

An Investigation of a Minimal-Contact
Bibliotherapy Approach to Relapse Prevention
for Individuals Treated for Panic Attacks

by

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(ABSTRACT)

The present study was designed to test the efficacy of a bibliotherapy-relapse prevention (BT-RP) program for panic attacks in which the active BT-RP condition was compared to a waiting-list control condition. Prior to the administration of the six-month BT-RP program, all participants completed an initial BT intervention (Febbraro, 1997) based on the book Coping with Panic (Clum, 1990). The BT-RP program was designed to: (a) review major components of the initial intervention; (b) increase practice of panic coping skills and therapeutic self-exposure; (c) enhance social support for panic recovery; (d) teach cognitive restructuring skills related to relapse prevention; (e) provide a protocol to follow in the event of a setback; and (f) reduce overall levels of stress. Brief monthly phone contacts were included in the BT-RP condition. Thirty-six participants, 17 in the BT-RP condition and 19 in the WL control condition, completed the study. A 2 (Treatment condition: BT-RP versus WL control) X 2 (Time: Pre-BT-RP assessment versus Post-BT-RP assessment) mixed-model research design was used to analyze the results. Results indicated significant reductions from pre- to post-treatment in the BT-RP condition for panic cognitions, anticipatory anxiety, agoraphobic avoidance, and depression, but not in the WL condition. When statistically controlling for initial levels of these variables via analyses of covariance (ANCOVAs), significant post-treatment differences in the expected direction emerged for these four dependent measure and for state anxiety. In addition, the BT-RP group reported significantly fewer panic attacks during the six-month course of the treatment trial than the WL control group on a measure of retrospective recall of full-blown panic attacks. There was also a

statistically significant proportional between-group difference in terms of clinically significant improvement for full-blown panic attacks and agoraphobic avoidance in favor of the BT-RP group. However, no significant between-group differences emerged for the maintenance of initial treatment gains for panic frequency, panic symptoms, panic cognitions, anticipatory anxiety, or agoraphobic avoidance. Results of the present study are discussed in the framework of benefits of the present BT-RP program, limitations of the findings, recommendations for future research in this area, and implications for BT treatments in general.

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Literature Review

The present research was designed to integrate and extend two recent trends in the anxiety disorders treatment outcome literature, namely relapse prevention (RP) and bibliotherapy-based (BT) interventions (e.g., Clum, 1990; Gould & Clum, 1993, 1995; Gould, Clum, & Shapiro, 1993; Espie, 1986; Hiss, Foa, & Kozak, 1994; Lindren, Watkins, Gould, Clum, Asterino, & Tullock, 1994; Ost, 1989). It constituted Phase III, or the RP stage, of a three-part investigation that was preceded by a separate assessment and feedback stage (Phase I; see Roodman, 1996) as well as a distinct initial BT intervention (Phase II; see Febbraro, 1997). In the present study, RP was defined in a broad, inclusive manner in which participants who completed and complied with the requirements of the initial intervention in Phase II (Febbraro, 1997) were eligible to proceed to Phase III. Since participants were not required to attain a certain level of treatment success prior to entering Phase III, RP, for the purposes of the present research, should be viewed as a form of augmenting therapy that was designed to target variables related to relapse for panic attacks (Wright, 1994). This particular approach to RP is well established in the literature (Brownwell, Marlatt, Lichtenstein, & Wilson, 1986; Marlatt & Gordon, 1985; Stephens, Roffman, & Simpson, 1994), though other authors have required an initial positive treatment response prior to RP eligibility (Hiss et al., 1994).

Based in part on the only controlled study published to date demonstrating the efficacy of an RP program for an anxiety disorder (i.e., obsessive-compulsive disorder-OCD) (Hiss et al., 1994), the purpose of the present research was to test the efficacy of a similar RP program for individuals who had undergone an initial BT treatment for panic attacks (Febbraro, 1997). Unlike the Hiss et al. (1994) study, however, which utilized traditional in-person psychotherapy, the present RP program was administered via a minimal-therapist contact BT treatment format. In their investigation of RP for OCD,

Hiss et al. (1994) were able to show a statistically significant difference with respect to the maintenance of treatment gains at a six-month follow-up assessment between subjects who completed an RP program versus those who were randomly assigned to a post-treatment attention-control condition.

These results are particularly impressive when one considers that these two groups of participants evidenced equivalent levels of clinically significant improvement immediately following the completion of an initial treatment regimen consisting primarily of prolonged exposure and response prevention. The RP phase of the Hiss et al. (1994) intervention was designed to teach participants how to implement and carry out a post-treatment self-exposure program, how to distinguish between a lapse and a relapse, a protocol to follow in the event of a setback, and cognitive restructuring exercises geared specifically toward coping with anxiety and the maintenance of initial treatment gains (see Ost, 1989).

The rationale for utilizing a BT-based RP program for panic attacks in the present study was based on a prior line of research indicating the effectiveness of this approach for treating panic disorder (Gould & Clum, 1995; Gould et al., 1993; Lindren et al., 1994). For example, Gould and Clum (1995) were able to demonstrate the efficacy of a minimal-contact BT intervention for panic disorder (PD) that resulted in significant differences between the active treatment condition and a waiting-list (WL) control group in terms of reductions in the frequency and severity of panic attacks, levels of agoraphobic avoidance, and catastrophic thoughts associated with panic. The primary intervention utilized in the BT condition in the Gould and Clum (1995) study was to ask participants to read and follow the protocol described in the book Coping with Panic (Clum, 1990) that covers etiological factors associated with panic disorder as well as a number of commonly employed cognitive-behavioral treatment techniques such as self-monitoring, imagery and

muscle relaxation, therapeutic exposure, diaphragmatic breathing, and cognitive restructuring. An adaptation of Gould and Clum's (1995) BT for treating PD was administered to all participants (Febbraro, 1997) prior to the implementation of the present bibliotherapy-relapse prevention (BT-RP) program.

In the present study, the active BT-RP condition, which was supplemented with minimal-therapist contact in the form of brief monthly telephone calls, was compared to a WL control group in a six-month treatment trial. As is discussed further below, it was predicted that the BT-RP group would fare better than the WL group in terms the maintenance and enhancement of initial treatment gains manifested in Phase II (Febbraro, 1997). Before proceeding to a more detailed description of the BT-RP program currently under review, a brief summary of the RP and minimal-contact BT literature in relation to the treatment of anxiety disorders is provided below.

Relapse Prevention and the Anxiety Disorders

Conceptually aligned with Marlatt and Gordon's (1985) seminal RP model for addictive behaviors, several recently published studies were designed to investigate similar RP, or maintenance, programs for various anxiety disorders (Espie, 1986; Hiss et al., 1994; Ost, 1989). Developed from a social learning theory perspective, the hallmark of Marlatt and Gordon's (1985) RP model was to teach individuals treated for addictive behaviors to identify, anticipate, and successfully cope with those factors that had precipitated prior relapses. Despite the obvious differences between addictive behaviors and the anxiety disorders, many features of Marlatt and Gordon's (1985) RP model have proven readily adaptable to RP programs for treating anxiety disorders (Wright, 1994). This particular observation is certainly not surprising given that the theoretical underpinnings for Marlatt and Gordon's (1985) approach to RP are basically an outgrowth and extension of traditional cognitive-behavioral models for treating behavioral

and emotional problems such as anxiety (Mahoney, 1974; Marlatt and Gordon, 1985; Meichenbaum, 1977).

As was the case in Marlatt and Gordon's (1985) RP model for addictive behaviors, several authors investigating various anxiety disorders have suggested that one's cognitive, emotional, and behavioral responses to a lapse, or temporary setback, in the maintenance stage of change (see Prochaska & DiClemente, & Norcross, 1992) can have important implications in regard to their long-term treatment outcome (Brown & Barlow, 1992; Hiss et al., 1994; Ost, 1989; Wilson, 1992). Each of the three studies reviewed below, which tested similar types of RP programs for treating anxiety disorders, were designed to enhance individuals' recovery in the maintenance stage of change (Espie, 1986; Hiss et al., 1994; Ost, 1989). The BT-RP program for treating panic attacks that was the focus of the present research was primarily developed by combining various features of these RP programs.

In the first study published in this area, Espie (1986) developed an RP program for treating OCD that was designed to target ritualistic behavior and obsessional thinking patterns. In addition to prescribing the continuation of exposure and response prevention techniques that formed the basis of the initial intervention, Espie's (1986) RP program also included in-person post-treatment "booster sessions" that were devoted to helping participants retain their initial treatment gains. The RP components of the Espie (1986) study included the use of motivational goal-setting, spousal support, cognitive restructuring exercises, self-monitoring techniques, and discrimination training in which participants were taught how to identify and cope with internal and external events that commonly triggered their irrational thinking and compulsive behavior.

The results of the Espie (1986) study indicated that participants were able to maintain significant reductions in ritualistic behavior and obsessional thinking at a one-

year post-RP follow-up assessment. Beyond their OCD symptomatology, participants also reported reductions in depression and generalized anxiety, and other factors generally associated with clinically significant improvement (Jacobson & Traux, 1991) and high endstate functioning (Mavissakalian, 1985). These seemingly encouraging results were clearly tempered, however, by the absence of a suitable control group. Nonetheless, various aspects of Espie's (1986) RP program for OCD, namely, goal-setting and the use of social support, were incorporated into the BT-RP for panic attacks currently under review.

In a more recent RP study, Ost (1989) developed a post-treatment maintenance program that was administered to subjects suffering from PD, panic disorder with agoraphobia (PDA), and specific phobias. Individuals participating in Ost's (1989) maintenance program apparently experienced a more robust and durable treatment effect than is commonly reported in treatment outcome studies that did not include a comparable RP program. For example, Ost (1989) reported that participants completing his maintenance program manifested a larger percentage of improvement during the follow-up period, lower relapse rates, and fewer referrals for additional treatment, in comparison with similar cognitive-behavioral interventions that did not use any type of maintenance program to augment initial treatment effects. Unfortunately, however, as was the case in the Espie (1986) study, these findings also need to be interpreted with caution given that Ost's (1989) maintenance program was not compared to a control group.

Despite this rather significant methodological flaw, Ost (1989) developed several innovative techniques that were incorporated into subsequent investigations of RP for anxiety disorders (e.g., Hiss et al., 1994) as well as the present research. For instance, in the initial portion of Ost's (1989) maintenance program, participants reviewed with their therapists the rationale for the treatment employed, the progress that they had attained in

therapy, as well as the coping techniques for alleviating anxiety that they had been taught. Participants were also asked to view the post-treatment maintenance period as an extended opportunity to practice the coping skills learned in treatment. They were also warned of the potential pitfalls associated with expecting to remain completely anxiety-free during the maintenance stage of change. In addition, Ost's (1989) maintenance program also included self-monitoring, cognitive restructuring, graded-exposure exercises, coping skills rehearsal, and specific written instructions to follow in the event of a lapse, or temporary setback (e.g., an isolated panic attack).

Though much of Ost's (1989) maintenance program was designed to be self-administered after the conclusion of cognitive-behavioral therapy, in-person booster sessions were also included on an "as-needed" basis during the maintenance stage of change. Moreover, some of the RP techniques were taught prior to the conclusion of the initial intervention. Most of the features of the Ost (1989) maintenance study mentioned above were included in the present research, except that brief phone contacts were substituted for in-person booster sessions, and RP techniques were not emphasized during the initial BT intervention (see Febraro, 1997).

As previously discussed, Hiss et al. (1994) published the most recent study examining an RP program for an anxiety disorder, and they, too, included several features of Ost's (1989) maintenance program in their treatment protocol. These authors, utilizing a controlled research design, demonstrated that participants randomly assigned to an RP program for OCD maintained their initial treatment gains at a significantly higher rate than those assigned to an attention-placebo control condition during a six-month follow-up assessment. Though both groups evidenced similar rates of clinically significant improvement following the initial exposure-based cognitive-behavioral intervention, 75% of participants assigned to the RP condition were able to maintain their treatment gains

(defined as at least a 50% reduction in OCD symptomatology), whereas only 33% of participants in the control condition experienced a similar outcome (Hiss et al., 1994).

The RP techniques utilized in the Hiss et al. (1994) study were taught during four 90-minute in-person therapy sessions that were held in the first week following treatment. These individuals also participated in nine 15-minute telephone booster sessions with their therapist spread evenly throughout the six-month follow-up period. The Hiss et al., (1994) RP program was designed to teach participants how to implement and carry out a post-treatment self-exposure and response prevention program, ways to distinguish between a lapse and a relapse, and skills in enlisting familial and/or social support. Cognitive restructuring exercises were used to alter any potential unrealistic expectations stemming from the initial treatment gains. Participants were also given the same written guidelines for coping with setbacks that was used in the Ost (1989) study, and were told that setbacks should be perceived as a normal part of the recovery process that provided them with an opportunity to practice their previously learned coping skills. Efforts to enhance participants' social support was provided through communication skills training that 1) discouraged hostile interactions between family members, and 2) offered suggestions regarding ways in which significant others could be most helpful in the event of a therapeutic setback.

In summary, the results of these three studies suggest that RP programs may be a viable means of augmenting well-established cognitive-behavioral treatments for anxiety disorders (Barlow, Craske, Cerney, & Klosko, 1989; Beck & Emery, 1985; Clum, 1989; Gould & Clum, 1995). Additional empirical support is needed to demonstrate the efficacy of RP programs for anxiety disorders, however, particularly in clinical trials that utilize a controlled research design. The present research attempted to address this drawback, while incorporating various RP techniques that have shown considerable promise with

respect to the long-term amelioration of anxiety disorders. We will next examine evidence that cognitive-behavioral interventions for panic disorder, and by extrapolation RP programs, can be effectively delivered in an BT format.

Minimal-Contact BT and Panic Disorder

In a recent meta-analytic study of self-help interventions, most of which were delivered primarily through the use of minimal-contact BT, Gould and Clum (1993) demonstrated that this particular treatment approach can be effective for treating a range of psychological and behavioral disturbances. The results of the Gould and Clum (1993) meta-analysis, in conjunction with an additional line of research establishing the efficacy of BT-based treatment for PD (see Gould & Clum, 1995; Gould et al., 1993; Lidren et al., 1994), established an empirical precedent for the development of the current BT-RP program. A brief overview of the published literature examining the viability of BT in the treatment of PD is provided below.

