DISSERTATION

THERAPEUTIC ALLIANCE, GROUP CLIMATE, AND CLIENT SELF-EFFICACY: INFLUENCES ON OUTCOME IN GROUP THERAPY FOR DRIVING ANGER REDUCTION

Submitted by

Ethan Schwartz, M.S.

Department of Psychology

In partial fulfillment of the requirements

for the degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Summer 2004

COLORADO STATE UNIVERSITY

July 30, 2003

WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY ETHAN SCHWARTZ ENTITLED THERAPEUTIC ALLIANCE, GROUP CLIMATE, AND CLIENT SELF-EFFICACY: INFLUENCES ON OUTCOME IN GROUP THERAPY FOR DRIVING ANGER REDUCTION BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

Committee on Graduate Work

(Please print name under signature)

Scott B. Hamilton

Scott B. Hamilton

William N. Bayer

William N. Bayer

Pat L. Sample

Pat L. Sample

Jerry L. Deffenbacher

Jerry L. Deffenbacher

Adviser

Department Head

ABSTRACT OF DISSERTATION

THERAPEUTIC ALLIANCE, GROUP CLIMATE, AND CLIENT SELF-EFFICACY: INFLUENCES ON OUTCOME IN GROUP THERAPY FOR DRIVING ANGER REDUCTION

This study examined how working alliance, group climate, and client self-efficacy related to each other and to outcome in group treatment of driving anger. Self-report measures of driving and general anger and driving and general anger expression were collected from 74 introductory psychology students who scored in the upper quartile on a measure of driving anger, indicated a personal problem with driving anger, and indicated a desire for counseling for driving anger reduction. Outcome was assessed on a pre-treatment, post-treatment, and one-month follow-up basis. Clients participated in eight weeks of group therapy that utilized cognitive, behavioral, or relaxation interventions. The Working Alliance Inventory-Short Form, the Group Climate Questionnaire-Short Form, and a measure of self-efficacy regarding the use of anger reduction techniques when driving were gathered after the third and seventh sessions.

Working alliance, self-efficacy, group engagement, and group conflict were reliable measures, but group avoidance was not. Working alliance and group cohesion were positively associated with positive outcomes, but relationships were generally small and inconsistent across measures. Group engagement, a measure of group cohesion, was the best predictor of outcomes of the group climate measures and was a better predictor than working alliance. Self-efficacy also correlated with positive outcomes, but

relationships were small to moderate in size. Self-efficacy was the best predictor of reduction in driving anger. Although the set of predictors taken together accounted for a substantial portion of the variance in driving anger reduction, no single combination of factors proved to be the best predictors across measures. In terms of prediction of outcome, third session assessment of therapy variables appeared to be no better than seventh session assessment of therapy variables.

Findings offer some evidence that working alliance, group climate, and self-efficacy are related to outcomes in a time-limited group treatment of driving anger. These variables predicted driving anger reduction, but did not fully explain variance in outcomes. Implications for future research and treatment were explored.

Ethan Schwartz
Psychology Department
Colorado State University
Fort Collins, CO 80523
Summer 2004

Acknowledgements

I am grateful to everyone who has helped facilitate the completion of this project, from the therapists in the study to the research assistants who helped administer measures. I would especially like to thank my adviser, Jerry Deffenbacher, Ph.D., who allowed me to integrate my research interests into his treatment study, who trusted me with a new idea, who has been an invaluable resource in my research endeavors, and who has provided me with a mentoring experience that has been has been fulfilling and satisfying. I would also like to thank my committee members, Pat Sample, Ph.D., Scott Hamilton, Ph.D., and Bill Boyer, Ph.D., for their suggestions and support in helping to complete this dissertation in a timely manner. Finally, I would like to thank my friends, family, and especially my wife, Lisa Savage, for their support, playful teasing, commiseration at times of stress, reminders of all the good "alliances" in my life, and for making the celebration of successes worth all the effort in the end.

TABLE OF CONTENTS

Appendices

CHAPTER I

Introduction

The question of "What works best, when, and for whom?" has increasingly become a relevant research question as counseling and psychotherapy have continued to demonstrate basic efficacy in a variety of settings (Asay & Lambert, 1999; Lambert & Bergin, 1994; Smith, Glass, & Miller, 1980). Recent meta-analyses seeking to identify the specific components of therapies that lead to beneficial change have highlighted the relatively small influence of theoretically hypothesized mechanisms proposed to be the active ingredients of specific techniques, while still demonstrating that therapy is efficacious over a broad range of issues (Ahn & Wampold, 2001; Luborsky et al., 2002). Attention is now being turned to identifying the active ingredients in therapy that bring about a beneficial outcome. Researchers examining what makes therapy efficacious have made a strong case for common factors such as the therapeutic alliance and extratherapeutic client factors (Ahn & Wampold, 2001; Asay & Lambert, 1999; Hubble, Duncan, & Miller, 1999; Lambert, 1992; Luborsky et al., 2002). A theoretically eclectic conceptualization of the working alliance highlights three areas of the relationship between client and therapist: (a) the emotional bond, (b) mutual agreement on the goals of therapy, and (c) mutual agreement on the tasks that constitute therapy (Bordin, 1979). Extratherapeutic client factors describe a group of variables such as motivation, the ability to identify a focal problem, the development of increased self-efficacy to solve one's problems, and elements of the client environment such as fortuitous events and

social support (Ahn & Wampold, 2001; Asay & Lambert, 1999). Based on his review of the extant literature, Lambert (1992) concluded the therapeutic alliance accounted for 30% of the improvement in psychotherapy outcome, extratherapeutic change and client factors accounted for 40% of improvement, and specific techniques and expectancy of improvement (placebo effects) accounted for 15% of improvement each.

Therapeutic Alliance and Outcome

Extensive literature has documented the association between therapeutic alliance and positive outcome in interpersonal therapy across dozens of studies, generally finding a reliable and at least a small to moderate effect (Horvath & Symonds, 1991; Martin, Graske, & Davis, 2000; Orlinsky, Grawe, & Parks, 1994). Horvath and Symonds (1991), in a meta-analysis of 24 studies, found an average moderate effect size of .26, as measured as an *r* value, between quality of alliance and outcome. They concluded that working alliance was most predictive of outcomes when it was based on clients' ratings, less predictive when based on therapists' ratings, and least predictive when based on observers' ratings. They also found that the alliance and outcome relationship did not appear to be affected by the type of therapy practiced, the length of treatment, whether the research was published, or the number of participants in the study. A more recent meta-analysis including an additional 60 studies found a slightly smaller overall correlation of .22, reported as an *r* value, between the strength of alliance and positive therapeutic outcome, while also noting that the various alliance scales have adequate reliability (Martin et al., 2000). These researchers concluded, based on the finding that the population of studies was homogenous, that the type of outcome measure, the type of rater (patient, therapist, or observer), time of alliance rating (early, middle, late, or

averaged across sessions), or type of psychotherapy failed to account for additional variance and add to the predictive power in determining positive outcome.

A recent study using a large sample size specifically investigated how the alliance contributes to outcome, and it suggested that alliance early in treatment can be influenced by prior symptomatic improvement, but that alliance is still a significant predictor of further improvement even when prior change is controlled for (Barber, Connolly, Crits-Christoph, Gladis, & Siqueland, 2000). These researchers found that alliance at sessions 5 and 10, but not at session 2, of supportive-expressive dynamic therapy was associated with prior changes in depression levels, while alliance at all three sessions predicted subsequent improvement in Beck Depression Inventory scores when prior change was taken into account. Other researchers working within a cognitive therapy model, using observer ratings, and limited by smaller sample sizes, found that alliance was predicted by earlier symptomatic improvement and found that therapists' adherence to concrete cognitive therapy techniques was what significantly predicted subsequent symptom improvement (DeRubeis & Feeley, 1990; Feeley, DeRubeis, & Gelfand, 1999). In the largest study of the relationship of the therapeutic alliance and outcome ever conducted, which was in the National Institute of Mental Health Treatment for Depression Collaborative Research Program, researchers found that alliance as rated by clinical observers predicted outcome for interpersonal psychotherapy, cognitive-behavioral therapy, and active and placebo pharmocotherapy and accounted for more variance in outcome than treatment method (Krupnick et al., 1996). These researchers found a significant relationship between alliance and outcome whether the alliance rating was based on an early (session 3) session or a mean of alliance across early, middle, and late

sessions, but the association was much stronger when a mean score was used. This study suggested that the alliance is a common relational factor that predicts outcome across theoretically and technically different psychotherapies and modalities.

Research attempting to delineate which aspects of the alliance have the strongest associations with outcome has been more limited. Some researchers have suggested a confident collaboration factor, the degree to which clients are confident in their therapists' ability to help them and committed to a process that feels promising and helpful to them, is more strongly related to outcome (Hatcher & Barends, 1996; Stiles et al., 1998). Research has also suggested that linear growth in the alliance across sessions in therapists' ratings of the alliance is associated with positive outcome (Kivlighan & Shaughnessy, 1995; Stiles, Agnew-Davies, Hardy, Barkham, & Shapiro, 1998).

The features of the therapeutic alliance within Bordin's (1979) model of task, bond, and goal are considered to be present within all theoretical orientations and be independent of the presenting issue. The relationship of therapeutic alliance and outcome has been investigated across various therapeutic approaches and with various client populations such as outpatient alcoholic clients, depressed clients, clients with generalized anxiety disorder, clients with avoidant or obsessive-compulsive personality disorder, and clients with obsessive-compulsive disorder (Barber et al., 2000; Connors, Carrol, DiClemente, Longabaugh, & Donovan, 1997; Hoogduin, de Haan, & Schaap, 1989; Krupnick et al., 1996; Marmar, Gaston, Gallagher, & Thompson, 1989; Safran & Wallner, 1991; Stiles et al., 1998). It is important to note that several of these studies involved cognitive-behavior therapy (CBT) treatments, but that some researchers such as DeRubeis and Feeley (1990) and Feeley et al. (1999) have argued that the therapists'

adherence to particular techniques predicted outcome and that good outcome early in treatment predicts a good therapeutic alliance later and not visa versa. A recent study exploring the relationship between outcome and therapeutic alliance and homework compliance during cognitive-behavioral group treatment for social phobia found that neither alliance nor homework compliance (an element related to concrete cognitive-behavioral techniques) predicted outcome (Woody & Adessky, 2002). It is interesting to note that the majority of research investigating the link between outcome and alliance has been on therapy in individual settings and not all client populations have been researched. Whether the working alliance is as relevant in group treatment settings and whether the working alliance is as important in the context of other presenting issues such as general and driving anger reduction are questions that have not yet been investigated.

Group Cohesion and Outcome

Group cohesion is closely related to the concept of therapeutic alliance in group psychotherapy (Mackenzie, 1998; Marziali, Munroe-Blum, & McCleary, 1997), but the concept is not fully resolved and delineated (Bednar & Kaul, 1994). Cohesion is viewed as a global concept of how attractive or important the group is to its individual members (Mackenzie, 1998). Researchers exploring group cohesion have investigated concepts including a sense of bonding, working together toward common goals, engagement, an atmosphere of tension and anger, mutual acceptance, support, and affiliation with the group (Mackenzie, 1998; Marziali et al., 1997). Despite the various views of what the construct constitutes, research has demonstrated positive relationships between group cohesion and outcome (Bednar & Kaul, 1994; Marziali et al., 1997). However, some research has failed to find a link between group cohesion and outcome, such as a recent

study on the group treatment of social phobia (Woody & Adessky, 2002). Mackenzie (1983) developed a measure of group climate consisting of three dimensions: (a) engagement which constitutes a positive working atmosphere including group cohesion, (b) conflict which constitutes a negative atmosphere of tension and anger, and (c) avoidance which constitutes ways by which the member might avoid constructive involvement in the group. Although Mackenzie's conceptualization of group climate has been used to track to the stages of development in group therapy, other research has demonstrated that group climate variables predict positive outcome (Braaten, 1989), while other studies have not demonstrated a relationship between a positive working climate in the group and positive outcome (Mackenzie & Tschuschke, 1993).

Self-Efficacy and Outcome

Measures of the working alliance have been well established in their validity and the delineation of their constructs (Horvath & Greenberg, 1994). The various elements of extratherapeutic client factors that have been postulated to have a large effect on outcome (Asay & Lambert, 1999; Lambert, 1992) have not been operationalized into a single construct due to their diverse nature. Hubble, Duncan, and Miller (1999) in a synthesis of how common factors should influence practice, conceptualize client factors as "the client's resources, skills, and agency in and outside therapy" (p. 425). Lambert and Bergin (1994), in their review of the effectiveness of therapy, concluded that some of the common factors that may explain improvement in therapy beyond a good working alliance were exposure to anxiety-provoking stimuli, the encouragement to participate in other risk-taking behavior, and efforts at mastery. Efforts at mastery would seem to be something the client brought to the therapeutic process and as such constitute a client

factor. In a study that compared interpersonal-skills training, a reinforcement-theory program to increase pleasant activities (and the enjoyment of pleasant activities), and a cognitive approach to modifying depressive thoughts in the treatment of depression, Zeiss, Lewinsohn, and Munoz (1979) found all three treatments reduced depression. They did not find any differences specific to the parts of the clients' problems targeted by the treatments. These researchers suggested the treatments were effective because they enhanced clients' self-efficacy via training in self-help skills, which led to increasing expectations of mastery and perceptions of greater positive reinforcement. Wampold (2001), a proponent of a common factors therapy approach that capitalizes on the therapeutic alliance and the factors a client brings to therapy, suggests the development of increased self-efficacy to solve one's problems is one of the common factors leading to positive therapeutic outcome. Self-efficacy expectations refer to people's beliefs regarding their ability to perform successfully a specific behavior or in a specific situation (Bandura, 1977).

In their conclusions regarding the "massive evidence" that psychotherapeutic techniques do not demonstrate specific effects in the outcome research, Bergin and Garfield (1994) noted that Bandura's social cognitive theory (Bandura, 1986) provides a framework for understanding how common factors may explain the efficacy of treatment across treatment modalities. This framework is related to the cognitive and behavioral tradition but also takes some of its ideas from social psychology. It asserts that all therapies use cognitive reconstruction in the context of core relationships. This theory attempts to explain what happens in the therapeutic relationship and in generalizations

from therapy to the clients' world outside of therapy. The key theoretical constructs of the theory as indicated by Bergin and Garfield (1994) are:

1. Change takes place in a social context and is primarily cognitive.
2. Behavior is not controlled by its consequences so much as it is by forethought and by personal constructions of its meaning or value in relation to internal cognitive assessments, self-reflections, and controls.
3. Behavior is generally self-regulated by the person as an agent within a context of reciprocal causality.
4. One's self-estimated sense of self-efficacy is one of the best predictors of behavior.

In terms of predicting outcome in cognitive-behavioral therapeutic treatments, measuring clients' sense of self-efficacy in using the techniques learned in therapy could prove to be a relevant conceptualization of a client factor that influences outcome, especially if the outcome is the reduction or increase in certain kinds of behavior. Limited research has investigated the effect of client self-efficacy on outcome, although the research that has been done has been done on issues that target specific behaviors such as approach behaviors to feared situations in agoraphobia, sleep behavior, alcohol consumption, eating behavior, and smoking cessation (Baer, Holt, & Lichenstein, 1986; Currie, Wilson, & Curran, 2002; Edell et al., 1987; Godding & Glasgow, 1985; Long, Hollin, & Williams, 1998; Williams, Kinney, & Falbo, 1989). A recent study on insomnia noted that while demographic variables did not predict outcome in cognitive-behavior therapy for insomnia, clients with low baseline sleep self-efficacy were the ones who improved, and improvers showed a significant increase in sleep self-efficacy ratings

(Currie et al., 2002). In a study of alcoholic clients, higher self-efficacy expectancy at intake was associated with better outcome (Long et al., 1998). Research on agoraphobia has demonstrated that client self-efficacy predicts situational fear (Hoffart, 1995), and perceived self-efficacy is a better predictor of therapeutic outcome than previous behavior, anticipated anxiety, anticipated panic, perceived danger, and subjective anxiety (Williams et al., 1989). Other research has demonstrated that self-efficacy in the form of confidence estimates and outcome expectancies predicted subsequent weight loss, while self-motivation did not (Edell et al., 1987). Research on smoking cessation has shown that ratings of one's confidence (self-efficacy) in one's ability to resist smoking are significant predictors of relapse (Baer, Holt, & Lichtenstein, 1986), and self-efficacy measures predict nicotine content, amount of each cigarette smoked, number of cigarettes smoked, carbon monoxide levels, and smoking behavior at a six month follow-up, while outcome expectancy did not predict any of the outcome (Godding & Glasgow, 1985).

Purpose of the Study

Extensive research developed to compare the relative contribution of a client factor such as increased self-efficacy and the strength of the therapeutic alliance and group climate to positive outcomes is not yet available. As has been noted above, research investigating the role of the working alliance, group cohesion, and client self-efficacy has only been conducted with specific client populations and treatment settings. The role of therapeutic alliance, group climate, and the extratherapeutic client factor of increased self-efficacy in dealing with anger on the road and in general would be a context to investigate these variables' impact on group therapy for the reduction of driving anger.

