

## **Nonspecific Factors and the Efficacy of Psychosocial Treatments for Anger**

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### **Abstract:**

Various psychosocial treatments have been proposed to be efficacious for maladaptive anger and other co-occurring conditions. With the increasing demands of accountability by managed-care companies and policy makers, the efficacy of psychological treatment interventions has become a particularly important topic in mental health practice. The demonstrated role of nonspecific factors in treatment outcome has also highlighted the importance of identifying specific mechanisms of change in the evaluation of treatment efficacy. This article reviews the efficacy of psychosocial treatments of anger and provides a critical analysis of specific and nonspecific treatment factors in treatment outcome. It is concluded that the demonstrated efficacy of psychosocial treatments of anger is generally consistent with nonspecific factors. Experimental controls that allow for analysis of the prescriptive and structured procedures of psychosocial treatments of anger are recommended.

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## **ANGER AND ITS CLINICAL IMPLICATIONS**

Anger is described as a negative phenomenological experience that exists on a continuum in which the frequency, intensity, and duration of the experience, along with expressive (i.e., subjective, physiological, interpretive, and behavioral) characteristics, often leads to significant impairment (e.g., Kassinove & Sukhodolsky, 1995; Kassinove & Tafrate 2002; Novaco, 1975). Studies suggest that anger-related impairment is often manifested in a variety of physical (e.g., Lohr & Hamberger, 1990) and psychological problems (e.g., Tafrate, Kassinove, & Dundin, 2002). For instance, Williams et al. (2000) found that anger places middle-aged adults at risk for coronary heart disease and death. Others have argued that anger is a potential mediator of domestic violence and substance abuse disorders (e.g., Barbour, Eckhardt, Davison, & Kassinove, 1998). Anger has also been proposed to co-occur with Type A behavior as well as aggressive and risky behavior while driving (Deffenbacher, Huff, Lynch, Oetting, & Natalie, 2000).

Although anger is often associated with significant dysfunction, “anger disorders” are not currently recognized by the *Diagnostic and Statistical Manual—Fourth Edition (DSM-IV)* (American Psychiatric Association, 1994). However, Eckardt and Deffenbacher (1995) have proposed three anger disorders that they suggest should be included in the *DSM*: (a) Adjustment Disorder with Angry Mood, (b) Situational Anger Disorder, and (c) General Anger Disorder. Although their anger-based diagnostic model attempts to bridge one of the many gaps in the anger treatment literature, the clinical reality is that for many mental health practitioners anger is often a residual of other diagnosable psychiatric conditions. Difficulties with anger expression are often observed in disorders such as Intermittent Explosive Disorder, Borderline Personality Disorder, Antisocial Personality Disorder, Paranoid Personality Disorder, and Conduct Disorder (Kassinove & Tafrate, 2002). Therefore, without the independent clinical manifestation of anger (beyond that which is captured by other psychiatric conditions), reliance on anger-based diagnostic models would seem premature.

The determination of pathological anger appears to be further complicated by the relatively normative nature of anger experiences (e.g., Kassinove, Sukhodolsky, Tsytsarev, & Solovyova, 1997; Averill, 1983). The normative nature of anger has led some to posit that any boundary between normal and pathological anger would be artificial (Tafrate et al., 2002). Thus, the implementation of psychosocial treatments for “anger disorders” may require more detailed evaluation, particularly given Tafrate et al.’s observation that “our understanding of anger episodes and the personality correlates of people likely to experience exaggerated and dysfunctional anger is incomplete” (p. 1574). Despite the lack of theory regarding any distinction between “functional” and “dysfunctional” anger, psychosocial treatments for anger continue to be utilized across many mental health disciplines. The application of psychosocial treatments to anger without a well-formulated theory of “anger disorder” is a significant concern, as it has been argued that treatments should stem from theories of disorder and theories of treatment (Eifert, 1996).

There is currently little agreement among mental health practitioners as to what constitutes an anger problem. Anger problems are often defined psychometrically (i.e., by cutoff scores) rather than from a theoretical model (DiGiuseppe & Tafrate, 2003). Elevated anger appears to be one of the many “clinical” problems for which packages of psychosocial treatment components have been developed because of its intuitive appeal (e.g., O’Donohue & Yeater, 2003). As a result, multiple combinations of psychosocial treatments often described as “Anger Management Training” (AMT) or “Anger Control Training” (e.g., Deffenbacher, Dahlen, Lynch, Morris, & Gowensmith, 2000; Feindler, Marriot, & Iwata, 1984) have been proposed as efficacious in the treatment of anger problems (Kassinove & Tafrate, 2002). Although various psychological interventions are used to treat anger conditions in school settings, community mental health centers, and correctional facilities, there is an absence of theoretical evidence to guide the differentiation between normal and pathological anger reactions (Tafrate et al., 2002).

Beck (1999) has attempted to offer a cognitive theory of anger and related conditions (e.g., hostility, violence). The cognitive theory of anger consists of a constellation of core beliefs, automatic interpretations, and feelings that comprise the manifestation of anger experiences. Although the descriptive element of the cognitive theory of anger is well formulated, the causal element of the theory that relates specific disorder components to specific treatment components is less compelling (e.g., Bieling & Kuyken, 2003).

Specification of theoretical mechanisms and their application in treatment may facilitate the process of matching treatment and disorder components. Likewise, DiGiuseppe (1999) argued that cognitive interventions (i.e., cognitive restructuring) for anger would be expected to positively influence cognitive processes more than would behavioral or physiological processes. Physiological interventions (i.e., relaxation training) for anger should also affect physiological processes more than cognitive or behavioral processes. However, the matching of symptoms to specific psychosocial treatment procedures of anger has not consistently produced specific effects (DiGiuseppe, 1999; DiGiuseppe & Tafrate, 2003). If connections cannot be made between the treatment components of anger and theoretical mechanisms of therapeutic change, the evaluation of treatment efficacy using control conditions that evaluate those specific theoretical propositions becomes jeopardized. In addition to the absence of an adequate theory, a critical appraisal of the evidence supporting the efficacy of psychosocial treatments of anger is timely, given the growing popularity of such interventions in mental health practice. Although recent discussions have addressed factors (i.e., therapeutic alliance) that may facilitate anger treatment (e.g., Howels & Day, 2003), much less attention has been accorded to the specific efficacy of the treatments.

