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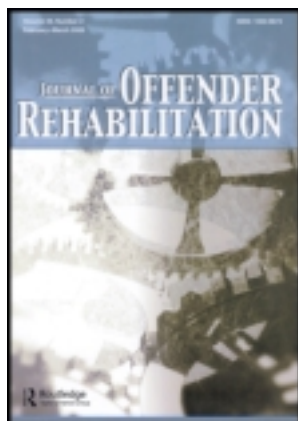
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Available at: https://works.bepress.com/steven_vannoy/1/



Journal of Offender Rehabilitation

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/wjor20>

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Available online: 23 Sep 2008

To cite this article: Steven D. Vannoy & William T. Hoyt (2004): Evaluation of an Anger Therapy Intervention for Incarcerated Adult Males, *Journal of Offender Rehabilitation*, 39:2, 39-57

To link to this article: http://dx.doi.org/10.1300/J076v39n02_03

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Journal of Offender Rehabilitation, Vol. 39 (2), 2004. Pp. 39-57.

<http://www.haworthpress.com/web/JOR>

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Digital Object Identifier: 10.1300/J076v39n02_03

Evaluation of an Anger Therapy Intervention for Incarcerated Adult Males

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ABSTRACT An anger therapy intervention was developed for incarcerated adult males. The therapy was an extension of cognitive-behavioral approaches, incorporating principles and practices drawn from Buddhist psychology. Adult males from a Midwestern low-security prison were randomly assigned to either a treatment group ($n = 16$) or a waiting list control group ($n = 15$). Following a 10-session intervention, treated participants exhibited significant reduction in anger relative to those in the control group. Greater reductions in anger for the therapy group was mediated ($p = .07$), by greater reduction in egotism relative to the control group. Contrary to predictions, anger reduction was not mediated by increases in empathy. Implications for designing and delivering interventions in prison settings are discussed. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2004 by The Haworth Press, Inc. All rights reserved.]

KEYWORDS Meditation, anger, incarcerated, adult, males, empirical, group

From 1985 to 1997 the number of individuals being placed under the supervision of state and federal corrections agencies increased from 3 million to 5.7

million [Bureau of Prisons (BP), 2000]. Two major sources for the increase in supervision are increases in arrests for drug related offenses and recidivism. From 1980 to 2000, the percentage of federal inmates incarcerated for drug offenses rose from 25% to 56%. In 1997, only 24% of the state inmates were serving time on their first sentence, indicating 75% of the inmates were "recidivists." Large numbers of people are being moved through the corrections system. In 2001, 585,400 inmates will be released from state and federal prisons (BP, 2001). The majority of these individuals will fail to negotiate "life on the outside" and will return to prison. The costs to society of having large numbers of incapacitated adults is difficult to calculate when one considers the vast impact on individuals, families, schools, industry, and politics.

It is difficult to know precisely how many supervised adults are mandated to attend anger therapy. A recent survey of group psychotherapy services in correctional facilities (Morgan, Winterowd & Ferrel, 1999) indicated that anger therapy may be the most frequent form of group therapy offered within correctional settings. Little is known about the relationship between the experience of anger and criminal behavior. Furthermore, provision of anger management treatment by the justice system is non-standardized and rarely initiated by mental health professionals. While data for drug and alcohol treatment are maintained and published by the Bureau of Prisons, no information is published for anger therapy despite the frequency with which it is mandated.

Working with a court-mandated client base within a prison system places mental health professionals in a situation that is particularly challenging. Performing empirical studies within the corrections system is also challenging in a multitude of ways: difficulty of access to inmates, scarcity of opportunities to meet in groups, and inflexibility of schedules are a few of the obstacles investigators can expect to encounter. Despite these obstacles, a number of outcome studies have indicated positive therapeutic results within the prison system. A meta-analysis conducted by Beck and Fernandez (1998) looked at a wide range of anger therapy studies. Of these, seven studies indicated the subjects were inmates. Beck and Fernandez computed an overall effect size of .7 for the studies they surveyed. We computed an effect size for the five inmate studies that used a treatment and control design, and found the effect size to be 0.85 with inmates.

ANGER THERAPY

The evaluation of anger therapy has been underway since the groundbreaking work of Ray Novaco (1975). Novaco's approach was an extension of the stress-inoculation techniques of Meichenbaum (1975). He framed anger as a maladaptive response to provocation and then developed a treatment aimed at "increasing personal competence in managing provocations through the regulation of anger and the reduction of its maladaptive concomitants and conse-

quences" (Novaco 1975; p. 3). Analysis of Novaco's treatment reveals that it overlaps with treatment approaches of Beck (1976) and Ellis (1977). Together, these form the basis of cognitive-behavioral therapy for anger. Nearly every empirical study of anger therapy conducted from 1975 to 1995 has focused on a treatment that evolves from the family of cognitive-behavioral therapy (Beck & Fernandez, 1998).

