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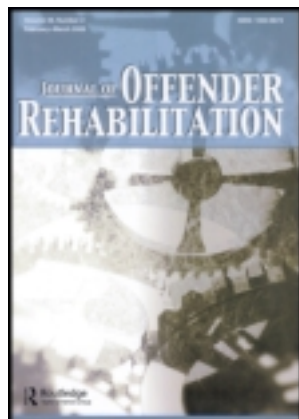
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Meditation in a Deep South Prison: A Longitudinal Study of the Effects of Vipassana

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In an era marked by pronounced overcrowding, including an increasing number of offenders serving long-term sentences, correctional systems continue to search for innovative and effective treatments. Few jurisdictions have attempted non-Western approaches such as meditative practice to reduce stress, conflict, and rule infractions. The current study examined the psychological and behavioral effects of intensive ten-day Vipassana Meditation (VM) retreats in a maximum security prison. VM goals and practice are consistent with evidence-based methods such as cognitive behavioral treatment and Risk-Need-Responsivity principles, as well as newer conceptions such as the Good Lives Model. Long-term offenders were followed over a one-year period. These included three retreat cohorts ($n = 60$) as well as an alternative treatment comparison group ($n = 67$). Pretreatment measures assessed mindfulness, anger, emotional intelligence, and mood states. Baseline rates of prison infractions, segregation time, and health visits were also recorded. VM participants achieved enhanced levels of mindfulness and emotional intelligence and had decreased mood disturbance relative to a comparison group. Both groups' rates of behavioral infractions were reduced at one-year follow-up.

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Clinically, VM holds promise for addressing self-regulation and impulse control, among other barriers to prisoner adjustment and community reentry. Additional study of VM across diverse offender groups is warranted.

KEYWORDS *correctional interventions, mindfulness, prisons, program evaluation, Vipassana meditation*

The question of rehabilitative efficacy within U.S. correctional facilities, particularly state institutions, is not a new one. Given that the incarcerated population reached 1,613,740 inmates by the end of 2009 (1,405,622 under state jurisdiction and 208,118 under federal jurisdiction) (Glaze, 2010), it is easy to understand why many facilities have become and remain overcrowded. In his book, Haney (2006) highlighted a major consequence of this condition—these environments directly contribute to criminogenic factors (Andrews & Bonta, 1998, 2006) that both create and maintain antisocial, hostile, and aggressive behaviors. It is hardly surprising that many offenders return to the community not only lacking in the skills needed for reintegration, but are often more criminalized. Over the past two decades, recidivism figures have been fairly stable. Langan and Levin (2002) reported 51.8% of 1994 releasees had been reincarcerated within 3 years. Newer findings from the Pew Center on the States (2011) and the Association of State Correctional Administrators showed that the 3-year return-to-prison rate for inmates released in 1999 was 45.4%, and 43.3% for those released in 2004.

Rehabilitation: Is There a Need for Unconventionality?

Contemporary research has shown that the most effective correctional interventions should begin by identifying the risk level of each offender and by matching treatment intensity to risk level (Andrews & Bonta, 1998). Based on an assessment of criminogenic needs, treatment should target these specific crime-causing factors. Further, to maximize offenders' ability to be successful in treatment, interventions should be tailored to the offender's learning style, motivation level, and strengths (Andrews, Bonta, & Hoge, 1990; Andrews & Bonta, 1998; 2006). The absence of one or more of these components has been shown to significantly lower the effectiveness of treatment (Andrews & Dowden, 2006; Bonta, Wallace-Capretta, & Rooney, 2000).

More recently, the Good Lives Model (Ward, 2002) was proposed as an overarching component of the risk-need-responsivity (RNR) protocol. The Good Lives Model noted that, in addition to risk management and relapse prevention, offender rehabilitation should be driven by the promotion of human well-being. Thus, this program endorses a positive, additive-based philosophy. The focus for treatment should be on securing positive/good

lives for the offender during and after incarceration while reducing negative risks. This newer and less conventional theory notes the concept of “good lives” should be individually tailored to each offender. Primary goods for each offender should be identified early in one’s incarceration. Unfortunately, few prison systems follow the Good Lives Model, let alone the more widely known RNR principles.

Although both the RNR and the Good Lives Model underscore the importance of individual tailoring of interventions, fewer studies have systematically examined moderators or process variables that would render the models more comprehensive. One exception has been the clear evidence from RNR proponents about the value of basing program intensity on the documented risk levels of offenders (Andrews, Bonta, & Hoge, 1990). For incarcerated offenders with a long criminal and/or violent history, the question remains as to how these individuals, long considered intervention failures, might be reached. (We do not assume here that such offenders have actually been exposed fully to either of the aforementioned models.) Something other than “business as usual” seems required.

The life-course view of crime development and desistance of Sampson and Laub (2005) suggested that there is indeed room for change at relatively later stages of criminal careers, beyond the simple aging effect. They implied that so-called turning points may be conceived rather as a dynamic interplay, harnessing an individual’s sense of agency in the context of a changing environment. Emotional and behavioral investment in a newly available activity may result, as Cohler (1982) suggested, in a subjective reconstruction of self. Sufficient time, repeated exposure to alternative skills, cognitive reframing, and intergroup support may well promote a commitment to new patterns of reflective and prosocial behavior. In all three models cited here, the question of how to engage, teach, and sustain such change requires adoption of evidence-based interventions, while at the same time arranging the environmental context to powerfully support the treatment approach. And, finally, we are charged to determine, through a broad series of studies, which offenders are more likely to benefit from a given approach.

