Running head: ANGER TREATMENT

An Open Trial of a Comprehensive Anger Treatment Program on an Outpatient Sample[a]

J. Ryan Fuller[a], Raymond DiGiuseppe[b], Siobhan O'Leary[c],

Tina Fountain[d] and Colleen Lang[e]

[a] Corresponding author:
New York Behavioral Health
909 Third Ave
New York, NY 10022
t: 646.495.3078
f: 646.495.3005
Email: Fuller@NYBhealth.com

Albert Ellis Institute
45 East 65th Street
New York City, NY 10065
United States of America
t: 212-535-0822
f: 212-249-3582

[b] Albert Ellis Institute

St. John's University
Department of Psychology
Department of Psychology
8000 Utopia Parkway
Queens, NY 11439
United States of America
t: 718-990-1955
email: digiuser@stjohns.edu

[c] Albert Ellis Institute
email: siobhanoleary@gmail.com

[d] Albert Ellis Institute
email: tfounta2@verizon.net

[e] New York Behavioral Health
email: langcolleen79@gmail.com

Abstract

This pilot study was designed to investigate the efficacy of a cognitive behavioral treatment for anger. Twelve (5 men and 7 women) outpatient adults completed 2-hour group sessions for 16 sessions. Participants were diagnosed with 29 Axis I and 34 Axis II disorders with high rates of comorbidity. Empirically supported techniques of skills training, cognitive restructuring, and relaxation were utilized. In this protocol, cognitive restructuring emphasized the use of the ABC model to understand anger episodes and the Rational Emotive Behavior Therapy (REBT) techniques of disputing irrational beliefs and rehearsing rational coping statements, but additional cognitive techniques were used, e.g., self-instructional training (SIT). Skills training included problem-solving and assertiveness. Relaxation training was paced respiration. Motivational interviewing, imaginal exposure with coping, and relapse prevention were also included. Significant improvements were found from pre- to post-treatment on the following measures: the Trait Anger Scale of the State-Trait Anger Expression Inventory-II (STAXI-II; Spielberger, 1999) and Anger Disorder Scale (ADS; DiGiuseppe & Tafrate, 2004) total scores; idiosyncratic anger measurements of situational intensity and symptom severity; and the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). In order to extend the significant research findings of this pilot study, future investigations should involve larger sample sizes, populations drawn from various settings, and contact control groups.

Anger Sequelae

Frequent, intense, and enduring anger episodes as well as dysfunctional expression and suppression are associated with impairment in a number of areas (e.g., social, vocational, medical, etc.). Automobile accidents (Deffenbacher, Deffenbacher, & Lynch, 2003), homicide, suicidal/parasuicidal behavior (Yesavage, 1983), child abuse (DiLillo, Tremblay, & Peterson, 2000), domestic violence (Dobash & Dobash, 1984) and substance use (Tafrate, Kassinove, & Dundin, 2002), all cause mortality and are all associated with dysfunctional anger. Traditional cardiovascular risk factors of hypertension (Dimsdale, Pierce, Schoenfeld, & Brown, 1986; Helmers, Baker, O'Kelly, & Tobe, 2000), cardiovascular disease, visceral adipose tissue (Raikkonen, Matthews, Kuller, Reiber, & Bunker, 1999), as well as physiological markers/precursors of disease (Suarez, 2004), are also correlated with anger. Expression/suppression patterns are linked to gastrointestinal problems, stroke, and some forms of cancer (Williams, Paton, Siegler, Eigenbrodt, Nieto, et al., 2000). Pathological anger also interferes with daily functions of decision-making (Leith & Baumeister, 1996) and interpersonal cooperation (Kassinove, Owens, Roth, & Fuller, 2000). Given the severity and ubiquity of anger's sequelae, it should be viewed as a serious public health problem. The need for accurate diagnosis and effective treatment cannot be overestimated.

