, marijuana, and crack cocaine use decreased significantly among the MBI group at 3 months; psychosocial functioning increased. High attrition rates prevented the researchers from drawing conclusions at the 6-month follow-up.

Linehan et al. (2006), in a rigorously designed study (N=101), compared patients with borderline personality disorder (BPD) that received one year of MBI treatment with a similar group that received one year of expert treatment; over the year following the year of treatment, the MBI group showed significantly less suicidal and self-injurious behavior than the comparison group. The MBI used in this study was DBT, a program designed specifically for BPD patients in which patients do not meditate but rather practice mindfulness through dialogue and short exercises in weekly group and individual therapy sessions. In particular, DBT emphasizes a "radical acceptance" of uncomfortable emotions and urges (Lynch, Chapman, Rosenthal, Kuo, & Linehan, 2006). The 2006 study was only the most recent

in a series of studies that has given DBT a preeminent place among empirically-based treatments for BPD (Baer & Krietemeyer, 2006).

Kristeller and Hallett (1999), in a pretest-posttest study (N=18), showed that after participating in a six-week group MBI, women with binge eating disorder (BED) engaged in significantly fewer bingeing episodes. In this MBI, patients met weekly with a clinician to practice various mindfulness exercises, including mindful eating. The authors suggest that mindfulness training increased participants' awareness of physical satiety cues as well as bingeing triggers; this enhanced self-monitoring allowed participants to override impulses and implement goals, i.e. to not overeat. Similarly, Telch, Agras, and Linehan (2001), in a randomized controlled trial of an MBI with patients with BED (N=44), showed that the MBI group's bingeing behavior decreased significantly over that of a waitlisted group. The MBI was a 20-week group program adapted from DBT. Eighty-nine percent of the treatment group had stopped binge eating by the end of the treatment. After 6 months, 56% remained abstinent. Interestingly, in this study there were no differences between groups on measures of negative affect, suggesting that the gains of the MBI group were due to behavioral rather than affect regulation.

These findings suggest that MBIs can be effective with impulse disorders, although the mechanism by which they work is not clear. Specifically, it is not clear whether MBIs allow self-regulation by increasing the ability to choose a willed goal over an impulse, or by regulating affective states, which may decrease the number of felt impulses. As Baumeister and Heatherton (1996) note, self-regulation does not require that a client experience fewer impulses but only that he or she is able to override them. Mindfulness training seems a promising way to develop the ability to override (or "surf") impulses in favor of a larger, willed goal. However, to date, there are no studies that specifically examine the effects of mindfulness training on behavioral self-regulation (Leary, Adams, & Tate, 2006).

The purpose of the present study was to determine whether a long-term mindfulness meditation practice correlates with an increase in self-regulatory skills as measured by a standard self-report measure of self-regulation. It was hypothesized that long-term meditators would report stronger self-regulatory skills than a comparison group consisting of short-term meditators. Sixty-one participants, recruited from a meditation retreat center, completed questionnaires on self-regulation and their experience with mindfulness meditation.

METHOD

Participants

Participants (N=61) were attendees at meditation retreats held at a Buddhist retreat center in rural Vermont. Ages ranged from 18-74 (M=42.00, SD=13.97). Sixty-six percent of the participants were female, 84% had graduated from college, and 66% percent identified themselves as Buddhists.

The number of years committed to a regular meditation practice ranged from less than one to 34 ($M=8.10$, $SD=9.70$).

Long-term meditators ($N=28$; 46% of the total sample) were operationalized as those who had been regularly practicing meditation at home or regularly attending meditation retreats for five or more years. The long-term meditators ranged in age from 27–74 ($M=49$, $SD=12$). Fifty seven percent of long-term meditators were female, 86% were college graduates, and 96% identified themselves a Buddhists. Long-term meditators reported a commitment to meditation practice that ranged from 5-34 years ($M=15.57$, $SD=9.92$).

Short-term meditators ($N=33$, 54% of the total sample) ranged in age from 18-70 ($M=37$, $SD=14$). Seventy percent of short-term meditators were female, 76% were college graduates, and 58% identified themselves as Buddhist. Short-term meditators' reported number of years committed to a regular meditation practice ranged from .25–4.75 ($M=1.48$, $SD=1.37$).