Not all nations struggle with issues of correctional ineffectiveness, and it would seem worthwhile to learn from these countries. Gendreau (1996, p. 152) stated, “[M]ore blatant examples of ethnocentrism [is] the fact that American reviews on treatment effectiveness almost never reference literature from foreign countries where different approaches to the ‘crime problem’ exist (e.g., less incarceration).” We have rarely studied nontraditional therapies practiced in other cultures. For example, the ancient Eastern tradition of meditation practice has been shown to have physiological and psychological benefits with diverse populations (Ivanovski & Malhi, 2007). Within the framework of the empirically supported RNR model and the newer Good Lives Model, meditative practice could be targeted to criminal attitudes and to impulsive, ill-considered behaviors, either explicitly or in

the natural course as the practice progresses. Meditative practice could well promote some of the identified nine basic human goods, including: inner peace, spirituality/meaning of life, happiness, and creativity (Ward, 2002). In order to fairly evaluate practices that come from outside the mainstream of psychosocial interventions studied in North American prisons, it is important to examine the nature of such practices and their impact on participants.

Meditative Styles

Meditative practice has its foundation in the religious principles of Eastern cultures. However, growing empirical support and the fact that meditative skills can be taught independently of any particular religious tradition have led to wide acceptance in the West (Kabat-Zinn, 1982; Baer, 2003). Transcendental Meditation (TM) and mindfulness-based meditation (MM) are the most typically practiced and researched styles among incarcerated populations (for a review, see Himmelstein, 2011).

TRANSCENDENTAL MEDITATION

TM, categorized as a concentration-based meditation, trains participants to focus their attention on a single stimulus, such as a word or “mantra,” sound, or object (Baer, 2003). If one’s thoughts wander while reciting a mantra, for example, the individual is instructed to redirect his or her focus back to that mantra or a comparable stimulus. The popularity of TM among western societies peaked in the 1960s and 1970s and remains one of the most researched meditative practices (Himmelstein, 2011).

MINDFULNESS-BASED MEDITATION

Alternatively, MM, born out of Thai and Burmese Theravada Buddhist traditions, is not a concentration-based practice (Ivanovski & Malhi, 2007). Contemporarily, MM generally involves moment-to-moment observation of and attention to all internal and external stimuli (e.g., thoughts, sensations, emotions) that may arise, and doing so in a nonjudgmental and accepting manner (Kabat-Zinn, 2003; Baer, 2003; Shapiro, Oman, Thoresen, Plante, & Flinders, 2008).

Mindfulness can be conceptualized as an attitude of curiosity about and acceptance of one’s experience at any moment. Therefore, if thoughts wander away from the breath, as they inevitably will, the meditator is instructed to simply notice each thought, feeling, and sensation rather than trying to judge, change, or block it (Baer, 2003; Bishop et al., 2004). At a very general level, MM attempts to introduce space between one’s initial perceptions (e.g., a provoking thought) and the too often automatic response. In other words, MM values a slowed reflective response rather than a quick reflexive one (Bishop et al., 2004). In addition, MM attempts to help individuals gain insight into the nature of their own thought patterns, as well as to detach

themselves from these thoughts by recognizing their inherently subjective and transient nature (Kabat-Zinn, 2003; Bishop et al., 2004).

One prominent type of MM is Vipassana meditation (VM; Chiesa, 2010). Literally, Vipassana means “insight,” (viz., to see things as they really are), and, as such, it adheres to all the components of MM previously noted (Goleman, 1988). Modak (1995) described VM as a mental observation of the sensations occurring across the entire body. Achieving increased equanimity or an evenness of mind, particularly during stressful situations, is the ultimate goal of VM (Ivanovski & Malhi, 2007). In practice, the first 3 days of a VM retreat are dedicated to *anapana*—becoming aware of respiration without trying to change or adjust it (Hemelstein, 2011). An emphasis is also placed on the concept of *annica*, which translates as “impermanence,” particularly the impermanent nature of thoughts, feelings, and sensations (Modak, 1995). Similar to the MM component of transience, those who are able to observe the impermanence of their thoughts, feelings, and sensations can “free” themselves psychologically (Modak, 1995).

Clinical Meditation Interventions

Meditation is by its nature a cognitive task, making it easy to integrate into clinical practice grounded in cognitive and cognitive-behavioral approaches. The two major clinical interventions based on mindfulness meditation training are mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT). MBSR was originally developed for medical patients suffering with chronic pain and related distress symptoms (Kabat-Zinn, 1982, 1990), but it is now used with generalized anxiety disorder, panic disorder, sleep disorders, eating disorders, and other psychiatric conditions (Carlson & Garland, 2005; Ivanovski & Malhi, 2007). The major goal of MBSR is for individuals to become more aware of their thoughts, feelings, and sensations while not becoming absorbed in their content in a judgmental manner.

MBCT attempts to reduce incidences of ruminative depressive thinking patterns and to prevent relapses in major depressive episodes (Teasdale, Segal, & Williams, 1995; Baer, 2003; Ivanovski & Malhi, 2007). The major aim of this program is to combine MBSR with cognitive therapy to facilitate a decentering approach to viewing one's thoughts (e.g., “I am not my thoughts”), feelings, and sensations (Teasdale et al., 1995; Baer, 2003).

In addition to research on MBSR and MBCT, other approaches have incorporated mindfulness components. These approaches include dialectical behavior therapy for borderline personality disorder (Linehan, 1993), acceptance and commitment therapy for pain, anxiety disorders, and depression (Hayes, Strosahl, & Wilson, 1999), and relapse prevention for substance abuse (Marlatt & Gordon, 1985). Researchers have measured the effectiveness of these multifaceted treatments not only within medical and clinical walls, but in correctional institutions as well.

