

An Evidenced-Based Review of Psychological Treatments of Anger and Aggression

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Therapists are increasingly treating clients with anger and aggression problems. Issues of anger control are now being addressed across various mental health settings. A wide choice of interventions, providing a range of psychoeducational treatments, is available for mental health therapists to help clients with anger and aggressive behaviors and emotions. In light of this increase in treatment, evidence-based practice to guide therapists is currently limited and poorly developed. Most past studies on anger and aggression have focused on treatments containing components of cognitive and behavioral aspects or a combination of the two. Adherents of other theoretical orientations—such as psychodynamic, psychoeducational, substance abuse counseling, and relaxation therapy—as possible effective interventions have empirically not examined their efficacies, and hence little information is known about the overall contribution of these approaches to the reduction of anger. This lack of research should not be taken to mean that they are not efficacious, but only that they have not been adequately tested. There remains no clear consensus among therapists and researchers on the best way to treat angry clients, and little information exists to guide therapists in their work with specific angry populations. This paper introduces various treatment approaches for working with clients exhibiting angry and aggressive behaviors and provides a summary of current research findings in relation to the different psychological approaches to anger and aggression. [*Brief Treatment and Crisis Intervention* 5:229–248 (2005)]

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Anger and aggression are defined as behaviors that lead to, or appear to lead to, the damage or destruction of a target identity (Eichelman,

1988). Aggressive acts may be directed at the self, others, or an external object (Glancy & Knott, 2002). However, in most situations, anger is primarily an interpersonal matter, with aggressive acts usually being directed at another person (Del Vecchio & O’Leary, 2004). For example, Averill (1993) found that in over half of anger episodes, the target was either a loved one or an acquaintance. Only 6% of the anger episodes were directed at an external object.

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According to Ambrose and Mayne (1999), "Anger remains one of the most significant problems facing our society today. In a world growing more crowded, with the pace of life increasing exponentially, . . . there is growing potential for anger to play a destructive role on a frighteningly large scale" (p. 362). Therapists across various mental health settings are now routinely confronted by clients with anger control problems (DiGiuseppe & Tafrate, 2003). For example, in a recent national survey, experienced psychologists and psychiatrists reported working with angry clients as frequently as working with anxious clients (Lachmund & DiGiuseppe, 1997). However, the majority of published studies on negative emotions have focused primarily on anxiety and depression rather than on anger and violence (Kassinove & Sukhodolsky, 1995). The lack of attention in the literature to anger and aggression is surprising given that anger represents one of the most challenging emotions encountered in psychotherapy (Kobayashi & Norcross, 1999). Two studies (Deutsch, 1984; Farber, 1983) reviewed psychotherapists' perceptions of stressful client behaviors and found that aggression directed toward therapists was second only to suicide statements as the most stressful behavior encountered by therapists (Kobayashi & Norcross, 1999).

Recently, anger management programs have become increasingly available (DiGiuseppe & Tafrate, 2003). Treatment in the 1960s focused primarily on helping clients to vent angry feelings (Del Vecchio & O'Leary, 2004). These therapies have since lost their popularity because many therapists noticed that the expression of anger generally increased anger, which was counterproductive to the goals of therapy (Bushman, Baumeister, & Phillips, 2001). Currently, a range of psychological treatment approaches are available to manage anger and aggression; however, there remains no clear consensus among therapists and

researchers on the best way to treat angry clients. The purpose of this article is to introduce various treatment approaches to anger and aggression and then to summarize the evidence in relation to these different psychological approaches.

Review of Meta-Analysis of Psychological Treatment of Violence and Anger

Despite the relative lack of attention given to anger (DiGiuseppe & Tafrate, 2003), five meta-analytic reviews have been published in the past decade to test the effects of various treatments of anger and aggression (Beck & Fernandez, 1998; Bowman-Edmondson & Cohen-Conger, 1996; Del Vecchio & O'Leary, 2004; DiGiuseppe & Tafrate, 2003; Tafrate, 1995). Overall effect sizes for participants who received treatment for anger and aggression versus those in the control group ranged from 0.64 to 1.16 (see Table I), suggesting that some form of treatment of anger and aggression can have positive effects on various aspects of anger and aggression.

Tafrate (1995) provided the first meta-analytic review by identifying 17 published studies. Tafrate compared four treatment approaches: cognitive, relaxation-based, skills training, and multicomponent. By reviewing the effect sizes by treatment type, Tafrate reported that relaxation-based treatment had the largest (effect size [ES] = 1.16); followed by multicomponent therapies (ES = 1.00), cognitive therapies (ES = 0.93), and skills training (ES = 0.82). Due to several methodological limitations of the study, caution must be taken when interpreting these results. First the effect sizes were not tested for homogeneity, significance, or robustness. Second, the total number ($N = 17$) of studies included in the meta-analysis was very small. Third, most of the studies included undergraduate student volunteers, thereby limiting the generalizability of the

TABLE 1. Summary of Meta-Analysis on Treatment of Anger and Aggression

Author(s)	Number of Studies	Overall Treatment Effects	Specific Treatment Effects
Tafrate, 1995	17	Range from 0.82 to 1.16	Relaxation based (ES = 1.16) Multicomponent (ES = 1.00) Cognitive therapies (ES = 0.93) Skills training (ES = 0.82) *Not tested for significance
Bowman-Edmondson & Cohen-Conger, 1996	18	Ranged from 0.64 to 0.80	Relaxation based (ES = 1.19) Cognitive-relaxation (ES = 1.04) Cognitive (ES = 0.96) Social skills (ES = 0.90). *Not tested for significance
Beck & Fernandez, 1998	50	Weighted mean effect size was 0.70	Combined cognitive and behavioral components, therefore no information regarding the different types of treatment.
DiGiuseppe & Tafrate, 2003	57	Overall effect size was 0.71	No main effects were significant, which suggests little difference between treatments.
Del Vecchio & O'Leary, 2003	23	Range from 0.61 to 0.90	Varied treatment had differential effects on specific aspects of anger; however, judgments made regarding the similarity and dissimilarity between effect sizes were not determined statistically.