Although there has been debate over the efficacy of cognitive-only treatments compared with relaxation methods and combinations of the two (Novaco, 1975; Moon, 1983; Hazaleus, 1986; Deffenbacher, 1988; Deffenbacher, 1992; Deffenbacher, 1994; Deffenbacher, 1996; Beck & Fernandez, 1998), the overall picture in treatment outcome is that these three methods are reasonable approaches for a wide range of individuals experiencing life difficulties due to anger (Beck & Fernandez, 1998).

The purpose of this study is to evaluate a technique for extending anger therapy beyond methods for responding to provocation, into methods for developing psychological tools that prevent intense, dangerous anger from arising in the first place.

BUDDHIST PSYCHOLOGICAL MODEL OF ANGER AND CHANGE

In the oral and written traditions of Buddhist teaching, considerable attention is given to anger because Buddhist psychology considers anger to be a very serious form of suffering. Not only is anger antithetical to happiness in the moment, it is frequently the state of mind present when individuals cause harm to self and others—such behavior being the basis for future suffering. Anger is said to be caused by an exaggeration or projection of negative qualities onto an object, person, idea, etc., which results in an emotion that cannot endure said object and induces a wish to either destroy or flee from it (Chodron, 2001). As with Western cognitive theories, anger is said to arise from ill-conceived thoughts that do not accord with reality. A full discussion of Buddhist conceptualizations of anger and related emotions is beyond the scope of this paper, we will restrict our discussion to aspects relative to the study conducted.

Patience is considered to be an antidote to anger. One aspect of Buddhist patience is defined as a mind that remains calm in response to provocation. Remaining "calm" implies a mind that is free from a fight or flight impulse and hence, willing to interact with the source of provocation. Patience does not imply passivity. A patient person may be very active, but his activity is not being driven by a fight or flight reaction, but by a clear rationale of how to act effectively given the current circumstances.

Techniques for personal growth and development in Buddhist thought have been refined and tested for twenty-five hundred years. A foundation of Bud-

dhist principle is that all creatures want to avoid suffering and experience happiness. A second foundation is that it is possible to reduce suffering and increase happiness through *training the mind*. Consequently, a multitude of techniques have been developed in Buddhism to reduce suffering and increase happiness through intrapersonal transformation.

Buddhist psychology proposes that suffering arises from three primary causes, attachment, aversion, and ignorance (Leifer, 1999). In this context, *attachment* refers to a misperception of reality that causes an individual to think that external objects (person, place, and thing) inherently possess desirable qualities such as being good. From this, the individual develops the belief that obtaining these objects will bring happiness. While attachment itself is considered to be a suffering state of mind, attachment also leads to anger because (a) people are often prevented from obtaining the object of desire and (b) even on obtaining the desired object their increase in happiness may be negligible or short-lived.

Aversion is the converse misperception that *objects* (including words and ideas) inherently possess (i.e., distinct from subjective evaluations) undesirable qualities such as being bad. Depending on the intensity and duration of aversion, various negative states of mind arise, forming a continuum from mild irritation to hatred and hostility, with anger being somewhere in between.

Finally, ignorance refers to a general misperception of reality that holds the self as an inherently existing entity with certain qualities that exist independently of time, space, and social context. In Buddhist theory, ignorance exaggerates the importance of the self in the context of the universe, generating an egocentric attitude. Consequently, the individual is regularly subjected to experiences of conflict and disappointment (largely because everyone else is running around with this same delusion). Buddhists assert that all people are subject to these misperceptions. The degree to which they influence us determines the amount of mental anguish we experience.

MEDITATION

Buddhist meditation practice challenges the misperceptions involved in attachment, aversion, and ignorance. The meditation practice used in this intervention is drawn from introductory meditation practice as it is presented by practitioners within the Tibetan Buddhist tradition. Within this tradition, the motivation for performing these practices is not only the reduction of anger, but also the development of patience (a mind that remains free of anger despite provocation), compassion (the wish for others to be free from suffering), and loving-kindness (the wish for others to experience happiness and its causes). In developing this intervention, the presentation of anger and meditation has been revised to eliminate references to Buddhist terminology and ideas that would not generalize to non-Buddhist world-views.

Meditation is a word that gets used in variety of ways within the popular and scientific literature. In this paper, we use the definition from the Tibetan

Buddhist literature, which defines meditation to be the act of becoming familiar with or habituating to (Lamrimpa, 1999). There are variations on the definition and especially the practice of meditation within the Buddhist world-community and even within the Tibetan Buddhist community. Hence, this discussion of meditation should not be considered universal.

