Meditation Research: The State of the Art in Correctional Settings

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Abstract

There is research that serves as evidence in favor of meditation-based programs as rehabilitative for incarcerated populations. This article reviews empirical research regarding the effects of meditation-based programs in correctional populations. Three meditation-based interventions have been shown to represent the majority of empirical research and are reviewed in this article: Transcendental Meditation, mindfulness-based stress reduction, and 10-day Vipassana retreats. Selected dissertation research is reviewed as well. Overall, research suggests three areas in which meditation-based programs provide sufficient treatment to criminal offenders: the enhancement of psychological well-being, a decrease in substance use, and a decrease in recidivism. This suggests that meditation-based programs may be proper treatment programs and support rehabilitation for correctional populations.

Keywords

meditation, mindfulness, prison, jail, incarcerated, correctional, alternative treatment

Approximately 70% of released prisoners in the United States will be rearrested within 3 years (Bureau of Justice Statistics, n.d.). This suggests that correctional centers may not provide offenders with the proper rehabilitative care needed to successfully reenter society without recidivating. Furthermore, incarceration among youth in the United States is no small problem. Approximately 96,000 juvenile offenders in the United States were incarcerated in 2003 (Snyder & Sickmund, 2006). Although juvenile crime has been declining since the mid-1990s, violent crime, such as homicide and robbery, accelerated between 2001 and 2005 (Federal Bureau of Investigation, 2005).

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Haney (2006) suggests that the atmospheres in correctional institutions contribute as criminogenic factors that develop aggressive and hostile behaviors in inmates, and they could lead to further criminal behavior. Thus, prisons and correctional centers may need to implement more effective rehabilitation methods to decrease postrelease crime and recidivism.

One of the possibilities to facilitate rehabilitation is the teaching of meditative practices in prisons. Research on meditation in prisons has been well documented and suggests that meditation improves many psychosocial functions (Chandiramani, Verma, & Dhar, 1995; Samuelson, Carmody, Kabat-Zinn, & Bratt, 2007) and reduces recidivism among prison populations (Alexander et al., 2003; Bleick & Abrams, 1987; Rainforth, Alexander, & Cavanaugh, 2003). The purpose of this article is to review relevant literature published on meditation-based programs’ effect on correctional populations and suggest that these programs may be rehabilitative (i.e., have the potential to increase psychological well-being and decrease recidivism) or, at the very least, might advance candidacy for other rehabilitation programs within the correctional system.

In this review, meditation-based programs are differentiated by style into four sections: Transcendental Meditation (TM), Vipassana meditation, mindfulness-based stress reduction (MBSR), and dissertation research from Dissertation Abstracts International (DAI). An in-depth description of each style—with the exception of the research from dissertations given their heterogeneity in meditation style—and their theoretical mechanisms that promote psychological growth will precede discussion of empirical research in prison settings. Research of interest in this article examines how inmates who participated in meditation-based programs displayed decreased anxiety, aggressiveness, hostility, substance use, and recidivism of incarceration. Furthermore, the research under review herein examines an increased social, interpersonal, and overall psychological well-being in inmate participants. Research literature is critically analyzed and critiqued, and implications are suggested. The current state of research in this field will be discussed along with suggestions for future research.

**Review of Meditative Styles Researched in Prison Populations**

Meditative styles such as TM, Vipassana meditation as taught by S. N. Goenka, and MBSR are examined here because these styles were found to represent the majority of meditation research conducted in prison populations. Because the methods used in meditation-based programs found in dissertation research (e.g., Flinton, 1998; Perkins, 1998) were a combination of multiple techniques, those methods will be described in the section on research from dissertations found in *DAI*.

**Transcendental Meditation**

TM is defined as a technique in which one systematically develops a finer, more subtle experience of conscious attention (Ferguson & Gowan, 1976). Furthermore TM is
defined as a “wakeful condition of alertness . . . [and] a restful physiological condition” (p. 53). The actual psychological technique of TM is to recite a given mantra and return to this mantra any time the mind wanders. Practice is encouraged for 15 to 20 min twice a day, with the goal of TM being to transcend duality and suffering (Goleman, 1988). TM was popularized in the Western world by Maharishi Mahesh Yogi in the 1960s, and is, to this day, one of the most researched meditative practices (Walsh, 1996).