Meditation Practice in Corrections

Incarcerated offenders often present with many risk factors associated with criminal behavior, including personal distress, aggression/hostility, criminal thinking, negative peer associations, rule/law infractions, and substance abuse (Hawkins, 2003). In addition, given the stress of being incarcerated, these intense feelings can often lead to poor coping within the institution, evidenced by antisocial behaviors, impulse control problems, and substance abuse (Samuelson, Carmody, Kabat-Zinn, & Bratt, 2007). Regular practice of meditation is believed to help inmates, like medical patients, become less reactive to intense feelings by cultivating calmness without resorting to, for example, the use of drugs (Samuelson et al., 2007).

Over the past 40 years, TM has been the most practiced and researched meditative technique among correctional populations (Himelstein, 2011). Across studies, TM has been shown to be effective in reducing psychiatric symptoms, such as anxiety, depression, tension, and neuroticism. Symptom reduction was also accompanied by increased self-esteem (Ramirez, 1989), ability to relax (Cunningham & Koch, 1973), and emotional stability and maturity (Ramirez, 1989).

Positive behavioral changes have also been reported in several studies. Ballou (1977) found that inmates significantly decreased their institutional infractions while increasing the prosocial recreational/education activities in which they took part. Drug use (Ballou, 1977; Ferguson, 1989a; 1989b), aggressive behaviors and hostility (Ramirez, 1989; Ferguson, 1989a; 1989b; Abrams, 1989; Gore, Abrams, & Ellis, 1989), and recidivism (Alexander, Walton, & Goodman, 2003; Bleick & Abrams, 1987; Rainforth, Alexander, & Cavanaugh, 2003) all decreased significantly postmeditation.

More recent but far less studied has been the introduction of MM, particularly VM. Chandiramani, Verma, and Dhar (1995), working in India, found that VM, like TM, could alleviate some anxiety and depressive symptoms. Participants also increased their hopefulness and general well-being scores while hostility decreased immediately after the retreat.

Within the United States, VM retreats in prisons and jails have typically been used to target substance use. At least three studies (Parks et al., 2003; Bowen et al., 2006; Simpson et al., 2007) examined the effects of VM on substance use within North Rehabilitation Facility in Seattle, Washington. In each study, the VM groups showed significant decreases in drug and alcohol use postretreat. Furthermore, Bowen et al. (2006) found significant decreases in psychiatric symptoms and significant increases in optimism and internal locus of control, thus, reducing offenders' risk for recidivism as well as helping to promote good living. It is abundantly clear that the practice of VM fits very nicely within the marriage of both the Good Lives Model and the RNR principles.

A number of major limitations have appeared throughout the literature. First, prison studies such as these often lack sufficient power for detecting

significant findings due to small sample sizes (Orme-Johnson & Moore, 2003). Second, volunteer bias may be a factor in determining who participates, thus confounding motivational level (Orme-Johnson & Moore, 2003; Bowen et al., 2006; Simpson et al., 2007). Third, some studies report no control group (Chandiramani et al., 1995; Samuelson et al., 2007). Fourth, even if a control group was designated, participants were not randomly assigned to a given group (Bowen et al., 2006; Simpson et al., 2007; Samuelson et al., 2007). Fifth, high attrition from pretest to posttest has been typical (Bowen et al., 2006; Simpson et al., 2007). Sixth, measures used in some studies often lacked empirical validity, and the way in which psychopathology was defined was unclear (Chandiramani et al., 1995). Finally, no qualitative data were collected, thus ignoring the voices of participants (Himelstein, 2011).

The Current Study

In the past decade, the Alabama Department of Corrections (ADOC) has taken steps in one particular maximum security facility—considered by some in the state to be an “end of the line” prison—to promote nontraditional interventions with the goal of decreasing institutional infractions and violence while, at the same time, increasing the inmates’ overall well-being. ADOC adopted the VM model in 2002, a time in which this type of programming was not prominent in maximum-security facilities, particularly those in very conservative and predominantly Christian parts of the country. Although the VM retreats were initially met with resistance among the general public, religious leaders, and justice-related professionals, thus halting the VM practice for several years, the facility reinitiated retreats in 2007 and now holds VM retreats on a quarterly basis with approximately 25 inmates per retreat. To date, 430 inmates have participated in at least one VM retreat. Although administrative staff and the inmates themselves have noted positive benefits from the early retreats (e.g., prisoners’ social community engagement within the facility and overall self-reported well-being), no systematic research has been conducted on this practice and its results. At the request of the director of treatment for ADOC, a third-party evaluation of the VM program was initiated beginning in 2007.

Generally, the authors and ADOC were interested in preretreat and postretreat behavioral infractions, medical center visits, mood disturbances, anger, emotional intelligence, and mindfulness of both VM participants and a comparison group of inmates from the same facility. The idea that increased levels of mindfulness can be achieved is now of interest to researchers examining this type of intervention, especially in light of newer conceptualizations such as the good lives and life-course approaches. Additionally, our study examined participants’ attitudes, beliefs, and subjective opinions about the retreat and VM in general.

METHOD

Design

The current investigation was a longitudinal study of inmates in a maximum security Alabama prison that examined the effects of a standard 10-day VM retreat. This prison facility specializes in managing repeat and violent offenders with lengthy sentences and those inmates with repeated behavioral difficulties. Outcomes were assessed through self-report measures of several mindfulness- and emotion-related variables, plus a record review of visits to the prison infirmary and infractions against prison rules.