As noted above, Clum and his colleagues have published three studies to date that have demonstrated, in an increasingly convincing manner, that the use of the book Coping with Panic (Clum, 1990) is an effective intervention for PD (Gould & Clum, 1995; Gould et al., 1993; Lidren et al., 1994). Each of these studies was designed to compare a minimal-contact BT condition, in which subjects were asked to read and follow a cognitive-behavioral treatment protocol described in Coping with Panic (Clum, 1990), with either a waiting-list (WL) control condition and/or a more conventional treatment approach (i.e., in-person individual or group therapy).

In the study that launched this particular line of research, Gould et al. (1993) were able to show that both BT, and a separate brief individual therapy condition using Guided Imaginal Coping (ITGIC), were superior to a WL control condition on several treatment outcome and process variables including increasing self-efficacy, enhancing the ability to

cope with panic attacks, and reducing panic cognitions. The BT condition also outperformed the WL control condition in terms of reducing panic symptoms and anticipatory panic anxiety. In contrast, there was no significant difference between the ITGIC and WL groups on these two outcome measures. In regard to the issue of clinically significant improvement, 73% of BT participants, 67% of ITGIC participants, and 36% of WL participants, were panic-free at post-treatment. Nonetheless, the BT condition did not prove to be more efficacious than either the ITGIC condition or the WL control condition in terms of significantly reducing the frequency or severity of panic attacks. The primary rationale offered for these encouraging, yet somewhat limited findings was that participants may not have had enough time to fully absorb and implement the treatment prescriptions contained in the minimal-contact BT condition, since the treatment phase of the study only lasted four weeks and the post-treatment assessment was conducted immediately thereafter (Gould et al., 1993).

In order to test this hypothesis in a follow-up study, Gould and Clum (1995) replicated and extended the Gould et al. (1993) study by including a two-month follow-up assessment that allowed participants more time to utilize the BT treatment manual. Audio- and videotape supplements were also added in an effort to strengthen the BT intervention. The results of this study revealed that the BT condition was significantly more effective than the WL control condition in regard to reducing the frequency and intensity of panic attacks and level of avoidance at the two-month follow-up assessment. In the BT condition, 69% (9 of 13) of participants showed clinically significant improvement at the 2-month follow-up assessment (i.e., they were panic-free), whereas only 25% (3 of 12) of participants in the WL control condition evidenced a similar outcome. The results of this study also indicated that in comparison to the WL control condition, the BT intervention was more efficacious in terms of reducing the severity of catastrophic thoughts, increasing

self-efficacy, and lowering panic-related anticipatory anxiety. In sum, participants randomly assigned to the BT condition showed significantly greater improvement in comparison to the WL control condition on 11 of the 12 treatment outcome variables utilized.

In a related study with similar findings, Lidren et al. (1994) doubled the length of the BT condition to 8 weeks and extended the follow-up assessment to 6 months in a controlled treatment trial that compared the effects of BT, group therapy (GT), and a WL control condition. These authors demonstrated that BT and GT were both significantly more effective than a WL control condition in reducing the frequency and severity of panic attacks, increasing self-efficacy, decreasing catastrophic cognitions, lessening agoraphobic avoidance, and alleviating depression. In the BT condition, results indicated that 83% and 75% of participants were, respectively, panic-free at the post-treatment and 6-month follow-up assessments. Furthermore, a majority of individuals in BT and GT maintained their initial treatment gains on several other panic-related symptoms, while WL control participants did not evidence similar signs of clinical improvement (or maintenance) during the 6-month follow-up period.

In conclusion, the collective results of these three studies (i.e., Gould et al., 1993; Gould & Clum, 1995; Lidren et al., 1994) clearly suggest that minimal-therapist contact BT can be an effective treatment for PD. In each of these studies, BT was basically shown to be as potent as brief in-person individual or group therapy in terms of reducing panic symptomatology. Moreover, in the Lidren et al. (1994) study, clinically significant improvement, as indexed by panic-free status was maintained by 75% of BT participants at a 6-month follow-up assessment. Despite these rather impressive findings, however, several important empirical questions remained unaddressed by this line of research. For instance, none of the BT studies of PD published to date have tested whether an RP

program could help augment the initial positive treatment effects over the long-term as was demonstrated in the Hiss et al. (1994) study of OCD. In addition, since each of the studies conducted in this area have included in-person assessments as well as ongoing phone contacts with participants during BT, it was not known how effective a closer simulation of true “self-help” BT would be in which individuals would have much less direct contact with therapists or researchers.

BT for Panic Attacks with Reduced Minimal-Therapist Contact

The question of whether BT for panic attacks would remain an effective intervention without much personal contact with therapists was addressed in a recently completed study by Febbraro (1997) that served, as previously mentioned, as the initial intervention which preceded the administration of the present BT-RP program. Though a complete description of the Febbraro (1997) study is beyond the scope of the present research, this project was basically designed to test the differential effects of BT alone, BT combined with self-monitoring and explicit feedback (BT + SM + FB), self-monitoring and feedback alone (SM + FB), and a WL control group. The primary hypotheses were that each of the three active treatment conditions would produce significant reductions in panic symptomatology in comparison to the WL control condition, yet, somewhat surprisingly, the results revealed no significant Group by Time interaction effects. However, a significant main effect for Time was found and indicated that participants in all four experimental conditions displayed significant reductions from pre- to post-treatment in regard to full blown panic attacks, panic symptoms, anticipatory anxiety, avoidance, depressive symptoms, and state anxiety. It should be noted, however, that these reductions in panic symptomatology were much more modest than the findings of previous research in this area (Gould & Clum, 1995; Gould et al., 1993; Lidren et al., 1994). In addition, no

significant between group differences emerged in terms of clinically significant improvement as defined by panic-free status at post-treatment (Febbraro, 1997).

In contrast to the BT treatment outcome studies for PD reviewed above, none of the participants in the Febbraro (1997) study received any direct personal contact with members of the research team either prior to nor during the active treatment phase, other than brief screening phone contacts during participant recruitment. On average, participants in prior BT studies of PD received approximately 2 to 4 hours of direct contact with researchers in the form of pre-treatment assessment interviews and brief phone contacts during the treatment trials. Strict adherence to this “hands-off” approach was utilized in the Febbraro (1997) study in order to examine the effects of BT with minimal-therapist contact. The Febbraro (1997) study also differed from prior BT studies of PD in that it was preceded by an initial minimal-contact assessment and feedback stage (see Roodman, 1996) conducted primarily through the mail that lasted approximately 6 weeks prior to the initiation of the active BT treatment groups. In addition, in two of the four conditions in the Febbraro (1997) study, participants were required to wait an additional 8 weeks before receiving their copy of Coping with Panic (Clum, 1990), whereas there was no such delay in the delivery of the primary BT intervention materials in prior studies of BT for PD. In summarizing the results of this purer form of self-help bibliotherapy, Febbraro (1997) cited motivational factors associated with treatment delays and lack of personal contact with therapist as the primary factors that led to his somewhat modest treatment effects.

The Present BT-RP Study

Since there was no way to predict how participants would fare in the Febbraro (1997) study prior to its conclusion, inclusion criteria for the present BT-RP was not contingent upon their attaining a clinically significant treatment response during the initial

BT intervention. Rather, participants complying with and completing the Febbraro (1997) study were subsequently randomly assigned to either the active 6-month BT-RP condition or a WL control condition. Therefore, as mentioned above, one should view the present definition of RP as a broad one that denotes a follow-up, or augmenting intervention, as opposed to one that would necessarily assume prior treatment success. As is further discussed in the Methods section below, an effort was made to partially control for initial treatment response variation by utilizing a stratified random assignment procedure that was designed to equalize panic-free status and level of avoidance across the two experimental conditions (i.e., RP and WL).

Relying heavily on prior research in this area (Espie, 1986; Hiss et al., 1994; Ost, 1989), the present BT-RP program included the following components: (a) a review of the initial BT intervention and factors associated with long-term recovery from panic attacks; (b) cognitive restructuring exercises; (c) exercises designed to enhance social support; (d) a therapeutic self-exposure and coping skills rehearsal program; (e) a specific protocol to follow in the event of a setback; (f) stress management exercises; and (g) case vignettes that covered hypothetical precipitants of relapse and how to avoid or cope with them. In addition, participants assigned to the RP condition received monthly 15-minute telephone calls that were designed to bolster their compliance with the RP program, offer social support, and help problem-solve with respect to any recent panic-related symptoms they may have encountered. In regard to the primary between-group hypothesis under review, it was expected that RP participants would maintain and enhance their initial treatment gains at a higher rate than individuals randomly assigned to the WL control condition. More specifically, it was predicted that RP participants would exhibit significantly fewer panic attacks, less severe panic attacks, fewer panic cognitions, less anticipatory anxiety, lower

levels of avoidance, decreased state anxiety, and reduced depression in comparison to the WL control group.

Method

Participants

As noted, the present research consisted of an BT-RP program (Phase III) that was preceded by a pre-treatment assessment and feedback stage (Phase I; Roodman, 1996), and an initial BT-based treatment stage (Phase II; Febbraro, 1997). Participants who completed Phases I and II of the Panic Self-Help Project at Virginia Tech were eligible to proceed to Phase III. Recruitment efforts for the Panic Self-Help Project focused on identifying interested and relevant individuals in the Virginia Tech community (i.e., undergraduates, graduate students, faculty, staff) as well as residents of the state of Virginia, and the greater metropolitan areas of Greensboro, N.C. and Pittsburgh, PA. Advertisements for the study were placed in campus newspapers, campus mail-outs, city newspapers, apartment newsletters, and through publications produced by community-based support groups for anxiety-related problems. The study was also advertised via two articles in the *Roanoke Times* and through a brief feature on the local news of a Roanoke, VA television station.

Forty-five of the 63 participants who completed Phase II of the Panic-Self Help Project were also included in Phase III for dissertation purposes. Analyses of variance revealed that there were no significant differences on any of the treatment outcome or demographic variables measured between Phase II-only completers (N = 18) and Phase III participants (N = 45). The 18 Phase-II only completers were not included in the present study due to the long duration of the project, financial limitations, and the emergence of clear, interpretable findings. Of the 45 Phase III participants, 36 completed the study, and there were 9 drop-outs for various reasons (e.g., two began psychotropic medication

treatment, one began psychotherapy, one moved and could not be located, and five did not complete the post-Phase III assessment). In order to be eligible for Phase III, participants needed to: (a) be at least 18 years of age; (b) have had at least one full-blown or limited-symptom panic attack prior to beginning Phase I of the project; and (c) have completed all requirements for Phase II (Febbraro, 1997). It was not necessary for participants to meet full DSM-IV diagnostic criteria for PD or PDA to be eligible for the study. Eligible participants paid a minimal \$35 fee to cover costs of treatment and assessment materials.

Individuals who indicated a current or prior medical diagnosis of seizure disorder, kidney disease, stroke, schizophrenia, emphysema, or heart problems were precluded from participating in the study. In addition, individuals with a diagnosis of alcohol or substance dependence or any type of psychotic disorder were also seen as inappropriate candidates for the present research. Participants with a history of myocardial infarction or chronic hypertension were required to be under medical supervision for these conditions in order to be eligible for the study. Individuals who were on psychotropic medication for anxiety or depression and otherwise met all of the other inclusion criteria for the study were allowed to participate as long as they had been stabilized on the medication and dosage for at least four weeks prior to beginning Phase I of the Panic Self-Help Project. These inclusion and exclusion criteria were assessed via the informed consent form utilized for Phase II, a retrospective structured clinical interview conducted at the conclusion of Phase II (see Febbraro, 1997), and through a short screening questionnaire contained in the informed consent form for Phase III (see Appendix A). Demographic and diagnostic characteristics of the sample are provided in Tables 1 and 2, respectively.

Insert Tables 1 and 2 about here

Design

The design was a 2 (Treatment condition: BT-RP versus WL) X 2 (Time: Pre-treatment versus Post-treatment) mixed-model factorial design. Treatment condition served as the between-subjects factor and time, or assessment occasion, served as the within-subjects factor. The BT-RP program and the WL control condition were each six months in duration.

Materials

Self-report Instruments

Comprehensive Panic Profile (CPP; Clum et al., 1995): The CPP (see Appendix B) is a comprehensive self-report instrument designed to assess seven distinct aspects of panic symptomatology including panic frequency, panic severity, panic cognitions, anticipatory anxiety, avoidance, panic coping strategies, and confidence in panic coping strategies. Each of the seven sections of the CPP is described in separate sections below.

1. Frequency of Panic Attacks (FPA): The FPA questionnaire assesses the frequency of full and limited-symptom panic attacks over a two week period in a retrospective manner. This inventory lists the thirteen DSM-IV symptoms of a panic attack, and describes a panic attack as being a sudden, unexpected increase in anxiety in which four of these symptoms occur at the same time. Limited-symptom attacks are described in a similar manner except that only 1-3 of the symptoms occur. This particular method of assessing panic attacks is commonly used in the treatment outcome literature (Gould et al., 1993; Barlow et al., 1989).

2. Panic Attack Symptoms Questionnaire (PASQ; Clum, Broyles, Borden, Watkins, & Hayes, 1990): The PASQ is a 36-item questionnaire designed to assess the severity of symptoms experienced during a typical recent panic attack. Participants are asked to endorse the presence and duration of a range of panic attack symptoms on a 5-

point Likert scale. Higher scores on this inventory reflect more severe panic attacks. Prior research has supported the validity of using symptom duration as a barometer of panic severity, and it has been shown to have good internal consistency with alpha levels ranging from 0.88 to 0.93 (Clum et al., 1990; Febbraro, 1997). The PASQ has also been shown to have adequate discriminant validity in regard to distinguishing between those individuals with anxiety problems who panic versus those who do not (Clum et al., 1990).