Anger Treatment

Although the number of randomized controlled trials for anxiety and mood disorders far exceed those for anger (DiGiuseppe & Tafrate, 2003; Deffenbacher, McNamara, Stark, & Sabadell, 1990), some well-controlled studies have been conducted evaluating cognitive behavioral interventions. The cognitive behavioral treatments with the greatest empirical support include cognitive interventions (Deffenbacher, Dahlen, Lynch, Morris, & Gowensmith, 2000),

skills training (Deffenbacher, 1998), relaxation (Deffenbacher, Huff, Lynch, Oetting, & Salvatore, 2000), and formats representing different combinations of these (Deffenbacher, Filleti, Lynch, Dahlen, & Oetting, 2002). These interventions have proven effective in several clinically angry populations, including angry undergraduates (Deffenbacher, Thwaites, Wallace, & Oetting, 1994), war veterans with PTSD (Chemtob, Novaco, Hamada, Gross, & Smith, 1997), police officers (Sarason, Johnson, Berberich, & Siegel, 1979), inpatient adolescents (Feindler, Ecton, Kingsley, & Dubey, 1986), and community volunteers (Novaco, 1975). However, expanding research to more traditional populations, such as psychiatric outpatients, is warranted (Deffenbacher et. al., Tafrate, Kassinove, & Dundin, 2002).

Diagnostic Issues

Treatment of clinical anger frequently challenges mental health practitioners in various outpatient settings. Mental health professionals report treating anger disorders as often as Generalized Anxiety Disorder, however, diagnostic confusion is common (Lachmund, DiGiuseppe, & Fuller, 2005). The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition-Text Revised* (DSM-IV-TR; American Psychiatric Association, 2000) does not include an exclusive anger diagnosis, but a variety of disorders that are associated with anger. Post-traumatic Stress Disorder, Oppositional Defiant Disorder, Paranoid and Borderline Personality Disorders include anger as a diagnostic symptom, while the related constructs of aggression, hostility, irritability, and resentment permeate the nosology, e.g., Generalized Anxiety Disorder, Antisocial Personality Disorder, Depressive episodes (for children), and Passive Aggressive Personality Disorder. To further complicate the issue, “anger attacks” have been associated with Panic Disorder, Major Depressive Disorder, and Intermittent Explosive Disorder, despite the absence of anger as a diagnostic specifier. Inaccurate diagnosis

complicates case conceptualization and treatment planning, which could ultimately alter prognoses. Diagnostic data have been largely unavailable in anger treatment studies. It is unclear whether individuals seeking treatment for anger have diagnosable Axis I or Axis II pathology, or if any present exclusively with anger.

Perhaps more critical for patients seeking help are the practical financial issues that are raised by diagnostic confusion. Lacking an Axis I diagnosis may prevent third party reimbursement and in turn, preclude treatment for financially strained individuals. However, even with diagnosis and reimbursement, clinicians may be challenged in their case formulation and treatment planning without an understanding of anger. Therefore, conducting comprehensive assessments of those seeking outpatient treatment for anger is a logical preliminary step for this pilot study, as the current managed care environment has increased the need to efficiently diagnose and treat this ill-defined clinical group. Further, a better understanding of this group, (e.g., diagnostic characteristics), even while using a small sample, may facilitate the provision of research funding for anger treatment studies, as many national funding agencies require DSM-IV diagnoses.

Fee-for-service Outpatient Treatment

There is no scientific evidence indicating that clinicians outside of university or hospital settings utilize empirically tested anger treatments. But perhaps more critical is whether research is providing information on outcome and diagnosis for this specific group. To our knowledge, only one descriptive analysis has been conducted on anger-disordered adult outpatients seeking fee-for-service treatment (Grodnitzky & Tafrate, 2000). This study utilized exposure exclusively as an intervention with a small group of court-mandated clients. Treatment analogue studies have also been conducted in which specific mechanisms involved in therapy have been evaluated

(e.g., Kassinove & Tafrate, 2004), but none of these involved formal diagnostic information or included conventional psychotherapy as treatment. Unfortunately, few studies have evaluated the efficacy of psychotherapy on treatment-seeking individuals from the community (Del Vecchio & O'Leary, 2004). Given the high number of anger-disordered clients presenting for treatment in private clinical settings (Lachmund, DiGiuseppe, & Fuller, 2005), it is important to determine if cognitive behavioral psychotherapy is feasible and efficacious for adults seeking fee-for-service treatment. It is also necessary to obtain diagnostic information on this population to determine the similarities and differences among clinical populations and to understand the impact of diagnostic information may have on third party reimbursement.