Several reasons argue for the investigation of the relationship of working alliance, group climate, and self-efficacy to the treatment outcome of high anger drivers. Therapeutic alliance, group climate, and self-efficacy have not been investigated with high anger drivers and links to outcome have not yet been established. Although increasing the self-efficacy of the client to deal with their problem(s) may be a goal that cuts across many disciplines, therapists in this study will use cognitive-behavioral techniques because they are amenable to the construct of self-efficacy and quantification, through measures of different elements of change, including working alliance, group climate, self-efficacy, and outcome. Additionally, the specific techniques of a cognitive-behavioral orientation to anger reduction such as using relaxation to reduce anger, changing or stopping anger triggering or increasing thoughts, or engaging in behaviors that distract or reduce anger are all specific domains for which a client can develop efficacy. Further, increasing negative mood regulation expectancies appear to provide one avenue to intervention with reducing anger. Mearns and Mauch (1998) found that police officers' beliefs that they could do something to improve a negative mood decreased anger and distress associated with job stress. These researchers speculated that cognitive-behavioral interventions directed toward anger control could raise individuals' perceived efficacy at regulating mood and might protect individuals from the harmful health consequences of anger. This study could begin to explore this possibility. Lastly, general anger reduction and driving anger reduction treatment have been demonstrated to be efficacious, but suffer from the "equal outcomes phenomenon" of specific therapeutic techniques that Bergin and Garfield (1994) cite. Other research using cognitive-behavioral techniques in the treatment context of general anger reduction have generally

shown equivalent results in terms of differential treatment effects across different interventions while demonstrating general support for positive outcomes with the treatment of general anger (Deffenbacher, Oetting, Huff, Cornell, & Dallager, 1996; Deffenbacher & Stark, 1992; Deffenbacher, Thwaites, Wallace, & Oetting, 1994; Hazaleus & Deffenbacher, 1986). Of the limited number of studies that have found between intervention differences with anger, these findings have not replicated. Novaco (1975) concluded that relaxation was relatively ineffective when compared to cognitive and cognitive-relaxation approaches. Continued research on reducing general anger (e.g., Deffenbacher, Demm, & Brandon, 1986; Deffenbacher & Stark, 1992; Hazaleus & Deffenbacher, 1986) found stronger effects for relaxation and equivalent effects for cognitive and relaxation interventions (Dua & Swinden, 1992; Hazaleus & Deffenbacher, 1986) and for relaxation and cognitive-relaxation interventions (Deffenbacher & Stark, 1992; Dua & Swinden, 1992; Schlicter & Horan, 1981). In a recent review of empirically supported interventions for anger management, Deffenbacher, Oetting, and DiGiuseppe (2002) concluded that while there is empirical support for the effectiveness of anger-reduction strategies, "there is little or no evidence supporting the relative efficacy of one over another" (p. 271).

In terms of driving anger, differences were found between relaxation and cognitive-relaxation interventions in one study (Deffenbacher, Huff, Lynch, Oetting, & Salvatore, 2000), but were not replicated in two subsequent studies (Deffenbacher, Filetti, Lynch, Dahlen, & Oetting, 2002; Richards, Deffenbacher, Filetti, Lynch, & Kogan, 2001). A study comparing relaxation coping skills and cognitive therapy in the treatment of high anger drivers found no evidence for differential treatment effects, while

demonstrating the effectiveness of both treatments for driving anger, driving anger expression, and general trait anger (Kogan, Richards, & Deffenbacher, 2001).

Further research is needed to determine if amplified self-efficacy in one's ability to deal with anger, therapeutic alliance, or group cohesion are some of the key determinants of positive outcome in anger reduction. A treatment study that compares the efficacy of three types of cognitive-behavioral treatments (cognitive therapy, behavior therapy, or relaxation skills training), as this study will, would serve as a good platform to investigate whether social cognitive theory's explanation for the equality of treatments is a useful explanation. As discussed earlier, social cognitive theory asserts that all therapies affect change by engaging in cognitive reconstruction in the context of core relationships. Measures of client self-efficacy and the working alliance should tap these constructs of how the client perceives their ability to use techniques to reduce anger (cognitive reconstruction) and their impression of the alliance (core relationship).

Bandura (1997) asserts that "enactive mastery experiences" indicate one's capabilities in a given domain and are the most influential sources of efficacy information. Betz (2000) notes that these past performance accomplishments, if they are successful, serve to bolster one's sense of self-efficacy and enduring success will help establish an enduring sense of self-efficacy in the particular domain in question. If an individual views anger reduction as a desired outcome, then increasing one's perceived self-efficacy in one's ability to reduce anger could lead to a reduction in anger. Based on Wampold's (2001) suggestion regarding the primacy of increasing client self-efficacy in determining positive therapeutic outcome and its relevance in social cognitive theory's explanation of the equality of therapy outcomes, it is important to investigate the role of

increased self-efficacy of the client along with the role of the therapeutic alliance in determining what leads to positive outcome in the therapy process. In the current study, increased self-efficacy on the client's part in using various ways to deal with situations of anger on the road and in general will be operationalized as constituting an extratherapeutic client factor. Following Bandura's (2001) suggestion in assessing perceived self-efficacy by clearly defining a behavioral domain, in the present study this will be the successful execution of techniques used to reduce driving anger in situations of driving anger. Investigating the role of increased self-efficacy in the use of anger reduction techniques while measuring the working alliance and group cohesion in therapy for anger reduction would be one such way to investigate the potential positive role of extratherapeutic client factors and therapeutic alliance/group cohesion in therapy for anger reduction on the road and in general.

A pilot study ($n = 47$) was conducted in the spring of 2002 with college students at Colorado State University. It investigated the use of working alliance and group climate inventories in the context of group treatment for the reduction of driving anger. Working alliance demonstrated a large effect in its association with change in trait driving anger. Clients' working alliance total score ratings taken at one-month follow-up predicted reductions in driving anger at follow-up ($r = .47$). Clients' ratings of group climate were not significantly associated with reductions in driving anger, although correlations were in the expected directions with the subscales of conflict negatively related to positive outcome and engagement positively related to positive outcome. The scales of the process inventories also exhibited adequate reliability with the college population used in the treatment study, although the avoiding of personal responsibility

for group work did not have an adequate reliability with this sample. Whether working alliance and group climate ratings taken earlier in treatment or how client perceptions in their self-efficacy in using anger reduction techniques are also related to positive outcome in driving anger reduction was not investigated. It should be noted that due to small sample sizes in the pilot study, working alliance scores were collapsed across the treatment groups of relaxations skills training, cognitive therapy, and behavior therapy.

The Current Study

This study will explore how working alliance, group climate, and client self-efficacy in using anger reducing techniques relate to positive outcome in the group treatment of driving anger. A significant literature has supported the relationship between alliance and outcome, and the limited research investigating client self-efficacy has suggested it is positively related to outcome. Less research has documented group climate and group cohesion as predictive of outcome, but because this study will employ a group modality intervention, it is relevant to investigate the role of group climate. This study will also add to the substantive research on working alliance by investigating its role in the treatment of a new population, namely high anger drivers. The group format is also a newer area to explore the role of working alliance and group climate as the majority of studies have explored the role of alliance in individual therapy settings.

This study will allow the reliability of the constructs of working alliance, group climate, and self-efficacy in using anger-reducing techniques to be assessed with a new population of college age high anger drivers in the unique setting of time-limited group therapy for driving anger. How the constructs relate to each other has not yet been investigated. Whether they provide unique predictive power to outcome measures has

also not been addressed with this population. This study will also allow the comparison of the role of working alliance, group climate, and client self-efficacy early in treatment and the role of these constructs later in treatment in their relationship to each other and to outcome.

Based on Lambert's (1992) synthesis of previous research on the ingredients of positive therapeutic outcome and social cognitive theory's explanation of what makes therapy work, we expect to find both increased self-efficacy in one's ability to reduce driving anger and a positive therapeutic alliance and group climate to be predictors of positive outcome in treatment to reduce driving anger. Specifically, we anticipate participants who demonstrated higher levels of therapeutic alliance by scoring higher on a measure of working alliance, more positive elements of group climate by scoring higher on measures of group cohesion and lower on measures of conflict and avoidance, and who demonstrate high self-efficacy would show the most improvement in therapy. We also anticipate that participants who scored high on the alliance measure, high on a group cohesion measure and low on group conflict and avoidance, or have high self-efficacy would show moderate improvement. Lastly, we anticipate participants who scored lowest on alliance, lowest on positive group climate, highest on negative group climate, and who have low self-efficacy would show the least improvement.

This study will bring together three constructs (working alliance, group climate, and client self-efficacy) in predicting outcome in reducing general and driving trait anger, general and driving anger expression, and adaptive and constructive general and driving anger expression. This study will contribute to the understanding of the role of working alliance, group climate, and client self-efficacy in the treatment of a population in which

they have not been studied. This study will also help further the research of what makes therapy work by comparing aspects of the alliance and group climate with the client factor of self-efficacy. The findings of this study will have implications for future treatment of high anger drivers as well as have implications for potential factors that contribute to positive outcome in time delimited group therapy formats. Finally, it provides a forum for the important search for the active ingredients of therapy with the aspiration of furthering our ability of answering the question of what makes therapy work.

CHAPTER II

Method

Participants

Participants were 74 (27 male and 47 female) introductory psychology students (M age = 18.86, SD = 1.56, with a range of 18 to 29) at Colorado State University who scored in the upper quartile (scores > 52) on the short-form of the Driving Anger Scale (DAS; Deffenbacher, Oetting, & Lynch, 1994) and who indicated a personal problem with driving anger and a desire for counseling for that problem. Participants who met screening criteria were contacted by phone and screened for whether they could schedule the study. The majority of the sample (78.4%) identified themselves as non-Hispanic White, 6.8% identified as Hispanic/Latino, 6.8% identified as Native American, 2.7% identified as African American, 2.7% identified as Asian American, 2.7% identified as "other." Fifty-eight percent were freshman with 31% being sophomores, 8% being juniors, and 1.4% being seniors or "other." Participants received four research credits for completion of the study. Participants were randomly assigned to one of three treatment conditions and a no-treatment control condition.

Process Measures

Working Alliance Inventory-Short Form (WAI-S). Participants completed the Working Alliance Inventory-Short Form (WAI-S; Horvath & Greenberg, 1989; Tracey & Kokotovic, 1989), which is a measure of the degree to which a client feels a positive collaboration with their therapist and measures the strength of the working alliance from

the client's perspective. This is a 12-item instrument (a copy cannot be provided due to copyright law) upon which respondents rate on 7-point (1 = never, 7 = always) Likert-type scale how they think or feel about their therapist. The WAI produces a general alliance factor as well as three sub-factors: Task, Goal, and Bond (Tracey & Kokotovic, 1989). The instrument is based on the construct of the working alliance as conceptualized by Bordin (1979) and is designed to be theoretically neutral. Previous research has found WAI composite scores taken at the end of the third session to be highly correlated with outcome (Horvath, 1981; Horvath & Greenberg, 1986, 1989) Alpha reliabilities with university counseling center clients have been .90 for the Task factor, .92 for the Bond factor, .90 for the Goal factor, and .98 for the General Alliance factor (Tracey & Kokotovic, 1989). Alpha reliabilities in the pilot study were .87 for the Task factor, .76 for the Bond factor, .70 for the Goal factor, and .90 for the General Alliance factor. Validity data were reviewed in the introduction.

Group Climate Questionnaire-Short Form (GCQ-S). The GCQ-S (Mackenzie, 1983) is a 12-item instrument (see Appendix A for copy) upon which group members rate on a 7-point (0 = not at all, 6 = extremely) Likert-type scale the overall group climate. The GCQ-S yields three subscales: the 5-item Engaged subscale which measures the degree to which a positive working atmosphere is present and is closely related to the concept of working alliance and group cohesion, the 4-item Conflict subscale which measures the degree of anger and tension in the group and a more negative group environment, and the 3-item Avoiding subscale which measures avoidance of personal responsibility for group work and constructive involvement (Mackenzie, 1983; 1998). Previous research has used a single item ("The members appeared tense and anxious") to

represent the construct of anxiety and found it be negatively related to symptom reduction and goal attainment while only the subscale of Avoiding reached significance in a negative relationship with goal attainment (Braaten, 1989). Previous research has found small positive correlations between Avoiding and Conflict and negative correlations between Engaged and Avoiding and Engaged and Conflict (Mackenzie, 1983). Alpha reliabilities with previous college age samples are not available but reliabilities in the pilot study were .80 for the Engaged subscale, .73 for the Conflict subscale, and .21 for the Avoiding subscale.

Client Self-Efficacy. Following Bandura's (2001) suggestions on measuring strength of perceived self-efficacy, clients answered the question, "How confident are you that you can perform anger management strategies, when . . ." followed by descriptions of domain specific situations, on a 11-point confidence continuum Likert-type scale (0 = cannot do at all, 50 = moderately certain can do, 100 = certain can do). Perceived self-efficacy to manage anger on the road was addressed in a series of seven similar questions that asked clients to rate their confidence in their ability to successfully manage their anger on the road in general and in situations derived from the six subscales of the long-form of the DAS. Clients rated their confidence in their ability to successfully manage their anger as of now, (a) when they encounter the hostile behavior and gestures of other drivers, (b) when they encounter another driver engaged in illegal driving, (c) when they encounter police while driving, (d) when they encounter someone or something that slows them down, (e) when they encounter an ill-mannered driver or bicyclist, and (f) when they encounter problematic road conditions (see Appendix A for copy). They also answered a

question that addressed their efficacy in dealing with anger in other (non-driving) parts of their life.

Outcome Measures

Demographic information. Age, gender, ethnicity, and year in school were collected at the beginning of the questionnaires during pretreatment assessment.

Driving Anger Scale (DAS). The DAS (Deffenbacher et al., 1994) is a 33-item instrument (see Appendix A for copy) upon which respondents rate on 5-point (1 = not at all, 5 = very much) Likert-type scale how intense their anger is in various anger-provoking driving situations. The DAS yields a total score and six subscales: the 3-item Hostile Gestures subscale (e.g., others gesture at you), the 4-item Illegal Driving subscale (e.g., others driving over the speed limit), the 4-item Police Presence subscale (e.g., officer pulls you over), the 6-item Slow Driving subscale (e.g., a slow driver does not pull over to let others by), the 9-item Discourtesy subscale (e.g., someone cuts you off), and the 7-item Traffic Obstructions subscale (e.g., stuck in a traffic jam). Alpha reliabilities of previous college age samples range from .78 to .87 on the subscales and an overall alpha of .90 for the full scale (Deffenbacher et al., 1994). The correlations between these subscales vary from being uncorrelated (r = -.06 for Illegal Driving with Police Presence) to highly correlated (r = .60 for Discourtesy with Traffic Obstructions) with a median r of .35 (Deffenbacher et al., 1994). Scores on the DAS are not correlated with the frequency or amount of driving, whereas the total score correlates positively with the frequency and intensity of anger while driving, with the tendency for different driving conditions to elicit anger, with aggressive and risky behaviors, and with some crash-related outcomes (Deffenbacher, 2000; Deffenbacher et al., 2000; Deffenbacher, Lynch, et al., 2001;

Deffenbacher, Lynch, Oetting, & Swaim, 2002; Deffenbacher, Lynch, Oetting, & Yingling, 2001). Driving anger is positively and moderately correlated with general trait anger (rs = .27 to .33) (Deffenbacher, 2000) and positively with outward, negative, and less controlled expression of general anger, hostile automatic thoughts, impulsiveness, and trait anxiety (Deffenbacher, 2000).

Personal Driving Anger Situations. The Personal Driving Anger Situations (see Appendix A for copy) assess individual anger reactions by asking the person to describe in detail his or her most angering situations related to driving (Deffenbacher et al., 2000; Lynch et al., 1999). Anger level is rated on a 0-100 scale (0 = no anger; 100 = maximum level of anger you could ever experience). This measure is an adaptation of the Anger Situation measure which had a 10-week retest reliability of .81 (Deffenbacher, Story, Brandon, Hogg, & Hazaleus, 1988). High anger drivers report more anger on these measures than low anger drivers (Deffenbacher et al., 2000; Lynch et al., 1999).

Driving Anger Expression Inventory (DAX). The DAX (Deffenbacher et al., 2002) is a 49-item instrument (see Appendix A for copy) upon which a respondent rates on 4-point (1 = almost never, 4 = almost always) Likert-type scale how often the person expresses his or her anger when driving in the manner described. The DAX generates four driving anger expression subscales: (a) a 12-item Verbal Aggressive Expression subscale (e.g., swearing at another driver aloud), (b) an 11-item Personal Physical Aggressive Expression subscale (e.g., giving another driver the finger), (c) an 11-item Use of Vehicle to Express Anger subscale (e.g., speeding up to frustrate another driver), and (d) a 15-item Adaptive/Constructive Expression subscale (e.g., relaxing to calm down). Alpha reliabilities of previous college age samples ranged from .81. to .90 on the

subscales (Deffenbacher et al., 2002; Deffenbacher, Lynch, Deffenbacher, & Oetting, 2001). The correlations between these subscales vary from being negatively correlated (rs = -.10 to -.22 for Verbal and Physical Aggressive Expression and Use of Vehicle to Express Anger with Adaptive/Constructive Expression) to being positively correlated (rs = .39 to .48 for Verbal and Physical Aggressive Expression with Use of Vehicle to Express Anger) (Deffenbacher et al., 2002). Adaptive/Constructive Expression forms small negative correlations with measures of driving anger, whereas aggressive forms of expression correlate positively, and, in general, more strongly with measures of driving anger (Deffenbacher et al., 2002; Deffenbacher, Lynch, et al., 2001). There is also evidence for domain specific relationships between types of driving anger expression and risky and aggressive driving behaviors [e.g., Use of Vehicle to Express Anger correlated more with cutting another driver off in anger and driving up on another's bumper in anger in the last three months (rs = .56 and .50 respectively) than yelling at another driver (r = .31), while Verbal Aggressive Expression correlated more with yelling at another driver (r = .45) than cutting off or tailgating another in anger (rs = .19 and .21, respectively)] (Deffenbacher et al., 2002). Similar specificity was found for aggressive thinking (e.g., verbally aggressive expression having a larger correlation with pejorative labeling/verbally aggressive thoughts than other angry thoughts) (Deffenbacher, Petrilli, Lynch, Oetting, and Swain, in press). Scores on the aggressive forms of driving anger expression correlate positively with general trait anger (rs= .21 to .39), while scores on the adaptive and constructive form of driving anger expression correlated negatively with general trait anger (r = -.15) (Deffenbacher et al., 2002).

