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The Relation between Homework Compliance and Treatment Outcome for Individuals with Social Phobia

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THE RELATION BETWEEN HOMEWORK COMPLIANCE AND TREATMENT OUTCOME FOR INDIVIDUALS WITH SOCIAL PHOBIA

by

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Under the direction of Page Anderson

ABSTRACT

Homework compliance has been identified as a robust predictor of treatment outcome for depression and, to a lesser extent, anxiety disorders, including social phobia. The current study tested the following hypotheses: (1) homework compliance is positively related to ratings of global improvement, (2) homework compliance is negatively related to symptom reduction, (3) the relation between homework compliance and treatment outcome varies according to the nature of the homework exercise, and (4) expectancy is positively related to early homework compliance, in a clinical sample of individuals with social phobia. Results provided limited support for the relation between compliance and ratings of improvement, but did not support a negative relation between compliance and symptom reduction. Further, the results provided limited support for the hypothesis that compliance with *exposure* versus *non-exposure* homework would differ significantly in terms of their relation to treatment outcome, but did not support the relation between compliance and expectancy.

INDEX WORDS: Homework compliance, Anxiety disorder, Exposure therapy, Cognitive therapy, Social phobia

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DEDICATION

I would like to thank my family and friends for your continued love and encouragement. I have been humbled by the tremendous amount of support that I have received and will be forever grateful. Thank you for all that you have done and all that you will continue to do to help me achieve my dreams, it is only through each and every one of you that these dreams may become a reality.

I would also like to dedicate this thesis to the loving memory of two extraordinarily important women, my Mom and my aunt Nang, who both raised and influenced me in so many special ways. Though I am deeply saddened that the two of you cannot be here, with me, now to celebrate this accomplishment, I am so grateful to have had the opportunity to share my goals and dreams with each of you as I embarked upon my graduate school journey. I am comforted in knowing that your belief in me never faded. This accomplishment would not have been possible without your unwavering love and encouragement. Thank you both for always believing in me and for giving me the strength and courage to believe in myself. I miss and love you both more than you can imagine.

In loving memory of:

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and

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INTRODUCTION

Social phobia is characterized by an intense fear of embarrassment and of being negatively evaluated in social and performance situations (American Psychological Association, 2000). Socially phobic individuals commonly exhibit hypersensitivity to criticism or scrutiny from others and tend to have a poor perception of themselves as social beings. Individuals diagnosed with *generalized* social phobia exhibit intense and pervasive fears that often generalize across a variety of social settings, including public speaking situations, going to a party, or eating in front of others. Individuals with *non-generalized* social phobia exhibit fears that are specific to public speaking situations (APA, 2000). Lifetime prevalence rates for social phobia range from 10-13% in the general population, making it the third most prevalent psychological disorder and the most common anxiety disorder in the United States (Kessler, et al., 2005). Fear of public speaking is the most commonly reported symptom of social phobia in clinical samples (Furmark, Tillfors, Stattin, Ekselius, & Fredrickson, 2000). Indeed, public speaking fears alone have been associated with lower income, decreased likelihood of achieving post-secondary education, and increased likelihood of unemployment (Stein, Walker, & Forde, 1994).

Social Phobia Treatment

Various social phobia interventions have been empirically examined, and previous literature has provided evidence to support the efficacy of cognitive-behavioral therapy (CBT) (Antony & Barlow, 1997; Heimburg & Juster, 1995; Turner, Cooley-Quille, & Beidel, 1996). CBT

interventions for social phobia incorporate various treatment components including cognitive therapy, anxiety management training, exposure-based strategies, and social skills training. Furthermore, CBT interventions for social phobia can be effectively delivered in both group (Heimberg, et al., 1990; Rodebaugh, et al., 2004) and individual (Wells & Papageorgiou, 2001) formats.

Among social phobia interventions, cognitive behavioral group therapy (CBGT; Heimberg, Dodge, Hope, & Kennedy, 1990) has received the most empirical support and is currently considered the "gold standard" treatment for social phobia (Heimberg, 2002; Rodebaugh, Holaway, & Heimberg, 2004,). CBGT consists of cognitive restructuring, self-guided in vivo exposure with other group members, and cognitive restructuring homework (Heimberg et al, 1990). Positive follow-up findings for CBGT in the treatment of social phobia have been reported at six months and at up to five years after the end of treatment (Heimberg, et al., 1990; Heimberg, Salzman, Holt, & Blendell, 1993).

However, there is evidence to suggest that CBGT and other cognitive behavioral interventions yield variable treatment responses. Whereas many individuals benefit from CBT interventions for social phobia, other individuals do not experience clinically significant benefits from treatment (Dalrymple & Herbert, 2007). In fact, findings from several large clinical trials indicate that relatively few individuals completing "gold standard" (e.g., Chambless & Ollendick, 2001) CBT treatments for social phobia achieve high end-state functioning at the end of treatment (for example, 38% in Mattick & Peters, 1988; 25% in Otto et al., 2000; 54% in Davidson et al., 2004; 58% in Heimberg et al., 1998). Given the variable response rates to social phobia treatments it is important to examine variables that may account for these differential

responses to treatment. The current study focuses on the relation between homework compliance and social phobia treatment outcome.

Homework

In psychotherapy, homework assignments are broadly conceptualized as between session activities that help clients make progress toward treatment goals (Deane et al., 2005). Homework assignments appear to be a common practice for psychotherapy practitioners. Kazantzis, Lampropoulos, and Deane (2005) surveyed a large (N = 827), eclectic sample of APA members representing a variety of different theoretical viewpoints and found that as many as 68% of these individuals reported using homework assignments in their clinical practice. As the majority of the theoretical and empirical work pertaining to homework is in the context of CBT, the following section will review cognitive behavioral perspectives about the purpose and function of homework assignments in psychotherapy.

CBT is often described as a present-oriented, time limited intervention designed to provide individuals with the training/skills needed to function in "real world" settings after therapy is finished (Beck, 1995). Homework assignments are thought to contribute to positive CBT experiences and outcomes in a number of ways. For instance, Detweiler and Whisman (1999) suggested that the role of homework in CBT is to reinforce material learned in therapy and to facilitate the generalization of newly learned skills to real-world settings. Another way in which homework contributes to positive CBT outcomes is by increasing self-efficacy. According to Bandura (1988) self-efficacy is defined as "the belief that one has the capacity to execute the course of action required to manage prospective situations or attain certain goals" (p.1). Bandura (1988) theorized that homework assignments contribute to the development of self-efficacy by providing opportunities for *self-directed accomplishments*. Finally, homework assignments and

increased self-efficacy also contribute to relapse prevention in CBT. Clients who develop greater skills and self-efficacy are less likely to be negatively impacted by occasional failures and thus they are much less likely to relapse after successful treatment (Ormrod, 2006).

Despite the widespread use of homework assignments in psychotherapy and a theoretical basis for their utility in treatment, empirical evidence regarding the relation between homework compliance and psychotherapy outcome has been somewhat inconclusive, for anxiety disorders (Rees, McEvoy, & Nathan, 2005). The next section will review recent literature related to homework compliance and treatment outcome.

Homework Compliance and Treatment Outcome

In the most extensive meta-analytic review of experimental and correlational findings to date, Kazantzis, Deane, and Ronan (2000) investigated the utility of homework assignments in CBT treatments for anxiety and depression. Primary findings from this meta-analysis revealed that homework was associated with therapeutic outcome. Specifically, results showed that interventions including homework assignments were associated with better outcomes than interventions that did not include homework assignments, with a weighted average effect size of $d = 0.36$. Findings also revealed a significant positive correlation between homework compliance and treatment outcome, with a significant weighted average effect size of $d = 0.22$. Interestingly, when Kazantzis et al. (2000) controlled for primary diagnosis (anxiety versus depression), findings revealed that the relation between homework compliance and CBT treatment outcome is significantly stronger for treatments intended for depression versus treatments targeting anxiety disorders.

Indeed, the most consistent findings in this area of research have been derived from studies examining the relation between homework compliance and treatment outcome for

depression. Several studies have indicated that homework compliance is often associated with positive treatment outcomes for individuals diagnosed with depression (Burns & Spangler, 2000; Coon & Thompson, 2003; Kazantzis, et al., 2000). For example, findings from Burns and Spangler (2000) indicate that individuals receiving outpatient CBT for depression (N = 521) who actively engaged in homework exercises were more likely to have post-treatment success than individuals who did not complete homework, regardless of pre-treatment depression severity. Participants who completed the majority of homework assignments showed greater treatment improvement relative to those who completed less homework. Addis and Jacobson (2000) implemented a longitudinal design to examine the relation between homework compliance and depression on a session-to-session basis over the course of treatment. Correlations indicated that homework compliance was consistently associated with significantly fewer symptoms of depression at each subsequent session. Furthermore, when averaged across treatment sessions, individuals with higher ratings of homework compliance displayed significantly fewer depressive symptoms after treatment than individuals who were less compliant.

Another study examined the utility of homework compliance in the treatment of a mixed sample of anxious and depressed individuals (Rees, McEvoy, & Nathan, 2005). In this study, researchers examined homework effects in a sample of 94 (60 depressed, 34 anxious) individuals who completed 11 sessions of group CBT which targeted symptoms of both anxiety and depression. A variety of homework activities were implemented in the study including psycho-educational readings, relaxation exercises, thought records, and behavioral tasks. Findings revealed that homework compliance was significantly related to treatment outcome at post-treatment and at one month follow-up, regardless of pre-treatment symptom severity. The completion of behavioral homework tasks (exposure, pleasurable activities) was the most

significant predictor of symptom improvement for depressed participants, whereas improvements in anxiety symptoms were best predicted by the completion of thought records.

In summary, there is consistent evidence that homework completion is related to positive treatment outcomes for depressed individuals receiving CBT, regardless of depressive symptom severity. There is also evidence to suggest that different types of homework are related to positive treatment outcomes for individuals with anxiety versus depression. In the next section, I will discuss findings from recent studies that have specifically focused on the relation between homework compliance and treatment outcome for anxiety disorders.

Homework Compliance and Anxiety Treatment Outcome

Overall, findings regarding the relation between homework compliance and anxiety treatment outcome have been mixed. For example, Park and colleagues (2001) examined the relationship between compliance with exposure homework and treatment outcome in a sample of 68 individuals diagnosed with either agoraphobia, social phobia, or a specific phobia. Their findings indicated that homework compliant participants (n = 15) displayed significantly greater improvements in fear and avoidance symptoms than non-compliant participants (n = 12) when measured at six month and two year follow-up. Schmidt and Woolaway-Bickel (2000) examined the relationship between homework compliance and treatment outcome for participants (N = 48) receiving group CBT for panic disorder. Treatment consisted of 12 sessions of group CBT that incorporated psycho-education, interroceptive exposure, cognitive restructuring, and in vivo exposure. Individually tailored homework assignments were given at the end of each session and were based on interventions covered during session. Findings revealed that clinician ratings of homework compliance quality were better predictors of treatment outcome than ratings of homework compliance quantity. Participant self report ratings of homework compliance did not

predict treatment outcome. Less promising findings have been reported by Lampropoulos and Rector (2004), who examined the relation between homework compliance and treatment outcome among individuals receiving either individual or group treatment for panic disorder with or without agoraphobia (n = 22) or social phobia (n = 30). Findings from this study revealed that therapist ratings of homework compliance were not significantly related to treatment outcome. The researchers cited several methodological limitations of their study that may have contributed to the unexpected null findings including, (1) lack of measures capable of assessing disorder-specific symptom change, (2) the lack of variability observed in ratings of homework compliance, and (3) a limited amount of statistical power due to the small sample size. Findings from Woods, Chambless, and Steketee's (2002) study also did not support the hypothesized negative relation between homework compliance and treatment outcome for individuals receiving treatment for either panic disorder with agoraphobia (n = 35) or obsessive compulsive disorder (n = 47). Treatment consisted of 22 sessions of manualized treatment comprised of therapist-aided exposure (including response prevention for participants with OCD), daily homework, and response prevention strategies. Results indicated that the amount of homework compliance was not predictive of treatment outcome.