Effect sizes in the treatment of angry adults range from medium to large (Del Vecchio & O'Leary, 2004). Most of the evaluated treatments were conducted in 8 to 12 sessions lasting 75 minutes or less. The findings are promising, but the effect sizes are less than those for anxiety and depression (DiGiuseppe & Tafrate, 2003). These findings are also based on fewer studies, which suggests a need for continued treatment outcome trials. Most of these treatments are conducted in 8 to 12 sessions lasting 75 minutes or less.

It has been widely demonstrated that anger is detrimental to health and that many suffering seek treatment (e.g., Helmers et al., 2000; Suarez, 2004). Novaco and Chemtob 2002) have also indicated that people in the upper quartile of trait anger, who also suffer from PTSD, respond to treatment. However, the anger levels and diagnoses of those seeking treatment for anger problems in fee-for-service settings remain unclear, and it is unknown whether or not combined treatments are as effective for this clinical population as they have been for undergraduates, war veterans, police officers, and other groups.

This pilot study tested the efficacy of 16 sessions of CBT, largely based on the work of

Deffenbacher and McKay (2000) and clinical experience. A sample of individuals with anger problems was treated in a fee-for-service outpatient psychotherapy clinic. This fee-for-service sample was intended to represent the typical angry patients treated by mental health practitioners in outpatient facilities.

All patients received structured clinical interviews as an initial step in describing the diagnostic characteristics of these patients. The treatment involved patients confronting anger provocations with new adaptive behaviors and using avoidance/escape strategies sparingly. As suggested by Deffenbacher (2000), session length and the number of sessions were increased in order to maximize the treatment dose in hopes of improving the efficacy and viability (attrition and satisfaction) of the protocol.

It was hypothesized that the function of treatment over outcome would be such that while the frequency of anger provocations or situations remained constant, the frequencies of physiological anger symptoms would decrease. Specifically, we expected that anger experience, as measured by the Trait Anger Scale (TAS) of the State-Trait Anger Expression Inventory-II (STAXI-II; Spielberger, 1999) and the Anger Disorders Scale (ADS; DiGiuseppe & Tafrate, 2004) total scores, idiosyncratic anger duration, severity, and life interference would decrease. In accordance with past anger research with college students, we also expected a decrease in depressive symptoms, as measured by the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996).)

Method

Participants

Twelve outpatients (5 men and 7 women), completed treatment. The average age was 40 (*SD* =15.37) and the average years of education was 16.52 (*SD* = 2.57).

Inclusionary Criteria. Given that there are no formal anger diagnoses, convention has identified angry adults as those who score at or above the 75th percentile on the Trait Anger Scale (TAS) of the State-Trait Anger Expression Inventory-II (STAXI-II; Spielberger, 1999), acknowledge a personal problem with anger, and are willing to seek treatment (Deffenbacher et al., 1994). Participants in this study were self-identified as having anger problems and requested treatment. Most other well-controlled studies of clinically angry undergraduates (Deffenbacher et al., 1994) used these two inclusion criteria. Initially, criteria included the 75th percentile on the TAS; however, once a number of participants with subthreshold scores appeared to be significantly disturbed by anger, this criterion was eliminated for clinical reasons. Clinically we determined it was sensible for them to be considered anger disordered regardless of the conventional but arbitrary 75th percentile threshold. In fact, 4 of the participants treated in this study scored slightly below this percentile. Based on information collected during the clinical interview and idiosyncratic anger forms, clinical judgments upon consultation between the interviewer and the first author resulted in the inclusion of individuals for which anger was the primary cause of distress and functional impairment.

Measures

Structured Clinical Interview for DSM-IV-1. All participants received the Structured Clinical Interview for DSM-IV Diagnosis (SCID-1; First, Spitzer, Gibbon, & Williams, 2002) to diagnose Axis I disorders. This semi-structured interview is an instrument used to diagnose anxiety, mood, substance/alcohol abuse and dependence, psychotic, and eating disorders. The SCID-1 has adequate reliability (First, et al). A Master's level clinician with NIMH SCID certification conducted these interviews. Although she was unaware of the study's hypotheses at the time of assessment, she was aware of the inclusionary criteria, and later co-led one of the two

treatment groups.

Structured Clinical Interview for DSM-IV–II. All participants received the Structured Clinical Interview-II for DSM-IV Diagnosis (SCID-II; First, Gibbon, Spitzer, Williams, & Benjamin, 1997) to diagnose Axis II disorders. Participants first received the SCID-II Questionnaire, which screens for potential diagnoses followed by the SCID-II interview for indicated diagnoses. Test-retest reliability has been demonstrated to be in the good to excellent ranges for the SCID-II.