Two types of meditation, stabilizing and analytic, are used in the intervention. Stabilizing meditation is performed by having the individual focus attention on the sensation of the breath as it enters and leaves the nostrils. The meditator is instructed to pay attention to the stream of thoughts—when he or she notices that these are no longer focused on the breath, he or she is to let go of whatever thought or feeling is occurring and return concentration to the breath. Stabilizing meditation has been shown to have positive effects on a variety of psychological and physiological disorders (Kabat-Zinn, 1990). Stabilizing meditation is included at the start of each group session for three reasons: (a) it assists the meditator in developing mindfulness, a subjective awareness of what is taking place in the mind; (b) it helps the meditator learn to stop ruminating; and (c) it improves the meditator's mental stability and ability to track one set of thoughts without getting distracted. Although these assumptions constitute crucial questions for the evaluation of Buddhist practice as a therapeutic process, they are not tested in this study.

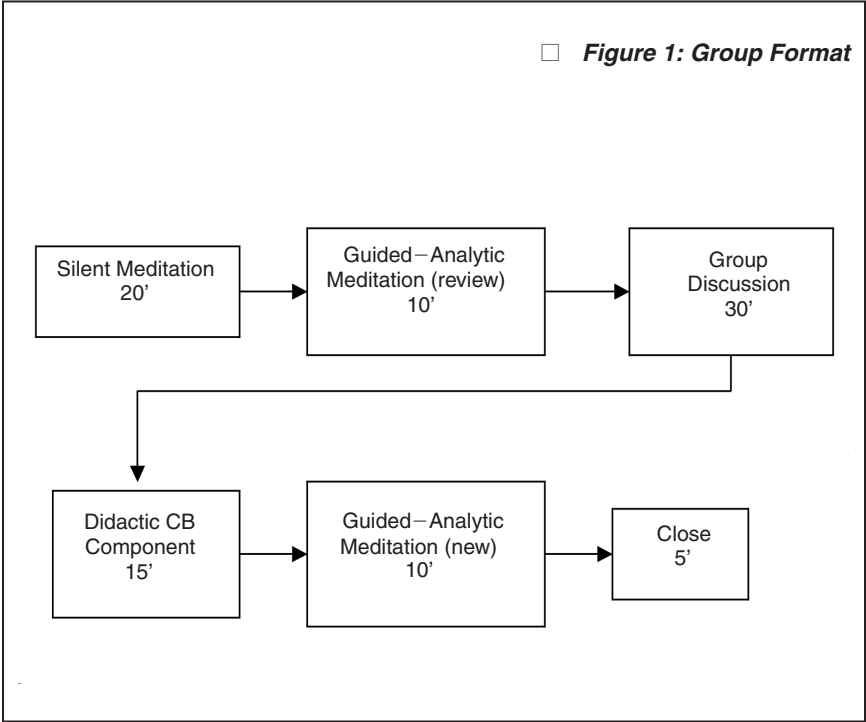
Analytic meditation consists of a guided exercise where the individual investigates an aspect of his or her mental, emotional, or physical experience. For example, the meditator might be instructed to perform the following sequence mental tasks: (a) recall a time when you felt loved by someone; consider how that felt; (b) attempt to offer love to yourself in this moment; (c) attempt to offer love back to the individual who made you feel loved in (a); analyze how that feels; (d) attempt to offer love to other people in your life whom you care for; (e) attempt to offer love to people in your life to whom you feel no attraction or aversion at all (neutral people); (f) attempt to offer love to someone in your life whom you consider to be an enemy (or at least unworthy of love); analyze how this feels. Buddhist psychology proposes that this type of exercise, when repeated frequently over time, leads not only to insight, but also to an increase in the individual's ability to experience love. Hence, the emphasis on becoming familiar with and habituating to experiences in the above definition of meditation. In this intervention, participants use analytic meditations once or twice each group meeting to investigate their own experiences with respect to the kindness of others, equanimity, love, compassion, attachment and aversion, and habitual behaviors.

INTEGRATING MEDITATION PRACTICE INTO COGNITIVE-BEHAVIORAL TREATMENT FOR ANGER

Although derived from quite different traditions and in distant historical periods, Buddhist and cognitive-behavioral approaches to the causes and treat-

ment of anger have much in common, so that an integration of the two may capitalize on synergy as well as novelty. Both Buddhist and cognitive-behavioral perspectives propose that the experience of anger derives from misconstrued beliefs about how the world should operate. Both assert that self-knowledge is a key to improved psychological functioning—in particular, insight into the nature and causes of negative experiences is promoted in each approach through guided introspection into thoughts and feelings in both historical and hypothetical situations. Finally, both Buddhist and cognitive-behavioral perspectives are action-oriented, developing a set of self-care skills intended for use outside the actual teaching or therapy setting.