ES = effect size.

findings to other populations. Fourth, treatment comparison was limited to the use of cognitive, relaxation-based, skills training, and multicomponent interventions; therefore, the results do not address other treatment types performed by therapists in the field.

Bowman-Edmondson and Cohen-Conger (1996) conducted the second meta-analysis to review efficacy for individuals with anger problems. They reported on studies published between 1970 and 1994 and found that cognitive, cognitive-relaxation, social skills, and relaxation therapies demonstrated moderate effectiveness for people with anger problems. By detailing specific anger outcomes for anger and aggression, they found that changing anger expressions was best treated by relaxation treatment (ES = 1.19), followed by cognitive-relaxation (ES = 1.04), cognitive (ES = 0.96), and social skills treatments (ES =

0.90). For self-report anger behavior, relaxation treatment had the largest effect size (ES = 0.79) compared with social skills training (ES = 0.72), cognitive-relaxation (ES = 0.71), and cognitive (ES = 0.29). For the observation assessment of anger behavior, social skills training had the largest effect size (ES = 1.13), as compared with the cognitive treatment (ES = 0.34). Reflecting on their findings, Bowman-Edmondson and Cohen-Conger (1996) suggested that relaxation, cognitive-relaxation, or social skills training would be effective treatment for clients who need to change the way they express their anger, whereas the use of cognitive therapy would probably not be very effective for these clients. For physiological self-report effect sizes, relaxation proved to be the largest (ES = 1.21) compared with cognitive-relaxation (ES = 0.76), social skills training (ES = 0.58), and cognitive (ES = 0.57).

TABLE 2. Treatment Approaches to Reduce Anger and Aggression

Treatment	Population Studied	Strengths	Limitations
<i>Cognitive</i> (Deffenbacher, Dahlen, Lynch, Morris, & Gowensmith, 2000; Dua & Swinden, 1992)	Undergraduate students	Magnitude of changes was maintained over long term follow-up. The cognitive group made fewer negative self-statements.	Understudied treatment approach Small samples Cannot generalize findings because limited to undergraduate students.
<i>Cognitive-behavioural therapy</i> (Barkley, Guevremont, Anastopoulos, & Fletcher, 1992, Buttell, 2002; Deffenbacher, Demm, & Brandon, 1986; Chan, Lu, Tseng, & Chou, 2003; Deffenbacher, McNamara, Stark, & Sabadell, 1990; Deschner, McNeil, & Moore, 1986; Fernandez & Beck, 2001; Galovski & Blanchard, 2002; Galovski, Blanchard, Malta, & Freidenberg, 2002; Herrmann & McWihirter, 2003; LeSure-Lester, 2002; Ovaert, Cashel, & Sewell, 2003; Richards, Kaplan, & Kafami, 2000; Rose, West, & Clifford, 2000; Siddle, Jones, & Awenat, 2003; Snyder, Kymissis, & Kessler, 1999; Stermac, 1987; Taft, Murphy, King, Musser, & DeDeyn, 2003; Tang, 2001; Taylor, Novaco, Gillmer, & Thorne, 2002; Thurman, 1985; Wang, Owens, Long, Diamond, & Smith, 2000; Willner, Jones, Tams, & Green, 2002; Whiteman, Fanshel, & Grundy, 1987; Whitfield, 1999)	ADHD adolescents Abused African American adolescents Persistently violent male prisoners Intellectual disabilities/learning disabilities Forensic patients Angry parents Female batterers Mental health patients Undergraduate students Incarcerated male juveniles Male batterers Aggressive drivers Faculty members Vietnam War combat veterans Patients with schizophrenia Patients referred due to anger problems	Most frequently studied treatment approach with various populations, all showing at least moderate gains in reducing anger and aggression. Positive effects of treatment occur between 6 and 8 sessions. CBT is more cost-effective than other correctional approaches. When a follow-up of male batterers was conducted a year later, 85% were still refraining from physical violence. Therapist alliance ratings are strong predictors of outcomes. War veterans were able to maintain results 18 months after treatment.	Some samples were too small and specific. When performed in prison, studies do not address the relationship between institutional and community violence and whether the treatment can generalize to the community after release from prison. The treatment of incarcerated male juveniles did not decrease anxiety or depression. When using CBT with clients having schizophrenia, the group has to be simplified in accordance with each session and the level of disturbances.
Cognitive-relaxation	Aggressive drivers	Positive effects of treatment occur between 6 and 8 sessions.	Most studies have been conducted on undergraduate students.