## **PROPOSED THEORY OF PROBLEM BEHAVIOR AND TREATMENT CONTENT**

The implementation of psychosocial treatments for dysfunctional anger can be traced to the work of Novaco (1975), who viewed anger as a learned emotional response to provocation. Novaco argued that maladaptive anger can be identified on the basis of several dimensions, such as frequency, intensity, duration, mode of expression, effect on performance, and effect on interpersonal relationships. Novaco developed AMT by adapting Meichenbaum’s stress inoculation training (SIT), which had been developed for anxiety disorders (Masters, Burish, Hollon, & Rimm, 1987; Novaco, 1977). In SIT, a person is exposed to increasingly large “doses” of stress-inducing situations while coping skills (i.e., self talk) are taught. SIT was derived from the theory that stress occurs when the demands on a system exceed its resources or when there are no adaptive responses available to meet the demands (Meichenbaum & Deffenbacher, 1988). AMT is based on the rationale that anger responses occur in a similar fashion. Much like SIT, Novaco’s (1975) AMT procedure consisted of sequential treatment phases. Phase 1, *education*, provides clients with a conceptualization of their anger dysfunction. In phase 2, *acquisition*, clients are taught coping skills. In phase 3, *application*, clients are exposed to anger-inducing situations and are encouraged to incorporate what they have mastered in the acquisition phase.

Since the development of AMT, multiple psychosocial treatments have been applied to problematic anger in mental health practice. Such treatments include but are not limited to relaxation, progressive muscle relaxation, systematic desensitization, meditation, biofeedback, self-instructional training, cognitive restructuring, social skills training, problem solving, assertiveness training, exposure, flooding, education, and stress inoculation (DiGiuseppe & Tafrate, 2003). Such psychosocial interventions for anger have been described as structured, prescriptive, and time-limited treatments that may be applied as specific interventions or in the broader context of clinical treatment (Kassinove & Tafrate, 2002). Despite the descriptive specificity of technique and purpose, it remains unclear how psychosocial treatments of anger specifically relate to an overarching theory that would elucidate treatment mechanisms. When applied to anger, various psychosocial treatments are often described by the term *AMT*. However, the generic use of the term *AMT* is problematic as it refers to any treatment targeted at anger, including those used by Jack Nicholson in the recent film *Anger Management*. Studies also use different combinations of psychosocial interventions and package them as AMT with the belief that these interventions are interchangeable. The interchangeable use of multiple psychosocial treatments is also of concern, as studies have shown that some psychosocial treatments for anger may be more effective than others under specific conditions (e.g., DiGiuseppe & Tafrate, 2003; Edmonson & Conger, 1996). The interchangeable use of psychosocial treatments for anger also limits the utility of appropriate controlled experimental designs aimed at determining the efficacy of the interventions above and beyond the effects of nonspecific treatment factors.

## **TREATMENT EFFICACY AND NONSPECIFIC FACTORS**

The role of nonspecific factors is receiving increased attention in the analysis of treatment efficacy (Borkovec & Castonguay, 1998; Chambless & Hollon, 1998). Lohr, Lilienfeld, Tolin, and Herbert (1999) argued that an efficacious treatment may be defined as one that produces effects greater than those produced by nonspecific factors. Critelli and Neumann (1984) suggested that nonspecific factors can be categorized into three broad categories: (a) factors without specific activity, (b) unspecified but active factors, and (c) common factors. Factors without specific activity are those for which there is no specific mechanism of action that has an effect on treatment. Unspecified but active factors are those treatment factors that have not been specified as the active ingredients of a particular treatment. Common factors are those that are not specific to particular treatments, but are common to most types of treatments. The efficacy of a treatment must be demonstrated relative to nonspecific factors and established treatment procedures possessing clinical efficacy to be considered a specific treatment for a specific psychological disorder (Lohr et al., 1999).

We argue that the efficacy of psychosocial treatments for anger requires the use of control conditions for such nonspecific factors as treatment credibility, expectation for improvement, experimental demand, and therapist-experimenter allegiance effects (Grunbaum, 1985). In addition, the use of experimental component control designs facilitates the identification of the specific features characteristic of psychosocial treatments of anger. The evaluation of the efficacy of psychosocial treatments of anger also requires direct comparisons with other validated techniques. Grunbaum argued that the experimental evaluation of treatment efficacy should be conducted when the characteristic and incidental features of the treatment can be specified in relation to a theory on which the treatment is based. Likewise, Borkovec and Castonguay (1998) argued that such considerations allow for strong experimental tests to determine the relative effects of characteristic and incidental features through component controlled experimental designs.

## **THE EFFICACY OF PSYCHOSOCIAL TREATMENTS FOR ANGER**

Since the inception of anger treatment, numerous studies addressing the efficacy of psychosocial treatments of anger have been published in peer-reviewed journals. In an attempt to integrate these findings, Edmonson and Conger (1996) conducted a comprehensive meta-analytic review that found that the average effect size for various psychosocial treatments (i.e., relaxation, social skills, cognitive therapy) for anger ranged from 0.64 to 0.82, indicating that all of the treatments evaluated had positive effects on anger-prone clients. However, they also found that different psychosocial treatments produced large effect sizes for some aspects of anger and only small effect sizes for others. Beck and Fernandez (1998) conducted a metaanalysis of 50 studies incorporating various psychosocial treatments for anger. They found that the treatments produced a grand mean weighted effect size of 0.70, indicating that the average participant in a treatment condition was better off than 76% of untreated participants in terms of anger reduction.