In conclusion, two studies using samples with mixed anxiety disorders have supported the relation between homework compliance and treatment outcome (Park et al., 2001; Schmidt & Woolaway-Bickel, 2000) and there is additional evidence suggesting that this relationship remains significant up to two years post treatment in a mixed anxiety disorders sample (Park et al., 2001). However, researchers have reported null findings for homework compliance and treatment outcome for other mixed anxiety disorder samples (Lampropoulos & Rector, 2004;

Woods, Chambless, Steketee, 2002). Next, the findings from the small body of literature examining homework compliance and treatment outcome for social phobia are reviewed.

Homework Compliance and Social Phobia Treatment Outcome

Homework assignments that are commonly implemented in interventions for social phobia include in-vivo exposure to feared social stimuli and cognitive restructuring exercises designed to address maladaptive thought patterns related to social phobia. To our knowledge, only a handful of studies have specifically examined the relation between homework compliance and social phobia treatment outcome to date.

Findings reported by Fava et al. (1989) have yielded the most promising evidence to support the relation between homework compliance and social phobia treatment outcome. Fava and colleagues (1989) investigated the efficacy of an outpatient "homework-exposure" based protocol in the treatment of individuals with generalized social phobia (N = 54). The focus of this treatment was to provide participants with assistance and feedback for self-directed exposures completed outside of session. The protocol included eight individual therapist feedback sessions, but these sessions did not include therapist-aided exposure. Instead, therapist feedback sessions were primarily used as a mechanism to facilitate the completion of out-of-session exposure homework assignments by reviewing the client's progress and completion of homework assignments; troubleshooting homework completion problems when necessary; planning upcoming exposure exercises; and reinforcing the prolonged exposure treatment rationale. As such, this treatment consisted primarily of facilitating homework and thus treatment completion was considered the primary measure homework compliance. Homework compliance was also measured via a structured diary in which homework assignments/responses were recorded by participants. Post treatment assessments by an independent assessor indicated that

forty-five (90%) participants no longer met DSM-IV criteria for social phobia. Follow-up assessments continued on a yearly basis. A survival analysis was used to measure the clinical course of participants, in particular the time until social phobia relapse. Follow-up findings presented by Fava and colleagues (2001) revealed that 98% of participants were still in remission two years after treatment and 85 percent of participants remained in remission at 5-year and 10-year follow-up. Therefore, this study supports the efficacy of a homework based exposure protocol in the treatment of social phobia and its results suggest that homework compliance may be associated with positive treatment outcomes.

Interestingly, other findings suggest that the impact of homework compliance on symptom improvement for social phobia may not be significant until months after the completion of therapy. For example, Edelman and Chambless (1995) examined the relation between therapist ratings of homework adherence and treatment outcome in a sample of socially phobic individuals (N = 52) receiving cognitive behavioral group therapy (CBGT). Results indicated that with the exception of one outcome measure, there was no relation between homework compliance and outcome immediately following treatment. However, at six month follow-up, results indicated that participants who were more compliant with treatment assignments demonstrated less anxiety during a behavioral avoidance task and overall greater decrements in self-reported anxiety and avoidance across several outcome measures. The researchers concluded that homework compliance may be more strongly associated with long term treatment gains, when clients no longer have the opportunity to rely on the therapist to help facilitate exposure, than they are with immediate post-treatment gains.

Leung and Heimberg (1996) examined the relationship between homework compliance, perceptions of control, and social interactional anxiety in a sample of socially phobic individuals

receiving cognitive behavioral group therapy (CBGT) (N = 91). Homework assignments during the initial stage (weeks 1 & 2) of treatment consisted primarily of self-monitoring of negative thoughts and feelings. The remainder of treatment consisted of in-session exposure exercises, and homework consisted of in-vivo exposure homework exercises (weeks 3 to 12). Clinician-rated measures of homework compliance were completed weekly at the end of each session using a 0 - 6 homework compliance scale, with higher ratings indicating increased compliance (HCS; Primakoff, Epstein, & Covi, 1986). Results from this study indicated that overall homework compliance was a significant negative predictor of post-treatment social interactional anxiety. Interestingly, the relation between homework compliance and treatment outcome varied significantly across the course of treatment. During the early (weeks 1 - 2) and later (weeks 8 - 12) stages of treatment, homework compliance was significantly related to ratings of post-treatment social interactional anxiety, such that compliance was negatively correlated with social interactional anxiety. However, findings indicated that ratings of homework compliance during middle stages of treatment (weeks 3 to 7), when in-vivo exposure homework exercises were introduced, were positively associated with ratings of post-treatment social interactional anxiety. Ratings of compliance during the initial assignments of exposure based homework (weeks 3 to 7) were not correlated with compliance ratings for earlier (weeks 1 to 2) and later (weeks 8 to 12) homework assignments. Leung and Heimberg (1996) concluded that the differential effect of homework compliance on treatment outcome may be in part due to the nature of exposure therapy. It is possible that the extent to which exposure tasks elicit fear varies depending on the number of times the feared stimuli have been presented. As an example, intense fear is likely experienced the first time an individual with social phobia completes the task of leading a meeting at work. However, the successful completion of an

exposure task may make it easier to engage in subsequent exposure tasks (e.g., the next time the same individual is confronted with having to lead another work meeting).

Woody and Adessky (2002) examined the relation between working alliance, group cohesion, homework compliance, and CBGT treatment outcomes amongst a sample of individuals with social phobia (N = 53). Ratings of homework compliance and working alliance were measured throughout the course of treatment. Findings revealed that working alliance improved over the course of treatment, particularly for individuals with generalized social phobia. However, ratings of homework compliance declined as treatment progressed. In addition, neither ratings of working alliance nor homework compliance were significantly related to CBGT treatment outcome. The researchers concluded that these unexpected findings may, in part, be accounted for by the inherent variability that results from having homework assignments that are individually tailored to meet the needs of each participant. CBT therapists must negotiate a difficult balance of assigning homework that is challenging yet still manageable, and thus the client's ability to tolerate anxiety symptoms often becomes crucial in the assignment of homework. Furthermore, Woody and Adessky (2002) explained that clients who exhibit more severe social phobia symptoms are likely to have easier homework assignments (and thus be more compliant) than individuals who exhibit increased social functioning and tolerability for anxiety.

In summary, literature examining the relation between homework compliance and social phobia treatment outcome is inconsistent. Results from an individual self-directed exposure intervention indicated that a homework based intervention is a powerful social phobia treatment (Fava et al., 1989, 2001). Findings from studies involving group social phobia interventions (CBGT) have yielded mixed findings, with some suggesting that the relation between homework

compliance and treatment outcome generally is not significant (Leung & Heimberg, 1996; Woody & Adessky, 2002). There is evidence that the relation between homework compliance and treatment outcome is apparent at follow-up rather than immediately after treatment (Edelman & Chambless, 1995). Finally, Leung and Heimberg (1996) found that compliance for non-exposure based homework assignments and later exposure-based homework assignments is significantly related to treatment outcome, while compliance for initial exposure-based homework assignments is not related to treatment outcome. Given these mixed findings, future studies should continue to explore the impact of homework compliance over the course of treatment. In addition, it may be important to examine other variables that could impact the way that homework is experienced by clients throughout the course of therapy. For example, previous research suggests that homework compliance is significantly impacted by the following variables: pre-treatment symptom severity (Edelmann & Chambless, 1993); the modality of homework instructions (Cox, Tisdelle, & Culbert, 1988), in-session review of homework assignments (Bryant, Simons, & Thase, 1999); and acceptance of treatment rationale (Addis & Jacobson, 2000; Fennell & Teasdale, 1987). In the following section I will explore the concept of treatment expectancy and how it may impact the way that individuals experience, comply with, and respond to therapeutic homework assignments.

Expectancy for Treatment Outcome

Whereas previous findings have provided additional insight about the relation between homework compliance and treatment outcome for individuals with social phobia (Edelman & Chambless, 1995; Fava et al., 1989; Leung & Heimberg. 1996; Woody & Adessky, 2002) we know little about how homework compliance develops during social phobia treatment. To address this gap in the literature it may be important to examine the role of early homework

compliance as it relates to social phobia treatment outcome. One approach to gaining more insight about homework compliance, especially during early sessions, is by examining its relation to expectancy for treatment outcome. Jerome Frank (1991) identified positive expectancy for change as a "critical pathway, particularly early in treatment, through which psychotherapy exerts its positive effects" (p. 2). Expectancy for therapeutic change has been identified as a potential mechanism through which to understand early treatment behaviors and attitudes that are believed to play a crucial role in therapeutic outcome. Expectancy beliefs are concerned with the degree to which the therapeutic approach, including homework tasks, are perceived as relevant and effective solutions. Agreement with the treatment rationale facilitates positive treatment expectancies, which are thought to contribute to increased treatment engagement, including increased homework compliance (Westra, Dozois, & Marcus, 2007). Treatment rationales are typically presented at the beginning of treatment, and therefore expectancy may be relevant to early homework compliance. Therefore, exploring the relation between treatment expectancy and homework compliance for the early stage of treatment may prove fruitful.

There is one empirical study related to this idea for anxiety disorders. Westra, Dozois, and Marcus (2007) examined the relation among expectancy for treatment change, early response to group CBT treatment, homework compliance, and cognitive symptom outcomes in a sample of individuals (N = 67) meeting DSM-IV criteria for either panic disorder with or without agoraphobia (34%), social phobia (27%), or GAD (39%). The researchers hypothesized that homework compliance would mediate the relation between pretreatment expectancy for change and initial cognitive change in CBT. It was predicted that expectancy for change would influence outcome by promoting homework compliance. Findings revealed that homework compliance

mediated the relation between expectancies for change and initial symptom improvement, for individuals with panic disorder and GAD. However, expectancy for change was not significantly related to homework compliance or treatment outcome for individuals with social phobia. The researchers attributed their lack of significant findings to the small sample of participants with social phobia (n = 18), which limited their power to detect significant findings. The current study addresses previous limitations identified by Westra and colleagues (2007) and hopes to shed light on the previously discussed mixed findings by examining the relation between treatment expectancy, early homework compliance, and social phobia treatment outcome amongst a larger sample of socially phobic individuals.

Methodological Issues and Critique

A major issue for the body of empirical literature examining anxiety treatment outcomes and homework compliance is insufficient statistical power. Kazantzis (2000) conducted an extensive literature review to examine the extent to which studies addressing the role of homework compliance in psychotherapy outcome have been sufficiently powerful. Findings of this review revealed that only three out of 32 possible studies had sufficient power to detect large-sized treatment effects according to the sensitivity criterion of .80 or greater recommended by Cohen (1962).

The relation between homework compliance and social phobia treatment outcome is even more unclear and thus it is particularly important to take a closer look at the methodological approaches that have been implemented in studies examining this relation.

First, all but one (Fava et al., 1989) of the previous studies that have examined the relation between homework compliance and social phobia treatment outcome relied on findings from cognitive behavioral group treatments for social phobia. While they have given us some

insight regarding the relation between homework compliance and treatment outcome for social phobia it is important to note that the findings reported by Fava and colleagues (1989, 2001) are based on findings from a rather unusual individual treatment protocol. The individual treatment protocol utilized by Fava and colleagues (1989) is described as a self-help based, homework protocol with minimal therapist assistance. Therefore, further inquiry into the relation between homework compliance and outcome, for individually-based social phobia treatments, is warranted.