3. Panic Attack Cognitions Questionnaire (PACQ; Clum et al., 1990): The PACQ is a 25-item scale developed to assess negative cognitions associated with a typical panic attack. Participants are asked to rate their level of preoccupation on a series of negative thoughts often associated with panic attacks on a 4-point Likert scale (e.g., “I am losing control”). Higher scores represent a more serious problem with dysfunctional thoughts during a typical panic attack. The items for this scale were generated through clinical interviews, research articles on this topic, and DSM-III-R descriptions of panic attacks. Previous research indicates that the PACQ reliably differentiates panickers from anxious subjects who do not panic, and it has good internal consistency (alpha = .88; Clum et al., 1990). In Phase II of the present Panic Self-Help Project, the PACQ also displayed good internal consistency (alpha = .93; Febbraro, 1997).

4. Fear of Having a Panic Attack (FHPA): The FHPA is a 15-item scale designed to measure anticipatory anxiety in which participants are asked to rate their fear of experiencing certain panic-related symptoms at times other than when they are having a panic attack. This questionnaire was based on the Anxiety Sensitivity Index (ASI; Reiss, Peterson, Gursky, & McNally, 1986), but was altered to better reflect the notion of “fear of fear” in regard to one worrying about the possibility of experiencing additional panic attacks (Chambless, Caputo, Gallagher, & Bright, 1984). The ASI has been shown to

have adequate test-retest reliability ($r = .75$). The PACQ was shown to have good internal consistency in Phase II of the Panic Self-Help Project ($\alpha = .86$; Febraro, 1997).

5. Avoidance Questionnaire (AQ): The AQ is a 22-item instrument, based on the Mobility Inventory for Agoraphobia (MI; Chambless, Caputo, Jasin, Gracely, & Williams, 1985), that was developed to assess one's level of agoraphobic avoidance. Using a 5-point Likert scale, the AQ requires subjects to rate their desire to escape or avoid certain situations (e.g., "eating in a restaurant") that previous research has shown to be problematic for people diagnosed with PD or PDA (Chambless et al., 1985). Higher scores on this inventory indicate more pronounced problems with phobic avoidance. Chambless et al. (1985) previously demonstrated that the MI possesses concurrent and construct validity, is internally consistent, and is sensitive to treatment effects. The MI was modified to form the AQ in order to more accurately assess the avoidance of environmental cues most commonly associated with panic attacks. Adequate internal consistency on the AQ was found in Phase II of the Panic Self-Help Project ($\alpha = .75$; Febraro, 1997).

6. Coping Strategies Questionnaire (CSQ): The CSQ is a 27-item questionnaire that utilizes a 5-point Likert scale to assess the frequency of the use of coping strategies to reduce or control the thoughts and feelings associated with panic attacks (e.g., "relaxing your muscles", "thinking of relaxing images"). Higher scores on the CSQ indicate the use of more coping strategies on a more frequent basis. The CSQ is a condensed version of the Coping Questionnaire (CQ; Borden, Clum, Broyles, & Watkins, 1988) that prior research has shown to have good discriminant validity as well as adequate levels of internal consistency ($\alpha = .77$) and test-retest reliability (Spearman-Brown correlation coefficient = $.78$). During Phase II of the Panic Self-Help project, the CSQ displayed good internal consistency ($\alpha = .91$; Febraro, 1997).

7. Confidence in Coping Strategies Questionnaire (CCS): The CCS is a 10-item inventory based on the 11-item Panic Self-Efficacy Questionnaire (PSEQ; Clum, 1990). The CCS was designed to assess one's confidence in their ability to cope with problematic situations associated with panic attacks on a 9-point Likert scale (e.g., "first noticing the symptoms of a panic attack"). Higher scores denote higher degrees of confidence in one's ability to utilize effective techniques for coping with panic attacks. Prior research has shown that the original PSEQ is sensitive to treatment effects with panic-disordered subjects (Borden, Clum, & Salmon, 1991). The CCS was shown to have good internal consistency during Phase II of the Panic Self-Help Project ($\alpha = .89$; Febbraro, 1997).

Retrospective Panic Attack Survey (RPAS). The RPAS is a 4-item, retrospective self-report questionnaire that is designed to assess the frequency of full-blown and limited-symptom panic attacks experienced over a 6-month period (see Appendix C). This instrument was utilized in an exploratory manner as a means of assessing panic frequency on a continuous basis during Phase III, since the CPP is a relatively discrete measure that only assesses panic frequency over a 2-week period at pre- and post-treatment. No reliability or validity data for the RPAS has been compiled to date.

Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961): The BDI (see Appendix D) is a 21-item questionnaire that is widely used to assess the symptoms of depression. Individual items are rated on a 0-3 scale and thus overall scores vary from 0 to 63. Higher scores reflect greater levels of depressive symptomatology. Prior research has demonstrated that the BDI is a reliable and valid assessment instrument for depression (Beck et al., 1961; Beck, Steer, & Gardin, 1988). The rationale for including this instrument in the present research is that there is a high comorbidity rate between panickers and depression (Barlow, 1988). Item 9 on the BDI,

which assesses suicidal thoughts, was deleted from the inventory for the present study in accordance with the Virginia Polytechnic Institute and State University's Institutional Review Board's recommendation. Therefore, a 20-item BDI with a possible score range of 0-60 was utilized.

State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970): The STAI (see Appendix E) is a 40-item questionnaire in which physiological and subjective symptoms of anxiety are rated on a 4-point Likert scale. The STAI is made up of two subscales, the A-State and A-Trait. The A-State scale is comprised of items 1-20 and is designed to assess relatively transient anxiety that varies over time and context. Conversely, the A-Trait scale is comprised of items 21-40 and is designed to assess the relatively stable construct of anxiety proneness. Each item is rated on a 0 to 4 scale and thus scores on each subscale vary from 20 to 80. Higher scores on each portion of the STAI are indicative of higher levels of each of these constructs. Prior research (Spielberger et al., 1970) demonstrates that the STAI has adequate psychometric properties (internal consistency estimates that range from .83 to .92; and a test-retest reliability coefficient of .40 for the state version of the STAI). The STAI was included in the present research because previous research has demonstrated that the state anxiety index has good discriminant validity in terms of identifying panickers versus non-panickers (Norton, Cox, & Malan, 1992).

Interview Instruments

The two structured clinical interview instruments listed below were utilized by Febbraro (1997) at the conclusion of Phase II in order to establish psychiatric diagnoses of participants in the Panic Self-Help Project (see Table 2). Though these instruments were not utilized during Phase III, they are listed here to indicate the manner in which the various psychiatric diagnoses of Phase III participants were established. As noted below,

both of these instruments were modified from their original form so that they could be administered in a retrospective fashion in which participants were asked to recall their level of functioning in the two weeks preceding the implementation of the Panic Self-Help Project.

The Anxiety Disorders Schedule for DSM-IV (ADIS-IV; Brown, Di Nardo, & Barlow, 1994): The ADIS-IV is a structured interview schedule designed to assess for current DSM-IV anxiety disorders and the presence of a number of disorders that have been shown to have a high comorbidity rate with anxiety such as mood disturbances and substance abuse disorders (Brown et al., 1994). The Panic Disorder, Agoraphobia, and the Alcohol and Substance Abuse/Dependence sections of the ADIS-IV was administered at the post-treatment assessment for Phase II (Febbraro, 1997). The items on the ADIS-IV were modified such that the diagnostic questions were posed retrospectively in order to preserve the minimal-contact “self-help” nature of the Febbraro (1997) study as much as possible. This procedure was deemed necessary because formal assessment procedures, when they are administered in-person at pre-treatment, are often difficult to distinguish from active treatment procedures. After the ADIS-IV was administered by Febbraro (1997), an advanced graduate clinician independently rated a randomly selected pool of 11 of these interviews resulting in kappa (k) (Cohen, 1960) interrater reliability estimates of 1.00 for all diagnostic categories listed above. Though no studies have been published to date documenting reliability and validity estimates for the ADIS-IV, prior research does indicate good reliability for most of the disorders assessed by previous versions of this instrument (Di Nardo, Moras, Barlow, Rapee, Brown, 1993).

Structured Clinical Interview for DSM-III-R, Non-Patient Edition (SCID-NP; Spitzer, Williams, Gibbon, & First, 1992): The SCID-NP is a semi-structured interview designed to diagnose DSM-III-R Axis I disorders in individuals who have not been

identified as psychiatric patients (Spitzer et al., 1992). The purpose of administering the SCID-NP was to screen for psychotic disorders which was an exclusionary criteria for the present research. The SCID-NP was administered at post-treatment of the Febraro (1997) study. This instrument was altered such that the questions were worded in a retrospective manner to preserve the minimal-contact nature of the Febraro (1997) study. Prior research indicates that the psychotic disorders section of the SCID-NP has good reliability (Spitzer, Williams, & Gibbon, 1987; Spitzer et al., 1992).

Procedure

As previously mentioned, the present study consisted of Phase III, the RP or maintenance stage, of the three-phase Panic Self-Help Project (Febraro, 1997; Roodman, 1996). Participants for Phase III continued from Febraro's (1997) initial BT-based intervention in Phase II following their completion of Roodman's (1996) study examining the effects of assessment and feedback in Phase I. Participants entry into Phase III was contingent upon their completing and complying with the requirements of Phase II (see Febraro, 1997). Though Phase III participants had been randomly assigned to four different experimental conditions during Phase II, they all received the same BT treatment materials prior to entering Phase III. Moreover, all participants received a copy of Coping with Panic (Clum, 1990), the primary BT intervention utilized in Phase II, at least 8 weeks prior to beginning Phase III.

Pre-BT-RP Assessment, Treatment Conditions, and Post-BT-RP Assessment

Pre-BT-RP Assessment

Participants in Phase III were assessed prior to the initiation of the BT-RP program and following its termination six months later. The Post-treatment assessment for Phase II served as the Pre-treatment assessment for Phase III. At this time, participants were mailed two copies of the informed consent form for Phase III (see Appendix A) which

explained the treatment conditions and eligibility requirements for Phase III as well as the previously described outcome measures for the study (i.e., the CPP, the BDI, and the STAI). Once the completed outcome measures and consent forms were returned by participants, Phase III of the Panic Self-Help Project was initiated.

Entering Phase III, a stratified random assignment procedure was used to assign participants to the two experimental groups (i.e., BT-RP and WL) to ensure that an approximately equal number of panic-free participants and those with a relatively low level of avoidance (operational defined as an Avoidance Questionnaire score of 20 or below) were assigned to the two between-group conditions. Participants were classified in terms of their panic and avoidance status in the following four categories: Not Panic-Free, High Avoidance (NPFHA); Not Panic-Free, Low Avoidance (NPFLA); Panic-Free, High Avoidance (PFHA); and Panic-Free, Low Avoidance (PFLA). Once classified in this manner, participants were then assigned to treatment condition in an alternating fashion. This particular matched random assignment procedure was utilized as a means of partially controlling for between-subject variability on these two important barometers of treatment response during Phase II. Participants assigned to the BT-RP condition were mailed a copy of the RP manual (see Appendix F) and an introductory letter (see Appendix G). Participants assigned to the WL control condition were mailed a letter informing them of their Phase III treatment condition and that they would be sent a copy of the RP manual in six months (see Appendix H). These two treatment conditions are described below.

Treatment Conditions

Bibliotherapy-Relapse Prevention (BT-RP) Group: Participants assigned to the BT-RP condition were sent a copy of the Phase III treatment manual entitled A Self-Help Relapse Prevention Program for Panic Attacks (Wright, 1996; see Appendix F). This is a 74-page RP manual that is divided into seven chapters. Chapters 1 and 2 were

primarily introductory and motivational in nature, whereas Chapters 3-7 contained most of the RP techniques. On pages 4-5 of Chapter 1, participants were provided with recommendations on how to use the manual. Basically, they were first asked to read the entire manual without completing any of the exercises, then to return to the research team a signed copy of the treatment contract found on page 7, and, finally, to work through the exercises over a three or four week period. Chapter 2 provided an overview and rationale of the BT-RP program, introduced the concept of an RP or maintenance stage of change, listed common precipitants of relapse for panic attacks, and reviewed (if applicable) participants' initial treatment gains.

Each of the primary intervention chapters (i.e., chapters 3-7) began with a hypothetical case vignette designed to highlight various pitfalls one needs to avoid to prevent relapse that pertained to topics covered in each of these chapters. Chapter 3 dealt with how unrealistic expectations can undermine one's long-term recovery, a review of cognitive restructuring exercises taught in Coping with Panic (Clum, 1990), and included two new cognitive restructuring exercises that were specifically geared toward RP. In Chapter 4, participants were provided with instructions in how to elicit social support for their RP program, active listening exercises, and how to anticipate common problems encountered by couples in which one person is recovery from panic attacks. Chapter 5 was devoted to motivational and self-monitoring exercises designed to encourage active participation in therapeutic self-exposure and coping skills training during the maintenance stage of change. The primary purpose of Chapter 6 was to provide participants with a specific protocol for them to follow if they experienced a therapeutic setback (i.e., an isolated panic attack). Finally, in Chapter 7, a number of general stress management exercises were introduced including a self-assessment stress questionnaire, a 4-step

problem-solving model for coping with stress, as well as a number of general stress reduction techniques.

Given the comprehensive nature of the RP manual, participants were also asked to focus on those aspect of the program that seemed most applicable to their particular case history (e.g., low levels of social support versus high levels of stress). All participants were strongly encouraged to regularly practice panic coping skills learned in Phases II and III, to regularly seek exposure to anxiety-provoking situations, and to view their recovery from a long-term perspective in which any setback(s) should be perceived as an opportunity to practice their coping skills rather than an indication of treatment failure. Attempts were made to emphasize these key aspects of the program by providing participants with two small dual-sided laminated cards they were asked to carry in their wallets as reminders. Card one, which was taped to page 53 of the RP manual (see Appendix I), offered reminders pertaining to regular therapeutic self-exposure and coping skills training. Card two, which was taped to page 65 of the RP manual (see Appendix J), provided specific instruction to follow in the event of a setback (see Ost, 1989), and also related five major factors that have been associated with relapse following successful treatment for panic attacks (i.e., unrealistic expectations, an inability to successfully cope with setbacks, avoidance behavior, lack of social support, and a high degree of stress). All participants assigned to the active BT-RP condition also received brief (not to exceed 15 minute) phone calls that were, as mentioned, designed to bolster their compliance with the BT-RP program, provide social support, and offer suggestions on how to cope with any recent panic-related symptoms they may have encountered (see Appendix K).