Mindfulness-Based Stress Reduction

Mindfulness is defined as the nonreactive attention to one’s ongoing mental processes (Samuelson et al., 2007). Baer (2003) suggests that mindfulness practice has the capacity to enhance cognitive change, self-management, relaxation, and acceptance within its practitioners. Therefore, the relevance that mindfulness practice may have to correctional populations becomes apparent. The enhancement of just one of the above constructs might significantly affect a prisoner’s ability to engage in rehabilitation training.

MBSR was developed by Jon Kabat-Zinn in 1979 in an effort to Westernize and make accessible ancient meditative techniques to people not necessarily seeking meditation for spiritual purposes, such as patients dealing with chronic pain. According to Kabat-Zinn (1990), MBSR is composed of three main techniques: awareness of the breath in sitting meditation, the body scan while lying down, and Hatha yoga postures. These three techniques are recommended in various formats over an 8-week period, with a teacher and with the aid of guidance audiotapes. During the first few weeks, practitioners are instructed to do the body scanning technique for approximately 45 min and sitting meditation for 10 min each day. As practitioners progress through the MBSR program, body scans decrease and formal sitting meditation increases. Yoga postures are incorporated on an interchangeable basis with meditation. After the 8-week period, practitioners should have a good sense of what works best for them, and can mold the MBSR program to fit individual needs (Kabat-Zinn, 1990). The research reviewing the MBSR programs in prisons (Samuelson et al., 2007) follows primarily the same format, with some programs lasting 6, instead of 8, weeks.

Vipassana Meditation

The word Vipassana means insight (Goleman, 1988) and is rooted in Buddhist meditative practice, from which Westernized and contemporary forms of mindfulness practice such as MBSR are originally derived. Within the research presented in this literature review, Vipassana meditation will refer to the style of meditation taught by S. N. Goenka (1995), given its prevalence of implementation and research in the prison system. According to Modak (1995), Vipassana meditation is taught within the context of a 10-day residential retreat. All participants in the retreats agree to five moral precepts: abstaining from violence, lying, stealing, sexual misconduct, and intoxicants. Furthermore, participants are to uphold noble silence throughout the full 10 days. That is, they may not speak with any other participants for the duration of the retreat. The daily
schedule consists of, on average, 10 hr of meditation, with regular breaks and video discourses by S. N. Goenka covering different Buddhist themes.

The first 3 days are dedicated to a prerequisite meditation called Anapana. During Anapana, one becomes aware of respiration, without trying to change or manipulate it (Modak, 1995). It is believed that with this preliminary training of the mind, one can then practice Vipassana meditation. Modak (1995) describes the actual technique of Vipassana as the systematic mental observation of the physical sensations across the whole body. Emphases are put on the concept of annica, translated from the Pali language as impermanence (Modak, 1995). By observing the impermanence of sensations, it is believed, one can liberate himself or herself from all cravings and aversions and have the possibility of becoming a fully liberated person. In sum, freedom from psychological attachment is the goal of Vipassana meditation (Modak, 1995). The research reviewing Vipassana retreats in prisons in this article (Bowen et al., 2006; Chandiramani et al., 1995; Simpson et al., 2007) follows the same 10-day format as described above, with prisoners upholding the same rules as participants of any Goenka-style Vipassana retreat.

The Effects of Meditation-Based Programs in Incarcerated Populations

Transcendental Meditation in Prisons

Of the research investigating the effects of meditation-based programs in correctional populations, TM has been the most studied (Hawkins, 2003; Lester, 1982). Orme-Johnson and Moore (2003) first introduced the TM program to La Tuna federal penitentiary near El Paso, Texas, in 1971. In their 2-month controlled study, 17 inmates recruited from a narcotics rehabilitation program in the prison served as participants. After hearing an introductory lecture on TM describing its benefits, 12 of the 17 inmates volunteered to learn TM and 5 volunteered to serve on the study as controls. Measures on the Minnesota Multiphasic Personality Inventory (MMPI) and spontaneous skin resistance responses (SSRR) were taken initially following an introductory TM lecture and then after completion of the study to examine effects on personality and stress.

Participants were instructed to practice the TM technique for two 20-min sessions each day. Participants who practiced the TM technique at least 60 of the optimal 120 times during the 2-month study were considered regular meditators, whereas those practicing the TM technique less were considered irregular meditators. Five participants were thus deemed regular meditators, and seven were deemed irregular meditators (Orme-Johnson & Moore, 2003).