Next, only two known studies have specifically examined the relation between homework compliance and long-term treatment outcome for individuals with social phobia (Edelmann & Chambless, 1995; Fava et al., 2001). Fava and colleagues followed participants who had successfully completed (no longer met DSM-IV criteria for social phobia at the end of treatment) their individual "homework" based intervention, for social phobia, to determine the rate at which these individuals remained in remission after treatment. Results indicated that 98% of participants were still in remission two years after treatment and 85% of participants remained in remission at 5-year and 10-year follow-up (Fava et al., 2001). Edelman and Chambless (1995) provided additional evidence supporting the long-term relation between homework compliance and positive CBGT treatment outcomes for social phobia. Findings indicated that participants who had been more compliant with assignments during treatment demonstrated less anxiety during a behavioral avoidance task and overall greater decrements in self-reported anxiety and avoidance across several outcome measures at six month follow-up (Edelman & Chambless, 1995). Despite evidence suggesting that homework compliance may predict long term treatment benefits for individuals with social phobia we still know very little about the nature of this

relationship. Therefore, it is important to continue to explore the relation between homework compliance and long-term treatment outcomes for individuals with social phobia.

Finally, the external validity of previously reported findings regarding the relation between homework compliance and social phobia treatment outcome may be questionable. These studies have relied on limited samples of participants with social phobia; individuals with comorbid conditions such as major depression, obsessive compulsive disorder, and agoraphobia (Fava et al., 1989; Leung & Heimberg, 1996) were excluded from previous studies. Yet, literature suggests that social phobia often co-occurs with depression and or other psychological conditions (Schneider, et al., 1992). Therefore, it is important to examine the relation between homework compliance and social phobia treatment outcome in a more inclusive sample.

Objectives

The present study sought to further explore the relation between homework compliance and social phobia symptom improvements both during and after treatment. First, we examined the relation between homework compliance and ratings of global improvement on a session to session basis throughout the course of treatment. Also, we examined homework compliance (overall) and its relation to social phobia treatment outcome ratings at post-treatment and long term follow-up as well as the differential impact of compliance with exposure-based versus cognitively-based homework exercises. Next, we explored the relation between expectancy for treatment outcome and compliance with session one homework. Finally, the current study addressed a number of previous methodological limitations which will be outlined further in the discussion. The specific hypotheses are as follows:

Hypotheses

Hypothesis 1

Homework compliance for each session is positively related to ratings of global improvement at each subsequent session.

To better understand the relation between homework compliance and social phobia, clinician ratings of homework compliance were correlated with clinician and participant ratings of global improvement on a session-to-session basis. Clinician ratings of homework compliance were hypothesized to be positively related to clinician and participant ratings of global improvement, throughout the course of treatment.

Hypothesis 2

Homework compliance across sessions is positively related to symptom reduction at post-treatment, 3 month, and 12 month follow-up for those receiving either group (EGT) or individual (VRE) treatment for social phobia.

Clinician ratings of overall homework compliance, across sessions, were predicted to be negatively related to post treatment self-report measures of social phobia. In addition, it was expected that the negative relation between homework compliance and social anxiety would be sustained at 3 month and 12 month follow-up.

Hypothesis 3

The relation between homework compliance and treatment outcome varies according to the nature of the homework exercise.

We examined the differential impact of compliance with *exposure* versus *non-exposure* homework exercises on outcome at post treatment, 3 month, and 12 month follow-up for participants receiving individual social phobia treatment. Based on findings from Rees and colleagues (2005), compliance with *non-exposure* (cognitive) based exercises was hypothesized to be a better predictor of social phobia treatment outcome than compliance with *exposure*-based

homework exercises, for individuals receiving individual CBT for social phobia.

Hypothesis 4

Expectancy is positively related to early treatment homework compliance.

Self-report ratings of treatment outcome expectancy were hypothesized to be positively related to initial homework compliance ratings, measured at the beginning of session two.

METHODS

The proposed study was based on data collected as a part of a larger federally funded randomized clinical trial comparing the efficacy of an experimental virtual reality exposure treatment (VRE), exposure group treatment (EGT), and a waitlist control. Furthermore, this study was reviewed and approved by Georgia State University's Institutional Review Board (IRB).

Participants

Participants were 76 individuals who met DSM-IV (APA, 2000) criteria for a primary diagnosis of either generalized (n = 38) or non-generalized social phobia (n = 36). To participate in the study, participants were required to identify public speaking as their most feared situation during the pre-treatment phone screen, as well as during the pre-treatment diagnostic interview. Additionally, participants on psychoactive medication were required to be stabilized on their current medication(s) and dosage(s) for at least three months and were to remain at the stabilized dosage throughout the course of the study. Individuals meeting any of the following criteria were excluded from the study, (a) history of mania, schizophrenia, or other psychoses; (b) recent suicidal ideation; (c) current alcohol or substance dependence; (d) inability to tolerate the virtual reality helmet/environment; (e) history of seizures. Non English speaking individuals were excluded as well.

The sample was comprised of a predominately female group of individuals (62%; n = 48) seeking treatment for a fear of public speaking. Participants ranged from age 18 to 65 with an average age of 40 (SD = 11.55). The majority of those who participated did not have a comorbid diagnosis (n = 59; 78%). More detailed comorbidity information can be found in Table 1. The ethnic distribution of the sample was representative of the setting in which recruitment took place (urban Atlanta). Study participants self-identified as European American (n = 39), African-American (n = 22), Latino (n = 3), Asian American (n = 2), and "other" (n = 8). For the most part, participants were well educated, with 44% having completed college. In addition, 47% of participants reported an annual income of $50,000 or more. Finally, 34% of the sample reported their relationship status as married.

Measures

Personal Report of Confidence as a Speaker (PRCS; Paul, 1966): The PRCS is a 30-item self-report questionnaire that measures public speaking confidence across three dimensions: before, during, and after delivering a speech (Appendix A). Items are presented in true-false format and are designed to measure participant's feelings about their most recent speech. Summary scores range from 0 to 30 with higher scores indicating more public speaking discomfort. The PRCS has demonstrated good internal consistency $\alpha = .91$ (Klorman, Weerts, Hastings, Melamed, & Lang, 1974) and adequate validity (Lombardo, 1988). In addition, this measure has been normed in a sample of African American students (Phillips, Jones, Rieger, & Snell, 1997). The internal consistency of the PRCS has also been established in a sample of African American undergraduate students at Georgia State University (Cronbach's alpha $\alpha = .84$). Because the PRCS focuses on the measurement of public speaking fears (a primary target of both treatment interventions) and has demonstrated good psychometric properties in African

American samples it was used as the primary outcome measure at the conclusion of treatment and at follow-up. In the current study, Cronbach's alpha ranged from $\alpha = .19$ to $\alpha = .42$ for the PRCS.

Fear of Negative Evaluation - Brief (FNE-B; Leary, 1983): The FNE-B is a widely used 12 item self-report questionnaire that measures the degree to which individuals fear being negatively evaluated by others across a number of social settings, including public speaking (Appendix B). Ratings are based on responses to items such as, "I often worry that I will say or do wrong things." Items are rated on a 5-point scale ranging from 1 (*not at all characteristic of me*) to 5 (*extremely characteristic of me*). Scores range from 12 to 60 with higher scores representing increased evaluative concerns. The FNE-B correlates highly with the original, expanded version of the FNE ($r = .96$; Leary, 1983). In addition, the FNE-B is reported to have excellent internal consistency ($\alpha = .97$) and test-retest reliability, $r = .94$ (Collins, Westra, Dozois, & Stewart, 2005). The FNE-B is a secondary outcome measure that was used because it focuses more broadly on social concerns. Findings from the current study further support the reliability of the FNE-B, Cronbach's alpha ranged from $\alpha = .78$ (at 12 month follow-up) to $\alpha = .89$ (at pre-treatment).

Clinician Global Impressions of Improvement (CGI-I; Guy, 1976): The CGI-I is a single item measure of change based on clinician responses to the following, "overall therapeutic effect since participant started the study." Ratings are based on a seven point scale ranging from 1 (*very much improved*) to 7 (*very much worse*) (Appendix C). CGI-I ratings are strongly associated with a variety of self-report and clinician-administered measures of specific symptomatology and impairment in a sample of individuals with social phobia (Zaider et al., 2003). Also, the CGI-I has previously demonstrated good reliability in a sample of individuals with social phobia (Juster

et al., 2003). For the current study, the CGI-I was completed by clinicians, at the end of each treatment session, and served as an outcome measure for the analyses examining the relation between homework compliance and clinician ratings of global improvement at each session.

Patient Global Impressions of Improvement (PGI-I; Guy, 1976): The PGI-I was adapted from the CGI-I and is a single item rate of change measure based on self-report responses to the following question, "compared to how I felt before beginning this study, I now am." Ratings are based on a seven point scale ranging from 1 (*very much improved*) to 7 (*very much worse*) (Appendix D). For the current study, the PGI-I was completed by participants, at the end of each treatment session, and served as an outcome measure for the analyses examining the relation between homework compliance and participant ratings of global improvement at each session.

Homework compliance was assessed by the clinician at the beginning of sessions two through eight using the *Homework Compliance Rating Form* (Appendix E). Clinician ratings of homework compliance were based on a review of the following: the completion of homework handouts, such as the fear and anxiety hierarchy as well as the ABC sheet; self-reported SUDS ratings and descriptions of between session exposure exercises; and readiness to perform in-session exposures that relied on the completion of between session homework (i.e., prepared speeches). Clinicians made the following assessment of homework compliance: "did not understand"; "did not attempt"; "completed, but didn't bring in"; "completed a small part of homework"; "completed at least half of homework"; or "completed homework".

Because they were rarely utilized, clinician ratings of "did not understand"; "did not attempt"; and "completed, but didn't bring in"; were collapsed into one category*, non-compliant.* For hypotheses one and four, participants who received the following ratings: "completed a small part of homework"; "completed at least half of homework"; or "completed homework"; were

categorized as homework *compliant* (see Table 2). For hypotheses one and three, homework compliance was operationalized continuously (see Table 2). Overall homework compliance, for hypothesis two, was based on a summary score, ranging from 0 to 21, representing the sum of clinician rated homework compliance ratings for sessions two through eight. For hypothesis three, *exposure* homework compliance was based on a summary score, ranging from 3 to 12, representing the sum of compliance ratings for *exposure* based homework exercises (measured at sessions 6, 7, & 8). *Non-exposure* (cognitive) homework compliance was based on a summary score, ranging from 2 to 8, representing the sum of compliance ratings for *non-exposure* based homework exercises (measured at sessions 3 & 5). Table 2 provides a detailed overview of homework compliance ratings.

Expectancy of Therapeutic Outcome was measured with a questionnaire that was adapted from Borkovec & Nau's (1972) measure of therapeutic expectancy (Appendix F). For the current study, self-report ratings of treatment outcome expectancy were based on a single item, measuring the extent to which participants were confident that treatment would successfully reduce their fear of public speaking symptoms. Furthermore, ratings of expectancy were based on a nine point scale ranging from 1 (*not at all*) to 9 (*extremely*) and were measured at the conclusion of session one for both treatments.

Structured Clinical Interview for the DSM-IV (SCID; First, Gibbon, Spitzer, & Williams, 2002): The SCID is a structured diagnostic clinical interview used to assess psychological disorders based upon the criteria of the DSM-IV. For the current project, the SCID was used to determine eligibility status and the diagnostic status of a variety of Axis I conditions falling within the mood, alcohol/substance use, and anxiety disorders modules. During the three month

follow-up, the SCID was used to reassess the diagnostic status endorsed during the pre-treatment assessment.

Measures of social phobia, homework compliance, global improvement, and treatment expectancy, were given at various points before, during, and up to 12 months after treatment. Table 3 provides a summary of when the variables of interest were measured.