Driving Log. On the Driving Log (Deffenbacher et al., 2000, 2002; Lynch et al.

1999), participants record: (a) the number of times they had been angry when driving that day; (b) the event that led to the greatest amount of anger while driving and the intensity of the anger on a 0-100 scale (0 = no anger, 100 = maximum anger ever experienced); and (c) if they engaged in any of eight aggressive behaviors (e.g., cursing or calling another a name or making an angry gesture) or 12 risky behaviors (e.g., drank and drove or drove 10 mph over the speed limit) (see Appendix A for copy). The intensity and frequency of anger and the frequency of aggression and risky behavior correlate positively with each other (Deffenbacher et al., 2002). Clinical samples of high anger drivers report more frequent and intense anger and more frequent aggressive and risky behaviors than low anger drivers (Deffenbacher et al., 2000; Lynch et al., 1999).

Trait Anger Scale (TAS). The TAS (Spielberger, 1988) is a 10-item instrument (a copy cannot be included due to copyright law) upon which respondents rate on a 4-point scale how they generally feel (1 = almost never, 4 = almost always) such that increasing scores reflect greater trait or general anger. Alpha reliabilities range from .81 to .91 with highest reliabilities for college students (Spielberger, 1988, 1999). The TAS correlates positively with many different state and trait measures of anger, aggression, and hostility (e.g., Deffenbacher, 1992; Deffenbacher, Oetting, Thwaites et al., 1996; Spielberger, 1988), correlates positively with many anger consequences (Deffenbacher, Oetting, Lynch et al., 1996), discriminates between high and low anger groups (Deffenbacher, Demm, & Brandon, 1986; Deffenbacher, Oetting, Thwaites et al., 1996; Lopez & Thurman, 1986), and forms larger relationships with anger variables than with other cognitive, emotional, behavioral, and personality measures (Deffenbacher, 1992; Deffenbacher, Oetting, Thwaites et al., 1996).

Anger Expression Inventory (AX). The AX (Spielberger, 1988) is a 24-item instrument (a copy cannot be included due to copyright law) upon which respondents rate on a 4-point Likert-type scale (1 = almost never, 4 = almost always) how they generally express themselves when angry or furious. The AX yields three, 8-item scales: (a) Anger-In, (b) Anger-Out, and (c) Anger-Control. Anger-In assesses the tendency to suppress anger and harbor grudges and criticism when experiencing anger (e.g., boiling inside but not showing it). Anger-Out assesses the tendency to express anger outwardly in negative ways when experiencing anger (e.g., striking out at whatever infuriates the person). Anger-Control assesses the tendency to calm down and control anger when experiencing anger (e.g., trying to keep one's cool when angry). Alpha reliabilities for these scales range from .73 to .84 (Spielberger, 1988). Anger-Out and Anger-Control are inversely related to each other, while Anger-In is usually minimally or uncorrelated with Anger-Out and Anger-Control. Validity of the AX is demonstrated in different patterns of correlation with measures of anger, personality variables, and physiological variables (Deffenbacher, 1992; Deffenbacher, Oetting, Thwaites, et al., 1996; Spielberger, 1988, 1999).

Procedure

Screening. Students in ten large introductory psychology classes completed a screening questionnaire containing: (1) the short-form of the DAS; (2) a box on which to indicate whether they felt like they had a personal problem with driving anger and wanted to participate in counseling for that problem; and (3) a place for name, address, phone number, and e-mail in order to contact participants. Students who scored in the upper quartile on the short-form of the DAS and who indicated that they felt they had a problem

with driving anger and would like counseling for the problem were contacted by phone and asked if they wished to participate. Participants agreed to participate in a pre-treatment, post-treatment, and four-week follow-up questionnaire session in addition to a 8-week, one hour a week, counseling groups. They were told they had a three out of four chance of being placed in a counseling group.

Outcome Assessments. Assessments were conducted on a pre-treatment, post-treatment, and four-week follow-up basis. Participants were assessed in groups of 10-20 in small classrooms. Participants completed consents forms and the long-form of the DAS, Personal Driving Anger Situations, DAX, TAS, and AX, in that order. This order was selected to move from driving anger to general anger and thereby prevent responses to general measures from influencing driving variables. After completion of the questionnaires, they were given three Driving Logs and instructed to complete them on three days on which they drove during the coming week. Students in treatment conditions received the time and place of their groups, while those in the control condition received a written explanation of post-treatment and follow-up assessment.

Assessment procedures were identical at post and follow-up with the following exceptions: (a) informed consent forms were completed only at the pretreatment assessment; (b) in order to make sure participants were rating the same personal anger situations in post-treatment and follow-up assessments, they received personalized copies of their Anger Situations I and II from the first assessment with instructions to rate their current anger level in those situations; and (c) Driving Logs were completed on a follow-up basis.

Process Assessments. In order to examine the development of therapeutic alliance, group climate, and client self-efficacy to use anger reducing strategies across time and in relation to each other, these process measures were taken at the end of the third and seventh session in the eight session groups. During the last 10 minutes of the third and seventh session, an independent research assistant administered the questionnaires to the group. The participants completed the WAI-S, the GCQ-S, and the self-efficacy measure. Group therapists left the room while participants completed these measures. The research assistant reminded the participants that their therapists had no access to the information provided on the measures except in aggregate form after the study was completed. The questionnaires were only identified by code number and not by name. To encourage frank answers, the research assistant informed the group that the information it provided will increase understanding and guide the development of programs designed to help people manage issues such as driving anger and general anger. The completed measures were stored in a separate research room, and therapists did not have access to them during the course of the treatment.

Treatments. Therapy was delivered by three (one male and two females) advanced doctoral students in eight weekly, one-hour, small group sessions (ns = 8-9). Each therapist conducted one group in each condition in addition to doing one condition twice. Each therapist received detailed treatment outlines and two hours of weekly supervision from Jerry Deffenbacher, Ph.D., during which issues from prior sessions were reviewed and procedures and the coming sessions were discussed, modeled, and rehearsed. Although treatment was outlined and manualized, the groups were not simply

didactic in nature and sharing, involvement, participation, and the exploration of personal experiences were encouraged.

Relaxation Coping Skills (RCS). RCS followed procedures described by Deffenbacher et al. (2000). The first two sessions provided a self-managed relaxation treatment rationale (i.e., the individual would become aware of anger arousal and apply relaxation to calm down) and training in progressive muscle relaxation and four specific relaxation coping skills: (a) relaxation without tensing (i.e., focusing on and releasing muscle tension without tensing muscles); (b) breathing cued relaxation (i.e., relaxing more on each of three to five slow deep breaths); (c) cue-controlled relaxation (i.e., relaxing more to the slow repetition of the word "relax" or a similar word or phrase such as "chill" or "calm"); and (d) relaxation imagery (i.e., visualizing a personal relaxation image). In the first portion of each of the first two sessions, clients identified situations that elicit anger (e.g., having another driver cut them off or give them the finger). Homework for the first two sessions involved practicing relaxation, specifying in detail a description of one of the angering situations discussed in the first two sessions, and self-monitoring driving anger. The third session initiated active training in the application of relaxation skills for anger management. After discussing homework and clarifying the scene, the therapist initiated a brief period of relaxation without tension. When all were relaxed, the therapist instructed clients to visualize the anger scene (i.e., being stuck in heavy traffic) and experience and attend to anger arousal. After experiencing anger arousal for approximately 30 seconds, the therapist terminated visualization of the scene and provided instructions for two of the four relaxation coping skills. When all clients signal relaxation, the procedure was repeated with a different combination of relaxation

coping skills. This process was repeated as time allowed, usually with four to six repetitions. Homework was the same as prior sessions, except clients specified concrete details of two scenes for the coming session and started applying relaxation coping skills for driving anger reduction. Procedures for the next five sessions followed this same general pattern with the following modifications. First, two different scenes were employed in each session and were alternated during visualization. This was done to provide a broad range of situations in which relaxation was applied and to make sure that clients had at least one scene per session that elicited anger. Second, the anger arousing capacity of scenes was increased over time such that in the eighth session clients were coping with their most angering sources of driving anger. Third, procedures shifted from therapist to client control (i.e., shift from therapist retrieval of relaxation in session 3 and 4 to client self-initiation of relaxation while continuing to visualize anger scenes in session 6-8). Since generalization to other sources of distress was not found by Deffenbacher et al. (2000), application of relaxation skills to other sources of anger and distress was introduced, encouraged, and discussed from session 5 onward. Maintenance strategies were discussed in session 8.

Cognitive Therapy (CT). CT adopted the cognitive-based protocols of Dahlen and Deffenbacher (2000) and Deffenbacher et al. (2000) to driving anger. The focus of this intervention was on changing problematic information processing and anger-engendering ways of thinking about or construing events on the road. In session 1, anger was described as a physical, emotional, cognitive, and behavioral reaction, and therapy was introduced as a means of helping clients develop new ways of thinking about and construing angering situations. The remainder of session 1 and the beginning of session 2

were spent: (a) identifying driving situations that anger them; (b) identifying ways they think about or react to the situations that engender more anger and make matters worse; and (c) identifying ways they or others think about or react that lower anger and make the situations better. Homework involved self-monitoring driving situations that anger them and recording their anger-related thoughts, images, and behaviors. Session 2 began with a review of the homework and continued with a discussion of ways they or others thought about, appraised, or construed situations in a way that lowered anger. The group then discussed the situation of being stuck in heavy traffic and listed anger engendering thoughts and appraisals and discussed alternative anger lowering thoughts and appraisals. Throughout this discussion and throughout the remainder of CT, the therapist frequently employed Socratic questions (e.g., "What's another way of thinking about that situation?" or "What are other reasons you might consider for why this happened (or another driver behaved that way)?" or "Where's your evidence for thinking that they are doing that just to slow you up and spite you?") and behavioral experiments and tryouts (e.g., "What is a situation where you might check that out?" or "Would you be willing to take three periods of time this coming week and imagine that situation but try to think of it in less angering ways?" or "Would you be willing to purposefully let four people cut in front of you this week and check out what they do and how you feel about that?"). The last 20 minutes of the session were spent imagining that situation, becoming angry, and then having the therapist ask them to think two or three anger reducing thoughts identified earlier and to visualize themselves engaging in specific anger lowering thoughts identified earlier. This was repeated two or three times, and the therapist suggested different thoughts on subsequent repetitions. Homework involved continuing to self-

monitor as in session 1, but also recording of attempts to lower driving anger through changing cognitions and reappraising situations. Sessions 3-8 followed the following pattern. First homework was reviewed. Then two situations for the day were introduced. In the manner described for session 2, anger engendering and lowering thoughts were identified for each situation. In the last 20 minutes or so, anger lowering thoughts were rehearsed. Often this was through visualization as described for the prior session. On occasion, these thoughts and appraisals were roleplayed in a way in which the therapist was a driver and half of the group suggested anger engendering thoughts while the other half of the group suggested anger lowering thoughts. Group members periodically changed roles from the anger provocateurs to anger agonists and also played the driver. Homework involved three things: (a) self-monitoring of anger and application efforts; (b) contracted behavioral experiments focusing on thinking differently about situations; and (c) writing down a list of helpful thoughts and appraisals relevant to the two situations discussed in the prior session. Over sessions, clients were given increasing responsibility for identifying and applying alternative cognitive ways of handling anger and frustration on the road. Application of CT principles and strategies to other sources of anger and distress (e.g., test anxiety) were introduced, encouraged, and discussed from session 5 onward. Maintenance strategies were discussed in session 8.

Behavior Therapy (BT). BT adopted the behavioral-based protocols of Dahlen and Deffenbacher (2000) and Deffenbacher et al. (2000) to driving anger. The focus of this intervention was on changing the ways people react to and handle stressful, anger-triggering events on the road. The focus was on changing automatic behaviors and coping strategies that are anger-based and replacing them with calmer, less aggressive,

often safer behaviors, thereby developing a different way of reacting to and dealing with negative events on the road. The structure of the therapy session was identical to CT, except that the focus was on the behaviors that are aggressive or heighten anger and the behaviors that serve to reduce anger by helping the client cope, distract, or react calmly and safely. Socratic questioning focused on behaviors (e.g., "When you handle things like that well, what is it that you do?), behavioral experiments and tryouts focused on employing alternative behaviors (e.g., singing along with the radio in heavy traffic instead of honking the horn) that reduce anger instead of increasing it and practice and homework asked clients to use alternative behaviors and activities that reduce anger instead of help to heighten it (e.g., rolling down the window and enjoying the scenery in heavy traffic instead of changing lanes and speeding up). BT employed the use of visualization, discussion, and homework in the same format as CT, except the focus was on new behaviors and not cognitions. Application of BT principles and strategies to other sources of anger and distress (e.g., test anxiety) was introduced, encouraged, and discussed from session 5 onward. Maintenance strategies were discussed in session 8.

CHAPTER III

Results

Determining Positive Outcome on Measures of Driving and General Anger

If alliance, group climate, and self-efficacy measures are going to be associated with treatment-related change, it must first be determined that there was treatment-related change. Change was assessed by a two-way mixed ANOVA with one between-subjects factor (Treatment Group) and one within-subjects factor (Assessment Time). The three levels of assessment time were pre, post, and follow-up assessment. The three levels of treatment group were relaxation coping skills (RCS), cognitive therapy (CT), and behavior therapy (BT). In the current design, differential therapy effects would be reflected in Treatment Group X Assessment Time interactions (i.e., therapeutic conditions led to differential change across time). Such interactions would suggest that relationships of process measures to change should be explored within therapeutic conditions. Absence of such interactions and the presence of Assessment Time main effects (i.e., participants change over time) would suggest change in general and that relationships could be explored for the sample as a whole, collapsed across therapy conditions.

Dependent measures are reported in Table 1. Some of the repeated measures ANOVAs (DAS, DAX, TAS, and AX) revealed a departure from sphericity as indicated by significant results for Mauchly's test of sphericity. Consequently, the more stringent Geisser-Greenhouse correction factor was used to evaluate within-subject F tests. These

Table 1

Means and Standard Deviations of Outcome Measures

Measure	Assessment Time					
	Pre		Post		Follow-Up	
	M	SD	M	SD	M	SD
DAS	133.27	10.02	95.77	19.31	90.67	18.35
DAX-A	79.11	14.94	62.19	15.78	59.51	14.70
DAX-C	28.12	7.62	38.05	8.48	37.15	7.98
PSIT	168.12	18.45	109.41	36.42	107.47	39.46
LOG-F	2.20	1.73			1.45	0.77
LOG-I	61.98	21.17			50.96	22.84
LOG-A	2.47	1.52			1.85	1.20
LOG-R	2.98	2.11			2.47	1.38
TAS	25.37	5.09	20.54	4.44	19.69	4.54
AX-Out	20.27	4.34	16.64	3.78	16.70	3.68
AX-In	18.82	4.95	17.95	5.03	17.67	4.17
AX-Control	19.26	4.37	21.71	4.26	22.32	4.52

Note. Driving Log measures were only collected at pre and follow-up assessment. DAS = Trait Driving Anger total score; DAX-A = Aggressive Driving Anger Expression; DAX-C = Adaptive/Constructive Driving Anger Expression; PSIT = Personal Driving Anger Situations; LOG-F = Frequency of anger on Driving Log; LOG-I = Intensity of anger on Driving Log; LOG-A = Aggressive behaviors on Driving Log; LOG-R = Risky behaviors on Driving Log; TAS = Trait Anger total score; AX-In = Anger-In; AX-Out = Anger-Out; and AX-Control = Anger-Control.

are the values reported in Table 2. Within-subject F tests for Personal Situations and the Log measures did not violate the sphericity assumption, and no sphericity correction was made to these F tests (Table 2). Effect sizes are expressed in terms eta square (η^2) values, which in the case of repeated measure ANOVAs is calculated as partial η^2. Qualitative evaluation of effect sizes are based on Cohen's (1988) criteria where η^2 from .01 to .04 is small, .05 to .14 is moderate, and greater than .14 is large.

As can be seen in Table 2, clients showed significant change on all outcome variables. No significant between subject effects for different treatment groups were found, signifying that overall treatment groups did not differ in terms of outcome. No Assessment X Treatment interactions were found either, suggesting no differential treatment effects. Except for three exceptions, Assessment Time effect sizes were uniformly large for the effect of assessment time (η^2s from .15 to .76), signifying that group treatments for driving and general anger were effective in reducing anger as measured by the DAS, DAX, Personal Situations, Driving Log, TAS, and AX-Out and in increasing positive coping as measured by the DAX and Anger Control. The three exceptions were moderate reductions in aggressive and risky behavior as measured by the Driving Log, which had only moderate effect sizes (η^2s = .14 and .08, respectively) and a moderate reduction in Anger-In (η^2= .05). Because no significant difference was found between treatment groups, subsequent analyses relating process variables to outcome were collapsed across treatment groups.

Preliminary Analyses: Alpha Reliabilities of Process Measures

Several analyses were run in order to ensure construct validity of the process measures and to determine which measures would be used in the subsequent analyses.