Trait Anger Scale. The TAS is one of three primary scales of the STAXI-II (Spielberger, 1999). It was used to determine the overall level of anger in participants as well as to determine treatment efficacy from pre- to post- treatment. The TAS is a self-report measure that consists of 10 Likert items. This scale is considered to have excellent psychometric properties; the standardization yielded good internal reliability, with alpha coefficients of .78 to .89 in the normative sample (Spielberger).

Anger Disorders Scale. The ADS (DiGiuseppe & Tafrate, 2004) is a 74-item, Likert scale designed to assess dysfunctional anger. It consists of 18 subscales distributed across five domains of anger experience: provocation, arousal, cognition, motive, and behavior. For example, the ADS Behavioral Domain subscales include several forms of aggressive behavior, e.g. passive, verbal, indirect, physical, vengeance, and relational. The ADS total score (W) was used as an outcome measure. This subscale has adequate reliability and validity (DiGiuseppe & Tafrate).

*Anger Situation Form***.** Deffenbacher and McKay (2000) developed this form to assess ideographic components of anger for each patient. The form includes a place for patients to describe an "ongoing" anger activating event. After the narrative description, four questions are

asked about the intensity, frequency, and duration of the anger episode as well as the degree to which the anger interfered with the patient's life. The intensity and interference are reported on 100-point scales, frequency is asked in terms of times per month, and duration is indicated in minutes.

Anger Symptom Form. This form, also developed by Deffenbacher and McKay (2000), assesses information that may be unique to the experience of each individual. Patients identify the physiological symptom that they most frequently experience when angry. Patients then rate the severity, frequency, duration, and life interference of the symptom.

Beck Depression Inventory-II. The BDI-II (Beck, Steer, & Brown, 1996) is a 21-item Likert scale measure of depressive symptoms. Scores from 13-19 indicate mild symptoms. Scores from 20-28 represent moderate symptoms, and scores of 29 and above indicate severe symptomatology. Internal reliability has been demonstrated with student samples (.92) and psychiatric samples (.93; Beck et. al.). Convergent and discriminant validity has also been demonstrated with this instrument, in that it correlates more strongly with other depression measures than with anxiety measures (Beck et. al).

Working Alliance Inventory. The WAI (WAI; Horvath & Greenberg, 1989) measures therapeutic alliance. Each of three subscales consists of 12 seven-point Likert items. The subscales are goal agreement, agreement on the tasks of therapy, and the client-clinician bond. Higher scores indicate client perception of a stronger therapeutic bond. For each subscale and for the total score, an average item score was calculated. All of the items were summed and then divided by the number of items in the subscale. The resulting scores ranged from 1 to 7.

Outcome Questionnaire. The Outcome Questionnaire (OQ; Lambert et al., 1996) is a 45-item self-report scale that measures current symptom distress, interpersonal relations, and social

role congruence. The OQ utilizes a five-point Likert scale, which indicates how frequently the individual thinks, feels, or behaves in a particular way. For each scale of the OQ, higher scores are indicative of higher levels of disturbance. Lambert and colleagues report test-retest reliabilities that range from .78 to .84 and internal consistencies that range from .70 to .93.

Procedure

Recruitment. Participants were either clinician-referred or responded to two print advertisements, which appeared one time in two different newspapers, advertising affordable treatment of anger problems for qualifying individuals willing to participate in a research study.

Screening. The initial contact was conducted by telephone. A semi-structured intake provided information about the treatment and assessment procedures to potential clients. The type of treatments utilized and the nature of manualized treatment were explained and questions by the potential participants were addressed. Fees and reimbursement were also explained. Interested individuals were then scheduled for a two-part intake process. An informed consent form and a self-report questionnaire battery were completed during a 60-90 minute appointment. Active psychosis or group inappropriate clients were excluded from the trial and referred for appropriate individual treatment. One self-referred participant was identified during the initial contact as actively psychotic and one other client was diagnosed as depressed but reported minimal anger symptoms. Remaining participants were scheduled for the structured clinical interviews and anger symptom measures to determine anger-related functional impairment and distress. Clinical consensus was reached between the interviewer and the first author based upon the structured interview and self-report questionnaires to determine when anger was the primary cause of functional impairment and/or distress.