Treatment compliance was assessed during either the first or second monthly telephone call in which participants were administered the Reading Assessment Questionnaire (RAQ; see Appendix L) that was designed to assess their knowledge of the

primary components of the BT-RP program. Participants were deemed to be minimally treatment compliant and eligible for data analyses as long as they indicated that they had read the entire BT-RP as least once. At the conclusion of the BT-RP program, treatment credibility was assessed via a brief questionnaire entitled the Treatment Credibility Questionnaire (TCQ; see Appendix M) in which participants were asked how effective they thought the program had been and whether they would recommend this program to others.

Waiting-List (WL) Control Group. Immediately following the completion of Phase II of the study, subjects randomly assigned to the WL control group were mailed a letter informing them of the Phase III group assignment and that they would receive their copy of the RP manual in six months (see Appendix H). No other contact was made with WL participants during the six months of Phase III. Approximately six months after this letter was mailed, WL participants were sent a copy of the RP manual (see Appendix F) once all post-Phase III assessment materials had been completed and returned. All participants who dropped out of the study for any reason were also mailed a copy of the RP manual. Participants assigned to the WL control condition did not receive monthly booster phone calls as had been the case for BT-RP participants.

Post-BT-RP Assessment

The present study concluded with the completion of the post-BT-RP assessment. This post-treatment assessment involved administering the CPP, the RPAS, the BDI, and the STAI to all Phase III participants through the mail as a means of evaluating the effectiveness of the BT-RP program. In addition, the TCQ was administered to participants in the BT-RP group only as a barometer of treatment credibility.

Results

Six primary sets of analyses were conducted to assess the efficacy of the BT-RP program under investigation in this study: (1) A series of univariate analyses of variances (ANOVAs) were conducted to determine whether there were any significant differences between the BT-RP and WL groups at pre-BT-RP treatment on the panic outcome measures. Chi-square analyses were performed for the same purpose on several categorical variables under review. (2) A similar set of univariate ANOVAs and chi-square analyses was conducted to test whether there were any significant differences, prior to the implementation of the BT-RP program, between individuals ($N = 45$) who participated in both Phase II (the initial bibliotherapy-based intervention; Febbraro, 1997) and Phase III (the relapse prevention stage), and participants who, thus far, have completed only Phase II of the Panic Self-Help Project ($N = 18$). This latter group of subjects will not be included as part of the Phase III sample for the present dissertation. (3) Three 2 (Treatment condition: BT-RP vs. WL) \times 2 (Time: pre-BT-RP assessment vs. post-BT-RP assessment) mixed-model repeated measures ANOVAs were performed on the dependent measures of full-blown, limited-symptom, and combined panic attacks to test for possible significant main effects of Condition and Time, as well as potential significant Condition \times Time interactions on these variables. (4) In order to control for the possibility of Type I errors, a 2 (Treatment condition: BT-RP vs. WL) \times 2 (time: pre-BT-RP assessment vs. post-BT-RP assessment) mixed-model repeated measures multivariate analysis of variance (MANOVA) using Wilk's Lambda was conducted on all remaining dependent measures. These were followed by a series of 2 (Treatment condition: BT-RP vs. WL) \times 2 (Time: pre-BT-RP assessment vs. post-BT-RP assessment) mixed-model repeated measures ANOVAs and appropriate post-hoc tests. Any observed significant Condition by Time interactions were also subjected to between-group analyses of

covariance (ANCOVA) at post-treatment in order to statistically control for initial levels of the relevant dependent measures. (5) Two sets of analyses were conducted to investigate clinically significant improvement on an individual basis as opposed to overall treatment group mean responses in the two treatment conditions (i.e., BT-RP and WL). First, between-group Fisher's Exact Tests were performed on a) movement into panic-free status, and b) maintenance of panic-free status, for full-blown panic attacks for each treatment condition during Phase III. Second, improvement of at least 1.5 standard deviations from pre-Phase I to pre- and post-Phase III on panic symptoms, panic cognitions, anticipatory anxiety, and agoraphobic avoidance were also analyzed with between-group analyses using Fisher's Exact Tests. (6) Correlational data and univariate ANOVAs were used to assess treatment compliance and treatment credibility in the BT-RP group.

Pre-treatment Analyses of Outcome Measures and Demographic Variables

As mentioned above, a series of one-way ANOVAs and chi-squares were conducted to determine whether there were any significant differences between the BT-RP and WL control groups at pre-treatment (i.e., prior to the implementation of the BT-RP program) on the primary dependent measures under review. These analyses revealed that there were no significant between the BT-RP and WL groups prior to the initiation of Phase III, or the RP stage, of this study. More specifically, in regard to panic symptomatology, a series of ANOVAs indicated that participants in the two groups did not significantly differ at pre-treatment in terms of number of full-blown panic attacks [$F(1,35) = 1.97$, $p = .170$], number of limited-symptom panic attacks [$F(1,35) = 1.14$, $p = .291$], combined full and partial panic attacks [$F(1,35) = 2.14$; $p = .152$], panic attack symptoms [$F(1,35) = 1.02$; $p = .319$], panic attack cognitions [$F(1,35) = .339$; $p = .564$], anticipatory anxiety [$F(1,35) = .989$; $p = .327$], agoraphobic avoidance [$F(1,35) = .123$; p

= .728], panic coping skills [$F(1,35) = .600$; $p = .444$], confidence in panic coping skills [$F(1,35) = .483$; $p = .492$], depression [$F(1,35) = .154$; $p = .697$], state anxiety [$F(1,35) = 1.27$; $p = .267$], or number of continuous months of panic-related symptoms [$F(1,35) = 1.71$; $p = .200$]. Nonetheless, as can be seen in Table 3, despite the use of stratified random assignment procedures, and the noted lack of statistically significant between-group differences during the pre-Phase III assessment, participants in the WL control group still generally exhibited somewhat more pronounced problems in terms of the frequency of panics attacks and in regard to a number of panic-related symptoms.

Insert Table 3 about here

A series of one-way ANOVAs performed on pre-Phase III data demonstrated that there were no significant differences between the current Phase III sample ($N = 45$) and participants who have completed only Phase II to date ($N = 18$) in regard to the frequency of full [$F(1,61) = .442$; $p = .509$], limited-symptom [$F(1,61) = .385$; $p = .537$], and combined panic attacks [$F(1,61) = .339$; $p = .562$]. Moreover, no significant differences were found between these two sets of participants in terms of panic attacks symptoms [$F(1,61) = 1.75$; $p = .191$], panic attack cognitions [$F(1,61) = .365$; $p = .548$], anticipatory anxiety [$F(1,61) = .378$; $p = .536$], agoraphobic avoidance [$F(1,61) = .278$; $p = .600$], depression [$F(1,61) = .827$; $p = .367$], or state anxiety [$F(1,35) = .477$; $p = .492$]. In contrast, a significant difference in panic coping skills [$F(1,61) = 4.27$; $p = .043$] was found, in which Phase III participants apparently utilized more panic coping skills than the Phase II-only sample. However, no significant difference between these two groups of participants emerged in terms of confidence in coping skills [$F(1,61) = 1.48$; $p = .229$]. In summary, it appears that the present Phase III sample and the Phase II-only sample did not

significantly differ from one another at the conclusion of Phase II on any of the outcome or process measures utilized in the study, except in regard to panic coping skills. A series of ANOVAs and chi-square analyses also demonstrated that there were no significant differences during the pre-BT-RP assessment on any of the variables utilized in the study between the 36 participants who completed Phase III and the nine participants who either dropped-out, or were deemed ineligible due to beginning other forms of treatment (psychotherapy or medication management).

With respect to the demographic variables examined in this study, one-way ANOVAs revealed that there were no significant differences between the BT-RP and WL groups in terms of level of education [$F(1,35) = .088, p = .769$], or age [$F(1,35) = 3.1, p = .086$], though there was a trend toward significance on this latter variable with participants assigned to the BT-RP condition being slightly older than participants in the WL group (see Table one). In examining categorical data, a chi-square analysis indicated that there was no significant between-group difference in terms of the number of participants stabilized on psychotropic medication [$\chi^2(1, N = 36, p = .194)$] in the Phase III sample (BT-RP medicated participants = 8/17; WL medicated participants = 13/19). A series of ANOVAs also determined that participants on medication did not significantly differ from non-medicated participants at the beginning of Phase III in terms of full-blown, limited-symptom, or combined panic attack frequency, or in regard to any other dependent measures under review.

A second chi-square test demonstrated that there were significantly more females assigned to the WL control group (17/19 in the WL group vs. 10/17 in the BT-RP group) than one would have expected to have occurred by chance [$\chi^2(1, N = 36, p = .034)$]. This significant between-group gender effect was further explored via a series of one-way ANOVAs that were performed on panic frequency data as well as the rest of the dependent

measures. Three one-way ANOVAs revealed that male and female participants did not exhibit statistically significant differences in full-blown panic attacks [$F(1,35) = 1.45, p = .237$], limited-symptom attacks [$F(1,35) = 1.06, p = .310$], or combined panic attacks [$F(1,35) = 1.73, p = .200$] at the pre-BT-RP assessment. However, additional one-way ANOVAs did indicate that prior to the beginning of Phase III, female participants had significantly more severe *panic attack symptoms* [$F(1,35) = 4.14, p = .050$] and significantly higher levels of *agoraphobic avoidance* [$F(1,35) = 4.78, p = .036$] than was displayed by their male counterparts. No other significant gender differences emerged from this series of ANOVAs conducted on the rest of the dependent measures utilized. Given these two pre-BT-RP treatment gender differences, initial levels of panic symptoms and avoidance were statistically controlled through the use of ANCOVAs, whenever significant Condition by Time interactions involving these variables were found.

Two additional chi-square analyses on the categorical data of *medication status* and *gender* indicated that Phase III participants and Phase II-only completers did not significantly differ in terms of the number of medicated participants [$\chi^2(1, N = 63, p = .933)$], or the number of male and female participants in each group [$\chi^2(1, N = 63, p = .710)$]. These findings, in conjunction with the results of the series of ANOVAs reported above, indicate that there were no significant differences between Phase III participants and Phase II-only participants on any of the outcome, process, or categorical variables measured in the present study, except for panic coping skills.

Between-group Analyses on Pre/post Measures

Full, Limited-symptom, and Combined Panic Attacks

Pre- to post-treatment changes in the frequency of panic attacks was examined primarily through the use of three 2 (Treatment condition: BT-RP vs. WL) X 2 (Time: pre-BT-RP assessment vs. post-BT-RP assessment) mixed-model repeated measures ANOVAs

in which full-blown, limited-symptom, and combined panic attacks, based on participants' responses on the CPP, served as the dependent measures. Two one-way between-group ANOVAs at post-BT-RP assessment, based on participants' responses on the RPAS, were also conducted in order to probe for between-group differences in full-blown and limited-symptom panic attack frequencies on a relatively continuous basis throughout Phase III. The pre- and post-assessment means and standard deviations for each of these variables are shown in Table 3. In regard to full-blown panic attacks, a repeated measures ANOVA indicated that there was no significant main effect for Condition [$F(1,34) = 1.79, p = .189$], or Time [$F(1,34) = 1.01, p = .322$], nor was there a significant Condition by Time interaction [$F(1,34) = .380, p = .542$].

In contrast, participants' responses on the RPAS, which was designed to measure the frequency of full-blown panic attacks on a relatively continuous basis over a 6-month period, revealed a significant between-group difference in the expected direction at post-treatment. This one-way ANOVA based on post-treatment RPAS scores demonstrated a significant main effect for Condition [$F(1,35) = 4.22, p = .048$] with participants in the BT-RP group experiencing significantly fewer full-blown panic attacks ($M = 3.03; SD = 4.70$) over the 6-month duration of Phase III than participants in the WL control condition ($M = 8.00; SD = 8.92$).

A 2 (Treatment condition: BT-RP vs. WL) X 2 (time: pre-BT-RP assessment vs. post-BT-RP assessment) mixed-model repeated measures ANOVA on the frequency of limited-symptom panic attacks, based on participants' responses to the CPP, revealed neither a significant main effect for Condition [$F(1,34) = 2.17, p = .150$], nor a significant Condition X Time interaction effect [$F(1,34) = .350, p = .556$]. There was a clear trend toward statistical significance, however, in regard to the main effect for Time [$F(1,34) = 4.07, p = .052$]. Participants' responses to the RPAS at post-treatment, that was examined

by a one-way between-group ANOVA, indicated no significant difference between the RP and WL control groups with respect to the number of limited-symptom panic attacks they recalled experiencing during the 6-month maintenance stage of change [$F(1,34) = .157, p = .694$].

In order to examine possible changes from pre- to post-treatment in terms of combined panic attacks, which was compiled by summing full-blown and limited-symptom panic attacks, a 2 (Treatment condition: BT-RP vs. WL) X 2 (Time: pre-BT-RP assessment vs. post-BT-RP assessment) mixed-model repeated measures ANOVA was performed on frequency data provided by participants' responses on the CPP. This analysis demonstrated that there was neither a significant main effect for Condition [$F(1,34) = 2.80, p = .103$], nor a significant Condition X Time interaction [$F(1,34) = .001, p = .974$]. However, there was evidence of a trend toward significance with respect to the main effect of Time [$F(1,34) = 3.19, p = .083$].

Repeated Measures MANOVA and ANOVAs on Panic-Related Symptoms

Next, a 2 (Treatment condition: BT-RP vs. WL) X 2 (Time: pre-BT-RP assessment vs. post-BT-RP assessment) mixed-model repeated measures MANOVA, using Wilk's Lambda criterion, was conducted on all remaining dependent measures (i.e., panic symptoms, panic cognitions, anticipatory anxiety, agoraphobic avoidance, panic coping skills, confidence in coping skills, depression, and state anxiety). Panic attack frequency data that was reviewed in the previous section of this report were not included in this MANOVA due to the expected relatively high frequency of participants who were not experiencing any full-blown (53% at pre-treatment, 75% at post-treatment), limited-symptom (28% at pre-treatment, 36% at post-treatment), or combined panic attacks (25% at pre-treatment, 36% at post-treatment) prior to the implementation of the BT-RP program. The inclusion of panic frequency data with such a restricted range in the

repeated measures MANOVA may have precluded, or obscured, finding “true” treatment differences.