In a recent meta-analysis, DiGiuseppe and Tafrate (2003) examined the efficacy of 92 psychosocial treatments of for anger that incorporated 1,841 subjects. The investigators found an overall effect size of 0.71, suggesting that subjects who received treatment showed a reduction in anger and an increase in positive behaviors compared with untreated subjects. However, a significant disparity was found between the minimum and maximum effect sizes of specific psychosocial

treatments. For instance, the effect size for cognitive restructuring ranged from 0 to 1.26, the effect size for meditation ranged from  $-0.02$  to 0.47, the effect size for systematic desensitization ranged from  $-0.35$  to 1.24 and the effect size for combined psychosocial interventions ranged from  $-1.08$  to 1.94. These findings suggest that under certain conditions some treatments for anger could potentially produce iatrogenic effects. Furthermore, the degree of variability in the effect sizes of specific treatments for anger would mitigate any significant differences between the treatments. Other variables such as nonspecific factors may account for a substantial portion of the observed variance. Although meta-analytic effect size calculation provides a comparison between treatment and control conditions, the analysis does not typically quantify the degree of internal validity provided by such controls. The evaluation of the efficacy of psychosocial treatments for anger can be improved by consideration of the quality of the controls for nonspecific factors.

## **Psychosocial Treatments of Adult Anger and Related Conditions**

### ***Wait-list Controls***

Wait-list control procedures provide for the assessment of statistical regression, measurement reactivity, spontaneous remission of symptoms, and other threats to internal validity. Studies that compare psychosocial treatments of anger with no treatment or wait-list control conditions show greater effects for psychosocial treatments for anger and related conditions. For instance, Deffenbacher, Dahlen, et al. (2000) evaluated the efficacy of psychosocial treatment for anger reduction in a college population. Sixty-nine participants who scored high on trait anxiety (a general tendency to respond with anxiety to perceived threats in the environment) and indicated both a personal problem with anger and a desire for treatment were randomly assigned to a treatment or a no-treatment control condition. The results indicated that significantly more participants in the treatment condition met an index of clinically significant change. Additionally, participants in the treatment condition reported lower levels of anxiety and depression. Reductions of anger and anxiety were maintained at 15-month follow-up.

Hart (1984) explored the efficacy of psychosocial treatment for Type A behaviors. Participants were assigned to either a treatment condition or a no-treatment control condition. The treatment consisted of deep-muscle relaxation, imagery exposure, and imagery exposure paired with relaxation techniques. The results indicated that participants in the treatment condition reported significantly less overall Type A behavior and less impatience than those in the no-treatment control condition. Medd and Tate (2000) evaluated the efficacy of psychosocial treatment for anger after traumatic brain injury. The authors argue that Acquired Brain Injury (ABI) can produce a variety of alterations in the brain functioning that often results in difficulties with anger expression. Participants were randomly assigned to a treatment group or a wait-list control condition. The results indicated a significant decrease in the outward expression of anger for participants in the treatment condition. However, there was no significant difference in the amount of anger experienced and in participants' ability to control anger. Furthermore, treatment effects did not generalize to levels of self-esteem, anxiety, depression, or self-awareness. Larkin and Zayfert (1996) evaluated the efficacy of psychosocial treatment for lowering blood pressure at rest and during confrontation in patients with high blood pressure. Thirteen hypertensive patients were assigned to a treatment condition and 9 patients were assigned to a no-treatment control condition. Results indicated that patients in the treatment condition exhibited significantly lower diastolic blood pressures at post-treatment than patients in the control condition. Participants in the treatment condition also displayed significantly more assertiveness skills and lower diastolic blood pressure than patients in the control condition during confrontation interactions, but not during neutral role-play interactions. However, post-treatment systolic blood pressures were not significantly different between the two conditions.

Watt and Howells (1999) investigated the efficacy of psychosocial treatment for violent offenders. Participants were randomly assigned to either a treatment or a waitlist control condition. The results provided little support for treatment gains for participants in the treatment condition relative to the control condition. Specifically, no significant differences were detected between the two conditions for participants high in trait anger (the disposition to experience angry feelings). The authors further cautioned against the use of psychosocial treatment for anger with violent offenders. Napolitano and Brown (1991) argued that individuals incarcerated for murder tend to rebel against anger treatment procedures by actively defending against previously used coping skills. Likewise, Gondolf and Russell (1986) cautioned against the use of psychosocial treatments for anger in men who batter because their use lacks of empirical support.

Gerzina and Drummond (2000) investigated the efficacy of psychosocial treatment for anger reduction in self-referred police officers. Participants were randomly assigned to either a treatment condition or a wait-list control condition. The treatment consisted of relaxation training, cognitive reappraisal, and training in problemsolving skills.



The results showed that self-reported measures of anger and anxiety were reduced in the treatment condition relative to the wait-list control condition. The difference was maintained at an 8-week follow-up. However, no significant changes were detected on self and peer-rated anger arousal for the treatment condition. Taylor, Novaco, Gillmer, and Thorne (2002) evaluated the efficacy of the psychosocial treatment of anger intensity among offenders with intellectual disabilities. The psychosocial treatment consisted of cognitive-behavioral techniques developed for treating anger by Novaco (1975). Participants were randomly assigned to a cognitive-behavioral anger treatment condition or to a routine care wait-list control condition. Participants in the treatment condition reported significantly lower anger intensity than those in the routine-care wait-list control condition. However, no significant differences were detected between the two conditions on staff-rated anger.

### *Attention Control*

Attention controls attempt to equate the amount and general nature of therapeutic contact common to all treatments (Mahoney, 1978). Stermac (1986) evaluated the efficacy of psychosocial anger treatment with forensic patients. Forty male participants were randomly assigned to either an anger treatment condition or an attention control condition. The treatment condition consisted of six rotation sessions of 1 hour, twice weekly. The control condition was presented with psychoeducational material in eight rotation sessions for 1 hour, twice weekly. The psychoeducational material provided basic information on psychiatry, psychology, and forensic law. The results indicated that subjects in the anger treatment condition reported significantly less lower subjective levels of anger, an increased use of adaptive coping strategies, and less use of self-denigration strategies when compared with the psychoeducation attention control condition. However, no significant differences were detected between the two groups on impulsivity.