Measures

The Self-Regulation Questionnaire (SRQ) measures beliefs about one's ability to "develop, implement, and flexibly maintain planned behavior" (Brown, Miller, & Lawendowski, 1999, p. 281). It contains 63 items in a five-point Likert format (1=strongly disagree, 5=strongly agree). Moderate self-regulation abilities are reflected by scores within the range of 214–238. Originally designed to assess self-regulation in substance abuse populations, the SRQ has face validity for other impulse conditions as well. No items refer to any particular behavior; rather, the items refer to specific components of goal-setting and -implementing behavior. These components comprise seven subscales (receiving, evaluating, triggering, searching, formulating, implementing, and assessing) that reflect a conventional social cognitive model of self-regulation (see, for example, Schmeichel & Baumeister, 2004). The SRQ has been shown to have high test-retest reliability ($r = .94$, $p=.0001$) and internal consistency (Cronbach's $\alpha =.91$) and has been strongly negatively correlated with impulsivity (Brown, Miller, & Lawendowski; Carey, Neal, & Collins, 2004). Internal consistency computed for the SRQ on the current sample was strong ($\alpha=.86$).

Procedure

Permission to conduct the study was requested from and granted by the director of the retreat center. The researcher visited the center on two days when several programs were being offered, some that catered to new meditators and others that catered to experienced meditators. During lunch breaks, all meditators were invited to fill out the SRQ and a simple demographic survey that ended with a question about the number of years committed to a regular meditation practice. Participants were told that the study was part of the researcher's Master's in Counseling thesis paper. The

questionnaire and survey took 15–20 minutes to fill out. No compensation was offered for participation.

RESULTS

Contrary to the hypothesis, a Pearson correlation indicated that SRQ scores were not correlated with number of years committed to a meditation practice ($r=.014$, $p>.05$). Further, no correlations held between any subscale and number of years committed to a meditation practice (receiving [$r=-.01$], evaluating [$r=-.18$], triggering [$r=.07$], searching [$r=-.09$], formulating [$r=.21$], implementing [$r=.07$], assessing [$r=-.13$]; $p>.05$). In addition, and also contrary to the hypothesis, a t-test for independent samples showed no significant difference between the mean SRQ scores of long-term meditators ($M=222.86$, $SD=19.50$) and short-term meditators ($M=223.10$, $SD=17.20$), $t(61) = -.685$, $p>.05$. We incidentally noticed, too, that males' ($M=223.8$, $SD=15.1$) and females' ($M=223$, $SD=16.9$) mean SRQ scores were essentially identical, so no further analysis was done on this variable.

We investigated the possibility of a nonlinear relationship between SRQ scores and number of years committed to a meditation practice by running a chi square test of independence. The mean scores for both long- and short-term meditators in this study were squarely within the range (214–238) of what Brown, Miller, and Lawendowski (1999) report is average for the general population, so we used Brown et al.'s cutoff score (226) to form one binary variable; four scores that fell on the mean were split between groups so as not to weight one side or the other. Meditators were again divided into two groups using the 5 year split, forming the second binary variable. A chi square test of independence corroborated that the variables were not related ($\chi^2 [1, N=61] = .236$, $p>.05$).

DISCUSSION

This study aimed to determine whether long-term training in a mindfulness practice is related to self-regulatory skills. Buddhist theory as expressed in the Abidharma teachings on the twelve nidanas predicts that such a relationship should exist. Social cognitive models of self-regulation depend on an individual's mindfulness of internal and external stimuli for effective self-control. And mindfulness researchers – particularly those concerned with MBRP, DBT, and ACT – have also posited a central role for mindfulness in overriding (“surfing”) impulses so that valued goals can be met. Thus the current study expected a positive correlation between mindfulness and self-regulation.

Despite the theories and empirical findings described above, the current study did not observe a correlation between these two variables. There are several plausible explanations why novice and experienced meditators appeared not to differ on self-regulation, some of which, such as small sample size and the use of a single measure, are deficits of this particular study. Other possible explanations for the apparent absence of a correlation, however, point to

broader issues that arise when attempting to compare experienced meditators to novice, including clinical, meditators.