Analysis of pre- and posttreatment MMPI scores of all three groups indicated the largest reduction on the psychasthenia scale to be within regular meditators ($p < .025$). This suggests that the steady practice of TM may reduce obsessive-compulsive behavior. Furthermore, regular meditators also decreased on the social introversion scale ($p < .05$), suggesting less social discomfort, as compared to controls, which
implies that TM practice may increase positive social relations (Orme-Johnson & Moore, 2003). Analysis of pre- and post-SSRR testing revealed all groups to have decreased on the SSRR measure, which indicates an increase in stability in the autonomic nervous system. Although all groups were found to decrease on the SSRR measure, a finding that the authors attribute to a “laboratory adaptation effect” (p. 92), the percentage of decrease was significantly greater for regular meditators than irregular meditators ($p < .001$) and control subjects ($p < .05$).

Although the above reviewed study shows promising evidence in support of the TM program for prisoners, there are some limitations worth mentioning. First, it is important to note that a sample size of 17, of which only 5 were considered to have practiced the technique regularly, may not be sufficient data to generalize to prison populations as a whole. Second, the experimenter effect (Rosenthal, 1966) should be mentioned regarding this type of research. Rosenthal found that the mere presence of experimenters in the research environment may influence participant outcomes. Orme-Johnson and Moore (2003) recruited their participants through an introductory lecture on TM, describing the benefits that might occur from TM practice. With the conscious exchange of information on the desired outcome of practicing TM, it is questionable as to how much the technique affected participants and how much of the data reflected the experimenter effect. Lastly, volunteer bias must also be addressed as a limitation. After participants heard an introductory lecture describing TM, those who ended up participating in the study volunteered. It may be that those who volunteered for the study may have been more motivated to gain the expected results or have some preexisting capacity that better facilitates meditation, resulting in a sample population that is not random. Abrams and Siegel (1979) suggest, however, that in order to successfully recruit participants, the goals and benefits of meditation must be described to potential inmate participants.

Given that the experimenter effect is a known limiting factor in this type of experimental research, it is commonly understood that it is extremely difficult completely to reduce it and, therefore, assumed to have been operative in all of the research hereinafter discussed. Similarly, volunteer bias should also be assumed as operative in the following research studies discussed herein unless they are otherwise specified as randomized controlled research designs.

Abrams and Siegel (1978) implemented a three month long TM program in Folsom State Prison in California. One hundred fifteen participants divided between two experimental and two control groups were administered pre- and posttreatment measurements on the State-Trait Anxiety Inventory (STAI), the Buss-Durkee Hostility inventory (BDHI), and the Eysenck Personality Inventory (EPI), along with a survey of sleep and smoking habits.

The most significant reduction reported was on posttreatment STAI measures. Although state and trait anxiety both decreased, state anxiety sharply decreased approximately 70% in the first experimental group ($p < .05$). Results from the second experimental group paralleled the first (Abrams & Siegel, 1978). Furthermore, BDHI measurements revealed reductions in negativism and suspicions in both experimental
groups \((p < .05)\). EPI posttreatment measures of neuroticism revealed a significant
decrease only among the TM group \((p < .05)\), whereas posttreatment measures of
extraversion showed no significant differences in either group. Surveys on smoking
and sleep patterns revealed no significant differences in smoking habits in either the
control or the TM groups, but there was a dramatic improvement in sleep habits within
the TM group \((p < .05)\). Inmates in the TM group reported less time needed to get to
sleep and sleeping more deeply through the night (Abrams & Siegel, 1978).

Along with psychological improvements, TM programs in prison populations have
also been shown to decrease recidivism. Bleick and Abrams (1987) collected recidi-
vism data from the California Department of Corrections and the California Justice
Department’s Bureau of Identification between 1975 and 1982. Two hundred fifty-nine
prisoners who had participated in a TM study and 259 control participants’ records
from San Quentin State Prison, Folsom State Prison, and Deuel Vocational Institu-
tion were used as the participants in this study. Overall, the researchers found that inmates
who participated in TM programs were 40% less likely than were those in the control
group to return to prison 1 year after release \((p < .001)\). Furthermore, recidivism rates
from half a year to 6 years after release showed TM program participants to be 30% less
likely to return to prison than control group participants \((p < .001)\).