Analyses compared baseline, self-report measures, and behavior indices for VM participants and a comparison group of inmates who volunteered to participate in Houses of Healing (HOH). Both interventions are described in more detail next. Random assignment to VM or HOH was not possible given the institution's desire to enroll all eligible inmates, and a wait list control would not have allowed for a sufficient follow-up period given institutional constraints. Further, due to the institution's physical plant limitations, each 10-day VM retreat could include a maximum of 35 inmates (although practically the numbers were slightly lower), and included both students who have completed at least one prior retreat and new students. Further, VM leaders are out-of-state volunteers who follow a predetermined schedule set by The North American Vipassana Prison Project (<http://www.prison.dhamma.org/>) well in advance. Thus, researchers had little input to scheduling and sequencing of the retreats.

Self-report data were collected from both groups at three time points: prior to the VM retreat (pretest), after the 10-day retreat (posttest), and 1 year after the retreat (follow-up). Institutional outcome data (i.e., infirmary visits, infractions, segregation time) were collected at baseline (for the prior year) and during a 1-year follow-up. Participant data was collected in three waves based around VM retreats held in October 2007, April 2008, and November 2008.

Vipassana Retreat and HOH Comparison Group

The VM course is an intensive 10-day residential program based on the teachings of S.N. Goenka and provided by North American Vipassana Prison Project (<http://www.prison.dhamma.org/>). This project provides free 10-day retreats for eligible correctional facilities. At the time of this program's inception, the ADOC was interested in a relatively brief, but intensive program in order to examine the feasibility of Vipassana within their facility.

VM retreats rigorously follow several major precepts; all VM students must agree to refrain from killing, stealing, sexual activity, speaking lies, and using intoxicants (including tobacco). Students follow a strict schedule

that includes approximately 11 hours of meditation each day. The retreat is also marked by *noble silence*, meaning no oral, written, or nonverbal communication among students for the first 9 days. They can, however, communicate privately with the teacher during designated times. Adherence to the precepts can be difficult, but VM students are encouraged to work through these difficulties. Adherence was monitored by retreat leaders, but if students were unable to do so, they could leave the retreat or be asked to leave. Between one and three inmates started but did not complete the retreat during the study period, and none were asked to leave. However, those who participated in pretest data collection but did not complete the retreat were not utilized in any analyses.

The retreats took place in one of the prison gyms adapted to create a meditation hall and areas for sleeping and eating. Two to three experienced VM teachers attended each retreat and resided in the gym for the duration. One correctional officer at a time was assigned to 12-hour posts inside the gym. The gym was closed to all other inmates and staff not specifically associated with the program.

The researchers assumed that inmates signing up for VM might have similar motivations as those who sign up for HOH (comparison group), a program utilized at the facility for many years. HOH uses a closed, 10-week small group format cofacilitated by trained inmates, and like VM, was founded on the principles of mindfulness and increasing openness and self-awareness. It also provides guidance in stress management and healthy coping strategies, and addresses, in depth, the necessity of self-forgiveness and forgiveness of others. However, by comparison, HOH is far less intensive than a VM retreat.

Procedure

All inmates who enrolled in the October 2007, April 2008, and November 2008 VM retreats were offered the opportunity to participate in the research study, as were inmates who had signed up to participate in Houses of Healing. Initial participation was offered to VM students during an orientation prior to the beginning of the 10-day retreat, and posttest participation was offered during the graduation ceremony for retreat completion. For those enrolled in the comparison group, inmate names were placed on a list requesting they come to a centralized location so participation in survey measures could be offered. For inmates who completed pretest and/or posttest measures, both prison administrative records and medical records were reviewed. At the 1-year follow-up, self-report data for both groups was collected by placing inmates on a list requesting they come to a centralized location so participation could be offered. As during baseline assessment, researchers collected disciplinary and medical data from participant institutional files.

Participants

A total of 127 inmates were included in the research study, 60 of whom completed the VM retreat, while 67 HOH enrollees served as a comparison group. Because inmates are not limited to one VM retreat, some ($n = 14$) had previously completed the VM retreat at the prison. None of the comparison participants had previously completed the retreat.

Participants ranged in age from 21 to 63 ($M = 35.4$, $SD = 9.34$). Most were African American (71.7%), with a minority of inmates identified as Caucasian (17.3%) or other race (5.5%). Most participants had completed 11 years of school, but education ranged from 3 years to a 4-year college degree. Of the participants, 94 reported belonging to a Western religion (e.g., Christianity, Judaism), while six reported an Eastern religious affiliation and seven reported Wiccan or mystical affiliations (the remainder reported no religious affiliation or were unknown). Participants in the two groups were quite comparable on most demographic indices (e.g., age, education, and religious affiliation). However, there was a significant difference on race, $\chi^2(2, n = 120) = 7.69, p = .02$, such that more VM participants (12%) identified themselves as “other” (not African American, Caucasian, Hispanic, or Asian/Pacific Islander) as compared to the control group (0%).

Reflecting the mission of the prison, 103 participants (81.1%) were currently incarcerated for a violent offense, 34 (26.8%) were serving life sentences, and 36 (28.3%) were sentenced to life without parole. Most participants had no ($n = 61$) or one ($n = 54$) prior convictions resulting in incarceration, with the most priors being four ($n = 2$). The VM and comparison groups did not differ on history of incarcerations or length of current sentence, although they did differ significantly on time served for their index offense, $F(1, 121) = 12.83, p < .001$, such that the VM group had served significantly more time on their sentence ($M = 12.4$ years, $SD = 6.0$) than the comparison group ($M = 8.6$ years, $SD = 5.5$). It is possible that inmates who have been in prison longer are more willing to consider enrollment in novel programs such as VM (Zamble, 1992).