TABLE 2 continued. Treatment Approaches to Reduce Anger and Aggression

Treatment	Population Studied	Strengths	Limitations
<i>(Deffenbacher, 1988; Deffenbacher, Filetti, Lynch, Dahlen, & Oetting, 2002; Deffenbacher, Huff, Rebekah, Oetting, & Salvatore, 2000; Deffenbacher, Lynch, Oetting, & Kemper, 1996; Deffenbacher, Story, Stark, Hogg, & Brandon, 1987; Deffenbacher & Stark, 1992; Eamon, Munchua, & Reddon, 2001; Hazaleus & Deffenbacher, 1986)</i>	Undergraduate students Female inmates	Cognitive-relaxation participants attended more sessions in comparison with participants in other treatment approaches. Adds little cost to combine treatments. There are few studies to evaluate treatment approaches for female inmates, but cognitive-relaxation indicates positive outcomes for this population.	Cognitive-relaxation has not shown results to be better than CBT or relaxation coping. Many of the tests for these studies were related to driving anger. The results on the female inmates are not generalizable.
<i>Stress inoculation approach (Cary & Dua, 1999; Hains, 1992; Hains & Szyjakowski, 1990; Timmons, Oehlert, Sumerall, Timmons, & Borgers, 1997)</i>	Youth Caregivers for the disabled Veterans	An 11-week follow-up revealed that youths who received the training maintained gains. A computer-guided program was just as effective as an instructor-led group.	Very few recent studies Specific sample population limits generalizability of findings. The sample of caregivers was small.
<i>Relaxation coping skills (Deffenbacher, Huff, Rebekah, Oetting, & Salvatore, 2000; Deffenbacher, Filetti, Lynch, Dahlen, & Oetting, 2002; Deffenbacher & Stark, 1992)</i>	Undergraduate students	Positive effects of treatment occur between 6 and 8 sessions.	Relaxation coping skills therapy not significantly better than CBT or cognitive-relaxation. Cannot generalize findings because limited to undergraduate students.
<i>Social skills training (Banks, Hogue, Timberlake, & Liddle, 1996; Deffenbacher, Oetting, Huff, & Thwaites, 1995; Deffenbacher, Thwaites, Wallace, & Oetting, 1994; Deffenbacher, Story, Stark, Hogg, & Brandon, 1987; Forbes, Pratsinak, Fagan, & Ax, 1992; Hovell et al., 2001)</i>	African American inner-city adolescents Undergraduate students Male prison inmates Adolescents at high risk for AIDS or violence	Social skills training can be culturally relevant to increase positive change for various groups. Social skills showed substantive maintenance of effects in long-term follow-up. Results from adolescents at high risk for AIDS or violence are encouraging, suggesting that similar skills-training interventions can be successfully implemented among other groups of high-risk youths (runaways).	Results from adolescents at high risk for AIDS or violence were not maintained at a 6-month follow-up; therefore, treatment would have to be ongoing.

TABLE 2 continued. Treatment Approaches to Reduce Anger and Aggression

Treatment	Population Studied	Strengths	Limitations
<i>Psychoeducational</i> (Babcock and Steiner, 1999; Cecil, 1997; Coon, Thompson, Steffen, Sorocco, & Gallagher-Thompson, 2003; Scott & Wolfe, 2003; Taylor, Davis, & Maxwell, 2001).	Male batterers Inmates Caregivers of relatives with dementia	Treatment demonstrates effectiveness in training inmates in new anger management techniques. Results indicate that psychoeducation is an effective approach to reduce aggressive acts of violence in interpersonal relationships.	Understudied Mainly limited to batterer groups. Outcome measures of aggression are often not standardized, so there may be different evaluations of success of treatment. Sample too specific and therefore cannot be generalized.
<i>Psychotherapy</i> (Chang & Saunders, 2002; Lawson, Dawson, Kieffer, Perez, Burke, & Kier, 2001)	Male batterers	Results comparable to CBT on reducing anger and aggression. Effects of treatment are sustained for 12–24 months following treatment.	Understudied Cost Length of treatment High attrition rate due to participants not wanting to remain in lengthy treatment
<i>Substance abuse</i> (Andre, Jaber-Filho, Carvalho, Jullien, & Hoffman, 2003; Brown, Caplan, Werk, & Seraganian, 1999; Reilly & Shopshire, 2000)	Dual-problem individuals (substance abuse and anger problems)	A reduction in substance abuse creates a reduction in domestic abuse. Effective for both voluntary and involuntary clients The gains were sustained at 3-month follow-up.	The reduction of anger is a by-product of treatment, and it is therefore difficult to make causal inferences. Prolonged substance abuse treatment is necessary. Length of treatment creates high attrition rates.
<i>Multicomponent</i> (Acton & During, 1992; Deffenbacher, McNamara, Stark, & Sabadell, 1990)	Aggressive parents and their children Undergraduate students	Results indicate that combining relaxation, cognitive, and social skills is appropriate for clients with both heightened cognitive/ emotional-physiological involvement and lowered interpersonal skills at handling interpersonal conflict.	Lack of controls and follow-up Most studies have been conducted on undergraduate students and therefore lack generalizability.

ADHD = attention deficit/hyperactivity disorder; CBT = cognitive-behavioral therapy; AIDS = acquired immune deficiency syndrome.

Bowman-Edmondson and Cohen-Conger (1996) provided the first meta-analysis to assess whether different treatment approaches could be used with different clients as captured by the various measurements of anger. The study, however, had significant limitations that prevented the authors from conducting statistical examination of the differences between effect sizes. First, only 18 studies were reviewed for the analysis. Second, the number of subjects in the studies was often less than 20, thereby preventing the authors from detecting significant differences between the groups.

In an attempt to improve on the methodological limitations of the 2 previous studies, Beck and Fernandez (1998) expanded their inclusion criteria to include children and adolescents, unpublished doctoral dissertations, and studies that used single-group pre-to-post designs. This expanded inclusion criteria resulted in a total of 50 studies. In addition, each effect size was weighted by the sample size and averaged to yield a grand weighted mean d based on the 50 studies. Based on their results, Beck and Fernandez (1998) reported that "it can be inferred that the average subject in the [cognitive-behavioral therapy] condition was better off than 76% of control subjects" (p. 70). As the researchers noted, given that the populations investigated consisted mostly of abusive parents or spouses, violent and resistant juvenile offenders, inmates in detention facilities, and aggressive school children, cognitive-behavioral therapy demonstrated general utility in the clinical management of anger. However, these results are limited because the treatments contained only cognitive and behavioral components and did not compare other treatment models. In addition, by pooling the effect sizes of children, youths, and adults, the results failed to consider that psychotherapy interventions may have different effects for children compared with adults (DiGiuseppe & Tafrate, 2003).