The study done by Alexander et al. (2003) also suggests that TM programs signifi-
cantly reduce recidivism. In a retrospective follow-up study conducted on inmates at
Walpole State Prison in Massachusetts, Alexander et al. (2003) collected archival data
from the Massachusetts Department of Corrections on four different prison samples:
152 inmates who had learned TM in Walpole State Prison; random samples from 690
inmates participating in counseling, drug rehabilitation, and religious activities; a
random control sample of 225 inmates from Walpole State Prison; and 81 inmates who
had not participated in learning TM. Consistent with the definition of recidivism from
the Massachusetts Department of Corrections, the study defined recidivism as return-
ing to prison for more than 30 days for a new offense. Data were collected from 1975
to the mid-1980s.

Results showed a significant reduction in the recidivism rates among TM practi-
tioners. Overall, TM practitioners were 33% less likely to return to prison than were
members of the control groups \((p = .042)\), and 47% less likely to return to prison than
were all nonmeditating control participants \((p = .045;\) Alexander et al., 2003). It is
important to note, however, the limitation regarding the recidivism definition used by
Alexander et al. (2003). It does not take into account prisoners who recidivate for less
than 30 days, or those who are reincarcerated for things other than new offenses (i.e.,
parole violations). With those populations being taken into account, it is possible that
the percentages of TM practitioners who recidivated might have been found to be
higher.

Further research has also been conducted examining whether TM programs reduce
recidivism. For example, Rainforth et al. (2003) analyzed recidivism data on 248
inmates at Folsom State Prison. One hundred twenty participants had learned the TM
technique and 128 were controls. Recidivism data were collected until 1991 from the
California Justice Department’s Bureau of Identification on inmates (participants and controls) who were incarcerated in Folsom State Prison from 1975 to 1982. Using a Cox regression analysis (Cox, 1972, as cited in Rainforth et al., 2003) that calculates the reduction of risk of recidivism, Rainforth et al. (2003) suggested that prisoners who learned the TM technique were 43.5% less likely to recidivate than were control participants \((p = .0008)\).

With such an effect of reducing recidivism up to 47% (e.g., Alexander et al., 2003), TM programs may improve, along with psychological well-being, the recidivism rates in prison populations. Because of article length requirements, all of the research conducted on the effect of TM in prison populations was not reviewed here. For a detailed review, see Hawkins (2003).

**Vipassana Retreats in Prisons**

Along with TM, researchers have also studied the effects of Vipassana meditation retreats on prison populations. Chandiramani et al. (1995) investigated the effects that a 10-day Vipassana meditation retreat had on inmates in Tihar Jail, the largest prison in India. Two studies were used as the basis to collect data on inmates participating in the 10-day Vipassana retreats, and results were categorized into five reports across both studies titled “Impact of Vipassana on Psychiatric Illnesses of Prisoners,” “Impact of Vipassana on Some Positive Aspects of Mental Health,” “Impact of Vipassana on Feelings of Hostility and Helplessness in Prisoners,” “Impact of Vipassana on Sense of Anomie and Attitude to Law,” and “Impact of Vipassana on Personality Functioning and Psychopathology.”

The first study was conducted in January 1995 with a total of 120 participants (Chandiramani et al., 1995). Pre- and posttreatment measures on the Hamilton Anxiety and Montgomery Depressive Inventories revealed a significant reduction \((p < .01)\) in scores after the Vipassana retreat and suggest that Vipassana meditation may alleviate anxious and depressive feelings.

Pre- and posttreatment measures on well-being and hope scales (the scales were not described thoroughly by Chandiramani et al., 1995) and the Miller and Power hope scale suggest that inmates who attended the meditation retreat may have felt more hopeful generally in daily life \((p < .001)\) and may have had an overall better sense of well-being than prior to the retreat \((p < .001)\). Subsequent follow-up tests administered at 3 months after the retreat supported statistical reductions for the well-being scale \((p < .001)\) but not the hope scale. Interestingly, statistical significance was reported at the 6-month follow-up period for both well-being \((p < .001)\) and hope scales \((p < .01;\) Chandiramani et al., 1995).

A 15-item hostility scale and a 51-item Hostility and Direction of Hostility Questionnaire (Chandiramani et al., 1995, p. 11) were both administered before and after the retreat, with scores decreasing after completion of the retreat. Five subscales of self-criticism, guilt, acting out hostility, criticism of others, and delusional projection of hostility were all found to generally decrease immediately after the retreat.
(p < .001 for all subscales except acting out hostility, p < .01). Although scores generally decreased at the 3- and 6-month follow-ups, only the self-criticism subscale maintained statistical significance at the 3-month follow-up (p < .05), and no subscales maintained statistical significance at the 6-month follow-up (Chandiramani et al., 1995).