The results of this MANOVA revealed that though there was no significant main effect for Condition [$F(8,27) = 1.28, p = .293$], there was a significant main effect for Time [$F(8,27) = 5.08, p = .001$], as well as a significant Group X Time interaction effect [$F(8, 27) = 2.36, p = .046$]. The significant main effect for Time and the significant Condition X Time interaction were probed via a series of 2 (Treatment condition: BT-RP vs. WL) X 2 (Time: pre-BT-RP assessment vs. post-BT-RP assessment) mixed-model repeated measures ANOVAs and appropriate post-hoc tests on the aforementioned dependent measures. A summary table pertaining to the findings gleaned from this series of repeated measure ANOVAs can be found in Table 4.

Insert Table 4 about here

As noted above, a chi-analysis performed on pre-treatment data revealed that there was a significant difference between the number of male and female participants assigned to the BT-RP and WL control groups. Moreover, a series of one-way ANOVAs demonstrated female participants had significantly higher levels of panic symptoms and agoraphobic avoidance at pre-treatment than BT-RP participants. Therefore, ANCOVAs, with initial levels of these variables serving as the covariate(s), were performed subsequent to finding significant Condition X Time interactions involving either panic attack symptoms or agoraphobic avoidance.

A repeated measures ANOVA examining the severity of participants' *panic attack symptoms* showed neither a significant main effect for Condition [$F(1,34) = 1.67, p = .205$] nor a significant Condition X Time interaction [$F(1,34) = .500, p = .483$]; however,

a significant main effect for Time was found [$F(1,34) = 7.14, p = .011$]. The results of an ANCOVA conducted on this same set of data revealed that the severity of participants' panic attack symptoms did not significantly covary by gender [$F(1,33) = 2.70, p = .110$]. A repeated measures ANOVA for *panic attack cognitions* demonstrated that there was no significant main effect for Condition [$F(1,34) = 1.87, p = .180$]. However, there were significant main effects for Time [$F(1,34) = 9.39, p = .004$] and a significant Condition X Time interaction [$F(1,34) = 4.45, p = .042$]. Post-hoc within-group ANOVAs demonstrated a significant decrease in panic cognitions over time in the BT-RP condition [$F(1,16) = 13.18, p = .002$], but not in the WL control group [$F(1,18) = .470, p = .503$]. Conversely, a one-way between-group ANOVA showed only a trend toward significance in the expected direction between the BT-RP and WL groups at post-treatment [$F(1,34) = 3.77, p = .060$]. Yet, a between-group ANCOVA at post-treatment performed on panic cognitions scores, in which pre-BT-RP levels of panic cognitions served as the covariate, revealed a significant main effect for Condition in favor of the BT-RP group [$F(2,33) = 5.21, p = .029$]. Findings related to panic attack cognitions are shown in Figure 1.

Insert Figure 1 about here

A repeated measures ANOVA investigating changes in *anticipatory anxiety* indicated significant main effects for Condition [$F(1,34) = 4.45, p = .042$], Time [$F(1,34) = 21.42, p = .0001$], and a significant Condition by Time interaction [$F(1,34) = 10.01, p = .003$]. Post-hoc within-group repeated measures ANOVAs indicated a significant reduction in anticipatory anxiety from pre- to post-treatment in the BT-RP group [$F(1,16) = 36.71, p = .0001$], and no significant reduction in the WL control group [$F(1,19) = .950, p = .342$]. A post-hoc between-group one-way ANOVA revealed significantly lower levels

of anticipatory anxiety in the BT-RP group in comparison to the WL group at post-treatment [$F(1,34) = 8.95, p = .005$]. Moreover, a between-group ANCOVA for anticipatory anxiety, in which pre-BT-RP levels of this variable served as the covariate, indicated a significant main effect for Condition at post-treatment [$F(2,33) = 12.46, p = .001$]. The results of the significant Condition by Time interaction for anticipatory anxiety are shown in Figure 2.

Insert Figure 2 about here

A repeated measures ANOVA in which *agoraphobic avoidance* served as the dependent measure revealed a significant main effect for Time [$F(1,34) = 4.36, p = .044$], and a significant Condition X Time interaction [$F(1,34) = 6.17, p = .018$]. There was no significant main effect for Group [$F(1,34) = .030, p = .862$]. Post-hoc within-group repeated measures ANOVA demonstrated there was no significant decrease in agoraphobic avoidance in the WL control group [$F(1,18) = .070, p = .799$], however, a significant reduction was found in the BT-RP group [$F(1,16) = 13.58, p = .002$]. Based on the results of a post-hoc one-way ANOVA, no significant difference between these two groups was found on this variable at post-treatment [$F(1,34) = .512, p = .479$]. After controlling for initial levels of agoraphobic avoidance through the use of an ANCOVA, however, a significant main effect for Condition in the expected direction did emerge at post-treatment [$F(2,33) = 6.01, p = .020$]. Findings related to the significant Condition by Time interaction for agoraphobic avoidance are shown in Figure 3.

Insert Figure 3 about here

A repeated measures ANOVA on *panic attack coping skills* revealed a significant main effect for Time [$F(1,34) = 9.71, p = .004$], and a trend toward significance with respect to a Condition X Time interaction [$F(1,34) = 3.37, p = .075$]. There was no significant main effect for Group on this variable [$F(1,34) = .070, p = .796$]. Moreover, there was no significant between-group difference at post-treatment based on an ANCOVA in which initial levels of panic coping skills served as the covariate [$F(2,33) = 2.64, p = .113$]. In examining differences on participants' perceived *confidence in panic coping skills*, a repeated measures ANOVA revealed a significant main effect of Time [$F(1,34) = 13.90, p = .001$], a trend toward significance on the main effect of Group [$F(1,34) = 3.15, p = .085$], and a non-significant Group X Time interaction [$F(1,34) = 2.24, p = .144$]. Examining the pattern of results indicates that combined data across the BT-RP and WL groups demonstrates a significant increase in their coping skills confidence from pre- to post-treatment. In addition, though a significant Condition by Time interaction was not found, a trend toward significance in the expected direction was revealed as the result of a between-group ANCOVA performed at post-treatment in which pre-BT-RP levels of confidence in coping skills served as the covariate [$F(2,33) = 3.83, p = .058$].

A repeated measure ANOVA performed on *state anxiety* scores showed a significant main effect for Group [$F(1,34) = 4.71, p = .037$], a non-significant effect for Time [$F(1,34) = 1.00, p = .325$], and a trend toward significance in regard to the Condition X Time interaction [$F(1,34) = 3.55, p = .068$]. A between-group ANCOVA at post-treatment, which controlled for pre-treatment levels of state anxiety, demonstrated a significant main effect for Condition in which there were significantly lower state anxiety scores in the BT-RP group [$F(2,33) = 8.42, p = .007$]. A repeated measures ANOVA on *depression* scores demonstrated no significant main effect for Condition [$F(1,34) = 1.21, p = .278$], a significant main effect for Time [$F(1,34) = 6.64, p = .014$], and a significant

Condition X Time interaction [$F(1,34) = 4.75, p = .036$]. Post-hoc repeated measures within-group ANOVAs revealed a significant reduction in depression from pre- to post-treatment for the BT-RP group [$F(1,16) = 11.73, p = .003$], though not in the WL control group [$F(1,18) = .080, p = .783$]. A post-hoc one-way between-group ANOVA revealed a trend toward significance at post-treatment in which the BT-RP group experienced somewhat lower levels of depression than the WL control group [$F(1,34) = 3.31, p = .078$]. However, when initial levels of depression were statistically controlled for via an ANCOVA, a significant between-group difference in the predicted direction did emerge [$F(2,33) = 7.20, p = .011$]. These findings are shown in Figure 4.

Insert Figure 4 about here

Assessing Clinical Significance

Standard inferential statistics do not necessarily reveal the degree of clinical potency of, or individual reactions to, a given treatment. Therefore, the following barometers were utilized to assess clinically significant improvement (CSI) at pre- and post-treatment for the BT-RP and WL groups: (1) Panic-free status for full-blown panic attack frequency. (2) An improvement of at least 1.5 standard deviations beyond the pre-Phase I treatment mean in the direction of functionality for panic symptoms, panic cognitions, anticipatory anxiety, and agoraphobic avoidance. This index was used as opposed to the two standard deviation improvement recommended by Jacobson and Traux (1991) because a two standard deviation improvement would have meant negative scores for two of these four dependent measures and the lowest possible score on these inventories is zero. (3) A score of nine or below on the BDI which reflects the normative range on this inventory (Beck et al., 1961). The range of scores for each dependent measure, the CSI

scores, and the percentage of participants who met criteria for significant clinical improvement at the pre- and post-BT-RP assessments are shown in Table 5.

Insert Table 5 about here

Given the nature of the present study, maintenance of CSI and/or movement into this range during Phase III were the goals of the BT-RP intervention. Hence, these indices of treatment efficacy were analyzed via two-tail Fisher's Exact Test comparing 1) the proportion of participants moving from non-CSI to CSI in each condition in Phase III, and 2) the proportion of participants in each condition maintaining CSI during Phase III. The first set of analyses revealed that there was a significant proportional difference between the BT-RP and WL groups in the expected direction in terms of movement into the CSI range during Phase III for panic-free status ($N = 17, p < .05$) and agoraphobic avoidance ($N = 35, p < .035$). In other words, of those participants who had not attained CSI by the beginning of Phase III for panic frequency and avoidance data, a significantly higher proportion met this criteria in the BT-RP condition than the WL group by the end of Phase III. These findings pertaining to movement into the CSI range for panic-free status and agoraphobic avoidance are shown in Table 6.

Insert Table 6 about here

In contrast, no significant proportional differences were found for movement into the CSI range for panic symptoms ($N = 33, p = .418$), panic cognitions ($N = 28, p = .689$), or anticipatory anxiety ($N = 27, p = .127$), despite higher percentage increases in CSI for the BT-RP group in comparison to the WL group during Phase III for each of these variables (see Table 6). There were also no significant between-group differences for the

maintenance of CSI for panic frequency, panic symptoms, panic cognitions, anticipatory anxiety, or agoraphobic avoidance during Phase III. As noted above, CSI for depression was determined by participants' movement into, and maintenance of, a score of nine or below on the BDI during Phase III. Fisher's Exact Tests performed on depression scores indicated no significant between-group difference for either the maintenance or achievement of CSI during Phase III.

Treatment Compliance and Treatment Credibility

Treatment compliance in relation to treatment outcome was measured in the BT-RP condition only based on participants reading and understanding the treatment manual entitled A Self-Help Relapse Prevention Program for Panic Attacks (Wright, 1996; see Appendix F). All 17 participants met minimal reading compliance criteria by indicating they had read the entire treatment manual at least once. Participants comprehension of the treatment manual was assessed by their performance on the Reading Assessment Questionnaire (RAQ; see Appendix L) that was designed to assess their knowledge of the primary components of the BT-RP program. The RAQ was administered either at the end of the first or second month of the BT-RP program depending on when participants indicated they had completed reading the treatment manual. The mean score on the RAQ was relatively high (51.4 on a scale of 0-65), the standard deviation was relatively low (S.D. = 7.3), and only one participant's score was below 70%. A correlational analysis was performed to examine the relationship between participants' RAQ scores, treatment credibility (see below), and the following outcome measures: panic frequency, panic symptoms, panic cognitions, anticipatory anxiety, agoraphobic avoidance, panic coping skills, confidence in coping skills, depression, and state anxiety. Of these possibilities, significant positive Pearson Product-Moment correlations were only found between treatment compliance and panic coping skills at post-treatment ($r_p = .491$, $p = .045$), and

treatment compliance and treatment credibility ($r_p = .516$, $p = .034$). A series of one-way ANOVAs, with Bonferroni corrected p-values to protect against Type I errors, were performed for each of the above mentioned outcome measures in which participants performance on the RAQ served as the between-group factor (i.e., high versus low compliance based on scores above or below the median score of 50). These one-way ANOVAs revealed no significant between-group differences for any of the dependent measures utilized.

Treatment credibility was also only compiled in the BT-RP condition and was operationally defined according to participants responses to the Treatment Credibility Questionnaire (TCQ; see Appendix M) in which they were asked how effective they thought the BT-RP program had been and whether they would recommend this program to others. The mean score on the TCQ was 22 on a scale of 0 to 28 with a standard deviation of 4.99. A correlational matrix was performed to examine the relationship participants' TCQ scores and the outcome measures mentioned above. Significant negative Pearson Product-Moment correlations were revealed between treatment credibility and the following measures of panic frequency at post-treatment: full-blown panic attacks ($r_p = -.8251$, $p < .001$); limited-symptoms panic attacks ($r_p = -.541$, $p = .025$), full-blown retrospective panic attacks ($r_p = -.691$, $p = .002$, and limited-symptoms retrospective panic attacks ($r_p = -.666$, $p = .004$). A significant positive correlation was found between treatment credibility and panic coping skills at post-treatment ($r_p = .705$, $p = .002$).

Discussion

The purpose of the present study was to test the efficacy of a bibliotherapy-relapse prevention (BT-RP) program for panic attacks in comparison to a waiting-list (WL) control condition. Prior to the initiation of the present relapse prevention (RP) program in Phase III, both groups were administered an initial BT-based intervention in a separate study in Phase II (see Febbraro, 1997) as well as an assessment and feedback stage in Phase I (see Roodman, 1996). For the present research, RP was conceived in a broad manner in which individuals who actively participated in and completed the previous intervention (Febbraro, 1997) were eligible to proceed to the RP stage of treatment. As noted previously, though this particular definition of RP is well established in the literature (Brownwell et al., 1986; Marlatt and Gordon, 1985; Stephens, 1994), other investigators have required an initial positive treatment response as a condition of RP eligibility (Hiss et al., 1994).

The rationale for utilizing a less stringent inclusion criteria for BT-RP eligibility in the present study was twofold. First, given the experimental nature of Febbraro's (1997) initial minimal-contact BT in which, unlike prior research in this area, there was no personal contact between participants and researchers during the treatment trial, it was difficult to estimate a priori what percentage of participants would benefit from this intervention. Adopting a relatively strict RP inclusion criteria could have severely limited participant eligibility for Phase III. Second, previous investigations of BT-based treatments for PD suggest that relapse rates within the first six months of treatment termination are relatively low (e.g., Brown & Barlow, 1994; Lidren et al., 1994). Therefore, conceptualizing RP for panic attacks as an augmenting treatment model appeared to best fit the extant literature regarding treatment outcome.