Fees and Reimbursement. Participants paid a fee typical for outpatient group therapy in

the New York City Metropolitan area. Participants were reimbursed 25% of the total cost for perfect attendance and 19% for attending 15 of 16 sessions. No reimbursement was given to clients with two or more absences. Two special cases required reduced rates during treatment based on unexpected financial constraints.

Treatment. Treatment consisted of 16 2-hour sessions of a cognitive-behaviorally based anger management program. Two groups of 6 to 8 participants received treatment from a doctoral level therapist and were co-led by a Master's level clinical fellow enrolled in a doctoral psychology program. A fidelity checklist was closely followed. It included didactic and Socratic methods of instruction as well as exercises completed during the session to increase skill acquisition. Guidelines for homework to be assigned for each of the 16 sessions were also standardized for all group members. Co-leaders completed the fidelity checklist during each session to ensure that treatment integrity was maintained.

Summary of Treatment. Session 1 addressed the goals of the program, focusing on harm reduction, a decrease in the intensity, frequency and duration of problematic behaviors and emotions, and learning to tolerate uncomfortable emotional states. The relationship between emotion and behavior was explained and the participants were oriented to begin monitoring and recording relevant episodes. Session 2 focused on identifying common risk factors and triggers for anger, inhibiting anger responses, and consequential analyses of anger behaviors. Session 3 included an introduction to the ABC model of Rational Emotive Behavior Therapy (REBT) and the causal relationship between cognition and emotional/behavioral consequences. Session 4 centered on assertiveness training, and Session 5 was a review of interventions covered thus far. Session 6 covered diaphragmatic breathing techniques, Session 7 focused on cognitive coping, according to REBT theory (i.e., use of disputations and development and rehearsal of rational

statements) and self-instructional training (SIT), and Session 8 presented problem-solving skills. Session 9 focused on formalizing plans to address anger, both regularly and when faced unexpectedly with a trigger. Sessions 10 through 14 employed the techniques of imaginal exposure and coping, key components of the intervention. During imaginal exposure, group members were asked to close their eyes, imagine an event that typically triggers anger and get in touch with the associated feeling. They then reported subjective units of distress (SUDS) ratings and were guided in use of coping strategies to modulate anger. Session 15 addressed relapse prevention issues and Session 16 focused on planning for the future. It is important to note that previously covered topics were frequently reviewed, adaptive responses were reinforced, and homework was assigned for each session.

Results

Therapeutic alliance was rated highly, based on Goal Agreement (M = 6.15, SD = .06), Task Agreement (M = 6.10, SD = .59), Therapeutic Bond (M = 6.16, SD = .53), and Total Alliance (M = 6.13, SD = .54) scores on the WAI. Scores above 4.5 indicate alliance adequate for effective treatment. Attendance rates (88%) were high and attrition was low. Three participants failed to complete treatment. The first failed to return after the first session. A discussion with this participant suggested that it might have resulted from the therapist's explanation of mandated child abuse reporting, which was addressed in the initial session. We transferred the second participant to individual therapy because he displayed inappropriate behaviors that were disruptive to other group participants during the first two sessions. The third participant reported improvements, but subsequently failed to attend and did not return any phone calls. Post-treatment data were not available for these clients; therefore their data were

not utilized in the post-treatment analyses. Homework compliance was also high (M = 4.28, SD = .52) with scores ranging from 1 to 5 (1 = *none*, 2 = *partial*, 3 = *some*, 4 = *most*, 5 = *all*).

Pre-treatment outcome measures were correlated to determine significant associations among measures (Table 1) at $p < .05$. Four significant correlations were found. Anger Symptom-Duration score was correlated with Anger Situation-Duration and Anger Situation-Frequency scores. ADS total and Anger Symptom-Severity score were both correlated with the BDI-II score. Therefore, measures were analyzed separately and not collapsed.

Functional impairment of the participants was illustrated by a measure of global functioning (Outcome Questionnaire 45v.2), DSM-IV Axis I and Axis II diagnoses, and Global Assessment of Functioning (M = 54.67, SD = 12.06). The OQ total score (M = 91.83, SD = 28.30) was higher than the clinical threshold for outpatients (M = 67.00). Ten of the twelve participants presented with OQ Total scores in the clinical range. OQ Symptom (M = 49.92, SD = 16.71), Social Role (M = 17.92, SD = 5.58), and Interpersonal Relations (M = 24.00, SD = 7.25) scores also fell within the clinical range for outpatients.