Finally, to measure psychopathology among inmates, all participants were administered the Eysenck Pen Questionnaire (EPQ) before and immediately after the retreat. Mixed results with no statistical significance on these measures suggest that there is no conclusive evidence that the 10-day Vipassana retreat had a positive effect on reducing the psychopathology of inmates (Chandiramani et al., 1995).

The first study in this Vipassana series had major limitations in that no control group was used to validate the effects that the technique had on the Vipassana meditation group. Furthermore, the definitions of psychopathology used and the screening processes for disorders were unclear. The well-being and hope scales also were not clearly defined, which may have distorted the validity of this study. More confounding variables, such as the inmates’ environment, their relationships with other inmates, relationships with prison guards, and relationships with outside family and friends also need to be considered for the validity of this study to be strengthened.

The second study took place in April 1994, also in Tihar Jail, which was popularized in the documentary *Doing Time, Doing Vipassana* (Ariel & Menahemi, 1997). One thousand inmates participated in a 10-day Vipassana course. Of those 1,000 inmates, 85 were assigned to a treatment group, and 65 inmates not participating in the Vipassana retreat were assigned to a control group. Measures were conducted assessing anomie, attitude toward law, personality, and psychiatric illness. Prior to participating in the retreat, all 150 participants were administered the PGIHQ-N1 (a personality measure assessing psychiatric disorder that has not been clearly defined by Chandiramani et al., 1995). Thirty-five participants in the Vipassana group and 9 in the control group were found to have a psychiatric disorder as defined by the above measure. Prior to and on completion of the course, inmates with psychiatric illnesses were administered the Hamilton Anxiety Scale and the Beck Depression Inventory. Scores for anxiety and depression on those measures decreased in the Vipassana group pre- to posttreatment (p < .001) but showed no significant change in the control group (Chandiramani et al., 1995). This suggests that participants suffering from psychiatric illnesses in the Vipassana group may have had some symptom decrease.

Srole’s scale of anomie (Srole, 1956) was completed by all participants prior to and on completion of the 10-day retreat. Although no immediate changes in anomie were revealed initially, posttest scores at 3 and 6 months suggests a significant difference between groups (p < .001), with anomie reducing in the Vipassana group but not in the control group.

There are some serious limitations to the above study as well. In addition to similar confounding variables as for the first study, it was unclear how “psychiatric illness” was defined and, therefore, the results related to this factor cannot be generalized to any psychiatric illnesses. Furthermore, only 35 participants in the Vipassana group and 9 in the control group showed symptoms of psychiatric conditions. This study’s
population also might not be an adequate sample size to test for statistical significance. Finally, although there was a control group in this study, it was not clear whether participants were randomly assigned to treatment or control groups.

Although there are limitations to the generalizability and validity of their results, the Vipassana studies discussed above suggest that Vipassana retreats may be helpful in improving an overall condition of well-being in daily life by reducing hostility, helplessness, hopelessness, anxiety, depression, and anomie. Limitations of this research have been mentioned specifically for each study. The strenuous 10-day retreat format may or may not be as effective as a more practical design of prolonged Vipassana practice daily over the course of several months. Furthermore, the moral precepts espoused for the duration of the retreat by all participants of these retreats are worth considering. Could it be that committing to moral precepts affects participants’ quality of life outside of the actual meditative technique? Because the above study did not measure the specific behaviors that relate to the moral precepts, the impact of that factor is unknown. It would be important to isolate this effect and explore whether it works as a confounding variable against meditation. Addressing this question would bring further insight into how exactly Vipassana meditation can be beneficial to prisoners. Finally, Chandiramani et al.’s (1995) research was not published in a peer-reviewed journal. And it is unclear as to how strictly their publishing company reviewed this research report given its major limitations.

Other research published in peer-reviewed journals has investigated the effect that Vipassana retreats have on substance use in prison populations. For example, Bowen et al. (2006) conducted a Vipassana meditation study with prisoners in the North Rehabilitation Facility in Seattle, Washington. In this study, research focused on the effects Vipassana meditation had on substance use within the prison population. Three hundred five inmates initially volunteered to participate in the 10-day Vipassana course. Of those participants, 173 completed posttreatment assessments.