In the present study, it was hypothesized that the BT-RP group would improve more and than the WL control group in terms of full-blown panic attacks, limited-symptom panic attacks, combined panic attacks, panic symptoms, panic cognitions, anticipatory anxiety, agoraphobic avoidance, panic coping skills, confidence in coping skills, depression, state anxiety, and retrospective accounts of panic frequency. It was predicted that the BT-RP group would manifest significantly higher levels of improvement and higher levels of maintenance of treatment gains achieved in Phase II (Febbraro, 1997). The data were analyzed with both standard inferential statistics and indices of clinically significant improvement (CSI) in order to evaluate the efficacy of the BT-RP program in terms of any observed changes in relative functioning as well as clinical potency.

Summary and Interpretation of Results

The overall success of the present BT-RP program was somewhat mixed, though generally positive. The BT-RP group evidenced significant reductions from pre- to post-treatment in panic cognitions, anticipatory anxiety, agoraphobic avoidance, and depression, whereas the WL control group did not. Though a between-group differential change in the predicted direction was manifested over time for each of these outcome measures, a significant post-treatment difference emerged for anticipatory anxiety only. A trend toward significance was revealed for panic cognitions ($p = .060$) and depression ($p = .078$). However, after controlling for pre-BT-RP levels of these variables, significant between-group differences in the expected direction at post-treatment were obtained for each of these four dependent measures, and also for state anxiety. When controlling for initial levels of confidence in coping, a trend toward significance was found in favor of the BT-RP group at post-treatment.

In addition, of those participants who had not attained CSI following the initial intervention (Febbraro, 1997), a significantly higher proportion in the BT-RP group in the

present study reached the CSI range for full-blown panic attacks (89% versus 38%) and agoraphobic avoidance (26% versus 0%). CSI for panic attacks was defined as attaining panic-free status at post-treatment, whereas CSI for avoidance meant a post-treatment score on the AQ that was at least 1.5 standard deviations below the pre-Phase I (Roodman, 1996) group mean. The significant between-group proportional difference for panic-free status was tempered, however, by the fact that the WL control group displayed a higher mean number of full-blown panic attacks ($M = 6.74$) than the BT-RP group ($M = 2.00$) among the subgroup of participants who were not panic-free during the pre-Phase III assessment. Therefore, it is conceivable that the significant difference in CSI for panic-free status may not have been found had both groups been experiencing equivalent levels of full-blown panic frequency at pre-treatment.

Additional support for the efficacy of the BT-RP program was provided by an index of panic frequency experienced during the six-month BT-RP program. Based on retrospective recall of full-blown panic attacks, the BT-RP group reported experiencing significantly fewer panic attacks than the WL group during the six-month BT-RP program at post-treatment. One strength of this particular result is that it provides a continuous measure of panic attacks over a six-month period. Prior studies examining BT interventions for PD have used discrete two-week periods to assess panic frequency at pre- and post-treatment (Gould & Clum, 1995; Gould et al., 1993; Lidren et al., 1994). This finding needs to be interpreted with caution and should be considered exploratory in nature, however, since reliability and validity data for the inventory used to measure retrospective recall of panic attacks (i.e., the RPAS) has not been compiled.

Two additional factors need to be considered in interpreting these primarily positive findings. First, as previously mentioned, despite the absence of significant differences between the BT-RP and WL groups on any of the dependent measures at pre-

treatment, and the use of stratified random assignment procedures designed to equate the two groups on panic frequency and levels of avoidance, inspection of pre-Phase III assessment data indicates that the WL group was somewhat more symptomatic than the BT-RP group (see Table 3). Hence, even though a series of ANCOVAs (in which pre-treatment levels of each dependent measure were controlled for statistically) largely supported the efficacy of the BT-RP program under review, it is still possible that the non-significant differences in panic symptomatology at pre-treatment may have contributed to the findings summarized above.

Second, the presence of a significantly greater proportion of women in the WL control group in comparison to the BT-RP group needs to be addressed. Recall that women had significantly higher levels of panic symptoms and agoraphobic avoidance than their male counterparts during the pre-Phase III assessment. Therefore, the previously reported positive treatment effects may have been due at least in part to pre-existing gender differences. Since no significant between-group differences over time were found for panic symptoms, however, the issue of potential gender differences was not relevant for this particular variable. In regard to agoraphobic avoidance, a between-group ANOVA at post-treatment, in which pre-treatment levels of avoidance and gender served as covariates, revealed a significant main effect for condition in the predicted direction [$F(3,32) = 4.31, p = .046$]. This finding suggests that the significant treatment effect for agoraphobic avoidance occurred over-and-above any between-group differences in initial levels of avoidance, or differences in avoidance attributable to gender.

Contrary to what had been predicted, no significant differences were found between the BT-RP and WL groups in regard to reductions in panic frequency from pre- to post-treatment for full-blown, limited-symptom, and combined panic attacks. When collapsing the data across the two groups (i.e., BT-RP and WL), however, trends toward

significance over time were observed for decreases in limited-symptom and combined panic attacks. At post-treatment, no significant between-group differences were found for retrospective recall of limited-symptom panic attacks. In addition, no significant differences between the BT-RP and WL groups emerged over time for panic symptoms, panic coping skills, confidence in coping skills, and state anxiety. However, as noted above, significant differences in the expected direction were observed at post-treatment for state anxiety, once initial levels of this variable were controlled for statistically.

In terms of the attainment of CSI, there were no significant between-group proportional changes during Phase III for panic symptoms, panic cognitions, anticipatory anxiety, and depression. Furthermore, with respect to the maintenance of CSI from the end of Phase II through Phase III, which is distinct from of the attainment of CSI during Phase III, no significant differences between the BT-RP and WL groups were found for full-blown panic frequency, panic symptoms, panic cognitions, anticipatory anxiety, agoraphobic avoidance, or depression. It should be noted, however, that uniformly low percentages of participants met criteria for CSI at pre-treatment for these dependent measures, which meant relatively low power for all between-group comparisons on this index.

Several discrepancies in this pattern of results are worth noting. Foremost, as mentioned above, no significant between-group differences were found as a result of the BT-RP intervention on the “bottom line” gold-standard (see Gould & Clum, 1995; Lidren et al., 1994) measure of full-blown panic attacks, yet a significant between-group difference in favor of the BT-RP group was found for retrospective recall of full-blown panic attacks. Inspection of pre-treatment levels of full-blown panic attacks indicates a relatively low frequency in the BT-RP group, suggesting the possibility of a floor effect (see Table 3). As a basis of comparison, average pre-treatment levels of full-blown panic

frequency in the active BT treatment condition in prior research has ranged from 2.6 (Gould & Clum, 1995) to 4.14 (Lidren et al., 1994). In contrast, the pre-treatment average full-blown panic frequency in the BT-RP condition of the present study was 1.06.

The use of the CPP at pre- and post-treatment, which measures panic attack frequency for relatively brief two-week periods, may have been insufficient to detect significant between-group differences over time. In contrast, as noted above, once the assessment period was extended to six-month via retrospective recall of panic frequency, a significant between-group difference in the expected direction was revealed at post-treatment (BT-RP data - $M = 3.03$, $SD = 4.70$; WL data - $M = 8.00$, $SD = 8.92$). Therefore, assessment of panic frequency on a continuous basis for six-months may have been a better barometer for determining BT-RP treatment effectiveness. This particular finding is consistent with previous BT-based investigations that have found significant treatment effects in regard to significant reductions in panic frequency over time, and the attainment of panic-free status at post-treatment (Gould & Clum, 1995; Lidren et al., 1994).

Though prior research indicates a tendency to over-report panic frequency when measured in a retrospective fashion, this caveat would not account for the significant between-group difference found in the present study suggesting this finding may reflect reductions in panic frequency attributable to the BT-RP intervention. Unfortunately, without the benefit of reliability and validity data on the RPAS, the instrument used to assess retrospective panic frequency on a continuous basis in the present study, a more definitive answer to this issue will require additional research. Interestingly, significant between-groups effects at post-treatment were not observed for the continuous measure of limited-symptom panic attack frequency. As is further discussed below, it may be the case that individuals in the BT-RP group were less prone to catastrophize these initial

symptoms (Clark & Salkovskis, 1990), which prevented these episodes from escalating into full-blown panic. Though this particular interpretation is speculative, it is not without foundation given a prominent feature of the present BT-RP program involved cognitive restructuring exercises designed to target the experience of initial autonomic nervous system arousal.

The potential floor effect for full-blown panic frequency mentioned above may also explain why significant differential improvement over time was observed for panic cognitions, anticipatory anxiety, and agoraphobic avoidance, though not panic frequency. In contrast to the low levels of full-blown panic attack frequency in the BT-RP group during the pre-Phase III assessment, levels of these three collateral panic variables were fairly high at this time allowing the potential for change over time.

The absence of significant differential between-group effects over time for panic symptoms, in conjunction with the aforementioned changes in panic cognitions, anticipatory anxiety, and agoraphobic avoidance, suggests that participants in the BT-RP group were likely experiencing more adaptive interpretations of their initial panic symptoms that led to significantly less anxious apprehension and avoidance. Cognitive-behavioral treatment models of panic that are designed to alter initial negative interpretations of autonomic nervous system arousal have been shown to be highly effective in significantly reducing the frequency and intensity of panic, panic cognitions, anticipatory anxiety, and avoidance (Barlow et al., 1989; Clark & Salkovskis, 1990; Clum, 1990; Gould & Clum, 1995; Lidren et al., 1994). When controlling for initial differences, the significant post-treatment between-group difference in state anxiety in which lower levels were found in the BT-RP group also indicates a positive treatment response in that this instrument was designed to measure transitory states of apprehension

and elevated autonomic nervous system activity (Norton et al., 1992; Spielberger et al., 1970).

Discrepancies were found in the present study between the number of variables for which significant between-group differences over time were observed (i.e., panic cognitions, anticipatory anxiety, agoraphobic avoidance, and depression) versus the number of significant between-group proportional differences in CSI improvement (i.e., full-blown panic frequency and agoraphobic avoidance). In attempting to resolve these differences in treatment outcome for panic attack frequency, panic cognitions, anticipatory anxiety, and depression, it is important to keep in mind that different criteria were utilized to assess these two benchmarks of treatment efficacy. Standard inferential statistics were utilized to measure between-group differences based on average changes over time for groups of participants, whereas CSI provided an index of the potency of the BT-RP program at the individual level (Jacobson & Traux, 1991; Lidren et al., 1994).

In regard to full-blown panic attack frequency, floor effects limited the prospect of finding significant between-group changes over time based on group means. In assessing CSI for panic frequency on an individual basis, however, 53% and 42% of the BT-RP and WL, respectively, were not panic-free at pre-treatment (9/17 in the BT-RP group versus 8/19 in the WL group) which provided an opportunity to obtain significant treatment effects. Assessing between-group proportional differences in CSI for full-blown panic attacks during Phase III demonstrated that, of those who were still experiencing panic attacks at pre-treatment, 89% were panic-free at post-treatment in the BT-RP group, compared with 38% in the WL control condition (see Table 6).

The discrepancies in the treatment outcome data for panic cognitions and anticipatory anxiety indicated significant between-group differences over time in the expected direction, but a lack of CSI on these variables. CSI for panic cognitions and

anticipatory anxiety required an improvement during the present six-month BT-RP treatment trial that was at least 1.5 standard deviations below the pre-Phase I group mean (Jacobson & Traux, 1991; Roodman, 1996). The use of this fairly stringent criteria for CSI, in which cutoff scores to denote CSI for anticipatory anxiety and panic cognitions were relatively low accounts for the observed divergence between CSI and average group mean data. Though these two variables did not meet criteria for CSI, non-significant proportional differences between the BT-RP and WL groups in the appropriate direction were found, with a more pronounced effect for anticipatory anxiety that approached significance ($p = .122$; see Table 6). Nonetheless, it remains clear that future BT-RP studies of PD should focus on enhancing the clinical potency of the present intervention.

For depression, no significant proportional differences for CSI were obtained, even though a significant Condition by Time interaction as well as significant differences at post-treatment, when controlling for initial levels, were demonstrated. Moreover, the mean post-treatment depression score in the BT-RP group was slightly more than half of what it was in the WL control group (7.29 versus 13.03). The cutoff score of nine or below to denote CSI on the BDI may have been a difficult objective to attain given the high comorbidity between depression and panic disorder (Barlow, 1988), though previous studies examining BT-based interventions have reported higher percentages of CSI for depression at post-treatment (Lidren et al., 1994). The significant between-group relative reduction in depression over time may have contributed to other positive treatment effects in that prior research has shown reduced levels of depression enhances long-term treatment outcome for panic disorder (Clum & Pendrey, 1987).

With respect to the maintenance of CSI initially obtained in Phase II, as mentioned above, no significant between-group differences were found for panic frequency, panic symptoms, panic cognitions, anticipatory anxiety, agoraphobic avoidance, or depression.

The somewhat limited findings of the initial BT intervention (Febbraro, 1997) provided little opportunity to test the efficacy of the present BT-RP program in terms of the maintenance of CSI. For example, at the conclusion of Phase II, only 53% of participants (19/36) who eventually completed Phase III were panic-free, compared to ranges of 69% (Gould & Clum, 1995) to 83% (Lidren et al., 1994) of participants who achieved panic-free status at post-treatment in prior BT studies of PD. All things being equal, the probability of obtaining significant between-group proportional differences over time with an N size of 19 was quite remote. Moreover, notably lower percentages of participants - ranging from 0% to 26% - entering Phase III had obtained CSI in terms of panic symptoms, panic cognitions, anticipatory anxiety, and agoraphobic avoidance as a result of interventions utilized by Febbraro (1997) in Phase II (see Table 6). It is also important to reiterate that the present BT-RP program was conceptualized as an augmenting form of BT that was predicted to enhance the initial treatment gains as opposed to one that was primarily designed to exclusively maintain the initial treatment effects.