Procedure

Participants were recruited through advertisements in local newspapers, flyers, internet based outlets, as well as referrals from local area professionals and other study participants. Eligibility for the study was determined through a two part process consisting of a brief telephone screening and a subsequent in-person, pre-treatment assessment. After expressing interest and consenting to complete a telephone screening, study candidates completed a short phone interview to determine their initial eligibility. Initial telephone screenings were conducted by doctoral level students in the clinical psychology program at GSU and consisted of a series of questions related to mood, anxiety, and substance use. Those who were not excluded during the telephone screening were given the opportunity to participate in an in-person, pre-treatment assessment at Georgia State University. Consent was obtained prior to the pre-treatment assessment as well. The pre-treatment assessment included a structured diagnostic clinical interview (SCID-IV), administered by a doctoral student, that was used to assess for various Axis I conditions to determine eligibility status. A subset of diagnostic interviews were reviewed by a licensed psychologist to calculate the inter-rater reliability of pretreatment assessments (100% agreement for primary diagnosis). Eligible participants (N = 116) were randomly assigned to one of the following treatment groups: VRE, EGT, or WL. Compensation was

provided to participants who completed the self-report battery of measures administered at three and 12 month follow-up.

Treatment

Prior to administering therapy study therapists attended two day intense training workshops, led by the developers of the respective treatments. Each of the study therapists also received weekly supervision by the primary investigator of the study. Ratings of treatment integrity and competence were completed, by the developers of the respective treatments, for a randomly selected subset of the sessions.

The VRE and EGT treatment groups were designed to be as similar as possible, with the exception of the modality for the delivery of exposure. Both treatments specifically targeted public speaking fears and relied on exposure therapy as the primary intervention for treating social phobia. The two treatments included cognitive restructuring exercises and video taped feedback. Both treatments sought to address specific aspects of social phobia identified in psychopathology literature, including self-focused attention, perceptions of self and others, perceptions of emotional control, rumination, and realistic goal setting for social situations. Also, both treatments consisted of eight therapy sessions conducted over a period of approximately eight weeks. The mechanism and setting through which exposure was delivered varied for each of the two treatment groups. Individual study therapists relied on the virtual environment (VRE) to facilitate exposure to public speaking fears, while group therapists relied on other group members (EGT) to help facilitate exposure.

Virtual Reality Exposure (VRE)

VRE was implemented according to a manualized treatment protocol and was administered individually by either a licensed clinician or an advanced doctoral student in the

clinical psychology program. During session one, participants were introduced to the VRE treatment rationale and taught how to identify and rate their anxiety on a subjective units of discomfort scale (SUDS). Breathing training also was introduced. Session two began with a review of the treatment rationale and otherwise focused on teaching the concept of cognitive restructuring, including its purpose and practice. Session three focused on self perceptions during public speaking. During this session, participants reviewed video of their pretreatment speeches and were asked to compare how anxious they looked on the video to how anxious they rated themselves while giving the speech. Session four focused on identifying the role that both safety behaviors and self-focused attention can play in the maintenance of social phobia. Participants were first videotaped demonstrating their most commonly used safety behaviors while giving a prepared talk. Next, participants were instructed to focus their attention on the audience and to refrain from using safety behaviors while they were being videotaped giving the same talk. Then, participants were able to observe the two videos to see how their performances differed when they focused on the audience while giving their talk versus when they engaged in safety behaviors and self-focused attention while speaking. Exposure exercises were conducted during sessions five through eight using the virtual audience. During VRE exposure exercises participants were fitted with a head mounted display , that contained screens for each eye, stereo headphones and a head tracking device, through which they were exposed to one of three virtual environments. VR exposure environments included a virtual conference room (~5 audience members), a virtual classroom (~35 audience members), and a virtual auditorium (appearance of 100+ audience members). VRE therapists had the ability to manipulate the reactions of the audience in a number of ways including making them appear interested/bored, supportive/hostile, distracted (i.e., cell phone ringing), as well as the ability to manipulate the

difficulty of questions that were posed by the audience. Virtual environments were manipulated according to the client's goals for treatment and their pre-constructed fear hierarchy. Participants were exposed to each item on their hierarchy until their reported fear was reduced by 50 percent before being exposed to their next item on the hierarchy. Treatment concluded with a review of the different anxiety management and relapse prevention strategies.

VRE homework exercises included breathing retraining, cognitive restructuring exercises, daily mirror exposure tasks, the fear and anxiety hierarchy, and exposure exercises. First, breathing exercises were designed to help clients become attuned to their physiological responses to anxiety. ABC sheets provide practice opportunities for identifying the antecedents, behaviors, and consequences of behaviors; this activity also facilitated cognitive restructuring practice by instructing clients to generate evidence against negative feelings/thoughts that have surrounded their perceived public speaking failures. Next, participants were instructed to prepare a short talk about the social phobia treatment rationale for homework to help solidify their understanding of the rationale and to prepare them for giving an in-session speech on the topic. The daily mirror exposure tasks were implemented to help participants become more accepting of their self-image and more adept at evaluating their public speaking performance. The anxiety hierarchy form was used to provide participants with additional insight about their public speaking fears and to inform treatment, particularly in regards to the development of exposure exercises. Exposure homework exercises are assigned to provide client's with structured opportunities to face, and hopefully begin to overcome, their public speaking fears. Table 4 provides a detailed schedule of VRE homework exercises.

Exposure Group Therapy (EGT)

EGT (Hofmann, 2002) consisted of eight group sessions of manualized treatment over a

period of eight weeks which were co-led by a licensed clinical psychologist and an advanced doctoral student. Groups consisted of up to five participants. During session one participants were introduced to the EGT treatment rationale, including the theoretical basis for exposure therapy. Session two began with a review of the treatment model, participants were then asked to engage in their first exposure exercise which consisted of giving a brief speech about the social phobia treatment models in front of the group. Furthermore, self perceptions were addressed in session two and video from each client's treatment model speech was used as a mechanism to help participant's highlight discrepancies between how anxious they appeared on video to how anxious they rated themselves prior to viewing the video. Group members were also asked to provide each other with positive feedback when the videotaped speeches were reviewed. Sessions three through six followed a similar model to that of session two. Session seven includes real-world exposure exercises. During this session participants exited the lab to engage in social mishap exercises on the Georgia State University Campus. The social mishap exercise provided participants with the opportunity to evaluate their beliefs about social threats and costs, by intentionally engaging in flawed social behaviors in a real world setting, while still in the presence of continued support from other group members/therapists. The final session provided participants with tools to prevent relapse and included a review of what was learned over the course of therapy.

EGT homework exercises consisted of the daily record of social situations, the fear and anxiety hierarchy, daily mirror tasks, and exposure exercises. The daily record of social situations is used as a mechanism to facilitate exposure to fearful situations and to help increase awareness and insight about the antecedents for public speaking anxiety as well as perceptions about the probability and cost of negative public speaking outcomes. The daily mirror exposure

tasks were implemented to help participants become more accepting of their self-image and more adept at evaluating their public speaking performance. The anxiety hierarchy form was used to provide participants with additional insight about their public speaking fears and to inform treatment, particularly in regards to the development of exposure exercises. Finally, exposure homework exercises were assigned to provide participants with structured opportunities to face, and hopefully begin to overcome, their public speaking fears. Table 4 provides a detailed summary of EGT homework exercises.

Wait List (WL)

The WL period lasted eight weeks after which participants completed a battery of post WL questionnaires similar to the battery that is administered after both the EGT and VRE treatments. Then, WL participants were randomly assigned to either VRE or EGT and received the same eight week treatment protocol described above.

RESULTS

The Statistical Package for the Social Sciences, version 16.0 (SPSS) was used for data entry, storage, and analyses. Accuracy and quality of data entry were monitored through the process of double entry. Prior to conducting the primary analyses, all variables were screened for errors, outliers (defined as scores greater than three standard deviations from the mean), and missing values. No outliers were identified for the primary dependent variables. Descriptive statistics for the primary variables of interest are presented in Table 5.

The primary aim of this study is to examine the relation between homework compliance and treatment outcome. Thus, prior to reporting results for specific hypotheses, an overview homework compliance ratings are presented. Table 6 provides an overview of ratings of homework compliance across time points based on the following scale: *compliant* participants

included those that, completed a small part, completed at least half, or completed all of the homework, whereas *non-compliant* participants included those that did not understand, did not attempt, or completed but did not bring in the homework. As shown in Table 6, clinicians generally reported that participants were compliant with homework. Indeed, clinicians reported that all participants were compliant with homework for session one. Homework compliance gradually decreased over time, although participants remained compliant for the most part.

We did not observe significant demographic differences in clinician ratings of homework compliance over the course of treatment. More specifically, age did not significantly predict homework compliance ($r = .09$; $p = .45$). Furthermore, ethnicity and income were not significantly predictive of homework compliance ratings ($p > .05$). Finally, homework compliance did not differ significantly between males (M = 18.72, SD = 6.13) and females (M = 18.18, SD = 6.91).

Hypothesis 1

Homework compliance for each session is positively related to ratings of global improvement at each subsequent session.

A series of independent samples *t* tests were conducted to test the hypothesis that there would be significant group differences on clinician and participant ratings of global improvement such that participants who were rated as *compliant* would have higher participant and clinician ratings of global improvement than *non-compliant* participants. See Table 7 for a summary of the findings. In general, results indicated that *non-compliant* and *compliant* participants did not differ significantly in terms of clinician and participant ratings of global improvement with the following exceptions. First, contrary to the predicted relation, participant ratings indicated that *non-compliant* participants rated themselves as significantly more improved than homework

compliant participants at session three, t(50) = -3.78, p = .001. Participant ratings of improvement, at session six, approached significance, t(45) = 2.72, p = .009, such that increased compliance was associated with increased ratings of improvement. For clinician ratings, homework *compliant* participants were rated as significantly more improved than *non-compliant* participants at session four, t(49) = 3.09, p = .003.

Hypothesis 2

Homework compliance across sessions is positively related to symptom reduction at post-treatment, 3 month, and 12 month follow up for those receiving either group or individual CBT for social phobia.

To examine the relation between post-treatment/follow-up social anxiety and homework compliance a series of hierarchical multiple regression analyses were conducted. The FNE-B and PRCS served as outcome measures for post-treatment and follow-up social anxiety. For each analysis, pre-treatment anxiety was entered in the first step as a covariate and overall homework compliance was entered in the second step. As shown in Table 8, overall homework compliance did not predict social anxiety at any time point for either the PRCS or the FNE-B. Results indicated that the addition of homework compliance did not significantly increase explained variance in PRCS scores at post-treatment ($R^2\Delta$ = .02, p> .05), 3 month follow-up ($R^2\Delta$ = .00, p> .05), or 12 month follow-up ($R^2\Delta$ = .00, p> .05). Findings also revealed that homework compliance did not significantly increase our ability to predict FNE-B scores at post-treatment ($R^2\Delta$ = .00, p> .05), 3 month follow-up ($R^2\Delta$ = .00, p> .05), or 12 month follow-up ($R^2\Delta$ = .00, p> .05).

Hypothesis 3

The relation between homework compliance and treatment outcome varies according to the nature of the homework exercise for those receiving individual (VRE) treatment for social phobia.

A series of hierarchical regression analyses were conducted to examine the differential impact of compliance with *exposure* versus *non-exposure* homework exercises on outcome at post-treatment, 3 month, and 12 month follow-up. Pre-treatment PRCS scores were entered in the first step as covariates, e*xposure* homework compliance was entered in the second step and results indicated that the addition of *exposure* homework compliance did not significantly increase the explained variance in PRCS scores at post-treatment, 3 month follow-up, or 12 month follow-up. Similar results were obtained when the FNE-B was used to examine the relation between *exposure homework* compliance and outcome. Results indicated that the addition of *exposure* homework compliance to the model did not significantly increase the explained variance in FNE-B scores at post-treatment, 3 month follow-up, or 12 month follow-up (Table 9).