Numerous Axis I and II disorders existed in this sample; also, there was a high rate of comorbidity. A total of 29 current Axis I diagnoses existed in this sample of 12 individuals. PTSD was the most common Axis I disorder; 5 participants received this diagnosis. Social Phobia, Generalized Anxiety Disorder, and Major Depressive Disorder were currently present in 4 participants.

Thirty four personality disorders were shared among 11 of the 12 members. Borderline Personality Disorder (BPD) is the only personality disorder that includes anger specifically as a symptom. However, Obsessive-Compulsive was as common as BPD in this sample (4 out of 12

participants). Passive-Aggressive (7 participants) and Depressive (6 participants) Personality Disorders were even more prevalent.

T-tests were conducted on outcome measures to evaluate effects of treatment. Given the directional nature of all hypotheses, one-tailed tests were used. Eight of 11 outcome variables would have been significant at the .05 level if uncorrected (Table 2). However, to reduce experimentwise error, a Bonferroni correction was used with an adjusted alpha of .0091. At this level, five significant differences were found. Cohen's *d* was used to represent effect sizes, which were calculated by dividing pre-treatment/post-treatment differences by pooled standard deviations. We determined whether the improvement reached clinically significant change based on Jacobson and Truax's (1991) methods. For the *A* calculation method, a clinically meaningful difference was determined with a two-standard deviation change from pre-treatment, and the reliable change index (RCI), a gauge of change compared to the standard error (SE).

T-tests indicated significant changes in Trait Anger Scale T-scores from pre- ($M = 67.67$, $SD = 10.58$) to post-treatment ($M = 57.17$, $SD = 8.24$), $t\ (11) = 3.22$, $p < .01$ ($d = 1.12$). ADS total score also changed significantly ($M = 76.08$, $SD = 14.02$, pre vs. $M = 60.33$, $SD = 7.37$, post), $t\ (11) = 4.02$, $p < .01$ ($d = 1.47$). Depressive symptoms, as represented by the BDI-II score, decreased from pre- ($M = 25.33$, $SD = 12.34$) to post-treatment ($M = 9.45$, $SD = 8.20$), $t\ (11) = 4.80$, $p < .01$ ($d = 1.55$). Effect sizes for all three of these nomothetic scales were large. Clinical significance classified patients into four categories: deteriorated, unchanged, improved, and recovered. The majority of patients received classifications of improved or recovered on the TAS (frequency of 10 out of 12 participants), BDI (11 out of 12), and ADS scores (11 out of 12) with the vast majority of those categorized as improved.

Anger Situation-Intensity (pre- $M = 85.42$, $SD = 13.89$ vs. post-test $M = 37.50$, $SD = 27.09$), $t\ (11) = 5.20$, $p < .01$ ($d = 2.39$) and Anger Symptom-Severity ($M = 69.17$, $SD = 27.87$ vs. $M = 30.58$, $SD = 27.64$), $t\ (11) = 4.16$, $p < .01$ ($d = 1.39$) scores were both significantly reduced. However, the other subscale scores of these idiosyncratic forms did not reach statistical significance.

Discussion

Sample Characteristics

This pilot sample represents a close approximation of how Tafrate, Kassinove and Dundin (2002) describe a traditionally defined clinical sample (i.e., adults seeking outpatient services). Evaluating the efficacy of anger treatment for this clinical group has been identified as a major goal of anger research (Del Vecchio & O'Leary, 2004). Conclusions drawn regarding the diagnostic frequencies that emerged should be interpreted with caution. Although it is impossible to extrapolate from such a small sample, this pilot sample of outpatients seeking treatment had high rates of Axis I and II comorbidities with heterogeneous presentations. Interestingly, Axis II diagnoses were more common than Axis I diagnoses. It is important to note that Passive-Aggressive and Depressive Personality Disorders were the two most common diagnoses overall and were diagnosed in over half of the participants. These two personality disorders, included for further study in the DSM-IV-TR Appendix B, may join PTSD, Oppositional Defiant Disorder (ODD), Intermittent Explosive Disorder (IED), BPD, MDD, GAD, and Social Phobia as diagnoses of great interest to anger researchers.