Measures on a multitude of scales assessed daily drinking and drug use, impulse control, thought suppression, psychiatric symptoms, and optimism prior to participation in the Vipassana course (Bowen et al., 2006). Follow-up assessments were conducted at 3 months after completion of the 10-day course. Results showed a decrease in the use of alcohol, marijuana, and crack cocaine at the 3-month follow-up assessment \( (p < .05) \). Furthermore, decreases in psychiatric symptoms and increases in optimism and internal locus of control related to alcohol consumption were also significant \( (p < .05; \text{Bowen et al., 2006}) \).

In a similar study, Simpson et al. (2007) also conducted a 10-day Vipassana course at the North Rehabilitation Facility. Of the 302 inmates who initially participated, 88 returned for the 3-month follow-up assessments. Participants were assessed for post-traumatic stress disorder (PTSD) symptoms and daily alcohol and drug use prior to and 3 months after completion of the course. As congruent with the Bowen et al. (2006) study, Vipassana course participants revealed significant differences that did not manifest for the control groups. Decreases in the use of alcohol \( (p < .001) \) and drug use \( (p < .001) \) 3 months after course completion suggest that the 10-day Vipassana
course may be beneficial in reducing substance use in prison populations. No significant differences between Vipassana and control groups were found on PTSD symptom measures. A factor worth considering that limits the validity of the above studies is the extremely high attrition rate from pretest to posttest. A significant portion (132 participants in Bowen et al., 2006, and 88 participants in Simpson et al., 2007) did not complete the follow-up assessment. Furthermore, both studies failed to use randomized, controlled designs. This might suggest possible volunteer bias in treatment groups from both studies.

**Mindfulness-Based Stress Reduction in Prisons**

Mindfulness-based stress reduction programs have also been researched in incarcerated populations. Samuelson et al. (2007) implemented the MBSR program in six Massachusetts prisons. From 1992 to 1996, one women’s prison and five men’s prisons administered the MBSR program to 1,350 inmates. MBSR groups typically ranged from 12 to 20 members and lasted for a duration of 60 to 90 min per session. Depending on the particular prison, programs lasted from 6 to 8 weeks. Prior to and on completion of the MBSR course, all participants completed three personality measures: the Cook and Medley Hostility Scale, the Rosenberg Self-Esteem Scale, and the Profile of Mood States. The statistically significant reductions ($p = .0001$), 9.2% for women and 7% for men, on posttreatment Cook and Medley Hostility scales at all prison sites suggest that the MBSR program may have reduced hostility within inmates. Increased scores ($p = .006$), 8.3% for women and 3.8% for men, on the Rosenberg Self-Esteem Scale were found at all program sites, implying a rise in overall self-esteem among participants.

Samuelson et al. (2007) found the most dramatic reduction to be that on the Profile of Mood States Scale, which dropped approximately 38% for women and 29% in men ($p = .0001$). This suggests that the MBSR program has the possibility of improving mood states within incarcerated populations and may help develop healthier psychological functioning, which in turn might contribute to better rehabilitative environments. Limitations in this study worth mentioning are that the authors failed to have an adequate control group. Without a control group and random assignment to each condition, it is difficult to attribute this study’s findings to solely participation in the MBSR course.

**Dissertation Research From DAI**

Meditation-based programs have also been applied to incarcerated youth, though not nearly as often as to adult populations. Flinton (1998) explored the effect of a mindfulness-based intervention on incarcerated youth in a detention camp housing youth in a dorm-like manner. An 8-week pretest–posttest wait-list-controlled design assessed the effect of the mindfulness-based program on anxiety and locus of control in 42 participants. Participants were placed in either a treatment or a wait-list control
Because of the nature of the youth detention camp, random assignment was not attainable when deciding which youth were placed in which groups. However, random assignment of which group received treatment first was decided by a coin flip. Although the treatment group received the mindfulness-based intervention during the first 8 weeks, the control group watched educational videos. Meditation techniques were taught progressively throughout the 8-week treatment intervention. Meditative techniques used in the current study were progressive relaxation, concentration of the breath, and mindfulness to whatever arises in the present moment. Classes were formatted starting with a check-in, an expression of feelings by participants, and a 10- to 15-min meditation session once or twice a class, with 15 to 20 min after each meditation to process any content that arose or to answer any questions youth participants had. As the group progressed through the 8-week period, meditation periods became longer and instruction and processing were shortened.