DiGiuseppe and Tafrate's (2003) meta-analytic review made some key improvements. They (a) included only adults and did not focus on age differences; (b) uncovered more unpublished articles, unpublished doctoral dissertations, and uncontrolled pre-to-post designs; (c) aggregated or clustered the effect sizes according to the type of outcome measure used for each intervention, which allowed for an analysis of the effects of different treatments on various anger dimensions; (d) performed a separate analysis for studies with between- and within-group designs; and (e) performed an analysis on the follow-up tests to examine the persistence of treatment effects over time. The DiGiuseppe and Tafrate (2003) review resulted in 57 studies with 92 treatment interventions incorporating 1,841 subjects. The treatments reviewed included: self-instructional training, cognitive restructuring, problem solving, relaxation, systematic desensitization, exposure, behavioral skills training, combined interventions, anger management training, experiential group process, humor, education, meditation, and biofeedback.

DiGiuseppe and Tafrate's (2003) overall effect size averaged across all types of dependent variables was 0.71 ($n = 230$), indicating that 76% of those who received treatment improved, compared with those in the control conditions. However, they found no significant main effect of the different treatment models, suggesting little difference between the types of treatments. Most of the interventions were based on cognitive, behavioral, or cognitive-behavioral models, and thus there may not have been sufficient variability in treatment approaches to produce noticeable differences. Overall, for measures of attitude and cognition, cognitive restructuring and self-instructional training produced large effect sizes. On measures of aggression and positive behaviors, cognitive restructuring and behavioral skills training had equal or greater effect sizes. On

physiological measures, biofeedback had one large effect size. Relaxation treatments had greater impact on the subjects' feelings of anger, reduction of aggressive behaviors, and increases in positive behaviors, but low effect on physiological measures.

Sixty-five percent of the studies in Del Vecchio and O'Leary's (2004) meta-analysis were being reviewed for the first time. To improve on previous reviews, the researchers (a) included studies with subjects who displayed clinically significant levels of anger, as evidenced by scores on standardized anger measures prior to treatment; (b) derived effect sizes from only anger measures, thereby excluding measures of hostility or aggression; (c) included new studies on anger during driving; and (d) provided effect sizes by type of anger problem and treatment category to allow for comparison among the different treatment approaches for different anger problems.

Del Vecchio and O'Leary's (2004) results indicated mean weighted effect sizes that ranged from 0.61 to 0.90. Of the four treatment groups (cognitive-behavioral, cognitive, relaxation, other), only relaxation ($ES = 0.90$) was considered statistically homogenous ($p = .06$). Results indicated that the varied treatments had differential effects on specific aspects of anger; however, judgments made regarding the similarity and differences among effect sizes were not determined statistically because, in many cases, effect sizes were derived from fewer than five studies, which would result in an inaccurate statistical comparison. Overall, cognitive therapies were found to be most effective in treating anger suppression, and cognitive-behavioral therapies had the largest effect sizes for anger expression problems. Relaxation therapies, in comparison, were found to have the largest effect for the current state of anger. On the other hand, trait anger had similar effect size for all four treatments.

Summary of Meta-Analytic Reviews on Treatment of Anger and Aggression

DiGiuseppe (1999) suggests that successful treatment for anger does exist for a wide range of adults, adolescents, and children. These treatments have been applied successfully to college students selected for high anger, volunteer angry men, outpatients, spouse abusers, prison inmates, special education populations, and individuals with medical problems. It should be noted, however, that the magnitude of these effect sizes, which range from 0.61 to 1.16, is not as large as the effect sizes reported for the treatment for anxiety and depression (DiGiuseppe, 1999).

The above-noted meta-analytic reviews further suggest that when follow-up tests were completed (Del Vecchio & O'Leary, 2004; DiGiuseppe & Tafrate, 2003), the findings indicated positive effects for anger treatment that lasted beyond the completion of treatment, suggesting that anger outcomes improved during follow-up.

There has also been a tendency in the research to focus on group therapy. DiGiuseppe (1999) states that 80% of all research studies employed group therapy, which is most likely due to the fact that the majority of treatments for anger and aggression are performed within group contexts in correctional institutions, substance abuse programs, hospitals, residential centers, and schools. DiGiuseppe and Tafrate (2003) found one study, however, suggesting that individual therapy may be more effective than group therapy for some clients, particularly angry clients who do not want to change and gravitate to those in the group format who tolerate and reinforce their anger. However, this study had methodological limitations, so the results must be viewed as tentative.

As noted earlier, although adherents of orientations such as psychodynamic, psychoeducational,

family systems, and client-centered have abstained from empirical examination of their preferred approach for its possible effectiveness in anger reduction, this should not be taken to mean that these treatment approaches are not efficacious, but only that they have not been tested widely or included in the five meta-analytic reviews (DiGiuseppe and Tafrate, 2003, p. 81). In addition, the five reviews do not provide solid evidence that specific treatment interventions can be matched for specific symptoms.