Experienced meditators' mindfulness practice is usually only part of a fabric into which are also woven numerous other spiritual practices and beliefs, so a mindfulness practice might function differently for those meditators than it does for novice meditators. In other words, the *context* of a mindfulness practice might be highly salient to the outcome, as it is reported and/or as it is actually the case, of the practice. The pith instruction ("return your attention to the breath," for example) is the same for experienced and novice meditators, but motivations for following the instruction could differ systematically between these groups. If the difference between the contexts within which experienced and novice meditators practice mindfulness is significant enough, the two groups may be too different to bear fruitful comparison.

We are aware of only one study that supports the notion that experienced and novice meditators are motivated differently. Shapiro's (1992a) small (N=27) study found that novice meditators aimed to regulate behavior and affect, middle-stage meditators aimed to explore the self, and senior meditators aimed to liberate self and other. Shapiro also found that, after a 2-week or 3-month retreat, 66% of the meditators in his study reported having achieved what they initially expected to achieve.

Prebish, Hertz, Malcolm, McNeill, & Sharf (2007) offer support to the notion that experienced and novice meditators may be differently motivated, as reflected by a dichotomy in the kind of Buddhist literature available to Western meditators. Larger publishers avail the general public with books that, while arguably loyal to the essence of traditional Buddhist teachings, usually approach such teachings from a Western therapeutic angle. These are the publications that inspire novice meditators. Smaller presses publish translations of canonical Buddhist texts and transcriptions of talks given by Buddhist lineage holders; it is largely experienced meditators who purchase and study these books. Both types of publications and all Buddhist teachers do discuss mindfulness meditation as a way to simultaneously develop and express our fundamental nature, which is said to be free of an independent, solid, permanent self (for example, Rinpoche, 1994). However, most individuals need to gradually develop a genuine understanding of this purpose or nature of mindfulness meditation (Rinpoche) – and not all mindfulness meditators even want to do so.

Experienced meditators are far more likely to understand and be motivated by the ego-diminishing nature of meditation than are novice meditators. This is undoubtedly what Shapiro's (1992a) experienced meditators expressed when they reported that their mindfulness practice was motivated by a desire to "liberate self and other." And if experienced meditators do conceive of mindfulness as a way to *diminish* the solidity of self, then, whether to merely conform with this view of themselves as meditators or to express their actual experience as not-so-solid selves, the long-term meditators in this study are likely to have rejected extreme responses to the SRQ's invariably self-oriented items, giving themselves a lower mean SRQ score than is actually the case for that population. On the other hand,

if clinical populations and novice meditators are encouraged by clinicians and popular media to conceive of mindfulness as a way to solve emotional and behavioral problems, indeed in some sense to *strengthen* their sense of self, then, especially in the flush of excitement and pride at attending a meditation retreat for perhaps the first time, novice meditators in this study could very well have overrated their self-regulatory skills on the SRQ.

The contexts within which experienced and novice meditators practice mindfulness could account for both groups' average SRQ scores in other ways, as well. Experienced meditators' larger, more spiritual motivation for practicing may have caused them to not prize, notice, and report these skills. Their fidelity to their spiritual tradition may have caused them to answer with greater modesty than the novice meditators. Or their meditation practice may have increased their awareness of small, everyday failures in self-regulation, and the SRQ's items may not be sensitive enough to detect such differences in self-awareness between experienced and novice meditators. One can imagine a conscientious meditator remembering how he waved away a fly during a recent meditation session and so rating himself a 2 on the item "I am able to resist temptation," while a beginning meditator (clinical in this case) rates herself a 4 on the same question because she hasn't cut herself since she started her mindfulness practice two weeks ago. The possibility that meditation increases awareness of smaller failures in self-regulation is supported by a second study performed by Shapiro (1992b) on the same sample cited earlier (N=27) in which he found that long-term meditators had the healthiest self-control profile and yet were the least satisfied with their ability to control their behavior and affect.