Table 2

Treatment Group, Assessment Time, and Interaction Effects

Measure	Time F(2, 70)	Time η^2	Group F(2, 71)	Group η^2	Time X Group F(4, 140)	Time X Group η^2
DAS	211.49***	.75	0.34	.01	1.04	.03
DAX-A	73.40***	.51	1.83	.05	1.82	.05
DAX-C	49.02***	.41	1.45	.04	1.38	.04
PSIT	112.68***	.76	0.27	.01	0.08	.00
LOG-F[1]	13.11**	.21	0.79	.03	1.05	.04
LOG-I[1]	8.56*	.15	2.04	.08	0.40	.02
LOG-A[1]	7.93*	.14	0.84	.03	0.34	.01
LOG-R[1]	4.38*	.08	0.80	.03	0.27	.01
TAS	66.66***	.48	0.12	.00	1.38	.04
AX-Out	43.27***	.38	0.58	.02	0.67	.02
AX-In	3.89*	.05	0.55	.02	0.64	.02
AX-Con	21.95***	.24	0.38	.01	1.43	.04

*$p < .05$, **$p < .001$, ***$p < .0001$

Note. DAS = Trait Driving Anger total score; DAX-A = Aggressive Driving Anger Expression; DAX-C = Adaptive/Constructive Driving Anger Expression; PSIT = Personal Driving Anger Situations; LOG-F = Frequency of anger on Driving Log; LOG-I = Intensity of anger on Driving Log; LOG-A = Aggressive behaviors on Driving Log; LOG-R = Risky behaviors on Driving Log; TAS = Trait Anger total score; AX-In = Anger-In; AX-Out = Anger-Out; and AX-Con = Anger-Control. [1]Driving Log measures

were only collected at pre and follow-up assessment. Degrees of freedom for the associated F values are as noted above for all ANOVAs except the Driving Log ANOVAs, where df = (1, 50) for Time, (2, 50) for Group, and (2, 50) for Time X Group.

Alpha reliability analyses (Table 3) were conducted on the process measures to determine which measures had sufficient reliabilities in this sample to be used in subsequent analyses (i.e., $\alpha \geq .70$). All measures had adequate reliabilities, except for GCQ Avoidance, which was dropped in the subsequent analyses, and for the WAI Goal at the third session. WAI Goal has a slightly lower alpha reliability than .70 at the third session, but an adequate reliability at the seventh session. Given the previously sound psychometrics of the Goal subscale in terms of reliability and validity across studies and with a college student population (Horvath & Greenberg, 1989; Tracey & Kokotovic, 1989), it was retained for further analyses in this study. The GCQ Engagement measure was retained with item 8, which referred to how much the members challenged and confronted each other, removed because with this sample it exhibited better α reliability with that item removed (i.e., from .70 to .74 at the 3rd session and from .63 to .74 at the 7th session). GCQ Engagement is supposed to tap a positive working atmosphere and be closely related to group cohesion. In these non-process oriented groups, members may not have viewed challenge and confrontation as part of a positive group environment. Following previous research employing the GCQ in outcome studies (Braaten, 1989), a fourth dimension comprised of a single item and labeled Anxiety was used in subsequent analyses.

Self-efficacy (SE) was reliable. It is interesting to note that the single item measuring general anger reduction self-efficacy, which was initially included in case general and driving anger self-efficacy did not correlate highly, marginally increased the α reliabilities at session 3 and 7 (i.e., from .78 to .82 at session 3 and from .88 to .89 at session 7), and driving and general SE correlated highly (rs = .64 and .57 at 3rd and 7th

Table 3

Alpha Reliabilities of Process Measures at Session 3 and 7

	3rd Session	7th Session
WAI Task	.81	.87
WAI Bond	.77	.76
WAI Goal	.55	.75
WAI Total	.85	.90
SE Driving	.78	.88
GCQ Avoidance	.25	.09
GCQ Engaged	.74	.74
GCQ Conflict	.73	.83

Note. Alpha reliabilities refer to Chronbach's α. WAI Task = WAI-S Task sub-factor; WAI Bond = WAI-S Bond sub-factor; WAI Goal = WAI-S Goal sub-factor; WAI Total = WAI-S General Alliance factor; SE Driving = Self-Efficacy for Driving Anger; GCQ Avoidance = GCQ-S Avoidance subscale; GCQ Engaged = GCQ-S Engaged subscale (with item 8 removed); and GCQ Conflict = GCQ-S Conflict subscale.

session, respectively), suggesting they represented similar constructs. Driving SE was assessed with seven questions and General SE with only one, but in subsequent analyses, only the seven-item Driving SE was used in analyses of outcome because of the better reliability and theoretical consistency of self-efficacy being situation and domain specific (Bandura, 2001).

Correlations between Process Measures

As can be seen in Tables 4 and 5, the WAI subscales were highly correlated with each other (rs from .58 to .76) and with the Total WAI score (rs from .84 to .92). Because of this high correlation between the global score and the subscales, the second-order global alliance factor appears to be the best choice for a predictor in exploring the relationship between alliance and outcome. This approach is also supported by the purpose of the study in examining the relation between overall alliance development along with other process measures and outcome. This approach is also supported by research on the short-form, concluding that in general "one overriding alliance factor appears to be the most salient dimension measured by the WAI," (Tracey & Kokotovic, 1989, pg. 209), while use of the subscales should be continued but be more cautiously used and only in a multivariate analysis context. Because of the exploratory nature of the study, the WAI subscales will be used only in a supplementary analysis.

The measure of client self-efficacy to use anger management strategies while driving (SE Driving) was moderately correlated with positive aspects of the working alliance and group cohesion as measured the WAI-S and GCQ-S respectively, and negatively with negative aspects of the group climate as measured by the GCQ-S (Tables 4 and 5). This was observed at both the third and seventh session. The single measure of

Table 4

Correlations between Process Measures at Session 3

	2	3	4	5	6	7	8	9
1. WAI Task	.68***	.74***	.92***	.36**	.27*	.55***	-.35**	-.11
2. WAI Bond		.58***	.87***	.31**	.28*	.57***	-.42***	-.17
3. WAI Goal			.85***	.23*	.23*	.45***	-.25*	-.20
4. WAI Total				.36**	.30*	.60***	-.39**	-.18
5. SE Driving					.64***	.25*	-.45***	-.21
6. SE General						.07	-.38**	-.18
7. GCQ Engaged							-.28*	-.16
8. GCQ Conflict								.40***
9. GCQ Anxiety								

*p < .05, **p < .01, ***p < .001

Note. Numbers across the top of the table refer to the corresponding variables listed in the left hand column. WAI Task = WAI-S Task sub-factor; WAI Bond = WAI-S Bond sub-factor; WAI Goal = WAI-S Goal sub-factor; WAI Total = WAI-S General Alliance factor; SE Driving = Self-Efficacy for Driving Anger; SE General = Self-Efficacy for General Anger; GCQ Engaged = GCQ-S Engaged subscale; GCQ Conflict = GCQ-S Conflict subscale; and GCQ Anxiety = GCQ-S Anxiety item.

Table 5

Correlations between Process Measures at Session 7

	2	3	4	5	6	7	8	9
1. WAI Task	.76***	.62***	.91***	.24*	.11	.50***	-.46**	-.39**
2. WAI Bond		.58***	.89***	.24*	.22	.48***	-.42***	-.37**
3. WAI Goal			.84***	.44***	.17	.44***	-.53***	-.46***
4. WAI Total				.35**	.19	.54***	-.53***	-.46***
5. SE Driving					.57***	.20	-.20	-.13
6. SE General						.18	-.06	.01
7. GCQ Engaged							-.41***	-.17
8. GCQ Conflict								.30**
9. GCQ Anxiety								

*p < .05, **p < .01, ***p < .001

Note. Numbers across the top of the table refer to the corresponding variables listed in the left hand column. WAI Task = WAI-S Task sub-factor; WAI Bond = WAI-S Bond sub-factor; WAI Goal = WAI-S Goal sub-factor; WAI Total = WAI-S General Alliance factor; SE Driving = Self-Efficacy for Driving Anger; SE General = Self-Efficacy for General Anger; GCQ Engaged = GCQ-S Engaged subscale; GCQ Conflict = GCQ-S Conflict subscale; and GCQ Anxiety = GCQ-S Anxiety item.

self-efficacy in using anger management strategies in areas outside of driving (SE General) followed a similar pattern for the third session, but the correlations were no longer significant at the seventh session.

The GCQ Engaged subscale also demonstrates higher correlations with the WAI-S scales (Tables 4 and 5), which is to be expected due to the similarity between these two constructs. It was retained, because it is theoretically a different construct, referring specifically to group cohesion rather than the relationship between the individual client and the therapist. Anxiety and Conflict correlated negatively (although only for the seventh session for Anxiety) with the WAI-S, as would be expected, supporting construct validity. Conflict correlated negatively with Engaged at both the third and seventh session, supporting construct validity, and Anxiety correlated in the expected negative direction, although not significantly. Anxiety and Conflict correlated positively at both the third and seventh sessions, as would be expected for these measures of group climate.

Correlations between Changes in Outcome Measures

As can be seen in Tables 6 and 7, changes in driving and general anger outcome measures are moderately to strongly correlated at both post and follow-up assessment, as would be expected. A reduction in trait driving anger is positively correlated with a reduction in Aggressive Driving Anger Expression and the Personal Driving Anger Situations. Therapeutic gain in trait driving anger is also positively correlated with therapeutic gain in general Trait Anger at post and follow-up and with reductions in Ax-Out and Ax-In at follow-up. Increases in Adaptive/Constructive Driving Anger Expression was correlated with decreases in the TAS and Anger-Out at post-assessment

Table 6

Correlations between Driving and General Anger Outcome Residual Gain Scores at Post-treatment Assessment

	2	3	4	5	6	7	8
1. DAS	.55***	-.04	.33**	.54***	.20	.17	-.34**
2. DAX-A		-.17	.25*	.56***	.49***	.25*	-.37**
3. DAX-C			-.10	-.29*	-.32**	-.15	.23*
4. PSIT				.33**	.13	.25*	.02
5. TAS					.58***	.42***	-.50***
6. AX-Out						.17	-.56***
7. AX-In							.05
8. AX-Control							

*p < .05, **p < .01, ***p < .001

Note. Numbers across the top of the table refer to the corresponding variables listed in the left hand column. DAS = Trait Driving Anger total score; DAX-A = Aggressive Driving Anger Expression; DAX-C = Adaptive/Constructive Driving Anger Expression; PSIT = Personal Driving Anger Situations; TAS = Trait Anger total score; AX-In = Anger-In; AX-Out = Anger-Out; and AX-Control = Anger-Control.

Table 7

Correlations between Driving and General Anger Outcome Residual Gain Scores at 1 Month Follow-up Assessment

	2	3	4	5	6	7	8	9	10	11	12
1. DAS	.62***	-.26*	.40***	.12	.29*	.41**	.11	.55***	.42***	.26*	-.46***
2. DAX-A		-.19	.31**	.21	.28*	.42**	.15	.67***	.55***	.48***	-.31**
3. DAX-C			-.15	-.23	-.10	.14	-.13	-.14	-.05	-.08	.24*
4. PSIT				.09	.43**	.11	.17	.34**	.08	.32**	-.10
5. Frequency-Log					.55***	.30*	.00	.11	.02	.17	.12
6. Intensity-Log						.36**	.21	.15	-.02	.32*	.27
7. Aggressive-Log							.10	.32*	.35**	.41**	-.08
8. Risky-Log								.17	.03	.12	-.25
9. TAS									.57***	.44***	-.48***
10. AX-Out										.31**	-.43***
11. AX-In											-.08
12. AX-Control											

*p < .05, **p < .01, ***p < .001

Note. Numbers across the top of the table refer to the corresponding variables listed in the left hand column. DAS = Trait Driving Anger total score; DAX-A = Aggressive Driving Anger Expression; DAX-C = Adaptive/Constructive Driving Anger Expression; PSIT = Personal Driving Anger Situations; Frequency = Frequency of anger on Driving Log; Intensity = Intensity of anger on Driving Log; Aggressive = Aggressive behaviors on Driving Log; Risky = Risky behaviors on Driving Log; TAS = Trait Anger total score; AX-In = Anger-In; AX-Out = Anger-Out, and AX-Control = Anger-Control.

and a decrease in the DAS at follow-up. Therapeutic gains in Anger-In correlated positively with therapeutic gains in Aggressive Driving Anger Expression, Personal Driving Anger Situations, and Trait Anger at post, as well as therapeutic gains in Trait Driving Anger, Intensity of Anger on the Driving Log, Aggressive Behaviors on the Driving Log, and Anger-Out at follow-up. Changes in the Frequency of Anger on the Driving Log correlated positively with changes in Intensity and Aggressive Behaviors on the Driving Log. Reductions in Intensity of Driving Anger also correlated with reductions in Aggressive Behaviors on the Driving Log, Trait Driving Anger, Aggressive Driving Anger Expression, and Anger-In. Reductions in Aggressive Behaviors on the Driving Log correlated with reductions in Trait Driving Anger, Aggressive Driving Anger Expression, Trait Anger, Anger-Out, Anger-In, and Intensity and Frequency on the Driving Log. Reductions in Risky Behaviors on the Driving Log only correlated with reductions in Trait Anger, Anger-Out, and Anger-In. The positive direction along with the generally small to moderately strong correlation of change on these measures of general and driving anger supported construct validity and relative discriminant validity of the constructs.

Therapeutic gain on measures of coping and adaptive responses are also positively correlated, while they are negatively correlated with increases in aggressive or negative responses. An increase in General Anger-Control was negatively correlated with increases in Trait Driving Anger, Aggressive Driving Anger Expression, general Trait Anger, and Anger-Out at post and follow-up. Increases in Adaptive/Constructive Driving Anger Expression correlated positively with increases in Anger-Control at post and follow-up. None of the correlations of residual gain scores of the outcome measures

demonstrated consistently large correlations with all of the other measures. Because all of the measures of change of both aggressive/negative responses and adaptive/constructive responses appeared to be tapping somewhat different aspects of change in driving and general anger, all were kept for subsequent analyses.

Outcome as Predicted by Process Variables

Following the procedure that has emerged as the standard method in exploring alliance and outcome relationships (Henry, Strupp, Schacht, & Gaston, 1993; Kivlighan & Shaughnessy, 1995; Meyer et al., 2002; Stiles et al., 1998), client outcome was determined by calculating a residualized change score. Pretreatment scores on the outcome measures were regressed onto their respective post-treatment and follow-up scores, and the standardized residuals from this analysis were used as the outcome variable in subsequent correlational and regression analyses. Residualized change scores were reversed as appropriate so that higher scores indicated greater improvement (e.g., greater reduction in driving anger) or increased abilities to cope (e.g., greater use of adaptive and constructive coping) thereby signifying positive correlations with greater scores on the process measures hypothesized to positively predict outcome. Following previous research investigating the relationship between alliance and outcome (Kivlighan & Shaughnessy, 1995; Krupnick et al., 1996; Stiles et al., 1998), process measure scores were not adjusted for therapist differences because variation due to therapists is viewed as an important piece of the process variable and outcome relationship. The reasoning is that a therapist with good alliance scores and poor outcomes would be just as important as a therapist with poor alliance scores and good outcomes, and visa versa, in determining what the relationship between alliance and outcome is.

Residualized change scores on the outcome measures were correlated with the process measures taken at both session 3 and 7 (Tables 8 and 9). Strength of correlations are interpreted using Cohen's (1988) criteria of r of .1 to .3 being small, .3 to .5 being moderate, and above .5 as being large. In terms of driving anger outcome at post-assessment, the alliance measure demonstrated a small correlation with reduction in trait driving anger at the third session, client self-efficacy demonstrated a moderate ability to predict at the third and seventh session, and the group measure of conflict negatively correlated with trait driving anger at the third session. The alliance, the group climate factor of engagement, and client self-efficacy at the seventh session all predicted less aggressive expression on the road at a small level. Adaptive/constructive expression of driving anger was predicted at a moderate level by increased levels of alliance at the seventh session and group engagement at the third and seventh sessions. Client self-efficacy at the third session and group conflict at the seventh session (in a negative direction) predicted adaptive expression at a small level. Only client self-efficacy at the third session moderately predicted a reduction in anger at the individuals' most angering driving situations. Group anxiety did not correlate with any of the driving anger measures at post-assessment. It should be noted that the alliance measure was nearly significant (r = .22) at the third session for both aggressive and adaptive driving anger expression as was the self-efficacy measure for aggressive expression. Of the 20 possible correlations at the third and seventh session, six were significant at the third session, and seven were significant at the seventh session in predicting outcome of driving anger measures at post-assessment.

Table 8

Correlations of Process Variables with Driving Anger Outcome Residual Gain Scores at Post-treatment and Follow-up Assessment

		DAS	DAX-A	DAX-C	PSIT	LOG-F	LOG-I	LOG-A	LOG-R
Post-Treatment Assessment									
	Session								
WAI-S	3rd	.23*	.22	.22	.06	Log measures administered only at follow-up.			
	7th	.13	.23*	.35**	.11				
SE-D	3rd	.45***	.22	.23*	.36**				
	7th	.46***	.33**	.13	.10				
GCQ-E	3rd	.16	.06	.38***	.08				
	7th	.11	.31**	.42***	.07				
GCQ-C	3rd	-.29*	-.16	-.19	-.20				
	7th	-.15	-.18	-.27*	.09				
GCQ-A	3rd	-.18	-.08	-.15	.07				
	7th	.02	-.02	-.17	.06				
One-month Follow-up Assessment									
WAI-S	3rd	.29*	.11	.06	.06	-.17	-.20	-.03	-.10
	7th	.22	.29*	.12	.11	.01	-.04	.03	-.08
SE-D	3rd	.25*	.08	-.02	.12	.13	.04	.11	-.13
	7th	.47***	.31**	.12	.04	.15	-.11	.19	-.17
GCQ-E	3rd	.23*	.06	.27*	.06	.02	-.16	-.23	-.11
	7th	.16	.36**	.33**	-.05	.13	.08	-.02	-.01
GCQ-C	3rd	-.11	-.14	-.11	.00	-.03	-.21	-.07	-.06
	7th	-.20	-.08	-.20	-.21	-.09	-.09	.08	-.00
GCQ-A	3rd	-.14	-.07	-.23*	.07	-.06	-.09	.03	-.49***
	7th	-.13	-.01	.01	.10	.03	.01	-.18	-.13

*p < .05, **p < .01, ***p < .001

Note. A positive correlation indicates that a relatively stronger alliance, sense of self-efficacy, or group cohesion was associated with improvement (i.e., a larger reduction in anger, anger expression, and aggressive or risky behaviors, or an increase in positive/adaptive coping or anger control). A negative correlation indicates that a

stronger response to the process variable was associated with less improvement (i.e., an increase in anger, anger expression, and aggressive or risky behaviors, or a decrease in positive/adaptive coping or anger control). WAI-S = WAI-S General Alliance factor; SE-D = Self-Efficacy for Driving Anger; GCQ-E = GCQ-S Engaged subscale; GCQ-C = GCQ-S Conflict subscale; GCQ-A = GCQ-S Anxiety item; DAS = Trait Driving Anger total score; DAX-A = Aggressive Driving Anger Expression; DAX-C = Adaptive/Constructive Driving Anger Expression; PSIT = Personal Driving Anger Situations; Frequency = Frequency of anger on Driving Log; Intensity = Intensity of anger on Driving Log; Aggressive = Aggressive behaviors on Driving Log; and Risky = Risky behaviors on Driving Log. Log measures were only available at follow-up assessment.