Next, a separate series of hierarchical regression analyses were conducted to examine the relation between *non-exposure* (cognitive) homework compliance and outcome at post-treatment and follow-up. First, pre-treatment PRCS scores were entered in the first step as covariates. *Non-exposure* homework compliance was entered in the second step and results indicated that the addition of *non-exposure* homework compliance did not significantly increase the explained variance in PRCS scores at post-treatment, 3 month follow-up, or 12 month follow-up. Finally, when the FNE-B was used to examine the relation between *non-exposure homework* compliance and outcome results indicated that the addition of *non-exposure* homework compliance to the model did not significantly increase the explained variance in FNE-B scores at post-treatment or

3 month follow-up (Table 10). However, *non-exposure* homework compliance did account for a significant amount of the variance observed in FNE-B scores at 12 month follow-up, $F(1, 22) = 8.46$, $p < .01$, $R^2\Delta = .12$. More specifically, these findings suggest that *non-exposure* homework compliance scores accounted for a significantly greater proportion of the variance observed in 12 month follow-up FNE-B, than pre-treatment FNE-B scores alone.

Hypothesis 4

Expectancy is positively related to early treatment homework compliance.

Results from a bi-variate correlation analysis indicated that the relation between self-report ratings of expectancy (measured at session 1) and clinician ratings of *early* treatment homework compliance (session 2) was not significant, $r_s = -.04$, $p > .05$.

DISCUSSION

The primary objective of the present study was to examine the relation between homework compliance and social phobia symptom improvements both during and after treatment. Results did not support the primary hypothesis that there would be a significant negative relation between clinician ratings of homework compliance and self-report ratings of social phobia symptoms at post treatment and follow-up. However, the results provided limited support for the predicted relation between ratings of homework compliance and ratings of global improvement at each session. Findings indicated that the relation between compliance and participant ratings of improvement approached significance, in the predicted direction, for session six such that *compliant* participants rated themselves higher in terms of global improvement for this session. Also, there was a significant positive relation between homework compliance and clinician ratings of improvement at session four. Surprisingly, results also indicated that *non-compliant* participants rated themselves as significantly more improved than

homework *compliant* participants at session three. Next, the results provided limited support for the hypothesis that the relation between homework compliance and treatment outcome varies according to the nature of the homework exercise (*exposure* versus *non-exposure*) for those receiving individual (VRE) treatment for social phobia. Lastly, the study examined the relation between early homework compliance and expectancy of treatment outcome. Again, results did not support the predicted positive relation between homework compliance for session one, and expectancy of therapeutic outcome. In the following section, I will further address these findings in the context of previous literature that has examined the relation between homework compliance and treatment outcome, as well as discuss strengths and limitations of the current study, and directions for future research.

Most surprising is the finding that homework compliance, for session three, was negatively related to participant ratings of improvement, such that *non-compliant* participants rated themselves as significantly more improved than homework *compliant* participants. However, this finding is consistent with previous findings from Leung and Heimberg (1996) who suggested that exposure exercises are particularly anxiety provoking, when first introduced, and thus compliance with initial exposure exercises may be associated with increased ratings of anxiety. Therefore, the current findings, suggesting that *non-compliant* participants were more improved than *compliant* participants at session three, may be explained by the notion that *non-compliant* individuals had temporarily avoided the increased anxiety and discomfort that is commonly associated with initial homework exercises.

The null findings of the current study are surprising given both the emphasis on and theoretical basis for homework in CBT, but less surprising given previous empirical research on homework compliance and treatment outcome for social phobia. Unlike depression outcome

studies (Burns & Spangler, 2000), previous studies examining the role of homework compliance in the treatment of social phobia have provided little to no support for the relation between homework compliance and treatment outcome (Edelman & Chambless, 1995; Leung & Heimberg, 1996). Given these findings, and that of the current study, it might be appropriate to conclude that homework compliance may be less important for reducing social phobia symptoms than theory would suggest. However, this conclusion may be premature given the methodological limitations of the small body of literature that has addressed the topic to date.

A primary methodological shortcoming is that current literature regarding the relation between homework compliance and treatment outcome is based almost exclusively on findings derived from correlational studies. Very few studies in this area have been based on experimental designs where participants were randomly assigned to either "homework" or "no-homework" conditions. Data from such studies has suggested that homework may have a significant, positive effect on treatment outcome (Kazdin & Mascitelli, 1982; Marks et al., 1988), but these findings are extremely limited and further research is needed in this area.

Next, the measurement of homework compliance is problematic, as discussed by previous researchers who have noted that no formal efforts have been made to create a standardized, psychometrically sound measure of homework compliance (Rees et al., 2005). Instead, researchers in the area have relied on a variety of different measures to examine the significance of homework compliance. Indeed, Lampropoulos & Rector (2004) identified three aspects of homework compliance measurement that typically vary from study to study, which may contribute to mixed findings in this area: (1) *perspective* of measurement (therapist, client, or outside raters), (2) *time* of measurement (end of treatment or throughout treatment), and (3) *method* of measurement (quality or quantity), which can also be assessed in a number of different

ways.

First, homework compliance measures may vary according to the *perspective* in which they have been measured. Previous research has indicated that clinician and participant ratings of homework compliance may not be highly correlated (Schmidt & Woolaway-Bickel, 2000). Furthermore, there is evidence to suggest that clinician ratings of homework compliance may be superior to participant ratings of compliance in terms of their accuracy and their relation to treatment outcome. In fact, findings from two previous studies, which focused on individuals with anxiety disorders, indicated that clinician ratings of homework compliance were significantly related to outcome while participant compliance ratings were not (De Araujo et al., 1996; Schmidt & Woolaway-Bickel, 2000). According to Schmidt and Woolaway-Bickel (2000) homework compliance ratings completed by an independent evaluator who was blind to clinical status were similar to clinician ratings of compliance.

Timing is also thought to be important in the measurement of homework compliance. Most previous research examining the relation between compliance and treatment outcome has relied on retrospective ratings of homework compliance, collected at the end of treatment. Previous researchers have questioned the reliability and validity of retrospective ratings of homework compliance (Detweiler & Whisman, 1999; Kazantzis, Ronan & Deane, 2001). Furthermore, Smith and Colleagues (1999) reported that retrospective ratings of homework compliance are particularly vulnerable to "halo" effects; clients who respond well to treatment, as measured by responses on post-treatment outcome measures, are likely to overestimate the amount of homework that they have completed over the course of therapy when compliance is measured at the end of treatment.

Finally, the issue of *quality* and *quantity* of homework compliance should be considered. Some studies have operationalized homework compliance as a measure of the *quantity* of completed homework, whereas others have examined the *quality* of completed homework. For example, to measure the *quantity* of homework compliance previous researchers have used the Homework Compliance Scale (HCS; Primakoff, Epstein, & Covi, 1986) a likert-type scale, ranging from 0 (homework was not assigned) to 6 (the participant completed more of the assigned homework than was requested). The HCS has been used in a number of studies including social phobia treatment outcome studies (Leung & Heimberg, 1996; Woody & Adessky, 2002) to measure the *quantity* of completed homework. With regard to the *quality* of completed homework, the Thought Diary Evaluation Form (TDEF) a likert-type scale, ranging from 0 (not accurate) to 2 (accurate), has been used to measure the accuracy of completed thought records in a mixed sample of individuals with anxiety and depression (Rees, McEvoy, & Nathan, 2005). Evidence suggests that homework compliance measures which include ratings of the *quality* of completed homework might be superior to *quantity* measures in terms of their ability to predict treatment outcome. For instance, Schmidt and Woolaway-Bickel (2000) found that the *quality* of completed homework assignments was a better predictor of symptom improvement than were *quantity* measures alone, for individuals receiving treatment for panic disorder.

Findings from the literature examining the relation between homework compliance and social phobia treatment outcome may be viewed in the context of *perspective*, *method*, and *timing* as described above. First, previous social phobia studies have relied heavily on measures of homework *quantity* and none appear to have included measures of homework *quality* (Edelman & Chambless, 1995; Leung & Heimberg, 1996; Woody & Adessky, 2002). With

regard to *timing,* each of the studies examining social phobia treatment outcome and homework compliance has included measures of homework compliance throughout the course of treatment as opposed to relying on retrospective ratings of compliance. Therefore, it appears that *timing* is an issue that has been adequately addressed by researchers in this area. Next, clinician-rated measures of homework compliance have been utilized, exclusively, in each of the previous social phobia studies (Edelman & Chambless, 1995; Leung & Heimberg, 1996; Woody & Adessky, 2002).

In order to learn more about the relation between homework compliance and treatment outcome some have suggested that, in addition to measuring participant homework compliance, it may also be important to examine the extent to which clinicians adhere to homework protocol. In fact, Primakoff and colleagues (1986) recommended an independent assessment of therapist adherence to homework protocol to ensure their consistency and compliance in rating homework. To our knowledge, none of the previous studies examining social phobia treatment outcome and homework compliance has included independent measures of therapist adherence to homework protocol.

Given the lack of previous conclusive support for the relation between homework compliance and social phobia treatment outcome, as well as the null findings from the current study, it is important to take a closer look at the nature of homework assignments that are commonly implemented in the treatment of social phobia. In general, previous research examining the relation between homework compliance and treatment outcome for social phobia has relied heavily on between session exercises that focus on exposure. Recall that the treatment intervention implemented by Fava et al., (2001) consisted entirely of *exposure*-based homework assignments. Other studies have implemented *cognitive*-based (i.e, self-monitoring of thoughts,

cognitive restructuring) homework exercises into their treatment of social phobia, however; the vast majority of homework assignments are *exposure*-based (Edelman & Chambless, 1995; Leung & Heimberg, 1996; Woody & Adessky, 2002). The current study is no exception; exposure was incorporated in each of the seven homework assignments for participants receiving EGT and six of the seven homework assignments for individuals receiving VRE. Thus, based on the current state of the literature, our understanding of the relation between compliance and social phobia treatment outcome is limited, almost exclusively, to compliance with *exposure*-based homework assignments.

The distinction between *exposure*-based and *cognitive*-based homework for social phobia is important because researchers have consistently highlighted the importance of cognitive mechanisms in the development, maintenance, and treatment of social phobia (Clark & Wells, 1995; Foa & Kozak, 1986; Hofmann, 2004). More specifically, Foa and Kozak (1986) suggested that social phobia is a condition that is distinguished, primarily, by the presence of exaggerated social cost, which are characterized by the following maladaptive cognitions, (1) an overestimation of the probability that a negative outcome will occur and (2) an exaggeration of the cost of that negative outcome. Furthermore, estimated social cost has been identified as the best single predictor of treatment outcome in a sample of individuals receiving cognitive behavioral group therapy for social phobia (Foa & Kozak, 1986). Thus, it is important to examine compliance for homework that targets this important cognitive mechanism of action.

Interestingly, *behaviorally*-based interventions, most notably behavioral activation, have been identified as important mechanisms of action in the treatment of depression (Dimidjian, Hollon, Dobson, et al., 2006) Findings from Rees and colleagues (2005), who examined the utility of homework compliance in a mixed sample of individuals with depression and anxiety,

suggest that that the completion of behavioral homework tasks (exposure) is the most significant predictor of symptom improvement for individuals with depression whereas improvements in anxiety symptoms are best predicted by the completion of thought records (Rees et al., 2005). Similarly, results from the current study revealed a significant relation between compliance with *cognitive*-based homework assignments and participant ratings of global improvement, at session three, for participants receiving VRE. Despite the fact that the current findings did not generally support a relation between homework compliance and outcome, when analyzed apart from compliance with exposure-based homework assignments, compliance with a cognitive-based homework assignment was significantly related to participant ratings of global improvement. Furthermore, results from the current study suggested that *non-exposure* homework compliance scores accounted for a significantly greater proportion of the variance observed in 12 month follow-up FNE-B, than pre-treatment FNE-B scores alone. Therefore, these findings provide additional support for the role of cognitively-based homework assignments in the treatment of social phobia.