Chemtob, Novaco, Hamada, and Gross (1997) evaluated the efficacy of psychosocial treatment of anger in Vietnam War veterans suffering from combat-related posttraumatic stress disorder (PTSD). Participants were randomly assigned to either a group receiving only routine clinical care for PTSD or a group receiving anger treatment as an adjunct to routine care. Results indicated that participants in the anger treatment condition had significantly lower anger reaction scores than participants in the routine-care condition. Participants in the anger treatment condition also reported significantly more self-control over anger than participants in the routine-care condition. However, no significant differences were found on anger disposition or on physiological measures at post-treatment. Furthermore, only self-control over anger was maintained at 18-month follow-up.

### *Specific Component Control*

Specific component controls involve the manipulation and comparison of the specific characteristic components of a given treatment (Lohr et al., 1999). Deffenbacher, Storey, Brandon, Hogg, and Hazaleus (1988) presented data from a component analysis of treatment for anger in a college population. Participants were assigned to a cognitive modification (teaching coping skills rationale, identification of anger-producing self-statements, and application of skills to analogue provocations), cognitive modification and relaxation training, or a no-treatment control condition. Treatment main effects were detected on all outcome variables except state anger and pulse rate. Post hoc comparisons conducted at 5-week follow-up indicated that participants in both treatment conditions showed less trait anger, fewer anger symptoms during analogue provocations, and less maladaptive coping relative to participants in the control condition. However, no significant differences were detected between the two treatment conditions.

Moon and Eisler (1983) randomly assigned 40 undergraduate participants to a stress inoculation condition, a problem-solving condition, or a minimal attention control condition. Measures of blood pressure, pulse, self-reported anger, assertion, and aggression were obtained pre- and post-treatment. The results indicated that although stress inoculation significantly decreased anger-provoking cognitions, there was no significant increase in appropriate assertiveness. Problem-solving and social-skills training reduced anger-provoking cognitions and increased appropriate assertiveness. Deffenbacher, Oetting, Huff, Cornell, and Dallager (1996) presented evidence suggesting that although relaxation skills and social-skills training were equally effective in the reduction of trait and daily anger levels, anger in response to a wide range of situations, anger arousal, and trait anxiety, relaxation-skills training was more effective in enhancing a controlled style of anger expression. In an earlier study, Hazaleus and Deffenbacher (1986) found affect modification (a relaxation coping intervention) and cognitive modification to be equally effective (relative to a no-treatment control) for general anger, physical symptoms of anger, daily ratings of anger, state anger, and coping with imaginal provocations.

Dahlen and Deffenbacher (2000) compared cognitive restructuring alone, cognitive restructuring with additional emphasis on behavioral change, and a no-treatment control condition. The investigators found that both treatment groups showed reductions in trait anger; cognitive, behavioral, and emotional components of anger; and anger-related physiological arousal when compared with the control condition. However, there were no significant differences between the two treatment conditions. In an earlier component analysis, Novaco (1976) compared self-instructional training combined with relaxation training, relaxation alone, and self-instruction alone. The results indicated that although consistent differences were noted between the combined treatment condition and the attention-control condition, less improvement was observed for the instruction-alone condition. However, the instruction-alone condition was better than the relaxation-alone condition.

In a study incorporating an adult population with mild to moderate retardation, Benson, Rice, and Miranti (1986) reported no significant differences in anger reduction between relaxation training, self-instruction, problem solving, and a combined treatment condition. In a recent study, Cahill, Rauch, Hembree, and Foa (2003) randomly assigned 67 participants with anger problems associated with PTSD to a prolonged-exposure condition, stress inoculation training, combined prolonged exposure and stress inoculation training, or wait-list control. Treatment conditions significantly lowered state anger (intensity of anger as an emotional state) when compared with the wait-list control condition. Stress inoculation training was found to be more effective for state anger when compared with the combined treatment condition. However, prolonged exposure did not differ from stress inoculation training or the combined treatment condition.

### ***Summary Analysis***

The review of studies investigating the efficacy of psychosocial treatments for adult anger and related conditions questions the degree to which the treatments can be regarded as specific and efficacious interventions for anger. Outcome variables were primarily self-report measures, suggesting that demand characteristics and expectancy for change, among other nonspecific factors, could have played a role in the observed improvements. Moreover, the wait-list control procedure does not rule out the effects of mere therapeutic contact. More specifically, the studies reviewed do not provide compelling evidence regarding the efficacy of psychosocial treatments for anger for self- and peer-rated anger arousal and control (e.g., Gerzina & Drummond, 2000; Medd & Tate, 2000). Furthermore, there does not appear to be any significant benefit of psychosocial treatments for anger in specific populations (i.e., violent offenders, batterers) that are characterized by their excessive display of anger episodes (Gondolf & Russell, 1986; Napolitano & Brown, 1991; Watt & Howells, 1999). There is little or no evidence concerning the efficacy of psychosocial treatments for anger on physiological (e.g., Chemtob et al., 1997) and behavioral indices (e.g., Stermac, 1986). Lastly, the few component-controlled investigations reviewed provide little clarification regarding which characteristic or specific treatments operate as the mechanisms of change in anger treatment.

### **Psychosocial Treatments of Child-Adolescent Anger and Related Conditions**

Psychosocial treatments have also been utilized for the treatment of child and adolescent anger and related conditions. It has been argued that children and adolescents who present with maladaptive anger, hostility, and aggressive episodes do not learn the social skills necessary to regulate emotions and behaviors (Patterson, Reid, Jones, & Conger, 1975). Anger-related problems are among the most common reasons why children and adolescents are referred for psychological services (Abikoff & Klein, 1992). Moreover, anger is often a central concern in such childhood disorders as Oppositional Defiant Disorder and Attention-Deficit/Hyperactivity Disorder (Sukhodolsky, Solomon, & Perine, 2000). Early treatment of maladaptive anger and related conditions during childhood becomes particularly important in the prevention of antisocial behaviors observed during adulthood (Dishion, Loeber, Stouthamer-Loeber, & Patterson, 1984).