At baseline, all participants averaged 13.6 prior infractions across the entire span of their current incarceration (approximately 10 years on average). These baseline rate estimates were higher than that of the general population across the time periods in question (0.74 per inmate per year). Although there was an extremely wide range (0 to 98), the modal number ($n = 22$) of prior infractions was zero (0). Controlling for time served, there was no significant difference in past infractions between the VM ($M = 12.2$) and comparison ($M = 15.0$) groups, $F(1, 114) = .76, p = .39, \eta_p^2 = .007$. Only 15 participants had been placed in segregation in the six months prior to baseline. Of these, eight were VM participants and seven were comparison participants, yielding no difference between the groups, $\chi^2(2, n = 119) = 1.32, p = .52$.

Just over one third of participants ($n = 46$) had a medical diagnosis (e.g., hypertension, diabetes). Fewer than half ($n = 53$) were smokers at baseline. Only 16 (12.6%) had a substance use diagnosis—a percentage notably lower than the 53% of state and 45% of federal inmates typically found to meet DSM-IV criteria (Mumola & Karberg, 2007).¹ Ten inmates (7.9%) had been diagnosed with an Axis I mental illness; however, it should be noted only inmates in the general population participated.

Self-Report Measures

COGNITIVE AND AFFECTIVE MINDFULNESS SCALE-REVISED (CAMS-R)

The CAMS-R (Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007) is a 12-item measure of awareness of mental, emotional, and sensory experiences. Items are rated on a 4-point Likert type scale from 1 (*rarely/not at all*) to 4 (*almost always*), and include such items as, “I am able to accept the thoughts and feelings I have.” Higher scores reflect greater mindfulness. The internal consistency of the CAMS-R was acceptable ($\alpha = .76$). Strong correlations with other measures of mindfulness demonstrated convergent validity (Feldman et al., 2007).

NOVACO ANGER INVENTORY-SHORT FORM (NAI-25)

The NAI-25 (Mills, Kroner, & Forth, 1998) is a 25-item measure of anger experience and anger provoking situations. Participants are asked to rate the degree to which they would feel angry or annoyed on a 5-point Likert type scale from 1 (*very little*) to 5 (*very much*). Items include, “Someone makes a mistake and blames it on you.” Higher scores reflect more anger. The long form (Novaco Anger Scale and Provocation Inventory) displays convergent validity with measures of hostility and aggression, and has test-retest reliability of .78 to .91. The short form was derived from a factor analysis, which yielded one factor (anger) with good reliability (Mills et al., 1998).

PROFILE OF MOOD STATES-SHORT FORM (POMS-SF)

The POMS-SF (Shacham, 1983) is a measure of overall mood disturbances and has six factors: tension-anxiety, depression-dejection, anger-hostility, fatigue-inertia, vigor-activity, and confusion-bewilderment. It consists of a list of 37 feeling words (e.g., tense, uneasy, cheerful), and participants are asked to rate on a 5-point, Likert-type scale (1 = *not at all*, 5 = *extremely*) the extent they feel that way at that moment. Higher scores reflect more mood distress and disturbances. Total mood disturbance and subscale scores on the original POMS were highly correlated with POMS-SF (all above .95). Internal

consistency on the POMS-SF ranged between .80 and .91. However, more psychometric data are needed on the short form (Shacham, 1983; Curran, Andrykowski, & Studts, 1995).

TRAIT META-MOOD SCALE (TMMS)

The TMMS (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995) is a 48-item measure of emotional intelligence, which refers to an ability to recognize and manage one's emotions and the emotions of others. Participants rate their agreement with the items on a 5-point, Likert-type scale, such as, "People would be better off if they felt less and thought more." Higher scores reflect a greater degree of emotional intelligence. High coefficient alphas of .86 (attention), .88 (clarity), and .82 (repair) were found for each subscale. Cronbach's alphas of .86 (attention), .87 (clarity), and .82 (repair) were also revealed (Salovey et al., 1995; Fitness & Curtis, 2005).

POSTRETREAT IMPRESSIONS

At posttest, VM participants were asked eight questions regarding their experiences during the retreat. Five of the items were rated on a 5-point, Likert-type scale and focused on' how much participants valued their retreat experience, the overall quality of the retreat, how much they were engaged and invested in the retreat, how much they learned, and the likelihood they would continue practicing VM. Also queried was whether the retreat did not meet, met, or exceeded their expectations, and whether they would recommend VM to others. A final open-ended question requested any additional comments about the retreat experience.

RESULTS

Self-Reported Internal States

Not all 127 participants completed self-report measures at all time points. Self-report data were collected from 111 participants at pretest (50 VM, 61 comparison group) and from 74 at posttest (45 VM, 29 comparison group).

TABLE 1 Number of Inmates who Completed Self-Report Measures

Time	Vipassana (<i>n</i> = 60)	Comparison (<i>n</i> = 67)	Total (<i>n</i> = 127)
Pretest	50	61	111
Posttest	45	29	74
Follow-up ^a	35	21	56

^aAt 1-year follow-up, only 103 of the original 127 participants were still at the facility, including 55 of 60 Vipassana participants and 48 of 67 in the comparison group.