Figure 1 describes the synthesis of Buddhist meditation and cognitive-behavioral therapy that was offered to male inmates in the present study. The initial silent meditation is both an exercise for developing the skills discussed above, and a way of setting the tone for the group environment. In the first meeting there are only two meditations, the initial silent meditation is immediately followed by discussion; this allows for emphasis to be placed on the experience of the silent meditation. Following the discussion, participants are introduced to the guided-analytic meditations. The format illustrated in Table 1



□ **Table 1: Outcomes for Treatment and Control Group Participants for All Dependent Variables**

Dependent Variables	mean diff (tx) N = 16	sd diff (tx)	mean diff (cntrl) N = 15	sd dif (cntrl)	d	t	p
State Anger	-2.38	5.12	5.80	10.77	-0.76	-2.73	0.010
Feeling	-1.19	2.26	2.33	3.99	-0.88	-3.05	0.010
Verbal	-1.19	2.74	2.00	1.04	-0.79	-2.60	0.020
Physical	0.00	0.52	1.47	3.96	-0.37	-1.47	0.150
Trait Anger	-2.75	6.18	1.20	5.85	-0.68	-1.83	0.08
Temperament	-1.19	2.61	-0.33	2.26	-0.38	-0.97	0.34
Reaction	-0.94	2.82	1.33	3.04	-0.75	-2.16	0.04
Empathic Concern	0.50	4.65	0.60	4.32	-0.02	-0.06	0.95
Perspective Taking	2.44	4.32	1.67	2.85	0.27	0.58	0.57
Egotism	-0.50	1.09	0.33	1.29	-0.65	-1.94	0.06

Note. (tx) = treatment group; (cntrl) = control group; mean diff = mean difference for pre- and post-test scores; std diff = standard deviation of mean differences; std error = standard error; d = effect size; t = one sample t-test; p = level of statistical significance; diff of means = difference of mean scores between control and treatment groups; std error of diff = standard error of difference scores.

is followed for all subsequent sessions. The didactic portion of the group allows for the introduction of traditional cognitive-behavioral material. The meditation experience naturally stimulates participants to be introspective, which facilitates the impact of cognitive-behavioral interventions aimed at the intrapsychic experience. In this initial evaluation of the combined treatment, we compared male inmates randomly assigned to receive the intervention with those randomly assigned to a control group on their change from pre-treatment anger levels. In addition to anger, we examined two other dependent variables thought to be potential mediators of the relation between treatment and change in anger: egotism and empathy.

HYPOTHESIZED MECHANISMS OF ACTION

Recent work has challenged the theory that violent, aggressive individuals possess low self-esteem (Baumeister, 1993; Baumeister, Smart & Boden, 1996;

Bushman & Baumeister, 1998). These investigators have found that aggressive people are often characterized by high self-esteem that is unstable, and hence, vulnerable to threat. Recent investigations have supported the hypothesis that egotism is a predictor of aggressive, violent behavior (Baumeister et al., 2000; Baumeister et al., 1996; Bushman & Baumeister, 1998; Kernis, Grannemann & Barclay, 1989). Interestingly, egotism, or a false sense of self-importance likely to foster experiences of suffering, is a primary target for change in Buddhist practice. Thus, one potential mechanism for the effectiveness of Buddhist meditation in reducing state and trait anger is a reduction in egotism.

Empathy in Western psychology has been theoretically split into cognitive and emotional components (Mehrabian, 1997). The cognitive component is defined as the ability to accurately cognize things from another's perspective (Hogan, 1969), and the emotional component is the inclination to vicariously experience the emotions of another. The role of empathy and its potential benefits have been proposed and investigated at length (Duan & Hill, 1996). Surprisingly, no one has proposed empathy training for anger management even though perspective-taking is a well-known technique within anger management therapy. Because of the emphasis in Buddhist meditation on both decreasing false self-importance and enhancing a sense of loving-kindness toward fellow beings, we considered that both cognitive and affective components of empathy may also mediate the reduction in anger in intervention participants.

Thus, in the present study we hypothesized that the anger management intervention would lead to (a) decreased state and trait anger, (b) increased empathy and perspective-taking, and (c) decreased egotism in intervention participants relative to control group participants. Furthermore, we hypothesized that changes in both empathy and egotism mediate intervention-based changes in anger levels.

METHOD

Design

This study was an experimental design with a wait-list control group. Inventories were administered to both the treatment and control groups before and after therapy. Two rounds of data collection were conducted.

Participants

Participants were 31 adult males incarcerated in a low security prison in a Midwestern state. Ages ranged from 21 to 50 ($M = 35$, $SD = 8.6$). Racial-ethnic representation included the following: 11 European American and 18 Afri-

can American, 1 Latino and 1 Native American (33.3%, 60%, 3.3%, 3.3%, respectively).