### ***Wait-list Controls***

Feindler, Ecton, Kingsley, and Dubey (1986) treated hospitalized psychiatric adolescent males with anger and aggressive-behavior problems with anger control techniques. Participants in the anger control condition were compared with a wait-list control group as well as another no-treatment control condition established 8 weeks after the initiation of the study. The results indicated that for the treatment condition there was a significant increase in reflection and correct responding on a measure of impulsivity. There was also an increase in the use of appropriate verbalizations and a decrease in hostile

verbalizations for the anger treatment participants. Analyses of preestablished contingency management systems indicated that adolescents in the anger treatment condition evidenced lower rates of violations and restrictions.

Bornstein, Borstein, and Walters (1988) randomly assigned 31 children to psychosocial anger treatment group and a wait-list control group. Significant between-group differences were found only on a teacher-report measure of child problem behavior; children in the treatment condition reported a significant increase in conflict with their parents. Feindler, Marriot, and Iwata (1984) randomly assigned adolescent participants to anger control treatment groups or to a no-treatment control group. The anger control treatment consisted of ten biweekly 50-minute sessions focusing on provocation cues and anger responses, training of alternative responses to external provocation stimuli, and techniques to control anger provocation behaviors. The results indicated that participants in the treatment condition reported more self-control and increased generation of adaptive problem-solving responses when compared with the no-treatment control condition. However, no differences were detected on a measure of impulsivity and an additional measure of self-control. Statistical analysis on continuous recordings of both single fines (i.e., yelling, cursing, shoving, pinching) and double fines (i.e., behaviors resulting in school expulsion) contingent on displays of aggressive behavior revealed that the anger control treatment group displayed significantly fewer single fines. For double fines, however, the difference between baseline and treatment for the treatment group was not statistically significant.

### *Attention Control*

Sukhodolsky et al. (2000) investigated the efficacy of an anger-control intervention for elementary schoolchildren. Thirty-three participants with “anger-related problems” (i.e., inadequate expression of anger) were assigned to either a treatment control group (treatment condition) or playgroups (attention control condition). Groups met for ten 40-minute sessions. For the anger control group, treatment consisted of affective education, identification and modification of cognitive (self-instruction training) and physiological (relaxation training) elements of anger, practicing of appropriate responses to the provocation, and rehearsing of anger control skills. For the control group, participants played various games such as Jenga and checkers. The results indicated that participants in the treatment condition showed statistically significant improvement on aggressive and disruptive behavior and significant improvement on anger control. However, no statistically significant differences between the post-test scores on the treatment and control groups were found on anger intensity, anger awareness, and the frequency with which anger was shown towards others or objects.

Snyder, Kymissis, and Kessler (1999) investigated the efficacy of psychosocial treatments for anger and aggression in an adolescent psychiatric population. Fifty participants were randomly assigned to either a treatment group or a control group. Many participants had adjustment, depressive, psychotic, and personality disorder diagnoses and many were concurrently taking psychotropic medications. The treatment condition was an anger management training series; participants in the control condition watched a series of psychoeducational videotapes on topics relevant to adolescents. Follow-up data were also gathered from parents and guardians in the form of antisocial behavior ratings. The results indicated that the treatment group decreased significantly from pre- to post-assessment on the MMPI-Adolescent Anger Content Scale. Furthermore, both teachers and nursing staff perceived the participants in the treatment condition as less disruptive. However, the majority of the participants were concurrently receiving pharmacological treatment, which, without adequate control, could have contributed to the positive findings.

Saylor, Benson, and Einhaus (1985) randomly assigned 14 boys treated in a state psychiatric facility for anger and aggression problems to a psychosocial treatment condition (eighteen half-hour sessions) or an attention control condition. The treatment condition consisted of education about the components of anger, stress inoculation, relaxation, modeling and rehearsal of adaptive self-statements, and role-playing of anger inducing situations. The attention control condition was identical to the treatment condition; however, emotions other than anger were the focus of treatment. Results revealed significant changes in expectations of response to anger provocation for participants in the treatment condition when compared with those in the attention control condition. However, no significant differences were found on other measures of aggressive behavior.

In a recent study, Herrmann and McWhirter (2003) assigned 207 young adolescents at risk for anger- and aggression-related problems to a psychosocial treatment condition consisting of psychoeducation, anger management and coping, and defusing anger by social-skills training. The attention control consisted of a sixteen-session video-based vocational education program including instructor-led group discussions. The psychosocial treatment condition produced significantly lower levels of anger and aggression. However, no significant differences were found between the two groups on anger control. McWhirter and Page (1999) investigated the effects of psychosocial treatments of anger and a

goal-setting group intervention on anger and self-efficacy among high-risk adolescents. High-risk was defined as a propensity toward delinquent behavior and drug and alcohol use. The psychosocial treatment condition consisted of distinguishing between appropriate and inappropriate expressions of anger, recognizing anger cues, coping self-statements, and self-monitoring. The group goal-setting intervention included a values auction, learning about goals, imagery exercises on future careers, and behavior activation (i.e., acquiring information on community colleges). The control condition consisted of students in another classroom. The results revealed no significant group effects. Moreover, only small treatment effects for the goal-setting group were detected for anger expression. More importantly, Cohen's  $d$  based on pre- to post-test change for each condition indicated negative effects for the psychosocial treatment condition for anger expression ( $d = -0.24$ ) and state anger ( $d = -0.29$ ).

### **Summary Analysis**

Consistent with the adult population, the evidence for the specific efficacy of psychosocial treatments of anger and related conditions in child and adolescents appears to be lacking. For instance, the studies often do not control for the effects of adjunctive psychopharmacological interventions (e.g. Snyder et al., 1999). The studies also do not provide compelling evidence regarding the efficacy of psychosocial treatments over and above nonspecific factors for anger intensity, frequency with which anger is displayed, or anger awareness (e.g., Sukhodolsky et al., 2000). Furthermore, positive effects are typically demonstrated on self-report measures, with little or no evidence regarding the efficacy of anger treatment on other (i.e., behavioral) indices (e.g., Saylor et al., 1985; Feindler et al., 1984). The findings of McWhirter and Page (1999) and others (e.g., Bornstein et al., 1988; DiGiuseppe & Tafrate 2003) also suggest that under some conditions, psychosocial treatments of anger can produce iatrogenic effects. Although most treatments are at least minimally beneficial, there is growing evidence suggesting that some interventions may be harmful (see Singer & Lalich, 1996, for a review; Lilienfeld, Fowler, Lohr & Lynn, in press). Consistent with the recommendations of Herbert (2003), the specific conditions under which psychosocial treatments for anger can prove to be harmful should be formally documented. If mental health practitioners are to operate under the principle of *primum non nocere* (first do no harm), they need to be made aware of the specified contexts in which anger treatment could be harmful.