Another aim of the current study was to examine the relation between expectancy for treatment outcome and homework compliance at the beginning of therapy. Westra and colleagues (2007) found that homework compliance mediated the relation between expectancies for change and initial symptom improvement in a mixed sample of individuals with anxiety disorders. However, in the current study, self-report ratings of treatment outcome expectancy were not significantly related to initial ratings of homework compliance. While the current findings contradict the hypothesized relation between expectancy and homework compliance, these findings are not entirely surprising after taking a closer look at the methodology and findings reported by Westra and colleagues (2007). In fact, findings from Westra et al. (2007)

supported the predicted relation for individuals with panic disorder and GAD. However, they failed to identify a significant relation between expectancy and homework compliance for individuals with social phobia (Westra, et al., 2007); the researchers attributed their lack of significant findings to the small sample of participants with social phobia (n = 18), which limited their power to detect significant findings. Given the null findings of Westra et al. (2007) and the current study it is prudent to consider alternative predictors of early homework compliance. For example, another closely related issue that may complicate the relation between expectancy and homework compliance in the treatment of social phobia is working alliance. Working alliance has been defined as a combination of the development of a positive therapeutic bond between client and therapist and mutual agreement about therapeutic tasks and goals (Bordin, 1979). Recall that expectancy beliefs are concerned with the degree to which the therapeutic approaches, including homework tasks, are perceived as effective and relevant treatment solutions. The mutual agreement about therapeutic tasks and goals is essential to both the development of working alliance *and* positive expectancies for change. Unfortunately, social phobia is associated with interpersonal relationship difficulties as well as with a number of other characteristics that sometimes inhibit or delay the development of working alliance, including social avoidance, poor social skills, and heightened sensitivity to evaluation (Moras & Strupp, 1982; Kokotovic & Tracy, 1990). In addition to working alliance it is possible that these factors may also play a role in the development of expectancy for individuals with social phobia. Future research examining the relation between expectancy and homework compliance should consider potential mediating variables such as working alliance.

The current study is limited by a number of methodological limitations associated with the measurement of homework compliance. First, as with previous studies, the current study is

limited by the lack of a standardized measure of homework compliance. Also, the measurement of homework compliance in the current study was limited to clinician rated measures of the *quantity* of completed homework. Additionally, our study may be limited by the lack of variability in homework compliance. Clinician rated measures of homework compliance indicated that the vast majority of participants were compliant with homework assignments throughout the course of the study. In fact, 83% of participants were compliant at session seven (when compliance ratings were at their lowest) while 100% of participants were compliant with session one homework. Next, the current findings are limited by our failure to include an independent assessment of homework compliance as suggested by Primakoff et al. (1986). Also, the findings are hampered by the limited frequency in which standardized social anxiety measures were administered. The primary outcome measures (FNE-B and PRCS) were administered exclusively at pre-treatment, post-treatment, and follow-up. A single-item measure of global improvement was used to assess symptoms on a session to session basis. Thus, we were limited in our ability to examine the relation between homework compliance and social phobia symptoms as a result of not including standardized measures of social anxiety at each session.

Despite these limitations, the current study addresses many of the methodological limitations that have been identified in previous studies examining the relation between homework compliance and social phobia treatment outcome. First, to our knowledge, the current sample is one of the largest that has been used to examine this relation. Furthermore, preliminary evidence suggested that we had sufficient statistical power to detect medium to large-sized treatment effects, given our sample size, and thus we addressed the limitations highlighted by Kazantzis and colleagues (2000). Next, we examined the proposed relation in a sample that included participants who received individual CBT treatment for social phobia. Previous studies

examining this relation had focused exclusively on participants who had undergone group treatment for social phobia. Also, we conducted three and 12 month follow-ups to help supplement our understanding of the relation between homework compliance and long-term treatment outcomes for individuals with social phobia. Finally, we hoped to expand upon previous homework compliance research by addressing potential threats to the external validity of our findings by including participants with co-occurring anxiety and mood disorders.

Future Directions

Based on limitations of the current study, as well as those that have hampered previous research, future research in this area should attempt to address a variety of methodological issues. First, researchers should work to develop a standardized measure of homework compliance. Also, future studies addressing homework compliance in the context of social phobia treatment outcome should include *quality* measures of homework compliance in addition to *quantity* measures of compliance. Next, future research should also attempt to further elucidate the relation between homework compliance and social phobia symptomatology by including social phobia outcome measures, as well as homework compliance measures, at each session. Finally, although the current study addressed a limitation of previous studies by including participants receiving individual VRE treatment for social phobia, more research on this topic is needed for individually based treatments.

In addition to addressing methodological limitations, future research should incorporate previous findings regarding important mechanisms of action in the treatment of social phobia; in order to truly understand the relation between homework compliance and treatment outcome compliance with *cognitive*-based homework exercises should be a focus of future research in this area.

In conclusion, the current study explored the relation between homework compliance and treatment outcome for social phobia. The results generally did not support the predicted relation between homework compliance and treatment outcome. This suggest that a closer look at the nature and utility of homework assignments, specifically as they relate to previously identified mechanisms of action for social phobia, is necessary.

REFERENCES

Addis, M. E., & Jacobson, N. S. (2000). A closer look at the treatment rationale and homework compliance in cognitive-behavioral therapy for depression. *Cognitive Therapy and Research*, *24*, 313–326.

Anderson, P., Zimmand, E., Hodges, L. F., & Rothbaum, B. O. (2005). Cognitive behavioral therapy for public speaking anxiety using virtual reality for exposure. *Depression and Anxiety, 22,* 156-158.

Antony, M. M., & Barlow, D. H. (1997). Social and specific phobia. In A. Tasman, J. Kay, & J.Lieberman (Eds.), *Psychiatry* (pp. 1037-1059). Philadelphia, PA: WB Saunders Company.

APA (2000). *Diagnostic and statistical manual of mental disorders, Fourth Edition - Text Revision (4th ed.)*: American Psychiatric Publishing, Inc.

Bakeman, R., & McArthur, D. (1999). Determining the power of multiple regression analyses both with and without repeated measures. *Behavioural Research Methods, Instruments, and Computers, 31,* 150-154.

Bandura, A. (1988). Self-efficacy conception of anxiety. *Anxiety Research, 1*, 77-98.

Beck, J. B. (1995). *Cognitive therapy: Basics & beyond*. New York : Guilford.

Bordin, E.S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research, & Practice,* 16, 252-260.

Borkovec, T.D., & Nau, S.D. (1972). Credibility of analogue therapy rationales. *Journal of Behaviour Therapy & Experimental Psychiatry, 3*, 257-260.

Bryant, M. J., Simons, A. D., & Thase, M. E. (1999). Therapist skill and patient variables in homework compliance; controlling an uncontrolled variable in cognitive therapy outcome research. *Cognitive Therapy and Research, 23,* 381–399.

Burns, D. D., & Spangler, D. L. (2000). Does psychotherapy homework lead to improvements in depression in cognitive-behavioral therapy or does improvement lead to increased homework compliance. *Journal of Consulting and Clinical Psychology*, *68*, 46–56.

Chambless, D.L., & Ollendick, T.H. (2001). Empirically supported psychological interventions: Controversies and evidence. *Annual Review of Psychology, 52,* 685-716.

Clark, D.M. & Wells, A. (1995) A cognitive model of social phobia. In *Social Phobia – Diagnosis, Assessment, and Treatment* (eds R.G. Heimberg, M. R. Liebowitz, D. Hope, *et al*), pp. 69–93. New York: Guilford.

Cohen, J. (1962). The statistical power of abnormal—social psychological research: A review. *Journal of Abnormal and Social Psychology, 65,* 145–153.

Collins, K., Westra, H.A., Dozois, D.J.A., & Stewart, S.H. (2005). The validity of the brief form of the fear of negative evaluation scale. *Journal of Anxiety Disorders, 19*, 345-359.

Coon, D., & Thompson, L. (2003). The relationship between homework compliance and treatment outcomes among older adult outpatients with mild-to moderate depression. *American Journal of Geriatric Psychiatry*, *11(1),* 53-61.

Cox, D. J., Tisdelle, D. A., & Culbert, J. P. (1988). Increasing adherence to behavioral homework assignments. *Journal of Behavioral Medicine, 11,* 519–522.

Dalrymple, K.L. & Herbert, J.D. (2007). Acceptance and commitment therapy for generalized social anxiety disorder: A pilot study. *Behavior Modification, 31(5),* 543-568.

Davidson, J.R.T., Foa, E.B., Huppert, J., Keefe, F.J., Franklin, M.E., Compton, J.S., Zhao, N., Connor, K.M., Lynch, T.R., & Gadde, K.M. (2004). Fluoxetine, comprehensive cognitive behavioral therapy, and placebo in generalized social phobia. *Archives of General Psychiatry, 61,* 1005-1013.

Deane, F. P., Glaser, N. M., Oades, L. G., & Kazantzis, N. (2005). Psychologists' use of homework assignments with clients who have schizophrenia. *Clinical Psychologist*, *9*, 24-34.

De Araujo, L. A., Ito, L. M., & Marks, I. M. (1996). Early compliance and other factors predicting outcome of exposure for obsessive-compulsive disorder. *British Journal of Psychiatry, 169(6),* 747-752.

Detweiler, J. B., & Whisman, M. A. (1999). The role of homework assignments in cognitive therapy for depression: Potential methods for enhancing adherence. *Clinical Psychology: Science and Practice, 6*, 267-282.

Dimidjian, S., Hollon, S. D., Dobson, K. S., Schmaling, K. B., Kohlenberg, R. J., Addis, M. E., et al. (2006). Randomized trial of behavioral activation, cognitive therapy, and antidepressant medication in the acute treatment of adults with major depression. *Journal of Consulting and Clinical Psychology*, 74, 658–670.

Edelman, R. E., & Chambless, D. L. (1995). Adherence during sessions and homework in cognitive-behavioral group treatment of social phobia. *Behaviour Research and Therapy*, *33*, 573–577.

Fava, G.A., Grandi, S., & Canestrari, R. (1989). Treatment of social phobia by homework exposure. *Psychotherapy and psychosomatics*, *52(4),* 209-13.

Fava, G.A., Grandi, S., & Rafanelli, C., et al. (2001). Long-term outcome of social phobia treated by exposure. *Psychological Medicine, 31(5),* 899-905.

Fennell, M. J. V., & Teasdale, J. D. (1987). Cognitive therapy for depression: Individual differences and the process of change. *Cognitive Therapy and Research, 11,* 253–271.

First, M. B., Gibbon, M., Spitzer, R. L., & Williams, J. B. W. (2002). *Structured clinical interview for the DSM-IV-TR axis 1 disorders*. New York: Biometrics Research Department.

Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin, 99*, 20-35.

Frank, J. D. & Frank, J. (1991) *Persuasion and healing: A comparative study of psychotherapy* (3rd ed). Baltimore, MD: Johns Hopkins University Press.

Furmark, T., Tillfors, M., Stattin, H., Ekselius, L., & Fredrikson, M. (2000) Social phobia subtypes in the general population revealed by cluster analysis. *Psychological Medicine, 30,* 1335–1344.

Guy, W. (1976) *ECDEU Assessment Manual for Psychotherapy – Revised* (DHEW Publication No. ADM 76-338). Bethesda, MD: National Institute of Mental Health 217-222.

Heimberg, R. G. (2002). Cognitive-behavioral therapy for social anxiety disorder: Current status and future directions. *Biological Psychiatry, 21*, 101-108.