Review of Individual Studies on Psychological Treatments of Anger and Aggression

Despite the lack of abundant research supporting other psychological treatments of anger and aggression, claims can be made that each therapy contributes something unique and may be more or less effective depending on the patient and his or her particular presenting problem (Bowman-Edmondson & Cohen-Conger, 1996). Therefore, a more qualitative review of outcome research on the psychological treatment of anger and aggression could uncover more studies using a variety of treatment approaches and provide descriptive accounts of what type of intervention works better for which client populations in which circumstances.

The qualitative nature of the current review provides broader inclusion criteria compared with meta-analytic reviews. The qualitative nature of the review allows for fewer articles to be excluded due to methodological restrictions. By reviewing studies that reported on treatment approaches designed to decrease anger and aggression, this review found the following treatment approaches that allowed for a qualitative analysis of the results: cognitive, cognitive-behavioral, cognitive-relaxation, stress inoculation, relaxation coping, social skills training, psychoeducational, psychotherapy, sub-

stance abuse, and multicomponent. Each of these treatment approaches will be reviewed for its characteristics and goals and then assessed on whether the treatment approach demonstrates positive outcomes in the reduction of anger and aggression.

Cognitive

Cognitive therapy is based on a theory of emotional disorders stating that emotions are mediated by ongoing cognitive appraisals and that maladaptive thinking patterns are central to psychopathology (McGinn & Sanderson, 2001). Hazaleus and Deffenbacher's (1986) study of introductory psychology students who scored in the upper quartile of the Driving Anger Scale suggested that cognitive therapy significantly reduced anger across measures. Exceptions were personal anger situations, heart rate, and physical antagonism. One-year follow-up also showed continued significant reductions in general anger. These results suggested that cognitive interventions could effectively reduce anger and maintain this reduction. These positive results have been further demonstrated in more recent studies (Deffenbacher, Dahlen, Lynch, Morris, & Gowensmith, 2000; Dua & Swinden, 1992). The results demonstrate that cognitive therapy is a cost-effective treatment that can be delivered in a group format. However, future research is needed, since only three studies could be found to support this claim.

Cognitive-Behavioral Therapy

Unlike other treatment interventions, cognitive-behavioral therapy has received extensive research. This treatment approach aims to identify and modulate cognitive, behavioral, and physiological responses to perceived provocation through various treatment techniques. The treatment goal is the regulation of anger through the understanding and monitoring of personal

anger patterns and the acquisition of skills involving more adaptive alternatives to provocation (Stermac, 1987). The cognitive-behavioral approach to therapy generally relies on the present experience, as opposed to past childhood ones. It aims to directly reduce symptoms as well as implement strategies designed to build better problem-solving skills (McGinn & Sanderson, 2001).

Intervention studies evaluating cognitive-behavioral therapy have demonstrated that it is generally effective in anger suppression and in significantly reducing general anger, anger from diverse provocations, anger-related physiological arousal, and dysfunctional coping tendencies in an analogue provocation (Deffenbacher, McNamara, Stark, & Sabadell, 1990b; Fernandez & Beck, 2001; Galovski & Blanchard, 2002; Siddle, Jones, & Awenat, 2003; Stermac, 1987; Whitfield, 1999; Willner, Jones, Tams, & Green, 2002). For example, Fernandez and Beck (2001) found that all anger measures declined for the treatment group: by 57% for anger frequency, 56% for anger duration, and 21% for anger intensity. Likewise, Dykeman's (2000) study demonstrated that students who displayed inappropriate expressions of anger benefited from a cognitive-behavioral intervention program. However, his results indicated that the 8-week cognitive-behavioral intervention program may be more successful in treating the *situational* aspects of anger expression than in treating its underlying dispositions.

Thurman's (1985) study provides tentative support for the long-term effectiveness of brief cognitive-behavioral treatments in reducing type A behaviors and related characteristics. Deffenbacher, Dahlen, et al. (2000) also found that at the 15-month follow-up, treatment participants reported significantly less trait anger and intensity of anger in response to their greatest provocation, intensity of anger-related physiological arousal, and trait anxiety. In a study of Vietnam War combat veterans

with severe chronic posttraumatic stress disorder (PTSD) and high anger, Chemtob, Novaco, Hamada, and Gross (1997) found that at the 18-month follow-up, the only anger variable showing a significant treatment group effect was anger control. This finding is consistent with theories of PTSD, which emphasize deficits in cognitive and regulatory processes as the core dysfunction of the disorder.

In the first study to use a control group with female inmates, Eamon, Munchua, and Reddon's (2001) results indicated that the cognitive-behavioral group demonstrated significant reductions on numerous cognitive (justification and hostility), behavioral (physical confrontation and indirect expression), and arousal (intensity, duration, and somatic activation) subscales. Because women often express their anger indirectly through self-destructive behaviors, the ability to communicate anger openly and clearly was seen as a critical step toward problem resolution.

Stermac (1987) suggested that cognitive-behavioral anger control treatment with forensic patients demonstrates effectiveness both in reducing self-report anger levels and in facilitating the use of more adaptive strategies for coping with stress within forensic institutions. More specifically, anger control treatment resulted in subjective changes in increased thresholds for provocation tolerance and changes in the use of self-denigration and cognitive restructuring as strategies for dealing with anger.

Galovski and Blanchard's (2002) findings provide good evidence for the efficacy of a cognitive-behavioral intervention on aggressive driving behaviors in the general population. In this study, the waiting group did not improve on the anger measures until crossed over to the treatment group, indicating that sentencing alone was not enough to improve driving habits. Total driving anger significantly decreased as well as anger as a reaction to hostile gestures, anger as a response to illegal driving,

anger precipitated by slow driving, anger precipitated by discourtesy, and anger caused by traffic obstructions. Interestingly, the court referral and the self-referral were not significantly different on any of the measures.