The therapist, Steven Vannoy, was a 35-year-old White male master's student in counseling with 2.5 years experience leading anger management classes as a volunteer in corrections settings. The therapist had eight years experience with meditation training and practice, and had been leading meditation groups in the general public for 5 years.

Procedure

First intervention round. Participants were recruited by the first author from several sources. The prison maintains a list of individuals who are required to attend anger management classes and this list was one source of recruitment. The therapist also contacted staff social workers, described the anger management group, and requested referrals from them. Finally, the therapist attended two orientation sessions for new inmates, described the program, and invited inmates to participate (a sign-up sheet was left on a table containing other materials for them to browse after the orientation). An initial list of candidates was generated from the combined sources and provided to the social services secretary who called residential units and requested the guards in these units to send inmates to the social services building. When six or more inmates were present, the therapist conducted a complete orientation to the study. Inmates were invited to participate in the study; participation in the class without participation in the study was an option offered verbally and in the consent form. Inmates were informed that they would be randomly assigned to participate in either the first or second wave of treatment. Those consenting to participate in the study signed the consent form and then completed the collection of self-report instruments during the study orientation session.

From the initial list of 36 candidates, 30 agreed to be participants in the class and 29 agreed to be participants in the study. This pool of participants was used for random selection of treatment versus control group with 15 being selected for treatment and 14 selected for wait-list control. Ten participants were required to complete an anger management class before being released from prison. No priority was placed on this requirement, and random assignment resulted in five mandated participants being assigned to the treatment group and five to the control group.

Of the 15 individuals starting the class, 5 dropped out prior to the end of the treatment. (One elected to participate in the later round of treatment, with the waiting-list participants; one was selected to participate in an alternate intensive twelve week program; one had a schedule conflict; and two were restricted to solitary confinement.) Thus, ten individuals completed the first round of treatment with 4 attending 11 sessions, 3 attending 10 sessions, and 3 attending 9 sessions. After the class ended, all participants were again called to the social services building to complete the post-test questionnaires. All of the

treatment participants and the control participants completed the questionnaires. Following the post-test, a second anger management class was available for the wait-listed participants. Although data from these participants were collected following treatment, they were excluded from the analyses reported here to avoid statistical dependencies between treatment and control group means.

Second intervention round. For the second round of evaluation, seven individuals expressed interest in participating through identical recruitment efforts. One volunteer was unable to attend due to scheduling conflicts; his data were included in the control group. The other six volunteers participated in a third 12-week class, and their data were included in the treatment group. Of these six, 1 completed 12 sessions, 1 completed 11 sessions, and 4 completed 10 sessions. Thus, the treatment group ($n = 16$) in the analyses reported below includes 10 first-round and 6 second-round participants; the control group ($n = 15$) includes 14 first-round and 1 second-round participants.

Intervention

The intervention consisted of 12 weekly group meetings. Participants met for 1.5 hours per week. Because of the nature of the institutional setting, even willing and regular participants often missed at least one class, frequently for reasons beyond their control. Thus, attending 9 of the 12 sessions was arbitrarily selected as a criterion for successful completion of the class. Participants were allowed to drop out of the class at any time. Following the last class, an entry was made in the inmate's official record indicating whether he successfully completed the class or not. See Figure 1 for more information on the intervention format.

Instruments

Anger. The experience of anger was measured using the State Trait Anger Inventory, version 2 (STAXI-2; Spielberger, 1988).

The STAXI-2 is a 57-item, Likert-type (1 to 4) scale on which participants report on their experience and expression of anger. There are seven major scales: state-anger (S-Ang), trait-anger (T-Ang), anger expression-out (AX-O), anger expression-in (AX-I), anger control-out (AC-O), anger control-in (AC-I), and anger expression index (AX). For S-Ang there are three subscales: 5-items each, feeling angry (S-Ang/F), feeling like expressing anger verbally (S-Ang/V), and feeling like expressing anger physically (S-Ang/P). For the trait-anger scale, there are two subscales, the angry temperament (T-Ang/T), 4 items, and the angry reaction (T-Ang/R), 4 items. The angry temperament scale is intended to measure the disposition to experience anger without specific provocation. The angry reaction scale is intended to measure the frequency with which angry feelings are experienced in situations

that involve frustration or negative evaluations. Anger expression-out, 8 items, measures how often angry feelings are expressed in verbally or physically aggressive behavior. Anger expression-in, 8 items, measures how often angry feelings are experienced but not expressed. Anger control-out, 8 items, measures how often a person controls the outward expression of angry feelings. Anger control-in, 8 items, measures how often a person attempts to control angry feelings by calming down or cooling off. The anger expression index, 32 items, provides a general index of anger expression based on responses to the AX-O, AZX-I, AC-O, and AC-I items.