At 1-year follow-up, 24 participants were lost via parole or transfer to a lower security facility. Of the remaining 103 inmates, 56 (35 VM, 21 comparison group) completed the self-report measures (see Table 1). These 56 participants were fairly representative of the total sample, with an age range of 21 to 61, and racial identification of 45 (80.3%) African American, 5 (8.9%) White, and 4 (7.1%) other.

Attrition was less notable for VM participants, likely due in part to their easier access to the data collection procedure just prior to and immediately following the retreats. Comparison participants, on the other hand, had to elect to appear at the data collection location. No incentives were provided to either group. Thus, our use of the term attrition does not reflect the traditional treatment “drop-out” concept, but rather the loss of access to participants for collection of follow-up measures.

Because attrition and missing data are notable limitations for standard analyses, Linear Mixed Modeling (LMM) was used for longitudinal analyses of self-report measures. LMM is an analysis method that treats each observation point individually and controls for the effect of participant, thus allowing the use of data from participants for whom some observations may be missing (Krueger & Tian, 2004). Using LMM, we examined the influence of time, group, and the time by group interaction (all analyzed as fixed effects) on each of the four self-report measures separately. These analyses controlled for the random effect of wave (there were three waves due to soliciting participants around the time of each retreat). An autoregressive covariance structure was used in each of the models. Means and standard deviations on the self-report measures are reported in Table 2.

The first LMM examined the influence of time (over three time points), group (VM or comparison), and the time by group interaction (changes over time for each group separately) on CAMS-R scores. Time was not significant, though group was, $F(1, 231.80) = 9.79$, $p = .002$, such that VM participants had higher scores overall. The time by group interaction was not significant,

TABLE 2 Mean Scores on Self-Report Measures

Time	CAMS-R <i>M (SD)</i>	TMMS <i>M (SD)</i>	NAI-25 <i>M (SD)</i>	POMS-SF <i>M (SD)</i>
Pretest				
Vipassana	35.47 (1.02)	168.85 (17.49)	69.30 (16.69)	66.12 (16.37)
Comparison	33.83 (0.94)	168.57 (16.37)	72.68 (20.04)	72.93 (25.44)
Posttest				
Vipassana	38.24 (1.04)	172.30 (14.81)	66.04 (20.88)	60.71 (23.07)
Comparison	34.04 (1.23)	171.24 (17.11)	65.62 (20.67)	69.34 (19.17)
Follow-up				
Vipassana	36.70 (1.16)	177.89 (15.60)	66.20 (18.10)	61.13 (19.77)
Comparison	34.93 (1.41)	174.08 (13.18)	72.29 (19.48)	73.35 (22.13)

Note. CAMS-R = Cognitive and Affective Mindfulness Scale–Revised, TMMS = Trait Meta-Mood Scale, NAI-25 = Novaco Anger Inventory–Short Form, POMS-SF = Profile of Mood States–Short Form.

though examination of pairwise comparisons revealed the groups differed at posttest ($p = .003$), and VM participants had a significant increase in CAMS-R scores from pretest to posttest ($p = .023$) but not a significant change from pretest to follow-up or from posttest to follow-up (see mean scores in Table 2). Alternatively, there were no changes in the comparison group over time. These findings, depicted in Figure 1, suggest that VM participants generally achieved greater levels of mindfulness relative to the comparison group, but also showed within-subjects improvements in mindfulness immediately after their retreat.

In a comparable analysis of TMMS scores, none of the independent variables was significant, though the effect of time approached significance, $F(2, 207.30) = 2.70$, $p = .063$. Examination of pairwise comparisons revealed that TMMS scores for VM participants increased significantly between pretest and follow-up ($p = .025$), and this increase over time remained when collapsed across all participants ($p = .022$). Alternatively, there were no changes in the comparison group over time. These findings suggest VM participants showed greater levels of emotional intelligence one year after their retreat compared to their baseline, while the comparison group showed no change (see Figure 2).

The next dependent variable examined, the NAI-25, showed no significant effects of any of the independent variables, suggesting situational anger was not affected by the retreat and did not differ among participating inmates. For the final LMM model examining the POMS-SF, there was no main effect of time, but there was a main effect of group, $F(1, 220.05) = 9.19$, $p = .003$, such that VM participants had significantly lower scores than the comparison group. Examination of pairwise comparisons revealed this difference to be relatively stable over time, as were VM participant scores.

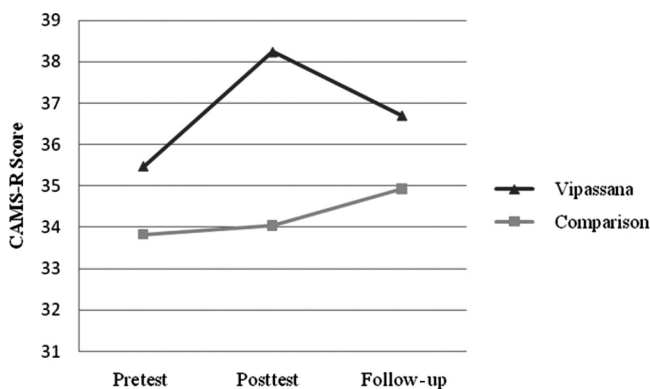


FIGURE 1 Changes in mindfulness scores over time for each group. CAMS-R = Cognitive and Affective Mindfulness Scale–Revised. Post hoc comparisons showed significant differences between groups at posttest ($p = .003$) and between Vipassana participant scores from pretest to posttest ($p = .023$).