Cognitive-Relaxation

Cognitive-relaxation involves training in progressive relaxation and relaxation coping skills, including deep-breathing cued relaxation (relaxation on each exhalation of three to five breaths), relaxation without tension (relaxing by focusing on and releasing tension from muscles without tension-release exercises), cue-controlled relaxation (relaxing on the slow repetition of the word "relax"), and relaxation imagery (visualizing personal relaxation images) (Deffenbacher & Stark, 1992, p. 160). Cognitive restructuring skills taught include the identification and changing of demanding and overgeneralized self-dialogue. Application of skills learned involve (a) preparing for an angering event, (b) confronting a moderate-anger situation, (c) confronting an angering event that was unresolved or in which the person limited the expression of anger, (d) confronting a high level of anger, and (e) confronting the individual's worst difficulties with anger.

Cognitive-relaxation demonstrates overall positive results compared with no treatment and with other treatment (Deffenbacher, 1988; Deffenbacher, Filetti, Lynch, Dahlen, & Oetting, 2001; Deffenbacher, Huff, Rebekah, Oetting, & Salvatore, 2000; Deffenbacher, Lynch, Oetting, & Kemper, 1996; Deffenbacher & Stark, 1992; Deffenbacher, Story, Stark, Hogg, & Brandon, 1987; Eamon, Munchua, & Reddon, 2001; Hazaleus & Deffenbacher, 1986). Studies comparing cognitive and combined cognitive-relaxation treatment have demonstrated that both are equally effective (Deffenbacher, 1988; Deffenbacher & Stark, 1992; Hazaleus & Deffenbacher, 1986). This might imply that

cognitive, relaxation, and combined cognitive-relaxation interventions are equally advisable for anger reduction. Deffenbacher, Oetting, Huff, and Thwaites (1995) studied cognitive-relaxation groups and found less trait and general anger, less anger response to various situations, and lower anger-related physiological arousal than in members of the control group. Cognitive-relaxation has also demonstrated positive effects in maintaining the reduction of hostile/aggressive expressions of driving anger at 1-month follow-up (Deffenbacher et al., 2001). Cognitive-relaxation led to significant reductions of all sources of driving anger and showed significant anger reduction on measures of general anger, tendencies to both suppress and express anger outwardly, and state anger and constructive coping in the face of provocation.

Deffenbacher and Stark (1992) suggest that relaxation can be an effective anger reduction intervention when delivered in a consistent self-control training format emphasizing careful skill development, rehearsal, and transfer. The results of a within-subject study of female inmates showed that relaxation training may be a critical component in effective anger management programs. Cognitive-relaxation adds little cost to cognitive-behavioral therapy because only one to three additional sessions are required for the combined condition (Deffenbacher & Stark, 1992).

Stress Inoculation Approach

Novaco's (1975) stress inoculation approach is based on a cognitive-behavioral application to maladaptive anger that generally consists of three phases: cognitive preparation, skills acquisition, and application training. In the cognitive preparation phase, the client begins to identify anger patterns in day-to-day activities by logging an "anger diary" to monitor the frequency and intensity of anger experiences.

During the skills acquisition phase, the therapist suggests alternative strategies to cope more effectively with provocation experiences. In the application phase, the client is encouraged to rehearse these new coping skills during exposure to a stimulated anger provocation experience, which is usually in the form of imaginal and role-play arousal of anger (Novaco, 1975).

Most research shows that the stress inoculation approach is effective to increase anger control and reduce inappropriate expressions of anger (Cary & Dua, 1999; Deffenbacher, Thwaites, Wallace, & Oetting, 1994; Hains, 1992; Hains & Szyjakowski, 1990; Nugent, Champlin, & Winimaki, 1997; Rose, West, & Clifford, 2000; Timmons, Oehlert, Sumerall, Timmons, & Borgers, 1997). Hains and Szyjakowski (1990) also found that youths receiving the stress inoculation treatment showed significant reductions in trait anxiety and anger and significant improvements in self-esteem in comparison with the wait list control. Cary and Dua (1999) found that stress inoculation groups showed statistical reductions in perceived stress that emerged between post-treatment and follow-up. An interesting finding of the study was that a reduction in perceived stress in the stress inoculation group did not occur immediately following training but became evident at follow-up.

Relaxation Coping Skills

Relaxation coping skills are distinguished from cognitive-relaxation treatment because these skills emphasize only relaxation. They involve training in progressive relaxation and such skills as deep-breathing cued relaxation, relaxation without tension, cue-controlled relaxation, and relaxation imagery (Deffenbacher & Stark, 1992, p. 160).

Relaxation coping skills have demonstrated effectiveness (Deffenbacher, Huff, et al., 2000;

Deffenbacher et al., 2002) and have been demonstrated to be as effective as cognitive-relaxation therapy (Deffenbacher & Stark, 1992). In both groups, cognitive-relaxation and relaxation coping skills reported less general anger and less anger across varied situations than did controls, and neither approach differed significantly from the other on these measures. The two treatment groups also reported lowered tendencies to suppress anger generally than did controls, did not differ from one another, and reported significantly less state anger and dysfunctional coping tendencies (Deffenbacher & Stark, 1992). Although both interventions lowered anger and negative coping tendencies, neither increased either state or general constructive coping tendencies. Therefore, interventions may not have provided sufficient training to enhance positive, constructive behavioral options. Inclusion of assertiveness may provide constructive alternatives, particularly for individuals in whom anger is provoked by interpersonal conflicts (Deffenbacher & Stark, 1992).