Table 9

Correlations of Process Variables with General Anger Outcome Residual Gain Scores at Post-treatment and Follow-up Assessment

		TAS	AX-Out	AX-In	AX-Control
End of Treatment Assessment					
	Session				
WAI-S	3rd	.14	.19	.08	.18
	7th	.11	.13	-.01	.17
SE-D	3rd	.27*	.24*	.15	.16
	7th	.29*	.13	.08	.19
GCQ-E	3rd	.12	.24*	-.05	.20
	7th	.06	.31**	-.08	.15
GCQ-C	3rd	-.05	-.15	-.03	.04
	7th	-.03	-.09	-.04	-.05
GCQ-A	3rd	-.02	.01	.08	-.10
	7th	.08	.07	.01	-.05
One-month Follow-up Assessment					
WAI-S	3rd	.16	.24*	-.13	.39***
	7th	.26*	.20	-.04	.25*
SE-D	3rd	.17	.18	.05	.15
	7th	.24*	.26*	.11	.32**
GCQ-E	3rd	.19	.18	-.17	.26*
	7th	.14	.25*	.01	.17
GCQ-C	3rd	-.05	-.16	.02	-.11
	7th	-.13	-.14	.07	-.16
GCQ-A	3rd	.15	.04	.18	-.10
	7th	.08	-.01	.18	-.03

*$p < .05$, **$p < .01$, ***$p < .001$

Note. A positive correlation indicates that a relatively stronger alliance, sense of self-efficacy, or group cohesion was associated with improvement (i.e., a larger reduction in anger, anger expression, and aggressive or risky behaviors, or an increase in positive/adaptive coping or anger control). A negative correlation indicates that a

stronger response to the process variable was associated with less improvement (i.e., an increase in anger, anger expression, and aggressive or risky behaviors, or a decrease in positive/adaptive coping or anger control). WAI-S = WAI-S General Alliance factor; SE-D = Self-Efficacy for Driving Anger; GCQ-E = GCQ-S Engaged subscale; GCQ-C = GCQ-S Conflict subscale; GCQ-A = GCQ-S Anxiety item; TAS = Trait Anger total score; AX-In = Anger-In; AX-Out = Anger-Out; and AX-Control = Anger-Control.

At follow-up assessment, four of the same set of 20 correlations were significant from the third session and five were significant at the seventh session. None of the process variables predicted the Log measures except the one-item group anxiety measure, which was strongly and negatively related to risky behaviors and had small negative relationship with adaptive/constructive expression at the third session. The anxiety measure was not significantly related to any other outcome measure, suggesting this may possibly be an outlier. It should be noted that due to differences in whether members of the sample drove or not in addition to some attrition in completion of the Logs, the smaller sample size (ns = 53 for the Log measures and 74 for the outcome measures) resulted in requiring a larger correlation than r = .23 in order to reach significance. The alliance measure at the third session continued to have a small relationship to trait driving anger and a small relationship to aggressive driving anger expression at the seventh session, but it no longer had a relationship to adaptive/constructive expression. It should be noted that the alliance measure approached significance at the seventh session with trait driving anger. Self-efficacy also did not maintain a relationship with adaptive/constructive expression at follow-up, but it did maintain a small relationship with trait driving anger at the third session, and a moderate relationship with trait driving anger and aggressive expression at the seventh session. Group engagement had a small relationship with trait driving anger and adaptive/constructive expression at the third session. It had a moderate relationship to aggressive and also adaptive expression at the seventh session. Group conflict did not correlate with any of the driving anger outcome measures at follow-up. Overall, less predictive power was evidenced at the follow-up

session, as has been evidenced in other recent studies using follow-up data in addition to termination data (Stiles et al., 1998).

Process measures were less predictive of general anger measures than driving anger measures at post-assessment, with only three of the 20 possible correlations at the third session significant and only two significant correlations at the seventh session. The alliance measure did not correlate with any of the general anger measures at follow-up. Self-efficacy at the third session weakly predicted improvement on general trait anger and anger-out; it also predicted improvement on trait anger at the seventh session. Group engagement had a small relationship to anger-out at the third and seventh session. Group conflict and anxiety did not correlate with any of the general anger measures at post or follow-up assessment.

Process measures were more predictive of general anger measures at follow-up than at post-assessment with three significant correlations at the third session and six at the seventh. At follow-up, the alliance measure had a small relationship with anger-out at the third session and trait anger at the seventh. It also had a moderate relationship with anger-control at the third session and small relationship with anger-control at the seventh session. Self-efficacy was only related to general anger measures at the seventh session at follow-up assessment. It had small correlations with trait anger, anger-out, and anger-control at the seventh session. Group engagement had a small relationship to anger-control at the third session and anger-out at the seventh session.

Regression Analyses of Process Measures on Outcome

In order to assess which variables were the best predictors of outcome, simultaneous regression analyses for each of the outcome variables were conducted

separately for the third and seventh session process variables. This also allowed a comparison between the third and seventh session to see if increased outcome variance was accounted for in session 3 or 7. At post-assessment, self-efficacy and group engagement were the only significant predictors of driving anger outcome (Table 10). Self-efficacy was the only significant predictor among the process variables at the third and seventh session of trait driving anger. The process variables accounted for 22% and 23% of the variance in reduction of trait driving anger at the third and seventh sessions, respectively. Only self-efficacy at the seventh session predicted reduced aggressive driving anger expression at follow-up, and the process variables accounted for 18% of the variance. Self-efficacy also predicted a reduction in the most angering personal situations at the third session, and the process variables accounted for 17% of the variance. Group engagement predicted an increase in adaptive/constructive driving anger expression at the third and seventh session. The process variables accounted for 17% and 20% of the variance at the third and seventh session, respectively. Seventh session variables predicted marginally more variance in the case of trait driving anger and adaptive coping and was the only significant set of predictors for aggressive expression. At the same time, third session variables were the only significant predictors of the personal most angering situations. Given these findings at post-assessment, it appears that the third session and the seventh session measures were relatively similar in their ability to predict outcome.

At follow-up assessment, self-efficacy at the seventh session was a significant predictor of trait driving anger, and the process variables at the seventh session accounted for 24% of the variance. Group engagement at the seventh session significantly predicted

Table 10

Regression Analysis Predicting Driving Anger Outcome from Process Variables

Measure	Session	Significant Variables in Equation	R^2
End of Treatment Assessment			
DAS	3rd	SE-D (β = -.38, t = -3.08**)	.22**
	7th	SE-D (β = -.47, t = -4.07***)	.23**
DAX-A	3rd	No significant predictors	
	7th	SE-D (β = -.28, t = -2.36*)	.18*
DAX-C	3rd	GCQ-E (β = .37, t = 2.70**)	.17*
	7th	GCQ-E (β = .32, t = 2.38*)	.20**
PSIT	3rd	SE-D (β = -.36, t = -2.81**)	.17*
	7th	No significant predictors	
One-month Follow-up Assessment			
DAS	3rd	No significant predictors	
	7th	SE-D (β = -.45, t = -3.94***)	.24**
DAX-A	3rd	No significant predictors	
	7th	GCQ-E (β = -.29, t = -2.21*)	.21**
DAX-C	3rd	GCQ-E (β = .35, t = 2.50*)	.14
	7th	GCQ-E (β = .34, t = 2.44*)	.13
PSIT	3rd	No significant predictors	
	7th	No significant predictors	
LOG-F	3rd	No significant predictors	
	7th	No significant predictors	
LOG-I	3rd	No significant predictors	
	7th	No significant predictors	
LOG-A	3rd	GCQ-E (β = .37, t = 2.06*)	.10
	7th	No significant predictors	
LOG-R	3rd	GCQ-A (β = .58, t = 4.29***)	.31**
	7th	No significant predictors	

*p < .05, **p < .01, ***p < .001.

Note. The first number within the parentheses is the standardized β weight, and the second number is the t value of the significant variable in the regression equation. Negative β weights refer to inverse relationships among the measures, whereas positive β

weights refer to direct relationships among the variables. In this case higher scores on the anger measures represent more anger and higher scores on the adaptive/constructive measures represent more positive coping. All variables were entered into the equation simultaneously. SE-D = Self-Efficacy for Driving Anger; GCQ-E = GCQ-S Engaged subscale; GCQ-A = GCQ-S Anxiety item; DAS = Trait Driving Anger total score; DAX-A = Aggressive Driving Anger Expression; DAX-C = Adaptive/Constructive Driving Anger Expression; PSIT = Personal Driving Anger Situations; LOG-F = Frequency of anger on Driving Log; LOG-I = Intensity of anger on Driving Log; LOG-A = Aggressive behaviors on Driving Log; and LOG-R = Risky behaviors on Driving Log. Log measures were only available at follow-up assessment.

a reduction in aggressive driving anger expression, and the process variables accounted for 21% of the variance. Group anxiety significantly predicted an increase in risky behaviors as measured by the Log, and the process measures accounted for 31% of the variance. Group anxiety only predicted one outcome in the regression equations and because it is comprised of a single item, it may be an outlier, as noted above. None of the other regression equations were significant at follow-up, although group engagement was a significant predictor by itself of adaptive/constructive coping at the third and seventh session and aggressive behaviors on the log at the third session. Personal most angering situations and the log measures of anger frequency and anger intensity had no significant predictors at either the third or seventh session. Examining all the results at follow-up suggests that the only two regression equations (besides the possible outlier involving group anxiety) that were significant were at the seventh session, indicating that maintained follow-up improvement may be better predicted by seventh session process variables. The post and follow-up equations taken together suggest that client self-efficacy and group engagement were the most robust predictors of reductions in driving anger and driving anger expression, whereas group engagement also predicted increases in adaptive/constructive driving anger expression.

At post-assessment, client self-efficacy and group engagement were the only individually significant predictors of general anger variables, although none of the regression equations predicted a significant amount of the variance (Table 11). Self-efficacy was a significant predictor at the third and seventh session of reduced trait anger, but neither of the regression equations was significant. Group engagement at the seventh was a significant predictor of reduced anger-out, but the overall equation was not

Table 11

Regression Analysis Predicting General Anger Outcome from Process Variables

Measure	Session	Significant Variables in Equation	R^2
End of Treatment Assessment			
TAS	3rd	SE-D (β = -.29, t = -2.20*)	.09
	7th	SE-D (β = -.28, t = -2.25*)	.10
AX-Out	3rd	No significant predictors	
	7th	GCQ-E (β = -.33, t = -2.39*)	.12
AX-In	3rd	No significant predictors	
	7th	No significant predictors	
AX-Con	3rd	No significant predictors	
	7th	No significant predictors	
One-month Follow-up Assessment			
TAS	3rd	No significant predictors	
	7th	WAI-S (β = -.34, t = -2.06*)	.14
AX-Out	3rd	No significant predictors	
	7th	No significant predictors	
AX-In	3rd	No significant predictors	
	7th	No significant predictors	
AX-Con	3rd	WAI-S (β = .39, t = 2.63*)	.16*
	7th	SE-D (β = .26, t = 2.16*)	.14

*p < .05

Note. The first number within the parentheses is the standardized β weight, and the second number is the t value of the significant variable in the regression equation. Negative β weights refer to inverse relationships among the measures, whereas positive β weights refer to direct relationships among the variables. In this case higher scores on the anger measures represent more anger and higher scores on the adaptive/constructive measures represent more positive coping. All variables were entered into the equation simultaneously. WAI-S = WAI-S General Alliance factor; SE-D = Self-Efficacy for

Driving Anger; GCQ-E = GCQ-S Engaged subscale; TAS = Trait Anger total score; AX-In = Anger-In; AX-Out = Anger-Out; and AX-Con = Anger-Control.

significant. The process measures were not as robust predictors of general anger outcome at post-assessment. Anger-in and anger-control had no significant predictors. Due to the lack of significant equations at post-assessment, neither third or seventh session process variables emerged as better predictors of outcome.

At follow-up assessment, working alliance at the third session was the only significant predictor of an increase in anger-control, and the process variables accounted 16% of the variance. Self-efficacy was a significant predictor of anger-control at the seventh session, but the overall equation was not significant. Alliance at the seventh session was a significant predictor of trait anger reduction at follow-up, but the process measures did not predict a significant proportion of the variance. At follow-up, the third session variables may be marginally better than the seventh session process variables in predicting outcome, but this assertion is based on only one of the regression equations being significant at the third session and none of the seventh session equations. The post and follow-up assessment taken together suggest that the process measures were not as robust in predicting general anger outcomes, although small relationships between outcome and self-efficacy, group engagement, and working alliance were observed.

Supplementary Analysis: Outcome Predicted by the WAI-S Subscales

As noted earlier, due to the high correlations between the WAI-S total score and its subscales, the total score was used in subsequent analyses as it better fit the purpose of the study in investigating several process measures in their relation to outcome. A supplementary analysis was conducted investigating how the individual subscales of the WAI-S compared to the total score in terms of predicting outcome. The relative proportion and size of significant correlations were similar for the total score and the

subscales at post and follow-up assessment for the driving anger outcome measures (Table 12). Three out of eight possible significant correlations was only slightly smaller than the seven out of twelve possible significant correlations when the scale is broken into its three subscales. All of the relevant correlations were roughly of the same magnitude as well, being all small with the exception of the moderate correlation with adaptive expression at the seventh session for both the total score and the Task subscale. At follow-up a similar pattern of slightly fewer significant correlations for the total score (two out of eight or one out of four, not counting all the non-significant correlations for the Log measures) versus the subscales (five out of twelve). Again, all of the correlations were of a similarly small strength.

At post-assessment of the general anger variables, the subscale of Goal appears to have a better predictive power with trait anger, anger-out, and anger-control at the third session (Table 13). All of these correlations are small. It should be remembered that the Goal subscale at the third session had a lower than ideal reliability ($\alpha = .55$). Nonetheless, future research with its focus on general anger reduction may want to investigate this difference. Slightly more predictive power of the subscale correlations compared to the total score correlations was observed at follow-up. Again, all of the correlations were of similar strength and were small except the moderate correlation with anger-control. The total score at the third session, along with the Task and Goal subscales at the third session, correlated moderately with anger-control.

Although it is possible that the total score on the WAI-S may mask some of the relationships of the subscales with outcome (most notably in the case of the Goal subscale and the general anger measures), it appears that the total score captured the

Table 12

Correlations of Working Alliance Subscales with Driving Anger Outcome Residual Gain Scores at Post-treatment and Follow-up Assessment

		DAS	DAX-A	DAX-C	PSIT	LOG-F	LOG-I	LOG-A	LOG-R
End of Treatment Assessment									
	Session								
WAI-S	3rd	.23*	.22	.22	.06	Log measures administered only at follow-up.			
	7th	.13	.23*	.35**	.11				
WAI-T	3rd	.15	.14	.26*	.12				
	7th	.12	.21	.38***	.10				
WAI-B	3rd	.26*	.22	.08	.02				
	7th	.16	.20	.25*	.10				
WAI-G	3rd	.21	.24*	.27*	.02				
	7th	.07	.20	.28*	.07				
One-month Follow-up Assessment									
WAI-S	3rd	.29*	.11	.06	.06	-.17	-.20	-.03	-.10
	7th	.22	.29*	.12	.11	.01	-.04	.03	-.08
WAI-T	3rd	.22	.04	.08	.15	-.20	-.18	-.05	-.15
	7th	.21	.29*	.12	.07	-.01	.00	.11	-.08
WAI-B	3rd	.22	.08	.00	-.03	-.09	-.24	-.01	-.18
	7th	.13	.24*	.06	.07	.05	-.05	.01	-.17
WAI-G	3rd	.34**	.19	.09	.02	-.14	-.10	-.00	.10
	7th	.23*	.23*	.13	.15	-.03	-.05	-.05	.04

*$p < .05$, **$p < .01$, ***$p < .001$

Note. A positive correlation indicates that a relatively stronger alliance was associated with improvement (i.e., a larger reduction in anger, anger expression, and aggressive or risky behaviors, or an increase in positive/adaptive coping or anger control). A negative correlation indicates that a stronger response to the process variable was associated with less improvement (i.e., an increase in anger, anger expression, and aggressive or risky behaviors, or a decrease in positive/adaptive coping or anger control). WAI-S = WAI-S

General Alliance factor; WAI-T = WAI-S Task subscale, WAI-B = WAI-S Bond subscale, WAI-G = WAI-S Goal sub-factor; DAS = Trait Driving Anger total score; DAX-A = Aggressive Driving Anger Expression; DAX-C = Adaptive/Constructive Driving Anger Expression; PSIT = Personal Driving Anger Situations; LOG-F = Frequency of anger on Driving Log; LOG-I = Intensity of anger on Driving Log; LOG-A = Aggressive behaviors on Driving Log; and LOG-R = Risky behaviors on Driving Log. Log measures were only available at follow-up assessment.