### **THE EFFICACY OF PSYCHOSOCIAL TREATMENTS FOR ANGER: EXPERIMENTAL RECOMMENDATIONS**

The results of outcome studies on psychosocial treatments for anger for adult and child/adolescent populations are generally suggestive of positive outcomes. However, the experimental designs utilized in these studies do not allow for the determination of these interventions as efficacious for anger reduction over the effects of nonspecific factors. Many studies investigating the efficacy of psychosocial treatments of anger have compared interventions with wait-list controls (e.g., Snyder et al., 1999). However, because any of a number of treatments is better than nothing, comparisons with wait-list control conditions are only minimally informative (Herbert, 2000, 2003). Similarly, Lohr et al. (1999) argued that given enough statistical power, one will almost certainly reject the null hypothesis that a treatment is not effective even if one's treatment is only minimally useful. Thus, the experimental demonstration that psychosocial treatments of anger are more efficacious than a wait-list control is not particularly surprising or informative.

Some of the studies reviewed (e.g., McWhirter & Page, 1999) incorporated experimental controls (i.e., wait-list and attention control) that accounted for the effects of some nonspecific factors. However, such procedures only provide for the assessment of the most general nonspecific treatment effects (Lohr et al., 1999). Furthermore, the direct investigations of the specificity of psychosocial treatments of anger are limited. According to Henggler, Schoenwald, Borduin, Rowland, and Cunningham (1998), treatment specification is a vital task in the validation of treatment efficacy. The specification of mechanisms of change becomes even more vital with complex and multifaceted treatments that can be very difficult to operationalized and specify (Kazdin, 1988). Psychosocial treatments of anger have been described as multifaceted and consisting of cognitive and behavioral components (DiGiuseppe, 1999). Although the characteristic features of psychosocial treatments of anger vary substantially across studies, they may be defined as cognitive restructuring, relaxation training, problem solving, and social skills training (e.g., Feindler & Ecton, 1986). Despite the multiple components of psychosocial treatments of anger, few component-controlled evaluations exist, and, as indicated earlier, the findings of the few that have been conducted are often inconsistent.

The lack of component-controlled evaluations in the empirical literature precludes any conclusions about the specific mechanism of change in psychosocial treatments of anger. Following the analysis provided by Borkovec and Castonguay



(1998), an ideal evaluation of the efficacy of psychosocial treatment X for anger would include: (a) X versus wait-list control; (b) X versus attention control; (c) X versus nonspecific factors; (d) X component controlled research; and (e) X versus next best treatment. To our knowledge, no studies to date have approximated these comparison conditions. Quality outcome research must also incorporate additive or subtractive experimental strategies to identify the functional significance of specific aspects of multifaceted treatment procedures (Mahoney, 1978). Establishing the efficacy of psychosocial treatments of anger using additive or subtractive experimental designs will also require structural equalities between attention control conditions and specified treatment conditions (e.g., Baskin, Tierney, Minami, & Wampold, 2003). This may require special consideration for equivalence and consistency in number of sessions, duration of sessions, and format of treatment across attention control conditions and specific treatment conditions in anger intervention outcome studies.

Additive or subtractive manipulations will aid in identifying the active ingredients of a treatment by introducing or removing components of the intervention. To better determine the specific active features of psychosocial treatments for anger, dismantling designs (i.e., studies that take apart the multiple components of a given treatment) may be necessary. For instance, the cognitive component of psychosocial treatments of anger is said to involve the reconstruction of maladaptive thoughts that may inadvertently reinforce anger. The behavioral component involves arousal reduction, problem-solving skills, and social skills training (e.g., Hollenhorst, 1998). The following experimental design may then provide a more clear analysis of the separate and combined effects of the cognitive and behavioral components of anger treatments:

- A. Wait-list control
- B. Attention control
- C. Behavioral components (relaxation training + problem solving + social skills training)
- D. Cognitive component (cognitive restructuring only)
- E. Combined treatment (cognitive restructuring + relaxation training + problem solving + social skills training)

Constructing the appropriate combination of components relative to nonspecific control conditions could allow for multiple component comparisons. Such comparisons allow for strong experimental tests of the effects of alternative treatment components, key components, and the combined treatment components (Lohr, DeMaio, & McGlynn, 2003). For instance, it could be argued that such techniques as social skills training and problem solving are common features of cognitive and behavioral therapies. The following design may then be appropriate in identifying specific cognitive and behavioral techniques that serve as characteristic mechanisms of change in multifaceted psychosocial treatments of anger:

- A. Wait-list control
- B. Attention control
- C. Behavioral component (relaxation training only)
- D. Cognitive component (cognitive restructuring only)
- E. Combined treatment (cognitive restructuring + relaxation training + problem solving + social skills training)

Such component comparisons may facilitate the identification of the underlying principles in psychosocial treatments of anger that serve as the mechanisms of change (e.g., Rosen & Davison, 2003). This may be particularly helpful for mental health practitioners, given that some studies suggest that behavioral principles in psychosocial treatments of anger are more efficacious than nonbehavioral principles (e.g., Moon & Eisler, 1983; Whitaker 2001), whereas others have argued for the importance of cognitive techniques (e.g., Deffenbacher et al., 2000). It may be of clinical utility to directly evaluate and distinguish cognitive components of standard anger treatments from behavioral components in order to maximize treatment specificity (see O'Donohue & Yeater, 2003, for a discussion on distinguishing between treatments). It is possible that cognitive and behavioral treatments for anger may produce equivalent outcomes. However, the outcome must stem from different theoretical mechanisms of action. Once the relative efficacy of cognitive versus behavioral treatments of anger has been established (as it specifically relates to differential theories of change), the comparative efficacy of specified behavioral (i.e., problem solving versus social skills training) or cognitive (i.e., cognitive restructuring versus rational responding) treatments can then be evaluated. Such an approach would be consistent with a cost-effective agenda in which only necessary and sufficient empirically supported interventions are applied to a given disorder (Sanderson, 2003).