Format and Satisfaction

The participants reported high satisfaction with the treatment. We believe that this in large part due to the format. Extending the number and length of sessions allowed ample time to

process problems presented during homework review, address resistance, and enable group members to assist one another. It allowed for more clinician-patient contact, and possibly more importantly, for more interpersonal exchanges among group members (Yalom, 1985). We believe these interactions are therapeutic for both the patient presenting the problem and the patient suggesting coping strategies. The format also facilitated a high level of rapport among group members, which may have contributed to high attendance rates. In fact, the majority of group members reported disappointment when the group was coming to an end, and requested that therapy continue or that the therapists provide regular booster sessions or a reunion.

Treatment

The combined treatment of this pilot study utilized empirically proven techniques of skills training, relaxation, and cognitive restructuring. However, unlike any anger efficacy trials of which we are familiar, throughout the 16 sessions, we provided motivational enhancement. Emphasis was placed upon on building motivation (e.g., tension building and Socratic dialogue), hedonic calculus, consequential thinking, discussion of physiological changes and health consequences. Cognitive restructuring was based upon the ABC model, core beliefs, and REBT disputations, although other cognitive behavioral techniques included self-instructional training, rule-governed behavior and behavioral activation. The rationale for using REBT disputation and relaxation techniques was that they are both learned quickly and can be easily utilized in a variety of settings without ongoing professional contact, making them suitable for time-limited psychotherapy.

Outcome

Overall, many patients experienced a reduction of psychiatric symptoms. However, some individuals responded more favorably than others. In terms of treatment outcome, general anger

experience (TAS), as well as a global measure of anger (ADS Total), including revenge, anger-in, and reactivity-expression significantly decreased from pre- to post-treatment. In addition, the effect sizes for these two measures were large and closely approximated those in previous studies (DiGiuseppe &Tafrate, 2003). Most important were the clinically meaningful changes. Ten and eleven (respectively) of the twelve patients were either in the improved or fully recovered range on these general measures of anger.

No change was expected in the frequency of contact with anger triggers. The patients and clinician collaborated to determine when avoidance of triggers was ultimately maladaptive. Once the participants developed coping strategies, they were encouraged to refrain from avoidance and escape behaviors. The data indicated that patients were able to put this into practice with their most frequent idiosyncratic triggers. They could refrain from avoiding anger provoking situations while still experiencing significant decreases in the emotional intensity and physiological arousal previously associated with these triggers. Our clinical experience indicates this change may prevent future relapse by decreasing the avoidance-rumination cycle, so commonly observed in our patients. So often, patient report illustrates that a disproportionate response to a seemingly innocuous trigger is really just the straw that broke the camel's back. Without adequate emotion regulation, problem-solving, and interpersonal skills these patients are at the mercy of rumination. Eventually their frustration threshold is reached and the dam breaks.

Outcomes on the idiosyncratic measures were variable. Severity of physiological arousal and intensity of anger experience did decrease significantly. Even though the duration of the anger experience was cut in half, there was no significant decrease for experience of arousal duration or life interference. Low power and high variability may explain these insignificant differences. But, as our understanding of the physiological mechanisms of physical diseases

associated with anger become more clear (Matthews, 2005), it is critical that the duration of anger experience and arousal are adequately addressed by treatment. More effective treatments or increasing treatment length may be necessary for this particular population, which may have more intractable symptoms than other samples studied. Further treatment development and evaluation is necessary to adequately help this clinical population.

Treatment effects did generalize to depressive symptoms. Pre- to post-treatment scores decreased significantly, with the mean moving from moderate to minimal depression symptoms, with a large effect size. In addition, 92% reached clinically meaningful change in the improved or recovered category on the depression measure. Had we expected so many diagnosed cases of Major Depressive Disorder and such large changes in depressive symptomology, we would have administered the MDD module of the SCID at post-treatment.

Limitations

The following improvements for strengthening the findings of this pilot study are suggested for future research: larger sample size, inclusion of a treatment control group, independent coding of fidelity, utilization of objective physiological/behavioral measures, and administration of treatment by different therapists. Despite these important limitations, this study provided preliminary diagnostic information about a poorly understood population. It investigated whether angry outpatients in a community clinic respond to treatment in similar ways to other clinical populations. It is critical to note that effective anger treatment still needs to be further developed for this clinical sample and evaluated for clinical populations that this pilot study did not address, e.g., low SES and the domestically violent. It is also important that follow-up data are collected to ensure lasting treatment effects.