The Brief Symptom Inventory (BSI) and the Prison Locus of Control Scale (PLOC) were administered to all participants pre- and postintervention. No significant effects were found in group-by-time interaction, suggesting no significant difference in whether participants received the treatment during the first or second 8-week period. Scores on the BSI revealed reductions in treatment groups ($p < .05$), with no difference occurring in wait-list control groups. Furthermore, mean scores on the PLOC showed a reduction among treatment groups ($p < .05$) and no significant change in control groups (Flinton, 1998). These findings indicate that participants receiving the treatment intervention displayed decreased anxiety and increased internal locus of control.

Although Flinton’s research is a promising application of a meditation-based program to incarcerated youth, there are limitations worth mentioning. Along with aforementioned limitations such as the experimenter effect, there was time reserved in each class for content processing. It is worth considering the impact this group process format had on the study. It may be that processing personal feelings in a group had more of an effect than the meditation itself. Although this is important to consider, it may be a component necessary to integrating and making meditation applicable to the participants’ lives for it to be useful. This might help extend mindfulness practice beyond the intervention to generalize to the participants’ lives outside of incarceration.

Meditation-based programs have also been researched within federal institutions. Perkins (1998) examined the effect of a mindfulness-based intervention based on MBSR on adult female prisoners at the Federal Correctional Institution in Tallahassee, Florida. An 8-week pretest–posttest controlled design assessed the effect of the mindfulness-based program on state and trait anger, psychological distress, and stress coping in 143 participants. Participants were placed in a treatment group ($N = 49$), control group ($N = 48$), or attention control group ($N = 46$). Participants in the attention control group participated in either an 8-week, 2-hr drug education class or an 8-week, 2-hr life skills class. Participants needed to have a seventh-grade reading level to participate in the study. Participants deemed eligible were assigned research identification numbers and every other participant was selected for the treatment group intervention. Participants not selected were placed in the wait-list control group. Attention control
group participants were selected to their respective conditions based on institutional policy. Meditation techniques were taught progressively throughout the 8-week treatment intervention. Meditative techniques used in the current study were progressive relaxation, breathing exercises, the body scan meditation (see Kabat-Zinn, 1990, for a review), and Hatha yoga postures. Classes lasted 2 hr and included both didactic training and experiential exercises.

The Global Severity Index (GSI) of the Symptoms Checklist Revised 90-item version (SCL-90), the Coping Resources Inventory for Stress (CRIS), and the State and Trait Anger Expression Inventory (STAXI) were administered pre- and postintervention to all participants. Scores on the CRIS revealed significant improvements \((p < .05)\) in four of the eight primary subscales (confidence, stress monitoring, tension control, and problem solving), and one of two composite subscales (cognitive restructuring) in the treatment intervention group and attention control group but not in the control group (for a full review of the primary and composite scales on the CRIS, see Curelette, Aycock, Matheny, Pugh, & Taylor, 1990). This suggests that participants in the mindfulness treatment intervention, the drug education class, and life skills class significantly improved on stress coping ability.

Scores on the GSI revealed posttest scores to be significantly different \((p < .05)\). Treatment group participants scored significantly lower \((p < .000)\) than control group members and attention control group members \((p < .05)\). This suggests that treatment group participants experienced significantly less distress on completion of the mindfulness-based intervention.

Scores on the STAXI showed the treatment group to decrease significantly more than the control group from pretest to posttest \((p < .006)\). No significant differences were found between treatment group and attention control group participants. This suggests that the mindfulness-based intervention might have decreased state and trait anger in treatment group participants and is suggestive of the relationship between mindfulness interventions and anger.

**Implications of Meditation-Based Programs in Correctional Settings**

The above literature supports the notion that meditation-based programs can be rehabilitative in correctional settings. There are three major areas in which this support is most recognized. First, the research suggests that meditation-based programs may increase psychological well-being as a result of an increase in positive psychological states, such as hopefulness (Chandiramani et al., 1995), optimism (Bowen et al., 2006), and subjective mood state (Samuelson et al., 2007), and they may decrease negative psychological states, such as obsessive–compulsive behavior (Orme-Johnson & Moore, 2003), anxiety (Abrams & Siegel, 1978; Chandiramani et al., 1995; Flinton, 1998), hostility (Chandiramani et al., 1995; Samuelson et al., 2007), and state and trait anger (Perkins, 1998). This improvement in psychological well-being and reduction in psychological distress could enhance inmates’ ability to engage in rehabilitation and other
types of treatment. Mindfulness meditation-based programs may, for example, enhance self-management abilities (Baer, 2003) among inmate populations. This coupled with improved psychological well-being could advance candidacy for rehabilitation-related programs.