Table 13

Correlations of Working Alliance Subscales with General Anger Outcome Residual Gain Scores at Post-treatment and Follow-up Assessment

		TAS	AX-Out	AX-In	AX-Control
End of Treatment Assessment					
	Session				
WAI-S	3rd	.14	.19	.08	.18
	7th	.11	.13	-.01	.17
WAI-T	3rd	.11	.10	.12	.09
	7th	.09	.12	-.09	.13
WAI-B	3rd	.06	.17	.00	.15
	7th	.08	.04	.03	.12
WAI-G	3rd	.23*	.25*	.09	.26*
	7th	.13	.16	.02	.21
One-month Follow-up Assessment					
WAI-S	3rd	.16	.24*	-.13	.39***
	7th	.26*	.20	-.04	.25*
WAI-T	3rd	.13	.15	-.08	.28*
	7th	.30*	.20	-.05	.21
WAI-B	3rd	.09	.23*	-.17	.35**
	7th	.15	.08	-.03	.17
WAI-G	3rd	.24*	.27*	-.08	.44***
	7th	.24*	.24*	-.02	.28*

*p < .05, **p < .01., ***p < .001

Note. A positive correlation indicates that a relatively stronger alliance, sense of self-efficacy, or group cohesion was associated with improvement (i.e., a larger reduction in anger, anger expression, and aggressive or risky behaviors, or an increase in positive/adaptive coping or anger control). A negative correlation indicates that a stronger response to the process variable was associated with less improvement (i.e., an increase in anger, anger expression, and aggressive or risky behaviors, or a decrease in

positive/adaptive coping or anger control). WAI-S = WAI-S General Alliance factor; WAI-T = WAI-S Task subscale, WAI-B = WAI-S Bond subscale; WAI-G = WAI-S Goal sub-factor; TAS = Trait Anger total score; AX-In = Anger-In; AX-Out = Anger-Out; and AX-Control = Anger-Control.

relationships between outcome and alliance in this study. Regression analyses were also run using the subscales of the WAI-S instead of the total score and generally the significant regression equations remained fundamentally the same.

CHAPTER IV

Discussion

Limitations of the Study

Because of the nature of the treatment and the focus on driving anger reduction, no single index of client outcome is available. In the interpretation of the results, multiple outcome measures may lead to some significant findings but complicate the finding of a distinct pattern of results. Additionally, all outcome and process variables were self-report measures and like all studies based on self-report measures may be vulnerable to response set bias and social desirability bias in the client's desire to improve. Future research that uses external measures of behaviors and observational data would be useful.

Process measures were not administered after every session, so patterns in the increase or decrease of process measures scores cannot be compared to changes in outcome. By the same token, outcome was measured in a pre-treatment, post-treatment, and follow-up assessment format. This format for measuring client change does not permit determining the direction of relationships between change and increased alliance, group climate, or client self-efficacy. Other researchers (DeRubeis & Feeley, 1990; Feeley et al., 1999) have suggested that the alliance and facilitative conditions may be predicted by prior changes in the client rather than the traditionally viewed direction of alliance and facilitative conditions leading to change. These researchers are in the minority in viewing that symptom relief predicts alliance, and other research has

demonstrated that greater alliance predicts better outcome regardless of in-treatment change (Barber et al., 2000; Gaston et al., 1991). Nevertheless, this study does not address this issue fully.

Client self-efficacy may not be a purely extratherapeutic client factor in that it may not simply be a resource the client brings to therapy that is not influenced by treatment. Because of this possible interaction between treatment and the development of client self-efficacy to use anger reduction techniques, it is prudent to view client self-efficacy after the third session as more likely to represent an extratherapeutic client factor, while client self-efficacy in the seventh session could be more influenced by the treatments, which sought to help develop client self-efficacy in driving anger management. Despite these possible interactions, Bandura, who developed the construct of self-efficacy, agrees that self-efficacy can be construed as a "client factor," because it is "self-belief based on personal experiences and individual self-judgments" (A. Bandura, personal communication, September, 2002). This topic of client self-efficacy in its relation to therapy outcome is discussed at greater length below.

Within these constraints, this study was able to investigate the role of the working alliance, group climate, and client self-efficacy in the treatment of driving anger and general anger with high anger drivers. The role of these variables has been unstudied with angry clients. Additionally, this study was able to explore the role these process variables have in a group setting, which has not been studied extensively. Finally, this study was able to investigate how these constructs relate to each other and their relative power in predicting outcome.

Relationship between Working Alliance, Group Climate, and Client Self-Efficacy

As with previous research, the working alliance appeared to be a valid and reliable construct (Horvath & Greenberg, 1989; Tracey & Kokotovic, 1989). Greater levels of the working alliance were associated with greater levels of group member engagement while being associated with less group member conflict anxiety, especially later in treatment. Less research has explored the construct of group climate, but the construct of group member engagement representing group cohesion and a positive working atmosphere as viewed by the members appears to be somewhat similar to how clients view their individual therapist in terms of agreement on goals, agreement on how to achieve those goals, and the bond between therapist and client. The finding of group engagement being similar to individual working alliance supports the similarity of the constructs (Mackenzie, 1998; Marziali et al., 1997).

The elements of group conflict, group avoidance, and group anxiety are less well formulated. Greater levels of group member conflict were associated with a less positive group atmosphere and lower levels of the working alliance. Although group member conflict predicted greater anxiety, anxiety predicted a reduced working alliance only later in treatment at the seventh session. It should be noted that the psychometrics of the group climate measures have not been as rigorously tested (Marziali et al., 1997), and in this sample the construct of group members avoiding personal responsibility for group work was found to be unreliable. Future research that further developed group climate measures that were easy to implement and psychometrically sound is needed. Nonetheless, this study provides some reliability and concurrent validity evidence for the

Group Climate Questionnaire-Short Form's constructs of group member engagement, conflict, and, to a lesser extent, anxiety.

Client self-efficacy, specifically efficacy in the ability to use anger management strategies in driving anger situations, appears to be a reliable construct within this population and treatment setting. It is less clear how client self-efficacy relates to working alliance and group climate, as previous research has not investigated this question. In this study, higher levels of client self-efficacy at the third session were associated moderately with higher levels of working alliance and less group member conflict, and to a lesser degree with higher levels of group member engagement. At the seventh session, the relationship of self-efficacy to working alliance maintained but dissipated with the others. Within this context, these findings suggest that client self-efficacy was a related but relatively independent construct from working alliance and group cohesion and climate. Since self-efficacy is not a global trait but linked to distinct situations and realms of functioning (Bandura, 2001), it is expected that self-efficacy to use anger management strategies should not be strongly related to how clients globally feel about their therapist or their therapy group. Nonetheless, this study suggests that client's belief systems about their ability to manage their anger are not completely independent from their experience of the therapy process as captured by the constructs of alliance and group climate, at least in a treatment setting designed to reduce their driving anger.

Relationship of Alliance and Group Climate to Outcome

As expected, measures of the working alliance and group cohesion were positively associated with better outcomes as measured by the driving anger variables;

however, relationships were small and often inconsistent. Working alliance at the third session was only positively associated with reduction in trait driving anger at post-assessment and follow-up. Working alliance at the seventh session was positively associated with post-assessment reductions in aggressive driving anger expression and increases in adaptive driving anger expression. At follow-up assessment, only the relationship with aggressive expression maintained with working alliance at the seventh session. Working alliance was not associated with any measure of general anger at post-assessment, but showed some small associations with decreased trait anger and outward anger expression at follow-up. The working alliance at the third session did appear to have the strongest relationship of the therapy variables with controlling general anger expression at follow-up. This positive relationship between the goals of the therapy being to learn how to control one's anger thereby predicting the clients' ability to do so, but the lack of such an association at the post-assessment makes this a tentative finding. It is also notable that the measure of group cohesion at the third session, the most closely aligned group measure to working alliance, was the only group measure to have a small positive association in predicting more anger control at follow-up.

The measure of group cohesion, group engagement, had a moderate association with increases in adaptive and constructive driving anger expression at the post-assessment and a small relationship with it at follow-up. It had small to moderate relationships with increases in aggressive expression and trait driving anger. Higher levels of group conflict were associated with small reductions in adaptive coping for driving anger expression and small increases driving anger. Group anxiety had a moderately strong relationship to increased risky driving behaviors, but given the relative

lack of any other pattern of findings with group anxiety, this may not be a reliable finding. Of the group climate measures, only group member engagement was associated with any of the general anger variables, demonstrating a small relationship with reduced outward anger expression at post and follow-up assessments.

When the relative strength of the associations between the therapy variables was compared in the regression analyses, group member engagement appears to be more highly associated with driving anger outcome than the individual working alliance between therapist and client, despite the noted similarity in the constructs of group cohesion and working alliance. Adaptive/constructive driving anger expression at post and follow-up assessment, as well as aggressive expression at follow-up were significantly associated with group member engagement, whereas the working alliance did not predict any of the driving anger outcome variables. Other significant predictors of driving anger variables were found in the regression analyses for follow-up assessment, but the equations did not account for enough variance to be considered greater than chance, suggesting the relationship between the therapy variables and the driving anger outcome variables was weak. The meaning of about which therapy variables have the strongest relationship to outcome is potentially suspect in this context. Given this limitation, group engagement continued to be the only significant predictor of increased adaptive driving anger expression at both the third and seventh sessions. Additionally, in comparison to the other therapy variables, group engagement at the seventh session was the only significant predictor of aggressive driving anger expression, and group engagement at the third session was the only significant predictor of

aggressive driving behavior, although this prediction was in the opposite of the expected direction (i.e., higher levels of group engagement predicted more aggressive driving).

The higher level of association between group cohesion and group climate and outcome than that found with individual working alliance may be due to the fact that treatment was a group modality and made group cohesion more salient to the members than the individual therapist to client relationship. Other research has certainly demonstrated a relationship between group cohesion and outcome, but has not specifically compared the individual alliance to group cohesion in its relationship to outcome. It may be that group alliance/cohesion is more relevant in the outcome-process relationship when the treatment form is group therapy, as has been suggested by other researchers (Budman, Soldz, Demby, Feldstein, & Davis, 1989; Marziali et al., 1997). Previous research comparing group cohesion (member to member interactions) and group alliance (member to therapist interactions) and their relationship to outcome has found that these two constructs are highly correlated and both contributed to outcome (Marziali et al., 1989). This study also found that group alliance accounted for more outcome variance than group cohesion, but this study employed different alliance measures than the present study and a different populations (borderline personality disorder) (Marziali et al., 1989). Other studies comparing group alliance and group outcome have also found a large degree of overlap in the constructs and relationships to outcome, but a stronger relationship to patient reported outcomes for cohesiveness (Budman et al., 1989). This study, which employed an individualized measure of working alliance developed for individual therapy, suggests that group cohesion has a stronger relationship to outcome than individual therapist to alliance in the case of driving anger. The notable exception is

the individual alliance relationship to improved general anger-control at follow-up assessment. In this case, working alliance was better than all the other variables in predicting improved anger-control. Further research will help further explore the inconsistent and minimal research to date.

In general, the process measures of working alliance and group climate have slightly different relationships with the outcome variables at post and at follow-up assessment, but the relative number of significant associations remains somewhat constant. Previous research (Gaston et al, 1991; Kivlighan & Shaughnessy, 1995; Krupnick et al, 1996; Woody & Adesky, 2002) has often not used follow-up measures of outcome and only measured outcome at therapy termination. Studies that have used both post and follow-up assessment have found differing results documenting positive associations with follow-up data (Horvath & Greenberg, 1989), but also demonstrating a reduction in the relationship between working alliance and outcome at follow-up (Stiles et al., 1998). Stiles and colleagues, citing work on the inherent difficulties in of assessing outcomes, suggested that positive and negative life events in the interval between post and follow-up assessment could introduce extraneous variability in the follow-up scores and reduce the process variable to outcome relationship. The inconsistent findings with process variables in the present study may suggest that differing elements of the relationship relate to differing aspects of outcome over time, but this is a very tentative finding and would need to be replicated. The effect sizes of the correlational analyses linking alliance and group climate to driving anger and general anger outcome were small to moderate. This trend fits well with other recent research; larger studies and meta-analyses linking alliance and group climate to outcome show small to moderate effect

sizes (Krupnick et al., 1996; Martin et al., 2000; Shirk & Carver, 2003). Although third session alliance variables were associated with outcome in this study, they were not significantly better at predicting outcome than when they were measured later in treatment as has been suggested by others (Horvath & Symonds, 1991). The relative predictive power of the third versus the seventh session is discussed briefly below.

Relationship of Self-Efficacy to Outcome

As expected, increased client self-efficacy at the third session appeared to have a consistent small to moderate relationship with reduced trait driving anger, reduced anger at individual driving situations, and increased positive driving anger expression coping at the third session at post-assessment. Client self-efficacy at the seventh session maintained its relationship at post-assessment with trait driving anger, gained a small relationship with aggressive driving anger expression, and lost its relationship with adaptive coping and angering situations. At follow-up assessment, client self-efficacy maintained a moderate relationship with trait driving anger but only as measured at the seventh session as the third session relationship reduced to a small although still significant relationship. The other relationships to driving anger outcome were no longer significant, except for a small relationship with aggressive anger expression and self-efficacy at the seventh session. Additionally, increased client self-efficacy demonstrated small relationships to decreased general trait anger and outward anger expression at post and follow-up assessment. The client self-efficacy at the third session correlated with both at post, while the seventh session measure only correlated with general trait anger at post. At follow-up only the seventh session measure correlated, and a small relationship with increased anger-control emerged as well.

When the relative strength of the associations between the therapy variables was compared in the regression analyses, client self-efficacy emerged as the only significant predictor of three out of the four driving anger outcome variables at post-assessment. In the equations that accounted for significant variance in driving anger outcome, higher levels of client self-efficacy at the third session, which is in this study is considered as more likely to assess existing client characteristics than client self-efficacy at the seventh session, was associated with reduced trait driving anger and reduced anger at personal driving situations. Self-efficacy maintained its relationship to the same driving anger outcome variables at the seventh session except for losing its relationship to the personal driving situations and adding a relationship to aggressive driving anger expression. It should be noted that if client self-efficacy at the seventh session was deeply confounded with positive outcome, it would be expected for all the relationships found at the third session to maintain for the seventh session. Besides the significant relation between group engagement and adaptive driving anger expression, only self-efficacy added significantly to the prediction of the driving anger outcome variables at post-assessment.

At follow-up assessment increased self-efficacy at the seventh session was the only significant predictor associated with decreased trait driving anger. By and large, other therapy variables did not predict driving anger outcome at follow-up with the exception of group engagement at the seventh session predicting less aggressive driving anger expression and group anxiety at the third session predicting increased risky driving behavior. As noted above, other significant predictors of driving anger variables were found in the regression analyses for follow-up assessment, but the equations did not account for enough variance to be considered greater than chance, suggesting the

relationship between the therapy variables and the driving anger outcome variables was weak.

This same pattern of regression equations not accounting for relevant portions of variance was also evident in predicting general anger outcome variance. For example, greater client self-efficacy at both the third and seventh sessions significantly predicted reduced trait anger best among the therapy variables, but the variables taken together did not predict a significant portion of change in general trait anger. As noted above, the only therapy variable to significantly predict change within a collection of variables that were meaningful in their relationship to a general anger outcome variable was the working alliance at the third session, which predicted an increase in the ability to control anger expression at follow-up. Self-efficacy was the only significant predictor of anger-control at the seventh session, but this equation again failed to account for a meaningful amount of the variance of change in this variable.

Prediction of Outcome from Early or Late Session Therapy Variables

Previous literature has cited a tendency to find a stronger association to outcome between process variables measured early in treatment as opposed to later (Horvath & Luborsky, 1993; Horvath & Symonds, 1991). Recent studies on the alliance-outcome relationship with adults, adolescents, and children have not found this pattern (Shirk & Karver, 2003; Stiles et al., 1998). Krupnick and colleagues (1996) found that alliance scores averaged across several sessions is more strongly associated with outcome than alliance measured only once in early treatment. Other research exploring the growth in alliance over time and its relationship to outcome has found stronger correlations with alliance measures taken later in therapy than the third session (Kivlighan & Shaughnessy,

1995). This research suggests a model of linear growth over time with alliance measured at early, middle, and late stages in treatment best accounts for the alliance-outcome relationship (Kivlighan & Shaughnessy, 1995). In the present study, an examination of the relationship to outcome with the alliance and group cohesion variables does not suggest that early assessment of alliance is better than later assessment in predicting outcome, nor is later assessment noticeably better. This may be due to the large number of outcome variables in this study, which makes it difficult to make comparisons because at this point one cannot clearly say what the best outcome variable for driving anger and its expression is. If one looks at the general anger outcome variables, the third and seventh session appear to be relatively equal in their relationship to outcome, with the possible exception of the prediction of anger-control, which was meaningfully predicted by the process variables at the third session and not at the seventh. Of the equations that meaningfully predicted outcome of the driving anger variables, only one more percent of the variance was predicted at the seventh session for trait driving anger and three more percent for adaptive driving anger expression. Better prediction from the seventh session was observed at follow-up for aggressive driving anger expression. It should be noted that client self-efficacy has not been studied in this way as of yet, and the question of whether early or late assessment of self-efficacy is better at predicting more outcome variance has not been asked. Within this study, when self-efficacy was related to outcome, the advantage of third or seventh session assessment was not clearly evidenced either way either.