Validation studies using STAXI with various populations have confirmed the instrument's structure (Deffenbacher, Oetting, Lynch & Morris, 1996; Kroner & Reddon, 1992; Spielberger, 1988). In Kroner and Reddon's (1992) study on an inmate population, $n = 137$, alpha coefficients ranged from .34 to .94. There are no published validation studies for version two; however, three of the five original STAXI scales remain the same: T-Ang, AX-O, AX-I, and the two T-Ang subscales T-Ang/T and T-Ang/R. Alpha coefficients ranged from .60 to .93 in the present sample.

Although anger control (AC-O and AC-I) might seem like desirable targets of an anger therapy, the lack of normative data render the use of these scales problematic. Spielberger (1988) indicates that scores that are *too* high or *too* low may be problematic, but there is no way of knowing where these thresholds might lie. Likewise, the expression scales (AX-O and AX-I) are more descriptive of style than of pathology and there is no basis on which to evaluate potential changes on these scales. Consequently, our analysis relied on the state and trait scales only.

Empathy. Empathy was measured with two subscales of the Interpersonal Reactivity Index (IRI; Davis, 1980). The perspective-taking (PT) scale, 7 items, assesses the tendency to spontaneously adopt the psychological point of view of others. Questions are answered by selecting from the following options: strongly disagree, disagree, neutral, agree, and strongly agree. An example question is, "I sometimes find it difficult to see things from the 'other guy's' point of view." The empathic concern (EC) scale, 7 items, assesses "other-oriented" feelings of sympathy and concern for unfortunate others. An example question is, "I often have tender, concerned feelings for people less fortunate than I." Davis (1990) reported the psychometric properties of the IRI. He found internal consistency reliabilities of .71 to .77 for PT and EC, respectively. We found internal consistency reliabilities of .64 to .71 in the present sample.

Egotism. Egotism was measured using the Exploitativeness/Entitlement subscale (Emmons, 1987) of the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988). The subscale consists of 7 items assessing willingness to exploit others for personal gain. An example question is, "I will never be satisfied until I get all that I deserve." Raskin and Terry (1988) reported an internal consistency coefficient of .52 for the exploitativeness subscale. We found alpha coefficients of .61 to .88, respectively, for pre- and post-treatment scores.

Power and Sample Size

Because analyses were conducted on change (difference) scores, we used an effect size (d) representing the standardized mean difference of these change scores between treatment and control group participants. Thus, d was computed as the mean difference score (i.e., post-score minus pre-score) for the treatment group minus the mean difference score for the control group, divided by the standard deviation of the difference scores in the control group (Cohen, 1992). Beck and Fernandez (1998), found the average effect size for anger management therapy studies to be .7. This represents a relatively large effect size as defined by Cohen (1992). Statistical power, $(1-\beta)$ of .80, at a two-tailed significance level of .05 and effect size of .7, would require 26 participants in the treatment group and 26 participants in the control group. As indicated above, only 16 participants received treatment in the present study, with 15 in the control group. For a group size of $n = 15$, the power to detect $\delta = .8$ is .56 (Cohen, 1992), which implies a large (44%) Type II error rate for these preliminary findings.

RESULTS

Post-treatment data were collected by summoning participants to a common space in groups of six to eight at a time. The one sample t -tests were conducted comparing change (difference) scores on all scales between treatment and control groups. An alpha level of .05 was used for all statistical tests. A summary of the analysis is presented in Table 1.

Change in Anger Levels

The treatment group showed moderate to large improvement relative to the control group for three of the five state and trait anger subscales, including, present feelings of anger (S-Ang F; $d = -0.88$, $t(29) = -3.05$, $p = .01$), present desire to verbalize anger (S-Ang V; $d = -0.79$, $t(29) = -2.60$, $p = .02$), and trait reactivity to anger-provoking situations (T-Ang R; $d = -0.75$, $t(29) = -2.16$, $p = .04$). Differences on the other state and trait measures were in the expected direction, with effect sizes ranging from $-.37 > d > -.38$. Effect sizes for the anger scales attempting to measure *how* anger is experienced were all small.

Potential Mediators

We adopted the three step process described by Baron and Kenny (1986) to analyze our mediator hypotheses. In this study, treatment was the independent

variable (IV), and change in state anger was the dependent variable (DV) of interest. We hypothesized that state anger was an appropriate target outcome because it is presumed to be less stable over time than is trait anger (Spielberger, 1988). The hypothesized mediator variables were (a) change in egotism, (b) change in perspective taking, and (c) change in empathic concern.

According to Baron and Kenny (1986), mediator hypotheses can be tested via the following series of multiple regression analyses (a) the mediator is regressed onto the IV; (b) the DV is regressed onto the IV; and (c) the DV is regressed onto the mediator while the IV is statistically controlled. If regressions (a) and (b) are significant, and if the mediator is significantly related to the DV in regression (c), this is considered supportive of a mediation hypothesis (Baron & Kenny, 1986, p. 1177).