Future Directions

Although anger research has lagged behind studies on anxiety and depression, this body of literature continues to expand. Future treatment research should continue to examine clinical samples in university counseling centers, institutional settings (e.g., penitentiaries, V.A. hospitals), and outpatient community clinics. Although no broad or definitive conclusions can be drawn from this small sample, the diagnostic assessment of individuals who are experiencing anger related problems is certainly a clear area for further research. Adding comprehensive diagnostic assessments to these treatment trials will help scientists clarify the nature of anger disorders, as well as identify subpopulations within the larger clinical population. In addition, if younger cohorts are properly diagnosed, longitudinal studies may elucidate the pathological development of anger over time. Other treatments that have not been adequately tested on clinical anger are pharmacotherapy, exercise, yoga and mindfulness. Given their role in managing mood disorders, it seems important to explore these possibilities alone and in conjunction with existing anger interventions.

Considering anger's association with numerous health conditions, it is important to further investigate if it has a causal role in the development, maintenance and/or progression of these diseases. Anger treatments may be important recommendations for high anger patients who are at-risk or who have been diagnosed with some cancers, cardiac problems, diabetes mellitus, obesity, or other health related problems. The comorbidity, causality, and treatment of anger and its effects on health problems like heart disease and obesity is an area in desperate need of study. Along with treatment, prevention is another area that anger research has yet to investigate. Even though anger is a normal and sometimes healthy part of life, we should not assume that pathological anger we see clinically cannot be prevented in some cases.

In summary, innovative treatment development, prevention, longitudinal studies, and multi-site randomized-controlled trials (RCT's) are warranted given the pernicious effects of anger sequelae and our current treatment effect sizes (Butler, Chapman, Forman, & Beck, 2006) to address this serious public health problem.

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Table 1.

Correlation matrix

Measure		1	2	3	4	5	6	7	8	9	10	11
1	Trait Anger		.35	.11	.33	.38	-.01	.08	-.30	-.20	-.27	.32
2	ADS Total			.01	.55	.52	.53	-.23	-.40	.13	-.22	.85**
3	Symptom D				.45	.52	-.01	.62*	-.02	.18	.58*	.32
4	Symptom S					.46	.26	.05	-.09	-.05	.30	.72**
5	Symptom LI						.57	.33	-.34	.52	.37	.54
6	Symptom F							-.21	.11	.53	.10	.48
7	Situation D								-.12	.51	.31	.12
8	Situation I									-.09	.43	-.16
9	Situation LI										.10	.25
10	Situation F											.02
11	BDI TOT											

Note. D = duration; S = severity; LI = life interference; F = frequency; I = intensity; BDI TOT = Total BDI score.

Table 2.

Pre-treatment and Post-treatment Outcome Means, Standard Deviations, and T-Scores

Measure	M	SD	Univariate Treatment	Effect Size
Trait Anger Scale				
Pre	67.67	10.58		
Post	57.17	8.24	3.223*	1.116
Anger Disorders Total				
Pre	76.08	14.02		
Post	60.33	7.37	4.024*	1.473
Anger Situation- Intensity				
Pre	85.42	13.89		
Post	37.50	27.09	5.197*	2.338
Anger Situation- Frequency				
Pre	7.76	7.71		
Post	8.58	12.75	-0.305	-0.080
Anger Situation- Duration				
Pre	54.54	56.75		
Post	21.08	32.92	2.591	0.746
Anger Situation- Life Interference				
Pre	61.33	34.83		
Post	31.67	32.50	2.06	0.881
Anger Symptom- Severity				
Pre	69.17	27.87		
Post	30.58	27.64	4.164*	1.390
Anger Symptom- Frequency				

Pre	11.17	10.15		
Post	5.79	6.18	1.522	0.658
Anger Symptom- Duration				
Pre	35.04	42.33		
Post	26.03	49.83	0.582	0.196
Anger Symptom- Life Interference				
Pre	47.92	38.52		
Post	20.83	22.45	2.686	0.888
Beck Depression Inventory				
Pre	25.33	12.34		
Post	9.45	8.20	4.796**	1.546

Note. Significant improvements using adjusted Bonnferroni correction (α = .0091) are designated by **.