Conclusions and Potential Implications

In general, this study offers some evidence that working alliance, group cohesion, and client self-efficacy are related to outcome in a targeted group treatment for driving anger. However, the relationships between these therapy variables and outcome were inconsistent and generally small to moderate. The pattern of findings is well represented in the case of trait driving anger, which was the criterion on which participants were selected. Working alliance and elements of group climate, specifically group conflict and group engagement, demonstrated small relationships to outcome at both post and follow-up assessment, for measures of these variables taken early as opposed to late in treatment. These relationships were small, and, despite their significant association, did not argue for these constructs as major determinants or contributors to the successful outcome of group therapeutic treatment. Client self-efficacy, as measured both early and late in treatment, had a stronger relationship to trait driving anger reduction at post-assessment although this association was still only moderate. At one-month follow-up assessment the relationship maintained, but was reduced in its strength for self-efficacy measured early in treatment. On its own, self-efficacy was not evidenced as a major ingredient in successful therapy, although it emerged as a potentially stronger contributor in this setting than working alliance and group climate. Taken all together, the therapy variables predicted substantial amounts of variance in trait driving anger reduction (22% to 24%), but obviously do not fully explain the changes targeted by the treatment. As a whole, the variables of group climate, working alliance, and self-efficacy appear to be relevant to successful outcomes, but clearly the complete recipe for successful therapy has not been fully elucidated.

As expected, increased self-efficacy in one's ability to reduce driving anger, a positive therapist-client working alliance, group cohesion, and a positive group working atmosphere were associated with reductions in driving and general anger outcome measures along with increased adaptive coping and anger control. As noted above, these relationships were not consistent or particularly strong, although the relative strength of the relationships is consistent with other studies. Unexpectedly, no additive effect of having a high alliance and group cohesion along with high self-efficacy in terms of predicting treatment outcome was found. Analyses that grouped both the process variables and self-efficacy together did not suggest a specific combination of factors to best predict outcome. In all cases, a specific factor (e.g., group cohesion, client self-efficacy, working alliance) was related to outcome and a combination of high self-efficacy and high alliance and group cohesion did not emerge as the best pattern of predictors.

Group cohesion, specifically in this case the construct of group engagement, emerged as a potentially stronger factor in its relationship to driving anger outcome than working alliance. Although this construct was meant to be similar to the working alliance when it was conceived (Mackenzie, 1998), the focus of this construct is on member to member (e.g., the member liked and cared about each other) interactions and not member to therapist interactions (e.g., I believe my therapist likes me). It may be that in group settings, how the group members feel about each other takes precedence over how they feel about the therapist, at least as it relates to outcome. However, caution is in order in this speculation because overall relationships were not large in any case.

As evidenced by the findings at post-assessment, client self-efficacy at the third session appears to have a stronger relationship to outcome than working alliance with driving anger outcome and may have a stronger relationship than group cohesion, although group cohesion appears to be a relevant factor. Research on guided mastery therapy has hypothesized it is the best way for increasing self-efficacy (Hoffart, 1995; Williams, 1990; Williams & Zane, 1989). Research with agoraphobics has demonstrated that client self-efficacy predicts situational fear or changes in situational fear even when other cognitive mediators (believed ability to control scary thoughts, catastrophic beliefs) are controlled (Hoffart, 1995) and that perceived self-efficacy is the best predictor of therapeutic outcome even when previous behavior, anticipated anxiety, anticipated panic, perceived danger, and subjective anxiety were taken into account (Williams, Kinney, & Falbo, 1989). Other research that has compared guided mastery therapy to stimulus exposure, a leading treatment for phobias with a long track record of success, has shown that guided mastery therapy was superior to an already effective treatment (Williams & Zane, 1989). These researchers suggest that performance-based treatment where the therapist facilitates the client successfully performing activities they would usually find difficult or impossible to successfully complete results in greater and longer lasting treatment effects, at least in the case of phobias (Williams & Zane, 1989). It may be that the concept of increasing self-efficacy can be extended beyond phobias into other areas, such as anger reduction, so clients can effectively learn to manage their anger just as people who suffer from phobias learn to manage their fears. To a certain extent, this approach is already evident in the treatment of driving anger. In this study, across treatment groups, therapists used guided visualizations to facilitate the client successfully

coping with driving anger situations, albeit through visualization. Additionally, all treatment groups explored and highlighted individual successes in coping with driving anger successfully. Both of these approaches could serve to increase perceived client self-efficacy in dealing with anger. It may be that clients who come into therapy with higher levels of self-efficacy in their ability to manage driving anger make better use of the treatment and the tools it provides. Bandura (A. Bandura, personal communication, September, 2002), who developed self-efficacy theory, noted "therapy and life experiences are a constellation of factors that build into self-efficacy." It is interesting to note that at least in the case of driving anger outcome, with the one exception of group cohesion, self-efficacy at the seventh session was the only factor to maintain a moderate strength relationship to follow-up gains. It may be that if client self-efficacy is high at the end of treatment, therapeutic gains may be more likely to maintain.

Future Research

Future research that used a single or meaningful composite for an outcome variable would allow meaningful explorations of how constructs such as self-efficacy, working alliance, and group cohesion interact in their relationship to outcome. This would allow analyses such as whether alliance or group cohesion mediates self-efficacy's relationship to outcome. Meyer et al. (2002, pg. 1051) conducted a study demonstrating that "patients who expect treatment to be effective tend to engage more constructively in session, which helps bring about symptom reduction" as shown by treatment expectancies positive relationship to outcome being mediated by alliance. A future research area would be to investigate how treatment expectancies, working alliance, group cohesion, and client self-efficacy interrelate in their relationship to outcome.

Future research might also employ a longer version of the alliance measure so that the hypothesized components of the alliance (bond, tasks, and goals) could be examined with greater certainty. Having measures of group climate, working alliance, and client self-efficacy be administered at every session along with measures of symptomatic change would also allow a better research model for exploring whether therapy and client variables predict change or whether client change predicts changes in alliance, cohesion, and self-efficacy. Additionally, a research design that measured client self-efficacy before treatment and at the conclusion of treatment would be useful in tracking both its growth and its relevance as a client factor that may predict positive change and maintenance of improvements over time.

Recent large scale research has begun to monitor client progress in psychotherapy and give feedback and client support tools (resources to assess the therapeutic relationship, client readiness to change, client's social support network, the accuracy of diagnosis, and the need for a referral for medication) to the therapists in an effort to improve outcome (Whipple, Lambert, Vermeesh, et al., 2003). This research has demonstrated that clients whose therapists receive feedback about their progress and use the tools stay in therapy longer and have better outcomes (Whipple, Lambert, Vermeesh, et al., 2003). Perhaps assessing client self-efficacy can become one of the future tools used in helping clients reach better outcomes both in anger reduction treatment and in other treatment areas. The same feedback approach outlined above could also be used in group therapy interventions where group cohesion may be an important ingredient for treatment success. These approaches may help improve outcomes in future therapeutic treatments.

References

Ahn, H. & Wampold, B.E. (2001). Where oh where are the specific ingredients? A meta-analysis of component studies n counseling and psychotherapy. Journal of Counseling Psychology, 48, 251-257.

Asay, T.P. & Lambert, M.J. (1999). The empirical case for the common factors in therapy: Quantitative findings. In M.A. Hubble, B.L. Duncan, & S.D. Miller (Eds.), The heart and soul of change: What works in therapy (pp. 33-56). Washington, D.C.: American Psychological Association.

Baer, J. S., Hold, C. S., & Lichtenstein, E. (1986). Self-efficacy and smoking reexamined: Construct validity and clinical utility. Journal of Consulting and Clinical Psychology, 54, 846-852.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. Psychological Review, 84, 191-215.

Bandura, A. (1997). Self-efficacy: The exercise of control. New York: W. H. Freeman.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (2001). Guide for constructing self-efficacy scales. Unpublished manuscript.

Barber, J.P., Connolly, M.B., Crits-Christoph, P., Gladis, L., & Siqueland, L. (2000). Alliance predicts patients' outcome beyond in-treatment change in symptoms. Journal of Consulting and Clinical Psychology, 68, 1027-1032.

Bednar, R. L. & Kaul, T. J. (1994). Experiential group research: Can the canon fire? In A. E. Bergin & S. L. Garfield (Eds.), Handbook of psychotherapy and behavior change (4th ed., pp. 631-663). New York: Wiley.

Betz, N. E. (2000). Self-efficacy theory as a basis for career assessment. Journal of Career Assessment, 8, 205-222.

Bergin, A. E. & Garfield, S. L. (1994). Overview, trends and future issues. In A. E. Bergin and S. L. Garfield (Eds.), Handbook of psychotherapy and behavior change (4th ed., pp. 821-830). New York: Wiley.

Bordin, E.S. (1979). The generalizability of the psychoanalytic concept of the working alliance. Psychotherapy, 16, 252-260.

Braaten, L. J. (1989). Predicting positive goal attainment and symptom reduction from early group climate dimensions. International Journal of Group Psychotherapy, 39, 377-387.

Budman, S. H., Soldz, S., Demby, A., Feldstein, M., Springer, T., & Davis, M.S. (1989). Cohesion, alliance and outcome in group psychotherapy. Psychiatry: Journal for the Study of Interpersonal Processes, 52, 339-350.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Erlbaum.

Connors, G.J., Carrol, K.M., DiClemente, C.C., Longabaugh, R., & Donovan, D.M., (1997). The therapeutic alliance and its relationship to alcoholism treatment participation and outcome. Journal of Consulting and Clinical Psychology, 65, 588-598.

Currie, S. R., Wilson, K. G., & Curran, D. (2002). Clinical significance and predictors of treatment response to cognitive-behavior therapy for insomnia secondary to chronic pain. Journal of Behavioral Medicine, 25, 135-153.

Dahlen, E.R. & Deffenbacher, J.L. (2000). A partial component analysis of Beck's cognitive therapy for the treatment of general anger. Journal of Cognitive Psychotherapy, 14, 77-95.

Deffenbacher, J.L. (1992). Trait anger: theory, findings, and implications. In C.D. Spielberger & J.N. Butcher (Eds.), Advances in personality assessment (Vol. 9, pp. 177-201). Hillsdale, NJ: Lawrence Erlbaum.

Deffenbacher, J. L. (2000). The Driving Anger Scale (DAS). In J. Maltby, C. A. Lewis, & A. Hill (Eds.), Commissioned reviews of 250 psychological tests (pp. 287-292). Lampeter, Wales, United Kingdom: Edwin Mellen Press.

Deffenbacher, J.L., Demm, P.M., & Brandon, A.D. (1986). High general anger: Correlates and treatment. Behavior Research and Therapy, 24, 481-489.

Deffenbacher, J. L., Filetti, L. B., Lynch, R. S., Dahlen, E. R., & Oetting, E. R. (2002). Cognitive-behavioral treatment of high anger drivers. Behaviour Research and Therapy, 40, 895-910.

Deffenbacher, J. L., Huff, M. E., Lynch, R. S., Oetting, E. R., & Salvatore, N. F. (2000). Characteristics and treatment of high anger drivers. Journal of Counseling Psychology, 47, 5-17.

Deffenbacher, J. L., Lynch, R. S., Deffenbacher, D. M., & Oetting, E. R. (2001). Further evidence of reliability and validity for the Driving Anger Expression Inventory. Psychological Reports, 89, 535-540.

Deffenbacher, J. L., Lynch, R. S., Oetting, E. R., & Swaim, R. C. (2002). The Driving Anger Expression Inventory: A measure of how people express their anger on the road. Behaviour Research and Therapy, 40, 717-737.

Deffenbacher, J. L., Lynch, R. S., Oetting, E. R., & Yingling, D. A. (2001). Driving anger: Correlates and a test of state-trait theory. Personality and Individual Differences, 31, 1321-1331.

Deffenbacher, J. L., Oetting, E.R., Huff, M. E., Cornell, G. R., & Dallager, C. J. (1996). Evaluation of two cognitive-behavioral approaches to general anger reduction. Cognitive Therapy and Research, 20, 551-573.

Deffenbacher, J. L., Oetting, E. R., & DiGiuseppe, R. A. (2002). Principles of empirically supported interventions applied to anger management. The Counseling Psychologist, 30, 262-280.

Deffenbacher, J. L., Oetting, E. R., & Lynch, R. S. (1994). Development of a driving anger scale. Psychological Reports, 74, 83-91.

Deffenbacher, J. L, Oetting, E. R., Lynch, R. S., & Morris, C. D. (1996). The expression of anger and its consequences. Behaviour Research and Therapy, 34, 575-590.

Deffenbacher, J.L., Oetting, E.R., Thwaites, G.A., Lynch, R.S., Baker, D.A., Stark, R.S., Thacker, S., & Eiswerth-Cox, L. (1996). State-trait anger theory and the utility of the Trait Anger Scale. Journal of Counseling Psychology, 43, 131-148.

Deffenbacher, J. L., Petrilli, R.T., Lynch, R. S., Oetting, E. R., & Swaim, R. C. (in press). The Driver's Angry Thoughts Questionnaire: A measure of angry cognitions when driving. Cognitive Therapy and Research.

Deffenbacher, J. L., & Stark, R. S. (1992). Relaxation and cognitive-relaxation treatments of general anger. Journal of Counseling Psychology, 39, 158-167.

Deffenbacher, J. L., Story, D. A., Brandon, A. D., Hogg, J. A. & Hazaleus, S. L. (1988). Cognitive and cognitive-relaxation treatments of anger. Cognitive Therapy and Research, 12, 167-184.

Deffenbacher, J. L., Thwaites, G. A., Wallace, T. L., & Oetting, E. R. (1994). Social skills and cognitive-relaxation approaches to general anger reduction. Journal of Counseling Psychology, 41, 386-396.

DeRubeis, R. J. & Feeley, M. (1990). Determinants of change in cognitive therapy for depression. Cognitive Therapy and Research, 14, 469-482.

Dua, J. K. & Swinden, M. L. (1992). Effectiveness of negative-thought-reduction, meditation, and placebo training treatment in reducing anger. Scandinavian Journal of Psychology, 33, 135-146.

Edell, B. H., Edington, S., Herd, B., O'Brien, R. M, (1987). Self-efficacy and self-motivation as predictors of weight loss. Addictive Behaviors, 12, 63-66.

Feeley, M., DeRubeis, R. J., & Gelfand, L. (1999). The temporal relation of adherence and alliance to symptom change in cognitive therapy for depression. Journal of Consulting and Clinical Psychology, 67, 578-582.

Gaston, L., Marmar, C. R., Gallagher, D., & Thompson, L.W. (1991). Alliance prediction of outcome beyond in-treatment symptomatic change as psychotherapy processes. Psychotherapy Research, 1, 104-113.

Godding, P. R. & Glasgow, R. E. (1985). Self-efficacy and outcome expectations as predictors of controlled smoking status. Cognitive Therapy and Research, 9, 583-590.

Hatcher, R. L. & Barends, A. W. (1996). Patients' view of the alliance in psychotherapy: Exploratory factor analysis of three alliance measures. Journal of Consulting and Clinical Psychology, 64, 1326-1336.

Hazaleus, S. L., & Deffenbacher, J. L. (1986). Relaxation and cognitive treatments of anger. Journal of Consulting and Clinical Psychology, 54, 22-226.

Henry, W.P., Strupp, H.H., Schacht, T.E., & Gaston, L. (1993). Psychodynamic approaches. In S.L. Garfield & A.E. Bergin (Eds.), Handbook of psychotherapy and behavior change (4th ed., pp. 467-508). New York: Wiley.

Hoffart, A. (1995). Cognitive mediators of situation fear in agoraphobia. Journal of Behavior Therapy & Experimental Psychiatry, 26, 313-320.

Hoogduin, C.A., de Haan, E., & Schaap, C., (1989). The significance of the patient-therapist relationship in the treatment of obsessive-compulsive neurosis. British Journal of Clinical Psychology, 28, 185-186.

Horvath, A. O. (1981). An exploratory study of the concept of therapeutic alliance and its measurement. Unpublished doctoral dissertation, University of British Columbia, Vancouver, Canada.

Horvath, A. O. & Greenberg, I. S. (1986). The development of the Working Alliance Inventory. In I. Greenberg & W. Pinsof (Eds.), The psychotherapeutic process: A resource handbook (pp. 529-556). New York: Guilford.

Horvath, A. O. & Greenberg, L. S. (1989). Development and validation of the working alliance inventory. Journal of Counseling Psychology, 36, 223-233.

Horvath, A. O., & Greenberg, L. S. (1994). The working alliance: Theory, research, and practice. New York: John Wiley & Sons.

Horvath, A. O. & Luborsky, L. (1993). The role of the therapeutic alliance in psychotherapy. Journal of Consulting and Clinical Psychology, 61, 561-573.

Horvath, A. O., & Symonds, B. D. (1991). Relation between working alliance and outcome in psychotherapy: A meta-analysis. Journal of Counseling Psychology, 38, 139-149.

Hubble, M. A., Duncan, B. L. & Miller, S. D. (1999). The heart and soul of change: What works in therapy. Washington, DC: American Psychological Association.

Kivlighan, D. M., & Shaughnessy, P. (1995). Analysis of the development of the working alliance using hierarchical linear modeling. Journal of Counseling Psychology, 42, 338-349.

Kogan, L. R., Richards, T. L., & Deffenbacher, J. L. (2001, August). Effects of relaxation and cognitive therapy for driving anger reduction. Paper presented at the 109th Annual Convention of the American Psychological Association, San Francisco, California.

Krupnick, J. L., Sotsky, S. M., Simmens, S., Moyer, J., Elkin, I., Watkins, J., & Pilkonis, P. A. (1996). The role of the therapeutic alliance in psychotherapy and pharmacotherapy outcome: Findings in the National Institute of Mental Health treatment of depression collaborative research program. Journal of Consulting and Clinical Psychology, 64, 532-539.

Lambert, M. J. (1992). Implications of outcome research for psychotherapy integration. In J. C. Norcross & M. R. Goldstein (Eds.), Handbook of psychotherapy integration (pp. 94-129). New York: Basic Books.

Lambert, M. J. & Bergin, A. E. (1994). The effectiveness of psychotherapy. In A. E. Bergin & S. L. Garfield (Eds.), Handbook of psychotherapy and behavior change (4th ed., pp. 143-189). New York: Wiley.

Long, C. G., Hollin, C. R., & Williams, M. J. (1998). Self-efficacy, outcome expectations, and fantasies as predictors of alcoholics' posttreatment drinking. Substance Use and Misuse, 33, 2383-2402.