Heimberg, R. G., Dodge, C. S., Hope, D. A., & Kennedy, C. R. (1990). Cognitive behavioral group treatment for social phobia: Comparison with a credible placebo control. *Cognitive Therapy and Research, 14(1),* 1-23.

Heimberg, R.G. & Juster, H.P. (1995). Cognitive-behavioral treatments: Literature review. In R.G.Heimberg, M.R. Lieborwitz, D.A. Hope & F.R. Schneier (Eds) *Social phobia: Diagnosis, assessment and treatment*. New York: Guilford Press.

Heimberg, R. G., Liebowitz, M. R., Hope, D. A., Schneier, F. R., Holt, C. S., Welkowitz, L. A., et al. (1998). Cognitive behavioral group therapy vs. phenelzine therapy for social phobia: 12-week outcome. *Archives of General Psychiatry, 55*(12), 1133-1141.

Heimberg, R.G., Salzman, D.G., Holt, C.S. & Blendell, K.A. (1993). Cognitive-behavioral group treatment for social phobia: effectiveness at five-year follow-up. *Cognitive Therapy and Research, **17**,* 325–339.

Herbert, J. D., Rheingold, A. A., Gaudiano, B. A., & Myers, V. H. (2004). Standard versus extended cognitive behavior therapy for social anxiety disorder: A randomized-controlled trial. *Behavioural and Cognitive Psychotherapy, 32*(2), 131-147.

Hofmann, S. G. (2002). *Exposure Group Therapy Treatment Manual*. Unpublished manuscript.

Hofmann, S. G. (2004). Cognitive mediation of treatment change in social phobia. *Journal of Consulting and Clinical Psychology, 72,* 392–399.

Kazantzis, N. (2000). Power to detect homework effects in psychotherapy outcome research. *Journal of Consulting and Clinical Psychology*, *68*, 166–170.

Kazantzis, N., Deane, F. P., & Ronan, K. R. (2000). Homework assignments in cognitive and behavioral therapy: A meta-analysis. *Clinical Psychology: Science and Practice*, *7*, 189–202.

Kazantzis, N., Lampropoulos, G. K., & Deane, F. (2005). A national survey of practicing psychologists' use and attitudes toward homework in psychotherapy. *Journal of Consulting and Clinical Psychology, 73*, 742-748.

Kazdin, A. E., & Mascitelli, S. (1982). Covert and overt rehearsal and homework practice in developing assertiveness. *Journal of Consulting and Clinical Psychology, 50,* 250–258.

Kessler, R.C., Chiu, W.T., Demler, O., Merikangas, K.R., & Walters, E.E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry,* 62 (6), 617-627.

Klorman, R., Weerts, T. C., Hastings, J. E., Melamed, B. G., Lang, P. J. (1974). Psychometric descriptions of some specific-fear questionnaires. *Behavior Therapy, 5*, 401-409.

Kokotovic A. & Tracy T. (1990) Working alliance in the early phase of counseling. *Journal of Counseling Psychology,* 37, 16–21.

Lampropoulos, G. K., & Rector, N. A. (2004, June). *Homework compliance in cognitive behavior therapy for anxiety disorders: Predictors of outcome*. Poster presented at the 30th Annual Harvey Stancer Research Day, Department of Psychiatry, University of Toronto, Toronto.

Leary, M.R. (1983). A brief version of the Fear of Negative Evaluation Scale. *Personality and Social Psychology Bulletin, 9,* 371-376.

Leung, A. W., & Heimberg, R. G. (1996). Homework compliance, perceptions of control, and outcome of cognitive-behavioral treatment of social phobia. *Behaviour Research and Therapy, 34,* 423-432.

Lombardo, T. W. (1988). Personal Report of Confidence as a Speaker. In: M. Herson & A. S. Bellack (Eds.), *Dictionary of behavioral assessment techniques*. (pp. 347-348). Pergamon Press, New York.

Marks, I. M., Lelliott, P., Basoglu, M., Noshirvani, H., Monteiro,W., Cohen, D., & Kasvikis, Y. (1988). Clomipramine, self-exposure, and therapist-aided exposure for obsessive compulsive rituals. *British Journal of Psychiatry, 152,* 522–534.

Mattick, R. P., & Peters, L. (1988). Treatment of severe social phobia: Effects of guided exposure with and without cognitive restructuring. *Journal of Consulting and Clinical Psychology, 56,* 251-260.

McCabe, R.E. & Antony, M.M. (2008). Social and Specific Phobias. In A. Tasman, J. Kay, J.A. Lieberman, M.B. First, and M. Maj (Eds.), *Psychiatry Third Edition (pp)*. London, England: John Wiley & Sons, Ltd.

Moras, K., & Strupp, H. H. (1982). Pretherapy interpersonal relations, patient alliance, and outcome in brief therapy. *Archives of General Psychiatry,* 39, 405-409.

Ormrod, Jeanne. (2006). *Educational Psychology Developing Learners*. New Jersey: Pearson Education, Inc.

Otto, M. W., & Safren, S. A. (2001). Mechanisms of action in the treatment of social phobia. In S. G. Hofmann & P. M. DiBartolo (Eds.), *From social anxiety to social phobia: Multiple perspectives* (pp. 391-407). Needham Heights, MA, US: Allyn & Bacon.

Park, J-M., Mataix-Cols, D., Marks, I. M., Ngamthipwatthana, T., Marks, M., Araya, R., et al. (2001). Two-year follow-up after a randomized controlled trial of self- and clinician-accompanied exposure for phobia/panic disorders. *British Journal of Psychiatry*, *178*, 543–548.

Paul, G. L. (1966). *Insight vs desensitization in psychotherapy*. Standford, CA: Stanford University Press.

Phillips, G. C., & Jones, G. E. (1997). Normative data for the personal report of confidence as a speaker. *Journal of Anxiety Disorders, 11,* 215-220.

Primakoff, L., Epstein, N., & Covi, L. (1986). Homework compliance: An uncontrolled variable in cognitive therapy outcome research. *Behavior Therapy*, *17*, 433–446.

Rees, C., McEvoy, P., & Nathan, P. (2005). Relationship between homework completion and outcome in cognitive behaviour therapy. *Cognitive Behaviour Therapy*, *34*(4), 242-247.

Rodebaugh, T. L., Holaway, R. M., & Heimberg, R. G. (2004). The treatment of social anxiety disorder. *Clinical Psychology Review, 24,* 883-908.

Schneider, F. R., Johnson, J., Hornig, C. D., Liebowitz, M. R., & Weissman, M. M. (1992). Social phobia: Comorbidity and morbidity in an epidemiologic sample. *Archives of General Psychiatry, 49,* 282-288.

Schmidt, N. B., & Woolaway-Bickel, K. (2000). The effects of treatment compliance on outcome in cognitive-behavioral therapy for panic disorder: Quality versus quantity. *Journal of Consulting and Clinical Psychology*, *68*, 13–18.

Stein, M., & Kean, Y. (2000). Disability and quality of life in social phobia: epidemiologic findings. *American Journal of Psychiatry, 157,* 1606–1613.

Stein, M. B., Walker, & Forde (1994). Public-speaking fears in a community sample. *Archives of General Psychiatry, 53*, 169-174.

Turner, S. M., Cooley-Quille, M. R., & Beidel, D.C. (1996). *Behavioral and pharmacological treatment for social phobia.* In M. R. Mavissakalian, and R. F. Prien (Eds.), Long-term treatments of anxiety disorders. Washington, DC: American Psychiatric Press.

Wells, A. & Papageorgiou, C. (2001). Brief cognitive therapy for social phobia: A case series. *Behaviour Research and Therapy, 39, 713-720.*

Westra, H. A., Dozois, D. J. A.**,** & Marcus, M. (2007). Early improvement, expectancy for change, homework compliance, and outcome in cognitive behavioral therapy for anxiety. *Journal of Consulting and Clinical Psychology, 75*, 363-373.

Woods, C., Chambless, D., & Steketee, G. (2002). Homework compliance and behavior therapy outcome for panic with agoraphobia and obsessive compulsive disorder. *Cognitive Behaviour Therapy*, *31(2),* 88-95.

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

Zaider, T.I., Heimberg, R.G., Fresco, D.M., Schneier, F.R., & Liebowitz, M.R. (2003). Evaluation of the clinical global impression scale among individuals with social anxiety disorder. *Psychological Medicine, 33(4),* 611–22.

Appendix A

PRCS

This instrument is composed of 30 items regarding your feelings of confidence as a speaker. Try to decide whether "true" or "false" most represents your feelings associated with your most recent speech. Then write "T" or "F" next to each question to indicate your answer. Work quickly and don't spend much time on any one question. We want your first impression on this questionnaire.

1. I look forward to an opportunity to speak in public. _____
2. My hands tremble when I try to handle objects on the platform. ____
3. I am in constant fear of forgetting my speech. _____
4. Audiences seem friendly when I address them. _____
5. While preparing a speech I am in a constant state of anxiety. _____
6. At the conclusion of a speech I feel that I have had a pleasant experience. _____
7. I dislike to use my body and voice expressively. _____
8. My thoughts become confused and jumbled when I speak before an audience. _____
9. I have no fear of facing an audience. _____
10. Although I am nervous just before getting up I soon forget my fears and enjoy the experience. ____
11. I face the prospect of making a speech with complete confidence. _____
12. I feel that I am in complete possession of myself while speaking. _____
13. I prefer to have notes on the platform in case I forget my speech. _____
14. I like to observe the reactions of my audience to my speech. _____
15. Although I talk fluently with friends I am at a loss for words on the platform. ____
16. I feel relaxed and comfortable while speaking. _____
17. Although I do not enjoy speaking in public I don't particularly dread it. _____
18. I always avoid speaking in public if possible. ____

19. The faces of my audience are blurred when I look at them. ____

20. I enjoy preparing a talk. _____

21. My mind is clear when I face an audience. _____

22. I am fairly fluent. _____

23. I perspire and tremble just before getting up to speak. _____

24. My posture feels strained and unnatural. _____

25. I am fearful and tense all the while I am speaking before a group of people. _____

26. I find the prospect of speaking mildly unpleasant. _____

27. It is difficult for me to calmly search my mind for the right words to express my thoughts. _____

28. I am terrified at the thought of speaking before a group of people. _____

29. I have a feeling of alertness in facing an audience. _____

30. I feel disgusted with myself after trying to address a group of people. _____

Appendix B

Fear of Negative Evaluation – Brief Form

Read each of the following statements and then use the scale below to indicate the degree to which each statement applies to you, use the blank to enter the number that corresponds to your answer for each question.

1	2	3	4	5
Not at All	Slightly	Moderately	Very	Extremely

1. I worry about what other people will think of me even when I know that it doesn't make any difference. _____
2. I am unconcerned even if I know people are forming an unfavorable opinion of me. _____
3. I am frequently afraid of other people noticing my short comings. _____
4. I rarely worry about what kind of impression I am making on someone. _____
5. I am afraid that others will not approve of me. _____
6. I am afraid that people will find fault in me. _____
7. Other people's opinions of me do not bother me. _____
8. When I am talking to someone, I worry about what they may be thinking about me. _____
9. I am usually worried about what kind of impression I make. _____
10. If I know someone is judging me, it has little effect on me. _____
11. Sometime I think I am too concerned with what other people think of me. _____
12. I often worry that I will say or do wrong things. _____

Appendix C

CLINICIAN GLOBAL IMPRESSIONS OF IMPROVEMENT (CGI-I)

ASSESSOR'S GLOBAL EVALUATION:

Overall therapeutic effect since the participant started the study:

_____ (1) Very much improved
_____ (2) Much improved
_____ (3) Minimally improved
_____ (4) Unchanged
_____ (5) Minimally worse
_____ (6) Much worse
_____ (7) Very much worse

Appendix D

PATIENT GLOBAL IMPRESSIONS OF IMPROVEMENT (PGI-I)

PATIENT SELF-RATING SCALE:

Compared to how I felt before beginning this study, I now am:

_____ (1) Very much improved
_____ (2) Much improved
_____ (3) Minimally improved
_____ (4) Unchanged
_____ (5) Minimally worse
_____ (6) Much worse
_____ (7) Very much worse

Appendix E

HOMEWORK COMPLIANCE RATING FORM

CLINICIAN RATING SCALE:

_____ (0) Did not understand

_____ (1) Did not attempt

_____ (2) Completed but did not bring in

_____ (3) Completed small part of homework

_____ (4) Completed at least half of homework

_____ (5) Completed homework

Session #: _____

Appendix F

EXPECTANCY OF THERAPEUTIC OUTCOME QUESTIONNAIRE

Client Number: _____ Date: _____

Directions: Please use the scale below to answer the following questions by circling the number that best represents your feelings about the treatment program.