Because changes in both mediator and outcome variables (as opposed to status on these variables post-treatment) were of interest, we controlled for pre-treatment scores on the proposed mediator and on state anger in the relevant analyses, entering these scores as Block 1 in the hierarchical regression model.

Perspective taking and empathic concern. Perspective-taking improved somewhat for the treatment group relative to the control group, but failed to meet statistical significance $R^2 \text{ change} = .01$, $F(1,28) = 0.6$, $p > .1$. There was no improvement in empathic concern, $d = -0.02$, $R^2 \text{ change} = .03$, $F(1,28) = .97$, $p > .1$. Because therapy did not facilitate a change in perspective taking or empathic concern, there could be no mediator role for either of these variables.

Egotism. When egotism post-treatment was regressed onto treatment group, controlling for egotism pre-treatment scores, the association was significant $d = -0.65$, $R^2 \text{ change} = .04$, $F(1,28) = 2.95$, $p < .1$. Given the marginal significance for egotism, we proceeded with the mediator analysis.

The second step is to analyze the effect of treatment on the dependent variable, when state anger post-treatment was regressed onto treatment group, controlling for state anger pre-treatment scores, the association was significant $R^2 \text{ change} = .18$, $F(1,28) = 7.0$, $p = .013$. the results of this analysis, reported above, confirm that treatment had a significant impact on state anger. Finally, we regressed the dependent variable, state anger, on both the treatment condition and egotism (after controlling for pretreatment scores on both egotism and state anger). This analysis revealed that the reduction in egotism accounted for 8% of the variance in the reductions of state anger, although this effect was marginal $R^2 \text{ change} = .08$, $F(1,26) = 3.6$, $p = .07$.

DISCUSSION

In general, the analyses indicated that the treatment was effective for reducing state anger and the reactivity facet of trait anger. Participants in this study scored lower on the pre-treatment TAS ($M = 20.3$, $SD = 6.7$) than participants

in many published outcome studies, (Deffenbacher, Demm & Brandon, 1986; Deffenbacher, Huff, Lynch, Oetting & Salvatore, 2000; Deffenbacher, Oetting, Huff, Cornell et al., 1996; Deffenbacher & Stark, 1992; Deffenbacher, Story, Brandon, Hogg et al., 1988; Deffenbacher, Thwaites, Wallace & Oetting, 1994; Dua & Swinden, 1992; Hazaleus & Deffenbacher, 1986). The pre-treatment mean placed the group in the 50th percentile for normalized scores of male prison inmates (Spielberger, 1988). Despite low pre-treatment scores, effect sizes were generally large and significant. The failure to strongly influence state physical anger (S-Ang P) is attributable to floor effects on this scale: all but one participant received the minimum possible score on S-Ang P at pre-test. Given that even small verbalizations of hostility in this low-security institution can result in punishment as severe as solitary confinement, the low reported desire to express anger physically may be attributable to socially desirable responding. On the other hand, as indicated in the Introduction, significant numbers of incarcerated adults have been convicted of non-violent crimes. Thus, it may be that low S-Ang P scores are less veridical indicators of the relative unimportance of physical anger as an intervention target, at least in this population. It is worth noting in this context that, although approximately half of the participants were mandated to attend anger management classes, state anger at pre-treatment was low ($m = 18.0$; $sd = 4.1$) compared to participants in recent studies of anger therapy involving undergraduate students ($m = 20.45$; $sd = 4.22$; $m = 18.71$; $sd = 4.65$; $m = 20.63$; $sd = 3.92$; $m = 19.00$; $sd = 4.27$; Deffenbacher, Gegory, Thwaites, Wallace & Oetting, 1994).

Mediators of Anger Reduction

The fact that treatment was effective is not a surprising result. Wampold (2001) has argued that demonstrating efficacy of specific treatment modalities is no longer a substantial scientific contribution, and that research must continue to explicate the questions of how and why treatment is effective. For treatment targeting anger, an important question is what personal skills or qualities reduce the likelihood that people will (a) feel angry in response to daily experiences or (b) express the anger they do feel through destructive behavior. Buddhist psychology suggests that anger arises from an over-focus on the self, combined with attachment to external objects and experiences as the source of self-validation. Therefore, we hypothesized that interventions that reduce excessive self-focus (i.e., egotism) or enhance other-focus (i.e., perspective-taking, empathic concern) will reduce anger.