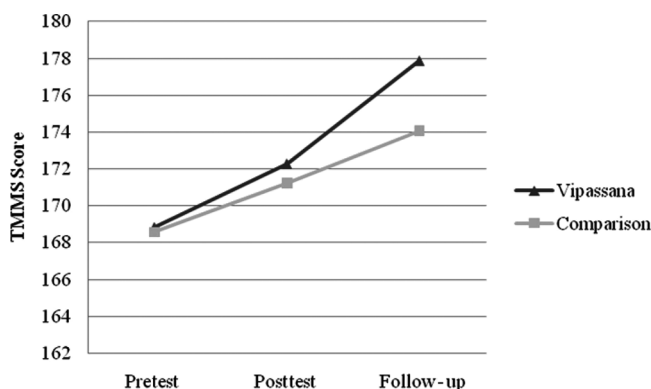


FIGURE 2 Changes in emotional awareness over time for each group. TMMS = Trait Meta-Mood Scale. Post hoc comparisons showed significant differences between pretest and follow-up scores for all participants ($p = .022$) and Vipassana participants alone ($p = .025$).

These findings suggest that VM participants presented with less mood distress when completing self-report measures compared to the comparison group, though their mood states did not change noticeably across the data collection time points (see Figure 3).

Institutional Adjustment

Institutional records were reviewed for both behavior (i.e., infractions and segregation) and medical status (i.e., infirmary visits). The groups were compared preretreat and at follow-up, but changes over time were not statistically compared. At baseline, there were no significant differences between groups in past infractions or placement in segregation. At 1-year follow-up,

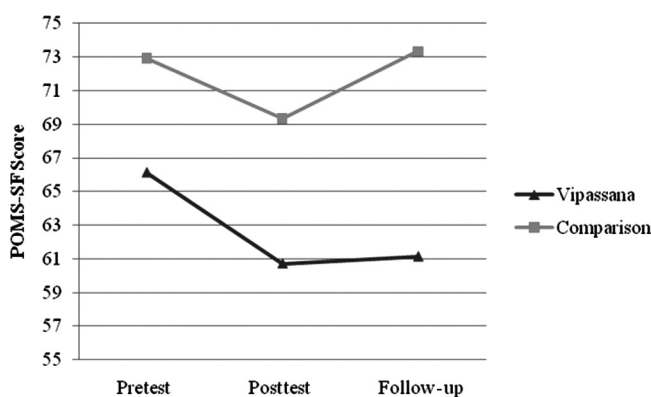


FIGURE 3 Changes in mood disturbance over time for each group. POMS-SF = Profile of Mood States–Short Form. Vipassana participants had significantly lower scores than comparison participants ($p = .003$).

institutional data were available for 108 of the original 127 participants. Across groups, participants committed between zero and six infractions in that 1-year period, with zero being the median and mode (58 participants, 53.7%). The overall average was 0.78 infractions. This figure compares favorably to estimates of their prior infraction rates of approximately 1.3 per inmate per year, as well as that of the general population across the time periods in question (0.74 per inmate per year). The VM and comparison groups were quite comparable at follow-up. Twenty-six VM participants and 24 comparison group participants committed at least one infraction. Thirty participants were placed in segregation (16 VM, 14 comparison). There was no difference between the two groups on infractions, $F(1,106) = .99$, $p = .32$, $\eta_p^2 = .009$, or segregation status, $\chi^2(1, n = 107) = .062$, $p = .80$, during the follow-up period.

With regard to medical data, records are kept separate from other institutional records and were available for 102 participants (80.3%) at baseline. Participants averaged 2.09 visits to the infirmary in the six months prior to baseline assessment (range of zero to 11 visits), and the groups were not significantly different, $F(1,100) = .55$, $p = .46$, $\eta_p^2 = .006$. During the 1-year follow-up (with data available for 107 participants), participants averaged 4.55 infirmary visits, but with a much greater range (0 to 38); 26 had no visits to the infirmary (13 in each group). When examined dichotomously (yes/no), there were no significant differences in infirmary visits between groups, $\chi^2(1, n = 107) = .075$, $p = .78$.

Subjective Reports

In addition to completing self-report measures, VM participants were asked for their anonymous opinions related to the retreat after they graduated. Thirty-one inmates (51.7% of all VM participants, 70.5% of those who completed the posttest surveys) completed the brief questionnaire. Of those 31, all rated the value of the retreat experience to be “quite a bit” or “very” valued. Almost all ($n = 30$) reported being “quite a bit” or “very much” engaged and invested in the retreat. Almost all participants ($n = 29$) reported they learned “quite a bit” or “a lot” from the retreat and most ($n = 20$) reported that it was “very likely” they would continue to practice VM. The overall positivity of the majority reaction immediately after the retreat is exemplified well in two quotes from participants: “It was like nothing I have ever experienced and even though it was the hardest thing I had ever done before, I feel that this course has changed my life forever;” and, “I believe everyone would benefit in a positive and meaningful way from experiencing a Vipassana retreat.”

DISCUSSION

Meditation-based interventions in prison settings are not new, but their specific features and efficacy require further study. Likewise, it is important to

examine whether mindfulness meditation, particularly VM, can be supplemental to established evidence-based treatments. We argue that VM may be seen as conceptually similar to cognitive-behavioral approaches and that it targets meaningful risk factors (e.g., reactive aggression, distorted thinking, blame externalization) that are barriers to prison adjustment and community reintegration. In addition, VM is consistent with the Good Lives Model's goal of enhancing basic human goods (e.g., inner peace, happiness). The intensity, duration, and departure from the ordinary provided by VM are also consistent with both the RNR model and the life-course view of meaningful interventions in the lives of adult offenders.