So far we have looked at several ways in which the context of a mindfulness practice could cause experienced meditators to underreport their ability to self-regulate. But even if experienced meditators in this study accurately reported their ability to self-regulate, the resultant unimpressive mean score can also be explained by the larger, more spiritual context of their meditation practice. It is possible that the experienced meditators in this study actually did *not* develop above-average self-regulatory skills through their mindfulness practice because, as noted earlier, for many years they have not *intended* to develop self-regulatory skills through their mindfulness practice. Conversely, if clinical populations and other novice meditators do view mindfulness as a means toward self-regulation, they might have actually developed self-regulatory skills through their mindfulness practice. This account of the results of this study considers motivation as central to determining the actual outcome of a mindfulness practice. Buddhist teachings say that motivation is central to outcome; many traditional tales of enlightenment show that "it is one's motivation, rather than the specific tradition that one is following, that determines the result of one's practice" (Ray, 2000, p. 317). This intriguing claim deserves further empirical investigation. As described earlier, Shapiro's (1992a) study shows that expectation prior to meditating was significantly related to outcome, but the small sample size, lack of control group, and potential for demand characteristics make this study merely suggestive.

A final interpretation of the results of this study is that experienced meditators might have developed above-average self-regulatory skills but attained only average SRQ scores because the mechanism of their self-regulatory skills is other than that measured by the SRQ. Specifically, self-regulation of meditators may not be mediated by the conscious, deliberate goal-setting and -implementing skills described by social cognitive theorists and captured in the SRQ. This was again anticipated by Shapiro (1992b), who, noting that there may be more than one way to self-regulate, devised an inventory to detect different hypothetical modes of self-control (positive assertive, positive yielding, negative assertive, negative yielding). He found that over time, meditators shift toward the positive yielding form of self-control, which involves “knowing when a sense of control needs to come from letting go, trusting, and accepting” (p. 4). While this language accords well with some Buddhist and popular self-help aphorisms, it is not clear whether and how it translates into the ability to not act on harmful impulses.

More recently, Leary et al. (2006) theorized that mindfulness might increase the ability to self-regulate by diminishing a sense of self/self-awareness. They call this *hypo-egoic self-regulation*, asserting that, in many situations, “deliberately trying to control one’s behavior is either ineffective or paradoxically counterproductive” (p. 1807). Like Shapiro’s (1992b) positive yielding, the notion of hypo-egoic self-regulation accords well with Buddhist teachings that discourage goal-orientation in one’s meditation practice. Meditation teacher Trungpa (1974/1995), for example, advised students to “simply sit without aim, object, purpose, without anything at all” (p. 7). Such an aimless mindfulness practice could result in a hypo-egoic state, although whether and how such a state allows for greater impulse control is unclear. Currently there is no measure of hypo-egoic self-regulation, as the construct itself is in the most preliminary stages of validation (Leary et al.).

Because of the recent surge of interest in clinical uses of mindfulness practices, it is tempting to study clinical effects of meditation in what is now a sizable population of experienced Western meditators. The preceding discussion, however, cautions that the context of, and particularly the motivations for, mindfulness practices of experienced meditators may be confounding variables in such studies. Studies that do not rely entirely on self-reporting, and studies that include data on participants’ motivations for engaging in mindfulness will be more useful in determining clinically relevant effects of a long-term mindfulness practice. This study also suggests that if mindfulness does increase self-regulation, it may do so in a way other than that described by social cognitive theorists and implemented by many clinicians who work with impulsive clients. Further research on this topic should first attempt to establish that mindfulness meditators are indeed less impulsive than nonmeditators. If this can be established, then studies that tease out the mechanisms of mindfulness regarding impulses are warranted. Do meditators experience fewer and weaker impulses than nonmeditators, or are they more able to override a similar number and strength of impulses? If the latter, then do they do so via a conscious commitment to a willed goal or via a process that more closely resembles Shapiro’s (1992b) positive yielding or Leary et al.’s

(2006) hypo-egoic self-regulation? Can anyone develop these styles of self-regulation, or are some people more disposed toward them than others? As Vohs and Baumeister (2004) detail, the personal and social costs of poor impulse control are enormous. If mindfulness skills can be shown to assist in self-regulation, then they are valuable skills indeed.

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