Beyond the demonstrated efficacy of the BT-RP program in comparison to the WL control group, the pattern of results obtained in the present study indicate that the WL control group manifested non-significant improvements over time in terms of reductions in panic symptoms and increases in confidence in panic coping skills. This inference was made by noting significant main effects for Time for these variables in the absence of significant Condition by Time interactions (see Table 4). Though a similar pattern of results was also observed for panic coping skills, inspection of raw data indicates a much more modest improvement on this variable in relation to changes in panic symptoms and confidence in coping skills. These non-significant improvements in the WL control condition are likely attributable to the non-specific effects of participating in the present research which also been found in previous BT studies (Gould & Clum, 1995; Lidren et

al., 1994), and/or further improvements that began as a result of the BT intervention in Phase II (Febbraro, 1997).

Implications of the Present Research

A direct comparison testing the relative effectiveness of the interventions utilized in Phase II (Febbraro, 1997) and Phase III of the Panic Self-Help Project was not possible, since two separate experiments were conducted and all participants completed Phase II prior to entering Phase III. Nonetheless, one of the main implications of the present research is that the BT-RP program did *appear* to outperform the initial BT-based intervention (Febbraro, 1997) in several respects. For instance, whereas significant between-group differences over time in the predicted direction were demonstrated on a number of outcome measures in the BT-RP condition of the present study, the results of Phase II indicated no significant differences between the active BT treatment conditions and the WL control group as had been expected (Febbraro, 1997). Given that the Febbraro (1997) study was in many respects a replication of prior successful research in this area (Gould et al., 1993; Gould & Clum, 1993; Lidren et al., 1994), the differences that did exist between the Febbraro (1997) study, and this apparently more effective line of research (including the present study) may help identify the key active treatment ingredients contained in BT-based interventions.

One major difference between the more efficacious BT interventions and the Febbraro (1997) intervention was that former studies included direct personal contact with participants throughout the treatment trials. In contrast, the Febbraro (1997) study was administered entirely through the mail without direct personal contact with participants. The Febbraro (1997) study was designed to test, among other issues, the effectiveness of minimal-contact BT based on the book Coping with Panic (Clum, 1990) in a controlled study with higher ecological validity than previous studies in that it more closely resembled

how a non-study participant might read and utilize the cognitive-behavioral treatment techniques recommended. The Febbraro (1997) study was also aimed at examining the potential differential effects of BT in for the form of Coping with Panic (Clum, 1990) versus self-monitoring and explicit mailed feedback in the treatment of panic attacks.

Somewhat inadvertently, the relative success of the present BT-RP program, that did include brief monthly phone contacts, but did not rely primarily on the use of the book Coping with Panic (Clum, 1990), suggests that ongoing personal contacts with study participants may be necessary in order for BT-based interventions to be effective. Inappropriate or unsupervised use of otherwise effective BT materials may lead to low levels of treatment motivation and compliance, misinterpretation and poor application of BT treatment protocols, and even the exacerbation of existing clinical problems (Rosen, 1987). Several researchers have cautioned against the potential pitfalls of the dissemination of BT interventions that have not been empirically validated (Gould & Clum, 1993; Rosen, 1987). It appears that the present BT-RP intervention, which was supplemented with minimal-therapist contact through brief monthly telephone calls, is superior to the Febbraro's (1997) BT intervention that examined the combined effects of BT (i.e., the use of Coping with Panic) in conjunction with self-monitoring and feedback, but did not include personal contacts with participants.

In attempting to determine the overall effectiveness of the present BT-RP program in comparison to the extant BT and RP literature (Espie, 1986; Gould & Clum, 1993, 1995; Gould et al., 1993; Hiss et al., 1994; Lidren et al., 1994; Ost, 1989), several factors need to be considered. For example, the positive results of the BT-RP program summarized above may have been due to the synergistic effects of Phases I and II combined, since all participants in the BT-RP program had previously been sent copies of Coping with Panic (Clum, 1990) and had the opportunity to interact with the book for at

least eight weeks prior to beginning Phase III. In addition, several facets of the BT-RP program such as cognitive restructuring exercises and certain panic coping skills were either exactly the same or quite similar to the cognitive-behavioral techniques recommended in Coping with Panic (Clum, 1990). Indeed, BT-RP participants were asked to review several chapters of Coping with Panic during Phase III.

Furthermore, the obtained results were no more (and in certain instances perhaps less) impressive than the Lidren et al. (1994) study which did not include a BT-RP program, but did include more direct personal contact with participants. At the six-month follow-up assessment, the active BT condition of the Lidren et al. (1994) study resulted in higher percentages of CSI than the present BT-RP program for panic symptoms (67% versus 35%), agoraphobic avoidance (33% versus 26%), and depression (67% versus 59%). Conversely, the BT-RP condition of the present study led to higher percentages of CSI than the BT condition of the Lidren et al. (1994) study for panic-free status (82% versus 75%) and panic cognitions (53% versus 33%). The present BT-RP program was comparable to the Gould and Clum (1995) study in terms of reported levels of CSI for panic-free status at post-treatment (82% versus 69%, respectively). None of these proportional differences reported between the three studies were statistically significant, however. In addition, it should be noted that the Lidren et al. (1994) study used a stricter criterion to denote CSI for the collateral panic symptoms (i.e., a two standard deviation improvement over pre-treatment levels versus the 1.5 standard deviation improvement employed in the present study), yet on two of the four comparisons the raw score cutoffs were lower and more difficult to obtain in the present study (panic symptoms, agoraphobic avoidance), and the two studies had equivalent cutoff scores on a third variable (depression).

As is discussed further below, approximately one-third of the present sample (N = 11) did not meet diagnostic criteria for panic disorder as assessed retrospectively at the conclusion of Phase II (Febbraro, 1997). Conversely, prior BT studies required a diagnosis of panic disorder as a participant inclusion criteria (Gould & Clum, 1995; Gould et al., 1993; Lidren et al., 1994). Therefore, the results of the present study were reflective of a less severe clinical sample. Moreover, positive non-specific effects as well as increased participant motivation and compliance as a result of participating in a research project likely contributed to the generally good treatment outcome in the present study.

Comparing the effectiveness of the present BT-RP program with the published literature on RP programs for anxiety disorders (Espie, 1986; Hiss et al., 1994; Ost, 1989) is somewhat difficult because the present study was the first to use a BT format. Furthermore, two of the three published studies did not utilize a control group (Espie, 1986; Ost, 1989), and only one study examined the effects of RP for PD (Ost, 1989). Despite these limitations, it appears that the present study compares favorably with the established literature in this area. For example, in the Hiss et al. (1994) study of RP for OCD, 75% of participants in the active treatment condition maintained CSI at the six-month post-RP assessment based on the primary self-report measure used to assess OCD symptom severity, compared with the 82% of participants who achieved panic-free status at the conclusion of the present six-month BT-RP program. Moreover, Ost (1989) reported a CSI response rate of 87% based on a maintenance program for PD that followed an initial intervention, which also is quite similar to the results of the present study.

Limitations of the Present BT-RP Study and Recommendations for Future Research

The present BT-RP study was limited in several respects. As previously discussed, the research design did not allow for a direct comparison between BT based on

Coping with Panic (Clum, 1989) and the present BT-RP program, since all participants in the BT-RP group had already completed the former BT intervention in Phase II (Febbraro, 1997). In retrospect, it may have been useful to include a third between-group condition in the present study that did not participate in one of the Phase II treatment groups (Febbraro, 1997) as a means of comparing these two types of BT-based interventions (i.e., Coping with Panic versus the present BT-RP program). Given the reliance of the BT-RP program on various aspects of the techniques contained in Coping with Panic (Clum, 1990), however, it would be necessary to alter the BT-RP program somewhat before comparing the effects of these two types of approaches to BT.

The present research design did not provide the opportunity to identify the active treatment ingredients responsible for the positive treatment effects that were found. The goal in developing the BT-RP program was to create an intervention that was broad enough to apply to a range of clients, but flexible enough to be tailored to meet each participants' idiosyncratic needs. The major components of the BT-RP approach were modeled after previous research in this area (Espie, 1986; Hiss et al., 1994; Ost, 1989), and were based on studies that identified common precipitants of relapse for anxiety disorders (see Wright, 1994, for a review). The multi-component BT-RP intervention was designed to: (a) increase therapeutic self-exposure to anxiety-provoking cues; (b) increase panic coping skills practice; (c) enhance social support for panic recovery; (d) teach cognitive restructuring skills specific to RP; (e) provide a protocol to follow in the event of a setback; and (e) reduce overall levels of stress. Moreover, in each of these six targeted areas, a number of coping techniques were recommended. Consequently, it is highly doubtful that any one individual utilized all, or even most, of the RP techniques recommended. Nonetheless, it could well be that certain aspects of the BT-RP program

were uniformly beneficial, whereas other components may have been differentially effective depending on one's unique case history.

As mentioned above, comparing the results of several studies examining BT-based interventions for panic attacks suggests that the use of brief monthly phone contacts in the present study with the BT-RP group was likely a key active treatment ingredient (Clum, 1990; Febbraro, 1997; Gould & Clum, 1995; Gould et al., 1993; Lidren et al., 1994). In discussing the somewhat limited findings in Phase II, Febbraro (1997) suggested that the absence of personal contacts during the initial BT-based interventions negatively impacted the effectiveness of the interventions due to decreased social support that may have affected participants' commitment to treatment and motivation for change. Virtually all participants in the BT-RP condition of the present study made themselves available for each of the six monthly phone contacts. In addition, they generally expressed appreciation and high regard for these calls that were designed to provide social support, increase therapeutic motivation, problem-solve regarding any recent panic or anxiety episodes, and remind participants how to tailor various aspects of the BT-RP program to meet their specific needs. It is not known, however, what additional factors may have contributed to the generally positive outcome, or what components were not efficacious.

Anecdotally, several individuals in the BT-RP condition of the present study mentioned that they thought the treatment manual was too long and described various components in too much detail. At least one other researcher investigating RP programs for addictive behaviors has noted similar participant feedback regarding the length of RP treatment manuals (Stephens, 1995). Hence, when it comes to developing and honing BT-based RP manuals, the old maxim "less is more" may be applicable, assuming the RP techniques included are the appropriate ones. Based on the results of systematic surveys

of participants, the present BT-RP program could be pared down and then re-tested in a controlled treatment trial.

Beyond participant feedback, there are several additional means of identifying the active treatment ingredients of RP programs that need to be further explored. First, studies can be designed that directly compare various common components of RP programs. For example, the present study could be replicated, but stipulate that only half of the BT-RP participants receive the monthly phone contacts. Alternately, an RP treatment matching approach could be tested in which participants would be classified into various types of relapse risk categories according to the results of a comprehensive pre-BT-RP assessment (e.g., high overall stress and low social support versus low coping skills practice and insufficient exposure). Then, based on their pre-RP classification, researchers would recommend specific aspects of the program, or be given abbreviated versions of the BT-RP manual, forming natural between-group comparisons.

Improved indices of treatment compliance can also serve as a vehicle for identifying effective RP treatment components. In the present study, treatment compliance was measured according to BT-RP participants' performance on a questionnaire assessing their reading and understanding of the RP manual, but did not include objective behavioral indices of compliance, or collateral reports of the RP techniques utilized. In future studies, these additional measures of treatment compliance can be statistically linked to RP treatment outcome.

In addition, a longer treatment trial would have been desirable in the present study, since prior research indicates that relapse rates for PD begin to mostly occur six months after treatment termination (Barlow et al., 1989). In future BT-RP treatment studies, higher sample sizes than the one utilized in the present study ($N = 36$) are recommended in order to increase power, subject variability, and the ability to detect between-group

treatment effects. In retrospect, it may have been desirable to alter the stratified random assignment procedures utilized in the present study in order to avoid the apparent floor effects found for panic frequency data. Rather than assigning participants to the two treatment conditions based on whether they were panic-free or not, greater between-group equivalence in panic frequency at pre-treatment could have been achieved by assigning participants to groups based on whether they had experienced two or more full-blown panic attacks. Furthermore, given the previously discussed significant differences in gender ratios between the BT-RP and WL groups, this variable should also be included as a means of stratifying participants to treatment condition in future studies in this area.

As mentioned above, another potential limitation of the present study pertains to participant recruitment. During participant recruitment prior to Phase I of the present Panic Self-Help Project (Roodman, 1996), inclusion criteria was loosened somewhat in comparison to prior research in this area in that individuals who had experienced at least one full-blown or limited-symptom panic attack were allowed to participate. In addition, though over two-thirds of the Phase III sample met DSM-IV diagnostic criteria for current panic disorder, approximately one-third did not. In contrast, previous studies in this area have typically included only those individuals who had experienced at least one full-panic attack, and met diagnostic criteria for panic disorder at pre-treatment (Gould & Clum, 1995; Gould et al., 1993; Lidren et al., 1994). Therefore, its conceivable that the present study may not have been as effective with a more severe clinical sample, and this issue needs to be addressed in future research. Of the variables measured in the present study, the subgroup of participants with PD did exhibit significantly higher levels of agoraphobic avoidance at post-treatment than the non-panic disordered subgroup.

In terms of basic research, the most obvious need is for studies designed to identify the cognitive, emotional, behavioral, motivational, and interpersonal predictors of

sustained recovery versus full relapse, and/or temporary setbacks (Marlatt & Gordon, 1985), following successful treatment for PD. The use of advanced statistical techniques such as hierarchical multiple regression analysis, path analysis, and structural equation modeling should help identify those factors most commonly associated with relapse for panic attacks. Though relapse rates of treatment outcome studies utilizing the multidimensional cognitive-behavioral approach to treating PD recommended by the National Institutes of Health (1991) are generally low in the short-term (Barlow et al., 1989; Clum, 1989, 1990; Michelson & Marchione, 1991), less is known about how individuals treated for PD fare over the long-term (Wright, 1994). Additional research similar to the investigation of the present BT-RP program should help augment initial treatment gains.

Future studies designed to enhance our understanding of those variables that predict successful versus unsuccessful long-term treatment outcome will assist in the development of empirically-driven theoretical models of relapse that should lead to more efficacious RP interventions. This type of research would assist in identifying the underlying mechanisms of change responsible for durable positive treatment outcomes. In addition, more research needs to be devoted to understanding the natural course of PD. Few studies have been published to date with this goal in mind which limits our current conceptual understanding of relapse and its prevention.