Although behavioral outcomes are central to any intervention claiming to target risk factors, we were also keenly interested in measures related to VM's guiding concepts. Thus, we included preassessments and postassessments in areas of mood, anger, emotional regulation, and mindfulness. VM participants also gave subjective reports of their experience.

In comparison to their baseline ratings, VM students showed enhanced levels of mindfulness (during the first posttest period) and emotional intelligence (1 year after the retreat), whereas the comparison group showed no such improvement. VM students' exposure to reflective attention skills during the retreat may be associated with their improved ability to recognize emotion, which was not observed in the comparison group. In addition, the support of peer engagement in similar practices experienced during the retreat may have assisted in VM students' agentic adoption of an alternative, mindful framework of conceptualizing and managing emotion. Subsequently, they were notably positive in their reviews of the VM experience and had greater levels of mindfulness than comparison inmates postretreat. Likewise, their reported mood distress was lower at all time points. VM students' adoption of mindfulness practices within the context of the prison environment seems to have bolstered their ability to manage emotional distress. By contrast, the groups neither differed nor changed with respect to situational anger.

Most frequently, researchers have measured the effectiveness of mindfulness within multifaceted treatments (e.g., DBT, ACT, Relapse Prevention), and numerous additional applications for meditation-based treatments are also available (e.g., pain tolerance, stress relief, and suicidal and self-harming behaviors). However, assessment of the mindfulness component of multifaceted treatments has rarely been studied directly. The premise that an individual could increase mindfulness was of interest to the current study; our results provide preliminary support for this idea. VM participants were already relatively mindful at baseline, and were further able to increase their mindfulness postretreat. However, these gains were only partially maintained at 1-year follow-up. Perhaps the continuing, long-term use of mindfulness meditation, such as VM, is needed to sustain these changes further into the participants' life course. Future study may explore the comparative mindfulness of one-time retreat participants, multiple retreat participants, and those

who practice meditation independently on a regular basis. Also, adherence to the strict retreat rules was not formally assessed, but may be useful to evaluate in future studies to determine if this mediates the impact on outcome variables.

Behaviorally, both groups were quite heterogeneous, but not statistically different from each other, with respect to prior history of institutional infractions and segregation time. As many as one fifth had no prior infractions, while others had dozens in their records. At 1-year follow-up, group differences remained small and nonsignificant. However, it appears that both groups reduced their average annual infractions rates. Similarly, no differences were found between the VM and comparison groups in utilization of institutional medical services. Long-term meditative practice may be needed to impact physical health.

The study represents an important first step in assessing VM and similar mindfulness-based meditation practices. On its face, a maximum-security prison seems an unlikely setting to introduce these Eastern techniques. However, the VM focus on bringing awareness to the present moment while non-judgmentally acknowledging one's thoughts fits well as a potential antidote to the typical chaos and stressors that permeate many prisons. For some inmates, the introduction to VM may begin a turning point for renewed well-being, even within the prison environment that spans a lifetime. This benefit may be even more critical in high security institutions, such as the current setting where approximately 55% of participating inmates were serving a life sentence (with or without parole).

Some methodological limitations should be noted, many of which are familiar barriers in prison research. Comparison groups are difficult to construct. However, in this study, both groups were volunteers, and their enrollments gave no inducements of enhanced treatment or privileges. Thus, motivations to participate or change, though not directly measured, can be assumed to have been comparable, especially given the similarity in the mindfulness approach of both programs. Further, as noted, many in both groups were serving life without parole, and their attendance would have no favorable impact on their sentence. Yet, due to the lack of randomization in the sample, the ability to distinguish between direct influences of the meditation retreat and factors related to volunteerism is diminished. Attrition across measurement time periods is another important factor to consider. Institutional logistics represented a barrier to reaching members of the comparison group (e.g., institutional scheduling, limited staff involvement in research). Providing incentives for follow-up participation may reduce attrition. However, it should be noted that 24 of the inmates who were unavailable at one year follow-up had either been paroled or transferred to a lower security institution, both signs of a positive outcome. Further, findings from the self-report measures were substantially less affected by this attrition with the use of LMM in lieu of more traditional statistical analyses.

The current study was also limited in respect to the relatively low levels of baseline infractions reflected in a sizable number of the participants' records. Both groups had to meet certain eligibility criteria such that inmates who had several recent or consistently high levels of institutional infractions were generally screened out. Nevertheless, some participants had quite high rates, and the overall base rate average was actually higher than in the general population. At the other end of the spectrum, for almost 20% of the sample, zero prior infractions provided no potential for improvement. Given the remarkable similarity of VM and comparison groups at baseline, the positive VM findings with respect to mindfulness, mood distress, and emotional regulation are even more credible. The enhancement of these targeted precursors to behavioral improvement is encouraging, especially considering both groups were exposed to mindfulness based programming.

Future studies should expand program access for diverse offenders, both in terms of their recent records and their affinity for such treatment. To this end, this Alabama DOC facility now holds the VM retreats more frequently and has begun to move toward the creation of a "Vipassana dorm," or a residential mindfulness program. However, no correctional intervention is a silver bullet, and we do not suggest that Vipassana must prove to be effective with all offenders. Indeed, the responsivity principle (Andrews & Bonta, 1998, 2006) suggested that interventions must be delivered in ways that match offenders' receptivity and skill level. Inmate-enrollee characteristics should be assessed further to determine for whom VM is most beneficial.

NOTE

1. Many inmates' past substance histories may have been considered secondary and not a focus of treatment, especially given that many had been incarcerated (and possibly abstinent) for an extended period. Any ongoing substance use was unlikely to be self-reported.

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