Borkovec and Castonguay (1998) maintained that demonstrations of treatment efficacy must also compare the treatment in question with established treatments. A strong test of the specific, relative effect of psychosocial treatments of anger and an empirically supported intervention would require:

- A. Wait-list control
- B. Attention control
- C. Pharmacological treatment only (for anger: Bagby, Kennedy, & Schuller et al., 1997; Mandoki, Sumner, & Matthews-Ferrari, 1992; Mattes, 1986)
- D. Imaginal or in vivo exposure only (for anger: Groditzky & Tafrate, 2000; Brondolo, DiGiuseppe, & Tafrate, 1997)
- E. Combined treatment (cognitive restructuring + relaxation training + problem solving + social skills training)

Comparison of groups D and E with groups A and B would allow for the control of nonspecific effects in both treatments, and the comparison of groups D and E would provide for the assessment of the efficacy of other psychosocial treatments of anger relative to a validated intervention. Of note is the fact that individuals receiving care in psychiatric settings for anger-related conditions are often on necessary medication. The inclusion of group C allows for the determination of the efficacy of a psychosocial treatment in comparison with pharmacological treatment and nonspecific factors.

The three experimental designs that we propose address three distinct research questions. Thus, they may be prioritized accordingly. Experiment 1 should be conducted first to demonstrate the efficacy of psychosocial treatments of anger relative to nonspecific factors. Experiment 2 should follow to investigate the efficacy of specific psychosocial treatments relative to other treatments. This line of outcome research should then consider the efficacy of multiple psychosocial treatments relative to an empirically established principle (i.e., exposure) and standard pharmacological interventions. Undoubtedly, the proposed experimental designs will require substantial human/financial resources, as these designs demand substantial sample sizes and manpower. In a world of limited resources, such a project would be difficult to undertake. However, with the formulation of an adequate theory of the etiology of “anger disorder” that could serve as a consistent working model for researchers and practitioners, various components of these experimental designs could be implemented at different research sites, thereby dispersing overall costs. With this approach, determining the efficacy of psychosocial treatments of anger would be a collaborative process, as empirically supported treatments should require scientific evidence of efficacy across multiple research sites (e.g., Chambless & Hollon, 1998).

The implementation of the proposed experimental designs may invoke resistance from clinical settings, in which practice is top priority. However, such institutions will need to evaluate the efficacy of the anger interventions they implement, because managed care organizations are necessarily interested in ensuring that clinicians provide the most effective and least extensive, intensive, intrusive, and costly interventions for anger (e.g., Sanderson, 2003). Incorporating the proposed experimental designs will provide more compelling evidence in which strong inferences regarding the efficacy of psychosocial treatments of anger can be made. Such experimental distinctions may also allow for the minimization of psychosocial treatments for anger to their necessary and sufficient components, which may also be beneficial in terms of quality control. Essentially, costs may be high on the front end in terms of implementing the proposed experimental designs. However, costs will be much lower on the back end once specifically efficacious anger treatments have been identified. In conducting component controlled outcome research on psychosocial treatments for anger, special attention should be paid to the operationalization of treatment protocol and procedural integrity issues. Following the recommendations of Foa and Meadows (1997), these studies need to include clearly defined target symptoms, reliable and valid measures, blind evaluators, appropriate assessor training, manualized treatment procedures, unbiased assignment to treatment conditions, and ratings of treatment adherence.

## **THE EFFICACY OF PSYCHOSOCIAL TREATMENTS FOR ANGER: ADDITIONAL CONSIDERATIONS**

### **Anger Analogue Samples**

Adequate demonstration of the efficacy of psychosocial treatments of anger will depend in large part on well-controlled yet elaborate experimental designs. However, additional conceptual issues related to the evaluations of psychosocial treatments of anger must also be addressed. For instance, research on the efficacy of such treatments is often conducted with analogue samples that have been divided into high-anger and low-anger groups using a cutoff score on self-report measures. Indeed, the vast majority of studies investigating the efficacy of psychosocial treatments for anger use undergraduate volunteers. However, such samples may be substantially different from those drawn from the general population, thereby limiting the ecological validity of the treatments (Tafrate, 1995). What is needed is well-controlled outcome research on high-anger individuals with genuine problems in functioning and rigorously diagnosed disorders. This will depend in large part on the formulation of a theoretical model of anger that may better guide the clinical diagnosis and subsequent treatment of anger disorder. Granted that the use of analogue samples is an optimal starting point for such research, the limited transition from analogue samples to more clinical samples may limit the inferences that can be drawn concerning the efficacy of psychosocial treatments of anger.

## Anger Assessment

Another consideration is problems with the assessment of anger (see Eckhardt, Barbour, & Stuart, 1997; Edmonson & Conger, 1996, for a more detailed review). DiGiuseppe and Tafrate (2003) noted that one of the most critical issues in the determination of the specific efficacy of psychosocial treatments of anger is the selection of outcome measures that accurately assess clinical dimensions of anger. Most of the evidence for the efficacy of psychosocial treatments for anger derives from self-report measures (Edmonson & Conger, 1996). However, the self-report modality of outcome assessment is likely to account for a significant amount of variance in the outcome of psychosocial treatments of anger (e.g., DiGiuseppe & Tafrate, 2003) given that self-report assessments are more susceptible than other measures to the influence of nonspecific factors (i.e., expectation for improvement).

Although self-report methods offer valuable information regarding the perceived frequency, intensity, duration, and elicitors of anger experiences (Eckhardt et al., 1997), they are limited in scope in regards to the assessment of anger in the context of treatment outcome (Lambert, Ogles, & Masters, 1992). In fact, Eckhardt et al. (1997) noted that self-report measures of anger are not without notable psychometric limitations. Although anger is described as consisting of subjective labeling, physiological changes, and action tendencies (e.g., Kassino & Sukhodolsky, 1995, p. 7), studies investigating the efficacy of psychosocial treatments of anger have often neglected the assessment of related behavioral, cognitive, and physiological response dimensions. The few studies that have incorporated behavioral and physiological assessment have found limited evidence for the specific efficacy of psychosocial treatments of anger (e.g., Hazaleus & Deffenbacher, 1986). Before strong inferences regarding the efficacy of psychosocial treatments of anger can be made, more comprehensive assessment of multiple anger dimensions will be needed (Eckhardt et al., 1997).