Our findings tentatively suggest a mediating relationship between egotism and anger that is consistent with prior theoretical investigations of egotism and aggression. (Because the association between treatment and egotism, and also the association between egotism and state anger controlling for treatment status, were marginally significant in this study, these findings await replication using a larger sample). Threatened egotism has been linked to increased ag-

gression in theory and experiment (Emmons, 1987; Bushman & Baumeister, 1998). Although much of this work has used total scores on the NPI as an index of egotism, Ruiz, Smith and Rhodewalt's (2001) findings (like our own) highlight the unique association of the NPI Exploitativeness/Entitlement subscale (our measure of egotism) and aggression.

The lack of change on empathic concern and perspective taking was a surprising result. The pre-treatment data indicate a high level of empathic concern within this population. The median pre-treatment score for all participants on empathic concern was 28 ($sd = 4.0$) on a scale ranging from 7 to 35. Because the participant group-average was close to the scale ceiling (with 8 of 31 participants within 1 sd of the maximum score at pretreatment), there was little room for improvement on empathic concern in this sample. Further complicating an understanding of these results is the failure to reproduce prior reports of significant negative correlations between empathy and egotism (Watson & Moris, 1991). Although there are indications that empathy is negatively correlated with eruptive violence (Mehrabian, 1997), others (Goldstein & Higgins D' Alessandro, 2001) have failed to demonstrate a significant difference in either perspective taking or empathic concern in inmate populations. Further investigations into the relationship between empathy, narcissism, and anger in adults is warranted. The effect size for improvement in perspective-taking was greater than that for empathic concern, but remained small by Cohen's (1988) standards. Further research on improved perspective-taking as a mediator of anger reduction seems warranted as well.

There are a number of positive psychological characteristics, other than empathy, that may affect state and trait anger. Positive emotions may broaden an individual's thought-action repertoire and build personal resources (Fredrickson, 2000). Empirical studies have shown a positive relationship between positive-emotion and cognitive flexibility, creativity, and receptivity (Isen & Daubman, 1984; Isen, Daubman & Nowicki, 1987; Estrada, Isen & Young, 1997). These cognitive facilities are common goals in cognitive-behavioral therapies for anger. Positive emotions are not merely an absence of negative emotions (Watson & Tellegen, 1985), so that anger-reduction interventions may benefit from incorporating techniques, such as meditation, for enhancing positive emotions, as well as techniques targeting symptom-reduction.

Clinical Observations

Inmates demonstrated capacity and interest for investigating their own conceptual and emotional experiences as demonstrated from group dialogue regarding the meditation experience. The adaptation of Buddhist psychological principles was well received from a clinical perspective. Although we did not test the impact of meditation specifically, there is evidence that studies aimed at validating specific therapeutic ingredients have not borne fruit (Ahn &

Wampold, 2001). As mentioned, meditation has been shown to be an effective tool for stress reduction in its own right, and the role of meditation in this intervention above and beyond stress reduction is that of creating a context for discussion and interaction.

Buddhism emphasizes the development of a strong internal locus of control balanced with an awareness of interdependence between all individuals. The punitive atmosphere of prison communicates a message of culpability on the part of inmates and emphasizes the negative effect of criminal behavior on society. Although the orientation is very different, there is a parallel structure to these two contexts, which might seem contraindicated for creating a therapeutic experience for inmates. Why then, did participants in this study appear to be enthusiastic members in a prison-based therapy group? Two factors may have influenced this. First, the therapist was not a department of corrections employee and participants frequently expressed positive attitudes towards the group based on this outsider status. Second, fully half of the participants were purely voluntary, and brought with them a readiness and openness to engage in the group that enhanced therapeutic factors such as hope and cohesion (Yalom, 1995).

Finally, although half of the participants were mandated to attend anger therapy, and might therefore have been expected to be less motivated group members, by the end of treatment it was usually difficult to distinguish mandated from voluntary participants. Hopefully, the positive therapeutic environment in these groups will encourage therapists and researchers who might be intrigued by working with supervised adults, but be wary due to stereotypes, to pursue those goals.

CONCLUSIONS

A strong trend of increased incarceration rates and sentences has developed in the United States (Tonry, 1998). Millions of individuals are being subjected to sanctions restricting the pursuit of life, liberty, and happiness for themselves and, consequently, their families. In addition to proscriptive sanctions, large portions of supervised adults are being required to participate in "programs" for a host of interpersonal and intrapsychic issues. Referred to as *program needs*, supervisees are required to enroll in anger management, domestic violence groups, substance abuse treatment, and criminal thinking reprogramming. The case is easily made for increased involvement in realms of research and clinical work on the part of psychologists. As a field, we need to begin to invest our resources into the development and provision of mental health services specifically targeted to individuals who have been placed under the supervision of our state and federal corrections institution.

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The authors thank the Wisconsin Department of Corrections for its participation in this study. They also acknowledge the contribution of Thubten Chodron in the design of the meditation intervention and the training of the first author.

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