Lopez, F. G., & Thurman, C. W. (1986). A cognitive-behavioral investigation of anger among college students. Cognitive Therapy and Research, 10, 245-256.

Luborsky, L., Rosenthal, R., Diguer, L., Andrusyna, T.P., Berman, J.S., Levitt, J.T., Seligman, D.A., Krause, E.D. (2002). The dodo bird verdict is alive and well—mostly. Clinical Psychology—Science and Practice, 9, 2-12.

Lynch, R. S., Deffenbacher, J. L., Filetti, L. B., & Dahlen, E. R. (1999, August). Anger, aggression, and risk associated with driving anger. Paper presented at the 107th Annual Convention of the American Psychological Association, Boston, Massachusetts.

Mackenzie, K. R. (1983). The clinical application of a group climate measure. In R. R. Dies & K. R. Mackenzie (Eds.), Advances in group psychotherapy: Integrating research and practice. New York: International Universities Press.

MacKenzie, K.R. (1998). The alliance in time-limited group psychotherapy. In J.D. Safran & J.C. Muran (Eds.), The therapeutic alliance in brief psychotherapy. Washington D.C.: American Psychological Association.

Mackenzie, K. R. & Tschuschke, V. (1993). Relatedness, group work, and outcome in long-term inpatient psychotherapy groups. Journal of Psychotherapy Practice and Research, 2, 147-156.

Marmar, C. R., Gaston, L., Gallagher, D., & Thompson, I. W. (1989). Therapeutic alliance and outcome in behavioral, cognitive, and brief dynamic psychotherapy in late-life depression. Journal of Nervous and Mental Disease, 177, 464-472.

Martin, D. J., Graske, J. P. & Davis, M. K. (2000). Relation of the therapeutic alliance with outcome and other variables: A meta-analytic review. Journal of Consulting and Clinical Psychology, 68, 438-450.

Marziali, E., Munroe-Blum, H., & McCleary, L. (1997). The contribution of group cohesion and group alliance to the outcome of group psychotherapy. International Journal of Group Psychotherapy, 47, 475-497.

Mearns, J., & Mauch, T. G. (1998). Negative mood regulation expectancies predict anger among police officers and buffer the effects of job stress. The Journal of Nervous and Mental Disease, 186, 120-125.

Meyer, B., Pilkonis, P. A., Krupnick, J. L., Egan, M. K., Simmens, S. J., & Sotsky, S. M. (2002). Treatment expectancies, patient alliance, and outcome: Further analyses from the National Institute of Mental Health treatment of depression collaborative research project. Journal of Consulting and Clinical Psychology, 70, 1051-1055.

Novaco, R. W. (1975). Anger control. Lexington, MA: Heath.

Orlinsky, D. E., Grawe, K., & Parks, B. K. (1994). Process and outcome in psychotherapy-Noch einmal. In A. E. Bergin & S. L. Garfield (Eds.), Handbook of psychotherapy and behavior change (4th ed., pp. 270-376). New York: John Wiley & Sons.

Richards, T. L., Deffenbacher, J. L., Filetti, L. B., Lynch, R. S., & Kogan, L. (2001, August). Short- and long-term effects of interventions for driving anger reduction. Paper presented at the 109th Annual Convention of the American Psychological Association, San Francisco, California.

Safran, J. D. & Wallner, L. K. (1991). The relative predictive validity of two therapeutic alliance measures in cognitive therapy. Psychological assessment: A Journal of Consulting and Clinical Psychology, 2, 188-195.

Schlicter, K. J. & Horan, J. J. (1981). Effects of stress inoculation on the anger and aggression management skills of institutionalized juvenile delinquents. Cognitive Therapy and Research, 5, 359-365.

Shirk, S. R. & Carver, M. (2003). Prediction of treatment outcome from relationship variables in child and adolescent therapy: A meta-analytic review. Journal of Consulting and Clinical Psychology, 71, 452-464,

Smith, M. L., Glass, G. V. & Miller, T. I. (1980). The benefits of psychotherapy. Baltiimore: Johns Hopkins University Press.

Spielberger, C.D. (1988). State-Trait Anger Expression Inventory. Odessa, FL: Psychological Assessment Resources.

Spielberger, C. D. (1999). State-Trait Anger Expressions Inventory (2nd ed.). Odessa, Florida: Psychological Assessment Resources.

Stiles, W. B., Agnew-Davies, R., Hardy, G. E., Barkham, M. & Shapiro, D. A. (1998). Relations of the alliance with psychotherapy outcome: Findings in the second Sheffield psychotherapy project. Journal of Consulting and Clinical Psychology, 66, 791-802.

Tracey, T.J. & Kokotovic, A.M. (1989). Factor structure of the Working alliance Inventory. Psychological Assessment, 1, 207-210.

Wampold, B. E. (2001). The great psychotherapy debate: Models, methods, and findings. Mahwah, NJ: Erlbaum.

Whipple, J. L., Lambert, M. J., Vermeesh, D. A., Smart, D. W., Nielsen, S. L., & Hawkins, E. J. (2003). Improving the effects of psychotherapy: The use of early identification of treatment failure and problem solving strategies in routine practice. Journal of Counseling Psychology, 50(1), 59-68.

Williams, S. L. (1990). Guided mastery treatment of agoraphobia: Beyond stimulus exposure. In M. Hersen, R. M. Eisler, & P.M. Miller (Eds.). Progress in behavior modification (Vol. 26, pp. 89-121). Newbury Park, CA: Sage Publications.

Williams, S. L. & Zane, G. (1989). Guided mastery and stimulus exposure treatments for severe performance anxiety in agoraphobics. Behaviour Research & Therapy, 27, 237-245.

Williams, S. L., Kinney, P. J., & Falbo, J. (1989). Generalization of therapeutic changes in agoraphobia: The role of perceived self-efficacy. Journal of Consulting and Clinical Psychology, 57, 436-442.

Woody, S. R. & Adessky, R. S. (2002). Therapeutic alliance, group cohesion, and homework compliance during cognitive-behavioral group treatment of social phobia. Behavior Therapy, 33, 5-27.

Zeiss, A.M., Lewinsohn, P.M, Munoz, R.F. (1979). Nonspecific improvement effects in depression using interpersonal skills training, pleasant activity schedules, or cognitive training. Journal of Consulting and Clinical Psychology, 47, 427-439.

Appendix A

Code Number _____

Instructions: Read each statement carefully and try to think of the GROUP AS A WHOLE. Using the rating scale as a guide, circle the number of each statement that best describes the group during today's session. Please mark only ONE answer for each statement.

Rating Scale:

0	1	2	3	4	5	6
not at all	a little bit	somewhat	moderately	quite a bit	a great deal	extremely

1. The members liked and cared about each other. 0 1 2 3 4 5 6
2. The members tried to understand why they do the things they do, tried to reason it out. 0 1 2 3 4 5 6
3. The members avoided looking at important issues going on between themselves. 0 1 2 3 4 5 6
4. The members felt what was happening was important and there was a sense of participation. 0 1 2 3 4 5 6
5. The members depended upon the group leader for direction. 0 1 2 3 4 5 6
6. There was friction and anger between the members. 0 1 2 3 4 5 6
7. The members were distant and withdrawn from each other. 0 1 2 3 4 5 6
8. The members challenged and confronted each other in their efforts to sort things out. 0 1 2 3 4 5 6
9. The members appeared to do things the way they thought would be acceptable to the group. 0 1 2 3 4 5 6
10. The members rejected and distrusted each other. 0 1 2 3 4 5 6
11. The members revealed sensitive personal information or feelings. 0 1 2 3 4 5 6
12. The members appeared tense and anxious. 0 1 2 3 4 5 6

Code Number _____

Instructions: Please rate your degree of confidence in using anger management strategies in the following situations by recording in each of the blank spaces a number from 0 to 100 using the scale given below:

Rating Scale:

0	10	20	30	40	50	60	70	80	90	100
Cannot do at all				Moderately certain can do						Certain can do

HOW CONFIDENT ARE YOU THAT YOU CAN PERFORM ANGER MANAGEMENT STRATEGIES, WHEN . . .

	Confidence (0-100)
1. You are angry while driving, in general?	_____
2. You encounter the hostile behavior and gestures of other drivers?	_____
3. You encounter another driver engaged in illegal driving?	_____
4. You encounter police while driving?	_____
5. You encounter someone or something that slows you down?	_____
6. You encounter an ill-mannered driver or bicyclist?	_____
7. You encounter bad road conditions?	_____
8. In other areas of your life **not** having to do with driving?	_____

Code: _____

Demographic Information

Directions: Do not put your name on this form. Please provide the following information.

Your Age: _____

Your Gender: O Male O Female

Year in School: O Freshmen O Sophomore O Junior O Senior O Other

Ethnicity (bubble in all that apply): O Native American O African American
O Asian American O Hispanic/Latino O White non-Hispanic O Other

In what City and State did you graduate from high school?

Approximate size of city mentioned just above?
O 1,000-2,000 people
O 2,000-3,000 people
O 3,000-5,000 people
O 5,000-10,000 people
O Over 10,000 people

How many different times do you drive in an average week? _____

How many miles do you drive in an average week? _____

Subject # _____

Directions: Below are several situations you may encounter when you are driving. Try to imagine that the incident described is actually happening to you, then indicate the extent to which it would anger or provoke you. Mark your response by filling in the bubble to the right.

		Not At All	A Little	Some	Much	Very Much
1.	Someone in front of you does not start up when the light turns green.	O	O	O	O	O
2.	Someone is driving too fast for the road conditions.	O	O	O	O	O
3.	A pedestrian walks slowly across the middle of the street, slowing you.	O	O	O	O	O
4.	Someone is driving too slowly in the passing lane, holding up traffic.	O	O	O	O	O
5.	Someone is driving right up on your back bumper.	O	O	O	O	O
6.	Someone is weaving in and out of traffic.	O	O	O	O	O
7.	Someone cuts in front of you on the freeway.	O	O	O	O	O
8.	Someone cuts in and takes the parking spot you have been waiting for.	O	O	O	O	O
9.	Someone is driving slower than reasonable for the traffic flow.	O	O	O	O	O
10.	A slow vehicle on a mountain road will not pull over and let people by.	O	O	O	O	O
11.	You see a police car watching traffic from a hidden position.	O	O	O	O	O
12.	Someone backs right out in front of you without looking.	O	O	O	O	O
13.	Someone runs a red light or stop sign.	O	O	O	O	O
14.	Someone coming toward you at night does not dim their headlights.	O	O	O	O	O
15.	At night someone is driving right behind you with bright lights on.	O	O	O	O	O
16.	You pass a radar speed trap.	O	O	O	O	O
17.	Someone speeds up when you try to pass them.	O	O	O	O	O
18.	Someone is slow in parking and holding up traffic.	O	O	O	O	O
19.	You are stuck in a traffic jam.	O	O	O	O	O
20.	Someone pulls right in front of you when there is no one behind you.	O	O	O	O	O
21.	Someone makes an obscene gesture toward you about your driving.	O	O	O	O	O
22.	You hit a deep pothole that was not marked.	O	O	O	O	O
23.	Someone honks at you about your driving.	O	O	O	O	O
24.	Someone is driving way over the speed limit.	O	O	O	O	O
25.	You are driving behind a truck which has material flapping around in the back.	O	O	O	O	O
26.	Someone yells at you about your driving.	O	O	O	O	O
27.	A police officer pulls you over.	O	O	O	O	O
28.	You are behind a vehicle that is smoking badly or giving off diesel fumes.	O	O	O	O	O
29.	A truck kicks up sand or gravel on the car you are driving.	O	O	O	O	O
30.	You are behind a large truck and cannot see around it.	O	O	O	O	O
31.	You encounter road construction and detours.	O	O	O	O	O
32.	A bicyclist is riding in the middle of the lane and slowing traffic.	O	O	O	O	O
33.	A police car is driving in traffic close to you.	O	O	O	O	O

Subject # _____

Personal Driving Anger Situations

Instructions: Please describe, in detail, the one **ongoing** situation that creates the greatest feelings of anger for you **when you are driving**. By ongoing, it is meant that the situation occurs fairly often, say at least once a month or more. Be very specific. For example, do not say "bad drivers," but instead describe what particular type of driving by another produces anger for you.

I. Description of Most Angering Driving Situation

Rating (0-100): _____

How much anger do you experience in this situation? Rate the amount of anger that you feel in that situation. Use a 0-100 scale where 0 = little or no anger, and 100 = maximum level of anger you could ever experience.

Now please describe, in detail, the second **ongoing** situation that creates the greatest feelings of anger for you **when you are driving**.

II. Description of the Second Most Angering Driving Situation

Rating (0-100): _____

Subject # _____

Directions: Everyone feels angry or furious from time to time when driving, but people differ in the ways that they react when they are angry while driving. A number of statements are listed below which people have used to describe their reactions when they feel angry or furious. Read each statement and then fill in the bubble to the right of the statement indicating how often you generally react or behave in the manner described when you are angry or furious while driving. There are no right or wrong answers. Do not spend too much time on any one statement.

		Almost Never	Some-times	Often	Almost Always
1.	I give the other driver the finger.	O	O	O	O
2.	I drive right up on the other driver's bumper.	O	O	O	O
3.	I drive a little faster than I was.	O	O	O	O
4.	I try to cut in front of the other driver.	O	O	O	O
5.	I call the other driver names aloud.	O	O	O	O
6.	I make negative comments about the other driver	O	O	O	O
7.	I follow right behind the other driver for a long time.	O	O	O	O
8.	I try to get out of the car and tell the other driver off.	O	O	O	O
9.	I yell questions like "Where did you get your license?"	O	O	O	O
10.	I roll down the window to help communicate my anger.	O	O	O	O
11.	I glare at the other driver.	O	O	O	O
12.	I shake my fist at the other driver.	O	O	O	O
13.	I stick my tongue out at the other driver.	O	O	O	O
14.	I call the other driver names under my breath.	O	O	O	O
15.	I speed up to frustrate the other driver.	O	O	O	O
16.	I purposely block the other driver from doing what he/she wants to do.	O	O	O	O
17.	I bump the other driver's bumper with mine.	O	O	O	O
18.	I go crazy behind the wheel.	O	O	O	O
19.	I leave my brights on in the other driver's rear view mirror.	O	O	O	O
20.	I try to force the other driver to the side of the road.	O	O	O	O
21.	I try to scare the other driver.	O	O	O	O
22.	I do to other drivers what they did to me.	O	O	O	O
23.	I pay even closer attention to being a safe driver.	O	O	O	O
24.	I think about things that distract me from thinking about the other driver.	O	O	O	O
25.	I think things through before I respond.	O	O	O	O
26.	I try to think of positive solutions to deal with the situation.	O	O	O	O
27.	I drive a lot faster than I was.	O	O	O	O
28.	I swear at the other driver aloud.	O	O	O	O
29.	I tell myself its not worth getting all mad about.	O	O	O	O
30.	I decide not to stoop to their level.	O	O	O	O

Subject # _____

		Almost Never	Some-times	Often	Almost Always
31.	I swear at the other driver under my breath.	O	O	O	O
32.	I turn on the radio or music to calm down.	O	O	O	O
33.	I flash my lights at the other driver.	O	O	O	O
34.	I make hostile gestures other than giving the finger.	O	O	O	O
35.	I try to think of positive things to do.	O	O	O	O
36.	I tell myself it's not worth getting involved in.	O	O	O	O
37.	I shake my head at the other driver.	O	O	O	O
38.	I yell at the other driver.	O	O	O	O
39.	I make negative comments about the other driver under my breath.	O	O	O	O
40.	I give the other driver a dirty look.	O	O	O	O
41.	I try to get out of the car and have a physical fight with the other driver.	O	O	O	O
42.	I just try to accept that there are bad drivers on the road.	O	O	O	O
43.	I think things like "Where did you get your license?"	O	O	O	O
44.	I do things like take deep breaths to calm down.	O	O	O	O
45.	I just try and accept that there are frustrating situations while driving.	O	O	O	O
46.	I slow down to frustrate the other driver.	O	O	O	O
47.	I think about things that distract me from the frustration on the road.	O	O	O	O
48.	I tell myself to ignore it.	O	O	O	O
49.	I pay even closer attention to other's driving to avoid accidents.	O	O	O	O

General Instructions: Only complete this log for a day you have driven. At the end of the day, please complete the questions as they apply for that day. **Please complete all questions.**

Date: _____

Number of times driving today: _____ Estimated miles driven today: _____

Number of times angry while driving today: _____

Describe the situation that made you the *most* angry today *while driving.*

_____

_____

_____

_____

On a scale from 0 to 100 where 0 = no anger and 100 = as angry as you could be, rate how angry you were in the situation above: _____

Did you do any of the following today? (Please check all that apply.)

_____ Drove without your seatbelt fastened.
_____ Cursed at or called another driver or pedestrian a name (aloud or under your breath).
_____ Drove 10 or more mph over the speed limit.
_____ Honked your horn in anger.
_____ Drove too fast for the road conditions.
_____ Pounded on the steering wheel or dash in anger.
_____ Cut someone off in traffic.
_____ Made an angry gesture to another driver or pedestrian (even if he or she could not see it).
_____ Drove too close to another's bumper.
_____ Flashed your headlights in anger.
_____ Slowed abruptly to stop someone from following too closely.
_____ Yelled at another driver or pedestrian (even if he or she could not hear you).
_____ Speeded up or slowed down to prevent someone from passing or cutting in.
_____ Cut another driver off in anger.
_____ Switched lanes frequently to get ahead in traffic.
_____ Drove up close behind another driver in anger.
_____ Accelerated to get through a yellow light instead of stopping.
_____ Ran a stop sign or red light.
_____ Passed another vehicle without really having enough distance to do so safely.
_____ Came close to having an auto accident.
_____ Drank alcohol and drove.