Second, meditation-based programs have been shown to significantly decrease self-reported substance use in correctional populations (Bowen et al., 2006; Simpson et al., 2007). Given that the number of drug offenders increased from approximately 75,000 in 2000 to more than 90,000 in 2006 (Sabol, Couture, & Harrison, 2007), meditation-based programs might assist in providing necessary treatment to the drug offender population within correctional settings.

Third, meditation-based programs have been shown to decrease recidivism (Alexander et al., 2003; Rainforth et al., 2003). Given that one major evaluation of rehabilitation programs in correctional settings is recidivism outcome, meditation-based programs have proven to be worthy treatment interventions. These three areas support the notion that meditation practices can be used for the treatment of criminal offenders and enhance candidacy for other rehabilitation programs.

Future Research and Conclusions

Research investigating the effect of meditation-based programs on incarcerated populations is still in its infancy. Indeed, most of the above studies reflect mediocre research designs by way of nonrandom condition assignment or absence of a control group. Furthermore, the research on TM in prisons disproportionately outweighs that of Vipassana retreats and mindfulness-based interventions. Given this disproportion, further research in mindfulness-based interventions, Vipassana retreats, or other meditative traditions might provide useful insight into any significant differences between meditation styles. Further research is needed to advance this field.

Future research can contribute to this field in multiple ways. First, more advanced quantitative designs need to be used in researching the effect of meditation-based programs on correctional populations. That is, of the reviewed studies, most did not use adequate control groups to support their treatment results, and those that used controlled groups did not use random assignment to research conditions. Advances in these areas will more closely determine the effect that meditation-based programs have on prison populations.

Second, recidivism outcomes should be measured in meditation styles other than TM. For mindfulness-based interventions and Vipassana retreats to obtain similar credibility to TM, recidivism outcome must be investigated. It would be useful, for example, if it was found that mindfulness-based interventions yielded better or worse recidivism rates than TM. Prison officials could then make an informed decision on which particular meditation-based programs to implement.

Third, meditation-based programs need to be thoroughly investigated at the juvenile correctional level. Flinton’s (1998) dissertation research shows promising evidence suggesting that mindfulness may decrease anxiety and increase locus of
control. Given that approximately 25% of youth offenders recidivate into adulthood (Snyder & Sickmund, 2006), rehabilitation programs that target juvenile reform are in dire need. More studies in juvenile correctional populations are needed to identify if meditation-based programs are an adequate deterrent from future crime and adult recidivism.

Fourth, in all of the research presented in this review essay, the voices of the participants are absent. Qualitative and mixed methods research might provide insight into experiences of the participants not necessarily captured in quantitative research. For example, participants may learn meditation and not necessarily commit themselves to practice until sometime after the completion of the study. This might influence insignificant research findings but nonetheless could have a profound effect on the individual. Furthermore, participants may develop in areas not examined in the study; they may recidivate for reasons other than committing crimes (i.e., parole violations) but improve in their ability to relate to others socially. These are some examples of how the use of strictly quantitative measures to evaluate program effectiveness may miss an inherent value gained by the participant that does not have direct payoff in regard to stereotypical program evaluation standards such as recidivism. Therefore, it is important that future research not be limited to strictly quantitative measures and investigate the effectiveness of meditation-based programs in correctional populations with quantitative, qualitative, and mixed methods. Such methods may also provide insight into the types of meditation programs that are offered to different incarcerated populations (e.g., incarcerated youth might find 10-day retreats too strenuous).

In conclusion, this article has reviewed the literature found in peer-reviewed journals and relevant dissertations regarding the effect of meditation-based programs in correctional populations. Policy makers and prison officials may want to consider the institutional implementation of meditation programs in adult and juvenile correctional populations. With state correctional expenditures increasing from $15.6 billion in 1986 to $38.2 billion in 2001 (Stephan, 2004), offender programs that promote rehabilitation are in dire need. With institutional support of meditation-based programs, correctional settings may be one step closer in starting to reform into rehabilitative institutions rather than promote the negative and inhumane conditions described by Haney (2006). Furthermore, meditation-based programs may also reduce correctional system costs. In a cost savings analysis on the TM program, Magill (2003) suggests that reductions in recidivism, medical expenses, and a better prison environment—as a result of more inmates learning and practicing TM—may decrease overall prison expenditure. Policy-maker support and implementation of such programs might provide future evidence that could save the U.S. large expenditures and potentially reduce societal crime by providing proper treatment for criminal offenders.

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