Both relaxation and cognitive-relaxation interventions led to reductions on multiple measures of driving anger, including frequency of anger, and both treatments lowered trait anger, suggesting generalization of treatment effects to other sources of anger and that when sufficient attention is paid to training and applying relaxation coping skills, these too are effective in reducing anger. In other words, cognitive interventions may be no more effective than relaxation interventions when relaxation coping skills are well developed (Deffenbacher et al., 2001)

Social Skills Training

Social skills training is an eight-session group interaction in which social skills are described, modeled, and role-played by the group in

dyads (Deffenbacher et al., 1987). Social skills training involves teaching the client more assertive ways of behaving when angry. Homework is assigned between sessions. Sessions focus on communication and listening skills, constructive and negative feedback, clarification of options in difficult situations, and assertiveness in initiating reasonable requests and declining unreasonable requests (Crump, 1995).

Most research had found long-term effectiveness for social skills intervention and reported that social skills groups significantly reduced general anger, personal situational anger, anger-related psychophysical arousal, and general anxiety (Banks, Hogue, Timberlake, & Liddle, 1996; Deffenbacher, 1988; Deffenbacher et al., 1987, 1994, 1995; Forbes, Prastinak, Fagan, and Ax, 1992; Hovell et al., 2001). In a 5-week follow-up test of undergraduate students participating in social skills training, the results showed significant anger reduction on measures of general anger, tendencies to both suppress and express anger outwardly, and state anger and constructive coping in the face of provocation. In other words, students who completed social skills training reported less trait and general anger, less anger in their most angering situations, less outward negative expressions of anger, and greater anger control (Deffenbacher et al., 1996). Forbes, Prastinak, Fagan, and Ax (1992), however, found that their results did not support the social skills intervention. No significant gain in skills for the treatment groups was found on any dependent variable, either over time or relative to the control group.

Psychoeducational

Psychoeducational group treatment programs often contain some components of psychotherapy and/or cognitive-behavioral interventions,

but the central focus of the psychoeducational groups is to educate batterers about their violence and to help them understand how it damages interpersonal relationships (Stordeur & Stille, 1989).

Results demonstrate that batterers who are in the contemplation and action stages at the beginning of psychoeducational treatment show substantial greater positive growth across a range of outcome measures compared with batterers in the precontemplation stage. Specifically, stage-related differences in growth were noted for self- and partner-reported abusive behavior and for self-reported perspective taking, conflict management, disclosure, and emotional support skills from the beginning to the midpoint of treatment (Scott & Wolfe, 2000). Babcock and Steiner (1999) found significant group differences in prior criminal records, incomes, and educational levels between treatment completers and noncompleters of psychoeducational therapy. Treatment completers had significantly less prior criminal involvement than did treatment noncompleters. Treatment completers were significantly more educated, reported a higher monthly salary, and were white and employed.

The results of psychoeducational treatment indicate that the rates of new incidents reported to criminal justice authorities were significantly reduced among batterers assigned to treatment. In addition, results show that psychoeducational programs lead to reductions in symptoms of anger, hostility, and depression as well as increased self-efficacy for management behavior problems (Cecil, 1997; Coon, Thompson, Steffen, Sorocco, & Gallagher-Thompson, 2003; Taylor, Davis, & Maxwell, 2001).

Psychotherapy

The goal of psychodynamic therapy is to change behaviors by expanding the client's

capacity for feelings and how he/she responds to these feelings (Lanza et al., 2002). The psychodynamic view of anger considers the client's anger as part of an aggressive drive. The emotional expression of anger leads to catharsis, which ultimately reduces the anger (Ambrose & Mayne, 1999). A client's expression of anger may be indicative of a deeper conflict within the unconscious. Therefore, via the direct approach of the therapist and the various techniques of psychodynamic therapy, this underlying conflict can be conjured up to the conscious awareness of the client, allowing her/him to deal with the root of the anger.

Lanza et al. (2002) compared psychodynamic treatment with cognitive-behavioral therapy and reported that both groups had improvements in decreasing overtly aggressive behaviors and had significant decreases in trait aggression and the ability to control aggression. There were no differences in state aggression or efforts to control aggression. However, Chang and Saunders (2002) found that the closer emotional engagement and corrective emotional experience of the psychodynamic approach provided the participants an opportunity for characterological change beyond that experienced using the cognitive-behavioral component alone, on which, until these studies, the predominant focus had been. Given that psychodynamic treatment has fared equal to cognitive-behavioral therapy, further testing of the psychodynamic approach to dealing with anger is needed. Some limitations of the psychodynamic approach suggested so far have been its costs and length of treatment and the lack of quality research to study its effectiveness. In addition, Lawson, Dawson, Kieffer, Perez, Burke, and Kier (2001) noted that stressing an open exchange of feelings among men in a group may cause unease among them—the subjects in the study were not comfortable discussing childhood trauma feelings, which increased the attrition rate for the group.

Substance Abuse

Schumacher, Fals-Stewart, and Leonard (2003) found that a total of 658 (44%) of the men seeking treatment at participating alcohol treatment facilities reported one or more acts of partner physical violence in the year before treatment. Consistent with other studies, findings from this study illustrate the high rates of both received (59%) and expressed (49%) violence among people in substance abuse treatment (Walton, Chermack, & Blow, 2002). Chermack & Blow (2002) found that approximately 85% of the sample reported a significant interpersonal-conflict incident in the 90 days prior to substance abuse treatment, and 32% of the sample reported an incident involving physical violence.