## Anger Comorbidity

An especially important consideration in determining the efficacy of psychosocial treatments for anger is the high co-occurrence of anger problems with other psychiatric syndromes. As indicated earlier, anger is a core feature in many psychiatric conditions. For instance, Fava, Anderson, and Rosenbaum (1990) found elevated anger responses to be salient components of anxious or panic symptoms and depression, Benazzi (2003) found that 50.5% of consecutive outpatients presenting for major depressive episode experienced comorbid anger. In a survey of 100 patients suffering PTSD, Hinton, Hsia, Um, and Otto (2003) found that 58% reported anger related panic attacks in the last month. These findings suggest that the phenomenology of anger is often manifested as a residual of other diagnosable clinical syndromes. The co-occurrence of anger and other psychiatric conditions highlights the importance of applying specific treatment strategies for characteristic features of disorders in which anger co-occurs independent of directly treating anger itself. This will allow for the assessment of the degree to which there is a reduction in anger as a function of treating core features of a given disorder in which anger may co-occur. If elevated anger persists after treating core features of a disorder, then specific strategies for the treatment of anger itself may be implemented. For instance in the case of PTSD, the following experimental design may be useful:

- A. Wait-list control
- B. Attention control
- C. Prolonged exposure (for PTSD: Cahill et al., 2003)

Again, comparison of group C with groups A and B allows for the control of nonspecific effects. In addition to the reduction of PTSD symptoms in group C (relative to group A and B), a significant reduction in anger in group C (relative to group A and B) can also be predicted. If this is not the case, then specified psychosocial interventions (i.e., relaxation training) for the reduction of anger should be implemented. In a stepwise fashion, efficacy studies of anger interventions should focus initially on mixed psychiatric samples comparing psychosocial treatments with wait-list controls, attention controls, and nonspecific controls. A disorder-treatment component controlled approach should then be implemented in which specific aspects of anger conditions are matched with specific theoretically relevant psychosocial treatments. Specification may then be optimized to the point at which cognitive interventions (i.e., cognitive restructuring) are applied to patients presenting primarily with anger cognitions, physiological interventions (i.e., relaxation training) are applied to those presenting with anger-related arousal, and behavioral interventions (i.e., social skills training) are applied to patients presenting primarily with maladaptive anger behaviors. This stepwise approach may aid in answering the question, What anger treatment by whom is most effective for this individual with that specific anger problem, under which set of circumstances? (see Paul, 1967).

## CONCLUSIONS

DiGuiseppe and Tafrate (2003) argued that the neglect of important methodological issues has contributed to an incomplete understanding of the efficacy of psychosocial treatments of anger. Our analysis of the efficacy of psychosocial treatments of anger has focused on methodological inadequacies that increase the risk for Type 1 error. By Type 1 error in this context, we mean attributing changes in anger symptoms to the treatment per se, when other nonspecific factors in the treatment procedure may be responsible (Lohr et al., 2003). It has been suggested that “unknown factors” other than the specific change mechanisms of psychosocial treatments may account for the observed anger reduction in various outcome studies (e.g., Tafrate, 1995). The results of current experimental research provide little in the way of support for the efficacy of psychosocial treatments of anger and suggest that the unknown factors contributing to the positive findings are in large part nonspecific. Although compelling in some cases, the methodology in efficacy studies are often lacking in the control of nonspecific factors. Psychosocial treatments of anger have been described incorporating both cognitive and behavioral interventions (e.g., Watt & Howells, 1999). Cognitive-behavioral treatments emphasize specific procedures, structure the content of those procedures, and design those procedures based on theories of treatment mechanisms (Lohr et al., 2003). Although the specific procedures for psychosocial treatments of anger have been outlined (i.e., relaxation training, cognitive restructuring), their origins in relation to a coherent theory of disorder remain unclear. Furthermore, analyses of controlled studies have not consistently provided empirical support for the efficacy of the procedures across multiple modalities of anger assessment over and above the effects of nonspecific factors.

Despite limited evidence regarding the efficacy of psychosocial treatments of anger over the effects of nonspecific factors, the dissemination and promotion of such trademark treatments for “anger disorders” across multiple mental health disciplines has extended into the development of home videos (e.g., Steffen, 2000) and the use of various anger workbooks as substantive interventions (e.g., L’Abate, 1992). The acknowledgment of the disparity between the clinical popularity of the application of psychosocial treatments to anger conditions and the research evidence supporting its specific efficacy is only the first step. The second step will require the incorporation of strong experimental manipulations that adequately control for nonspecific factors, demonstrate the necessity of separate components, and compare the treatment with other empirically supported treatments.

In the meantime, skepticism should prevail regarding the efficacy of psychosocial treatments of anger independent of the effects of nonspecific factors. This is not to say that existing intervention programs for anger reduction should be discontinued, as the clinical necessity of such interventions can be appreciated. Furthermore, the available research suggests that psychosocial treatments for anger are generally better than no treatment at all. However, experimental studies demonstrating clinical efficacy in comparison with no treatment are only minimally informative (e.g., Herbert, 2000). Rather, the evidence for the efficacy of psychosocial treatments for anger should be based on strong experimental tests that can separate the effects of procedural artifacts and nonspecific factors from those of specific treatments (Borkovec & Castonguay, 1998). In this context, planned and systematic measurement of outcome variables can be conducted and nonspecific treatment effects can be identified. It is also recommended that the content of psychosocial treatments of anger be implemented in a systematically additive manner, thereby allowing for the separation of general and putative effects. Lastly, future considerations should be given to a more adequate theory of anger disorder that can better guide the effective use of psychosocial treatment in mental health practice.

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