Extremely		**Moderately**		**Somewhat**		**Very Little**		**Not at All**
9	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**

1). How logical does this type of treatment seem to you?

9 8 7 6 5 4 3 2 1

2). How confident are you that this treatment will be successful in reducing your fear of public speaking symptoms?

9 8 7 6 5 4 3 2 1

3). How confident are you that this treatment will be successful in reducing other personal problems?

9 8 7 6 5 4 3 2 1

4). How confident would you be in recommending this treatment to a friend with similar problems?

9 8 7 6 5 4 3 2 1

Table 1

Frequency of Comorbidity in Sample

Diagnosis	Primary Diagnosis	Secondary Diagnosis	Third Diagnosis	Fourth Diagnosis
Social Phobia: Generalized	38			
Social Phobia: Public Speaking	36			
Specific Phobia		4	3	
Major Depression		3	1	
Generalized Anxiety		3	2	
Dysthmia		2		
Panic Disorder W/O Agoraphobia		2		
Obsessive Compulsive Disorder		1		
PTSD				1
Hypomania				1

Table 2

Overview of Homework Compliance Ratings

Clinician Rated HW Compliance	$H^{1, 4}$	$H^{2, 3}$
Did Not Understand	Non – Compliant	Non – Compliant (0)
Did Not Attempt	Non – Compliant	Non – Compliant (0)
Completed but Didn't Bring In	Non – Compliant	Non – Compliant (0)
Completed Small Part of HW	Compliant	Partially Compliant (1)
Completed at Least Half of HW	Compliant	Moderately Compliant (2)
Completed HW	Compliant	Fully Compliant (3)

Note.

$H^{1, 4}$ = Data coding and conceptualization for Hypotheses 1 and 4.

$H^{2, 3}$ = Data coding and conceptualization for Hypotheses 2 and 3.

Table 3

Assessment Battery Time Line

Measures	Pre-tx	S1	S2	S3	S4	S5	S6	S7	S8	Post-tx	3 Month	12 Month
Diagnostic Measures												
SCID	√										√	
Outcome Measures												
FNE-B	√									√	√	√
PRCS	√									√	√	√
CGI-I		√	√	√	√	√	√	√	√			
PGI-I		√	√	√	√	√	√	√	√	√	√	√
Homework Compliance												
Clinician Rating			√	√	√	√	√	√	√			
Expectancy												
Expectancy of Therapeutic Outcome		√										

Table 4

Homework Assignments for Individual and Group treatment for Social Phobia

Session	Group (EGT) HW Assignments	Individual (VRE) HW Assignments
1	Daily Record of Social Situations (DRSS) Fear and Avoidance Hierarchy Daily Mirror Speech Task	Practice Breathing
2	Daily Mirror Speech Task DRSS Exposures	ABC Sheet Prepare a Short Talk
3	Daily Mirror Speech Task DRSS Exposures	Daily Mirror Task Record
4	Daily Mirror Speech Task DRSS Exposures	Anxiety Hierarchy Form
5	Daily Mirror Speech Task DRSS Exposures	Exposure Task
6	Daily Mirror Speech Task DRSS Exposures	Exposure Task
7	Daily Mirror Speech Task DRSS Exposures	Exposure Task
8	N/A	N/A

Table 5

Descriptive Statistics for Variables of Interest across all Time Points

	Pretreatment	Post-treatment	3 month	12 month
PRCS	24.17 (2.28)	14.11 (6.38)	15.14 (6.52)	13.50 (2.84)
FNE-B	42.86 (9.24)	36.48 (8.16)	35.84 (9.10)	33.06 (8.90)
CGI	--	1.92 (.67)	--	--
PGI	--	1.55 (.65)	1.96 (.81)	--
	Session 1			
Expectancy	7.41 (1.37)	--	--	--

Note. Values in parentheses are standard deviations.

FNE-B = Fear of Negative Evaluation-Brief Form. PRCS = Personal Report of Confidence as a Speaker.

CGI = Clinician Global Rating of Improvement. PGI = Participant Global Rating of Improvement.

The CGI was not measured at pre-treatment or follow-up. The PGI was not measured at pre-treatment.

Expectancy was measured at the conclusion of session 1.

Table 6

Ratings of Homework Compliance across Time Points

Homework Compliance	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7	Session 8
Compliant	100%	93%	94%	94%	86%	83%	85%
Non-compliant	0%	7%	6%	6%	14%	17%	15%

Note. Homework compliance ratings were based on the scale outlined in hypothesis 1. Compliant participants included those that, completed a small part, completed at least half, or completed all of the homework. Non-compliant participants included those that did not understand, did not attempt, or completed but did not bring in the homework.

Table 7

Mean Ratings of Global Improvement across Treatment and Independent Samples t-Test Results for Homework Compliance

		Compliant	Non-Compliant	
Session 2				
	CGI	3.47	--	--
	PGI	3.09	--	--
Session 3				
	CGI	2.88	2.75	*t* (52) = -.520
	PGI	2.71	1.50	*t* (50) = -3.78[a]
Session 4				
	CGI	2.72	3.00	*t* (49) = 3.09 [a]
	PGI	2.50	2.67	*t* (51) = .320
Session 5				
	CGI	2.45	3.00	*t* (50) = 1.54
	PGI	2.27	2.67	*t* (49) = .77
Session 6				
	CGI	2.21	2.57	*t* (47) = -1.46
	PGI	1.85	2.57	*t* (45) = 2.72[b]
Session 7				
	CGI	2.10	2.25	*t* (46) = .68
	PGI	1.83	1.63	*t* (48) = - .89
Session 8				
	CGI	1.89	2.25	*t* (50) = 1.49
	PGI	1.55	1.63	t (50) = .59

Note. CGI = Clinician Global Rating of Improvement. PGI = Participant Global Rating of Improvement.

[a] Indicates a significant difference, between compliant and non-compliant participants, on ratings of global improvement ($p < .008$; Bonferroni-corrected alpha of .05/6).

[b] Results approached significance ($p < .009$).

Table 8

Summary of Hiearchical Regression Analysis Using Pre-treatment Ratings and Overall Homework Compliance Ratings as Predictors of Post-treatment Scores

DV		Variables	R^2_Δ	*β*	*B*	*SE b*
PRCS						
Post	Step 1	PrePRCS	.00	-.06	-.16	.35
	Step 2	PrePRCS	--	-.06	-.17	.35
		HWC	.02	-.12	-.12	.12
3 Month	Step 1	PrePRCS	.01	.11	.32	.41
	Step 2	PrePRCS	--	.11	.31	.42
		HWC	.00	.01	.01	.14
12 Month	Step 1	PrePRCS	.05	.22	.28	.18
	Step 2	PrePRCS	--	.22	.28	.19
		HWC	.00	.06	.03	.06
FNE-B						
Post	Step 1	preFNE-B	.26***	.51***	.45***	.09
	Step 2	preFNE-B	--	.51***	.46***	.09
		HWC	.00	-.07	-.08	.14
3 Month	Step 1	preFNE-B	.40***	.63***	.59***	.09
	Step 2	preFNE-B	--	.63***	.59***	.09
		HWC	.00	.06	.08	.15
12 Month	Step 1	preFNE-B	.25***	.50***	.49***	.12
	Step 2	preFNE-B	--	.50***	.50***	.13
		HWC	.00	-.04	-.06	.17

Note. FNE-B = Fear of Negative Evaluation-Brief Form. PRCS = Personal Report of Confidence as a Speaker.

HWC = Overall Homework Compliance summary score across sessions two through eight.

All *p*-values were two-tailed. **p* < .05, ***p* < .01, ****p* < .001.

Table 9

Summary of Hiearchical Regression Analysis Using Pre-treatment Ratings and Exposure Homework Compliance as Predictors of Post-treatment Scores

DV		Variables	R^2_Δ	*β*	*B*	*SE b*
PRCS						
Post	Step 1	prePRCS	.03	.18	.48	.49
	Step 2	prePRCS	--	.17	.46	.49
		EXPHWC	.00	-.05	-.09	.29
3 Month	Step 1	prePRCS	.18	.42*	1.14*	.47
	Step 2	prePRCS	--	.42*	1.14*	.48
		EXPHWC	.00	.01	.02	.29
12 Month	Step 1	prePRCS	.13	.36	.45	.24
	Step 2	prePRCS	--	.37	.46	.24
		EXPHWC	.01	.12	.10	.16
FNE-B						
Post	Step 1	preFNE-B	.32***	.56***	.49***	.13
	Step 2	preFNE-B	--	.57***	.50***	.14
		EXPHWC	.00	-.03	-.07	.38
3 Month	Step 1	preFNE-B	.47***	.69***	.52***	.11
	Step 2	preFNE-B	--	.68***	.51***	.12
		EXPHWC	.00	.03	.05	.33
12 Month	Step 1	preFNE-B	.31**	.56**	.45**	.14
	Step 2	preFNE-B	--	.51**	.41**	.14
		EXPHWC	.04	.21	.42	.36

Note. FNE-B = Fear of Negative Evaluation-Brief Form. PRCS = Personal Report of Confidence as a Speaker. EXPHWC = Exposure Homework Compliance.

All *p*-values were two-tailed. **p* < .05, ***p* < .01, ****p* < .001.

Table 10

Summary of Hiearchical Regression Analysis Using Pre-treatment Ratings and Non-Exposure Homework Compliance as Predictors of Post-treatment Scores

DV		Variables	R^2_Δ	*β*	*B*	*SE b*
PRCS						
Post	Step 1	prePRCS	.03	.18	.48	.49
	Step 2	prePRCS	--	.16	.43	.50
		COGHWC	.01	.11	.28	.47
3 Month	Step 1	prePRCS	.18*	.42*	1.14*	.47
	Step 2	prePRCS	--	.41*	1.10*	.49
		COGHWC	.00	.09	.24	.50
12 Month	Step 1	prePRCS	.13	.36	.45	.24
	Step 2	prePRCS	--	.34	.43	.25
		COGHWC	.00	.07	.09	.27
FNE-B						
Post	Step 1	preFNE-B	.32***	.56***	.49***	.13
	Step 2	preFNE-B	--	.57***	.50***	.13
		COGHWC	.00	.05	.20	.72
3 Month	Step 1	preFNE-B	.47***	.69***	.52***	.11
	Step 2	preFNE-B	--	.68***	.52***	.11
		COGHWC	.02	-.12	-.45	.51
12 Month	Step 1	preFNE-B	.31**	.56**	.45**	.14
	Step 2	preFNE-B	--	.52**	.41**	.13
		COGHWC	.12*	.35*	1.15*	.52

Note. FNE-B = Fear of Negative Evaluation-Brief Form. PRCS = Personal Report of Confidence as a Speaker. COGHWC = Cognitive Homework Compliance.

All *p*-values were two-tailed. **p* < .05, ***p* < .01, ****p* < .001.