The research demonstrates not only a relationship between substance abuse and aggression, but also some evidence to suggest that successful substance abuse treatment decreases domestic abuse as well. These improvements have been achieved for both involuntary and voluntary clients (Andre, Jaber-Filho, Carvalho, Jullien, & Hoffman, 2003; Brown, Caplan, Werk, & Seraganian, 1999; Reilly & Shopshire, 2000). Participants increased their ability to control their anger and were able to decrease their levels of anger and related negative affect across the 12 weeks of substance abuse treatment. These gains were sustained 3 months posttreatment (Reilly & Shopshire, 2000). The proportion of violent individuals decreased between baseline and the end of treatment, and the frequency of violent behavior decreased significantly among individuals who were violent (Reilly & Shopshire, 2000).

Multicomponent

Multicomponent approaches range in their treatment focus but generally include cognitive-behavioral, biological, and psychological

interventions (Herrmann & McWhirter, 2003; Richards, Kaplan, & Kafami, 2000; Wang, Owens, Long, Diamond, & Smith, 2000). In their study using a multicomponent approach to treat anger in a prison, Richards et al. (2000) found that higher-progress inmates had significantly less anger and were higher in trait anger, angry temperament, and angry reactions to situations. The lower-progress subjects suppressed significantly more anger but also had significantly higher anger-expression scores. The groups did not differ significantly in conscious efforts to control anger. Inmates in the lower-progress group were also significantly more depressed, and this remained after controlling for age through analysis of covariance. As depression scores increased, so too did the suppression of anger and anger expression.

Herrmann and McWhirter (2003) found that undergraduate students were able to make adjustments to their dispositional anger management styles and the way they typically managed their anger and hostile emotions. Students were not found to maintain their anger-related treatment gains after 1 year since treatment. It should be noted that students in this study were not subject to periodic booster sessions and follow-up lessons, which have become standard practice in prevention and intervention protocols. Cognitive-behavioral group treatment employing a multicomponent treatment strategy may be effective for improving the relationships between aggressive parents and their children. Students counseled with relaxation, cognitive, and behavior coping skills reported significant reductions in the tendency to express anger outwardly and negatively, anger from diverse provocations, frequency and intensity of daily anger, and anger-related physiological arousal. Treatment not only provided parents with an opportunity to gain skills and adaptive behaviors, but helped alleviate their feelings of isolation. Interventions that

combine relaxation, cognitive, and social skills training would seem particularly appropriate for students who possess both heightened cognitive/emotional-physiological involvement and lowered interpersonal skills at handling interpersonal conflict.

Discussion

In this paper we have explored the literature regarding the various treatment approaches available for therapists working with clients with problems of anger aggression. A review of the studies of anger and aggression generally support one of the oddities in outcome research—namely, those interventions with diverse theories of change lead to essentially equivalent outcomes (Deffenbacher, McNamara, Stark, & Sabadell, 1990a). DiGiuseppe (1999), in his review, suggests that successful treatment for anger does exist for a wide range of adults, adolescents, and children. Based on the meta-analytic reviews and the qualitative review of the research on anger and aggression of the past two decades, there is evidence that the treatment of anger and aggression has positive outcomes for clients of diverse backgrounds, including adolescents with attention deficit/hyperactivity disorder, persistently violent male prisoners, adults with intellectual and learning disabilities, forensic patients, angry parents, female batterers, mental health patients, incarcerated male juveniles, male batterers, aggressive drivers, Vietnam War combat veterans, and patients with schizophrenia, as well as undergraduate students and faculty members.

One of the purposes of the review was to uncover more research on the treatment of anger and aggression across different treatment approaches. By broadening the inclusion criteria, psychoeducational, psychotherapy, and substance abuse treatments were reviewed and evaluated alongside more studied

approaches, such as cognitive-behavioral, relaxation, and social skills training. The results indicate that all treatment approaches show similar and positive results in reducing anger and aggression. Cognitively based approaches—including cognitive, cognitive-behavioral, cognitive-relaxation, stress inoculation, relaxation coping, and social skills training—can normally be completed in an average of eight sessions, and the evidence supports eight sessions as enough time to demonstrate positive results in reducing anger and aggression. The studies further demonstrate that as therapy increases past the mean of eight sessions, so too does the attrition rate, creating a higher number of noncompleters. Therefore, since the research continues to demonstrate that the outcomes of anger and aggression remain approximately equal across treatment approaches, then it can be concluded that brief interventions are the best at providing cost-effective and time-limited results.

Other treatment approaches in the field have not yet been reviewed. These nonstudied treatments—such as systems, experiential, and self-psychology approaches—may also demonstrate positive outcomes for specific client populations. Given that most research has been conducted on variations of cognitive and cognitive-behavioral applications to anger and aggression, current evidence-based knowledge is limited by the current state of research. Novaco (quoted in Thomas, 1990) wrote, “Until more controlled experimental studies are conducted, our confidence in available treatments should be tempered” (p. 212).

Implications for Research and Practice

The most pressing research need is for more and higher-quality primary studies on the effectiveness of anger and aggression treatment programs using a variety of psychological

treatment approaches. Given that there are weaknesses within the current body of literature on the treatment of anger and aggression, quality research is needed that (1) clearly indicates the intervention being studied; (2) provides a clear purpose and problem formulation of what will be learned about the anger intervention programs from the results; (3) uses valid and reliable measures of anger and aggression and clearly indicates the dimension of anger and/or aggression being studied; (4) uses rigorous, comparative designs with larger sample sizes; (5) fully describes the target population and the treatment intervention; (6) attempts to answer the question of which treatment is best suited to which type of client.; and (7) assesses the fidelity of treatment implementation procedures. Practitioners and providers of anger- and aggression-reduction programs may also wish to consider adopting these recommendations to provide the framework for future research and analysis of the various treatments.

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