Conclusions

The primary contribution of the present study is that the BT-RP program utilized appears to be a viable form of augmenting treatment that compares favorably with prior research examining RP programs for anxiety disorders that were delivered in-person (Espie, 1986; Hiss et al., 1994; Ost, 1989). It represents just the second study to demonstrate the efficacy of an RP program for an anxiety disorder that was tested in a

controlled treatment trial. The further development of effective RP programs for panic disorder and other psychological disturbances that can be delivered in a minimal-contact BT treatment regimen can potentially lead to supplementary BT-RP interventions that are readily accessible and affordable. Moreover, the use of BT-RP interventions can also help extend clients' view of the recovery process as typically a long-term endeavor that commonly involves a waxing and waning symptomatic course, and an ongoing commitment to proactive RP techniques, before durable CSI is achieved.

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Table 1

Demographic Characteristics of Phase III Sample (N = 36)

Variable	Treatment Condition	
	Relapse Prevention	Waiting-List
	(N = 17)	(N = 19)
Age	49.82 (12.40)	42.89 (11.09)
Continuous Months of Panic	94.29 (100.26)	54.84 (80.87)
Meds/Total in Group	8/17	13/19
Marital Status		
Single	2	1
Married	9	17
Divorced	6	1
Gender--Male/Female	7/10	2/17
Race		
Caucasian	17	19

Table 2

DSM-IV Diagnostic Summary of Phase III Sample (N = 36)*

<u>Diagnosis</u>	<u>N</u>	<u>% of Sample with Diagnosis</u>
Panic Disorder w/Agoraphobia--current	24	66.7
Panic Disorder w/o Agoraphobia--current	1	2.8
Panic Disorder w/Agoraphobia--past	1	2.8
Panic Disorder w/o Agoraphobia--past	3	8.3
Agoraphobia w/o Panic Disorder	0	0.0
Social Phobia	0	0.0
Specific Phobia	1	2.8
Alcohol Abuse	2	5.6
Alcohol Dependence	0	0.0
Substance Abuse	1	2.8
Substance Dependence	0	0.0
Psychotic Disorder	0	0.0
No Diagnosis for categories assessed for	6	16.7

* Note: More than one diagnosis could be made for each participant.

Table 3

Means and Standard Deviations of Panic Attack Frequency and Panic-related Symptoms for the BT-RP and WL Control Groups at Pre- and Post-BT-RP Assessment

Dependent Measure	Pre-BT-RP Assessment		Post-BT-RP Assessment	
	M	SD	M	SD
<u>Full-blown Panic Attacks - (CPP)</u>				
BT-RP (N = 17)	1.06	1.23	0.88	2.55
WL (N = 19)	2.84	5.09	2.11	4.07
<u>Limited-symptom Panic Attacks - (CPP)</u>				
BT-RP (N = 17)	2.59	2.06	1.24	1.35
WL (N = 19)	3.79	4.18	3.06	4.66
<u>Combined Panic Attacks - (CPP)</u>				
BT-RP (N = 17)	3.65	2.91	2.12	3.66
WL (N = 19)	6.63	7.93	5.16	7.12
<u>Panic Attack Symptoms - (PASQ)</u>				
BT-RP (N = 17)	40.47	22.74	29.24	23.46
WL (N = 19)	49.37	29.17	42.84	33.83
<u>Panic Attack Cognitions - (PACQ)</u>				
BT-RP (N = 17)	22.12	12.36	13.00	11.71
WL (N = 19)	25.00	16.73	23.32	18.87
<u>Anticipatory Anxiety - (FHPA)</u>				
BT-RP (N = 17)	21.36	10.26	10.71	8.28
WL (N = 19)	25.58	14.58	23.58	15.90
<u>Agoraphobic Avoidance - (AQ)</u>				
BT-RP (N = 17)	27.94	22.57	20.65	20.11
WL (N = 19)	25.26	23.12	25.89	23.52
<u>Panic Coping Skills - (CSQ)</u>				
BT-RP (N = 17)	56.06	20.67	65.82	19.96
WL (N = 19)	61.26	19.91	63.79	16.34
<u>Confidence in Coping Skills - (CCS)</u>				
BT-RP (N = 17)	42.18	15.62	58.94	15.79
WL (N = 19)	38.58	15.41	45.74	20.80
<u>Depression - (BDI)</u>				
BT-RP (N = 17)	12.00	7.54	7.29	5.65
WL (N = 19)	13.42	13.09	13.03	11.83
<u>State Anxiety - (STAI-Y1)</u>				
BT-RP (N = 17)	48.65	4.61	44.53	9.02
WL (N = 19)	51.68	10.19	52.95	10.50

BT-RP=Bibliotherapy Relapse Prevention Group; WL=Waiting-list control group; CPP=Comprehensive Panic Profile; PASQ=Panic Attack Symptoms Questionnaire; PACQ=Panic Attack Cognitions Questionnaire; FHPA=Fear of Having a Panic Attack Questionnaire; AQ=Avoidance Questionnaire; CSQ=Coping Strategies Questionnaire; PSEQ=Panic Self-efficacy Questionnaire; BDI=Beck Depression Inventory; STAI-Y1=Spielberger State-Trait Anxiety Inventory.

Table 4**Summary of 2 (Treatment condition; BT-RP vs. WL) X 2 (Time: Pre-BT-RP vs. Post-BT-RP Assessment) Mixed-Model Repeated Measures ANOVA Findings on Outcome and Process Measures**

Dependent Measure	<u>Main Effect of Condition</u> (p values)	<u>Main Effect of Time</u> (p values)	<u>Condition by Time Interaction Effect</u> (p values)
Panic Symptoms - (PASQ)	(p < .205)	(p < .011)**	(p < .483)
Panic Cognitions - (PACQ)	(p < .180)	(p < .004)***	(p < .042)**
Anticipatory Anxiety - (FHPA)	(p < .042)**	(p < .0001)*****	(p < .003)***
Agoraphobic Avoidance - (AQ)	(p < .862)	(p < .044)**	(p < .018)**
Panic Coping Skills - (CSQ)	(p < .796)	(p < .004)***	(p < .075)*
Confidence in Coping Skills - (CCS)	(p < .085)	(p < .001)***	(p < .144)
Depression - (BDI)	(p < .278)	(p < .014)**	(p < .036)**
State Anxiety - (STAI-Y1)	(p < .037)**	(p < .325)	(p < .068)*

PASQ=Panic Attack Symptoms Questionnaire; PACQ=Panic Attack Cognitions Questionnaire; FHPA=Fear of Having a Panic Attack Questionnaire; AQ=Avoidance Questionnaire; CSQ=Coping Strategies Questionnaire; PSEQ=Panic Self-efficacy Questionnaire; BDI=Beck Depression Inventory; STAI-Y1=Spielberger State-Trait Anxiety Inventory; * Trend toward significance (p < .100); ** (p < .05); *** (p < .01); ***** (p < .001).

Table 5

Percentage of Participants by Condition Meeting Criteria for Clinically Significant Improvement at Pre- and Post-RP-BT-Assessment

Dependent Measure	Range	Cutoff	Pre-BT-RP Assessment		Post-BT-RP Assessment	
			BT-RP	WL	BT-RP	WL
Full-blown Panic Attacks (proportion)	0-n	0	47% (8/17)	58% (11/19)	82% (14/17)	68% (13/19)
RPAS-Full-blown Panic Attacks (proportion)	0-n	0	N/A	N/A	59% (10/17)	32% (6/19)
PASQ (proportion)	0-144	13	12% (2/17)	5% (1/19)	35% (6/17)	21% (4/19)
PACQ (proportion)	0-75	10	21% (4/17)	5% (1/19)	53% (9/17)	26% (5/19)
FHPA (proportion)	0-60	13	26% (5/17)	21% (4/19)	59% (10/17)	26% (5/19)
AQ (proportion)	0-88	0	6% (1/17)	0% (0/19)	26% (5/17)	0% (0/19)
BDI (proportion)	0-60	9	47% (8/17)	53% (10/19)	59% (10/17)	42% (8/19)

RPAS=Retrospective Panic Attack Survey (recall of full-blown panic attacks over six-month treatment trial); PASQ=Panic Attack Symptoms Questionnaire; PACQ=Panic Attack Cognitions Questionnaire; FHPA=Fear of Having a Panic Attack Questionnaire; AQ=Avoidance Questionnaire; BDI=Beck Depression Inventory.

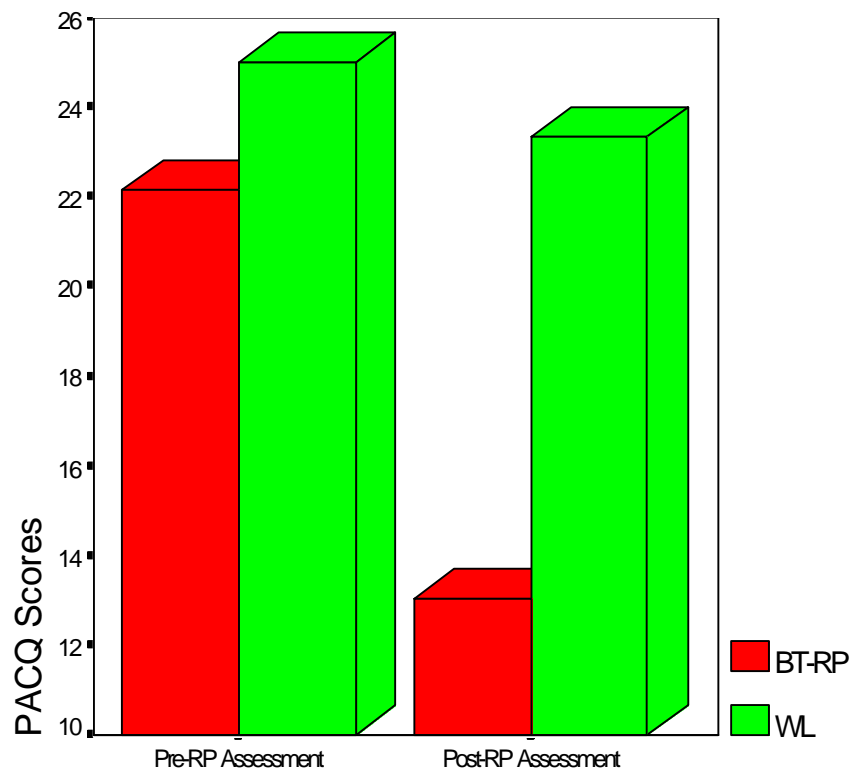
Table 6**Proportional Differences in Attainment of Clinically Significant Improvement by Condition During Phase III**

Dependent Measure	<u>Treatment Condition</u>	
	<u>BT-RP</u>	<u>WL</u>
Full-blown Panic Attacks (percentage)	8/9* (89%)	3/8 (38%)
RPAS-Full Blown Panic Attacks (percentage)	10/17 (59%)	6/19 (32%)
PASQ (percentage)	5/15 (33%)	3/18 (17%)
PACQ (percentage)	5/13 (38%)	4/15 (26%)
FHPA (percentage)	6/12 (50%)	3/15 (20%)
AQ (percentage)	4/16* (25%)	0/19 (0%)
BDI (percentage)	4/9 (44%)	2/9 (22%)

Note: proportional data refers to those participants who had not attained clinically significant improvement at the pre-BT-RP assessment, but had reached this level of improvement at the post-BT-RP assessment. RPAS=Retrospective Panic Attack Survey (recall of full-blown panic attacks over six-month treatment trial); PASQ=Panic Attack Symptoms Questionnaire; PACQ=Panic Attack Cognitions Questionnaire; FHPA=Fear of Having a Panic Attack Questionnaire; AQ=Avoidance Questionnaire; BDI = Beck Depression Inventory. * Fisher's Exact Test indicating significant between-group proportional differences at the ($p < .05$) level.

Figure 1

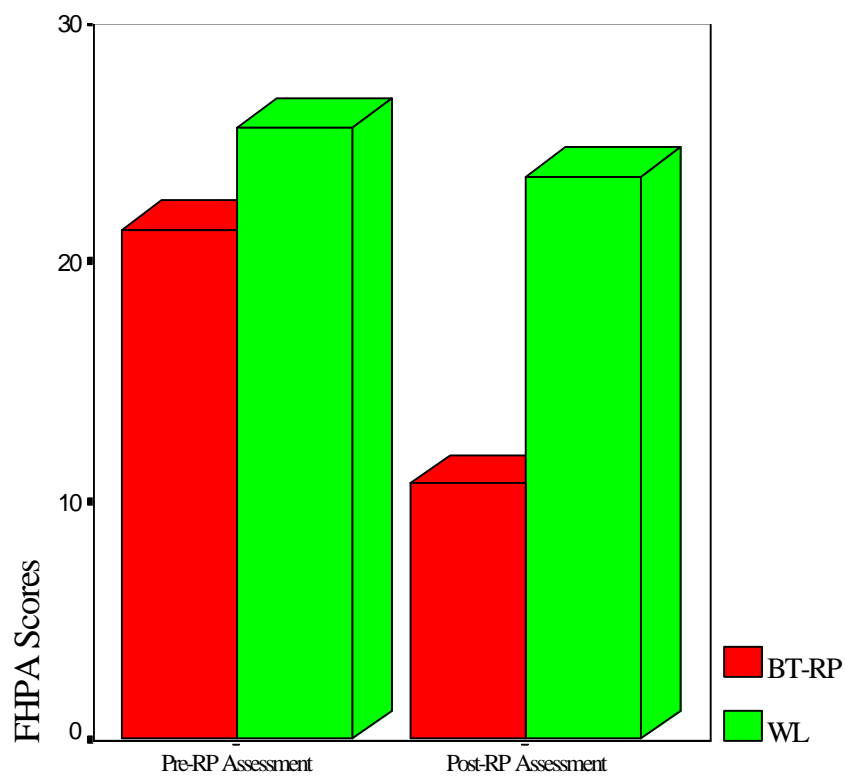
Changes in Panic Cognitions (PACQ) by Condition (BT-RP vs. WL) in Phase III



Significant BT-RP Treatment Effects for Panic Cognitions: Main Effect for Time; Condition by Time Interaction; Between-group Difference at Post-treatment when Controlling for Initial Levels of Panic Cognitions at Pre-treatment via an ANOCOVA.

Figure 2

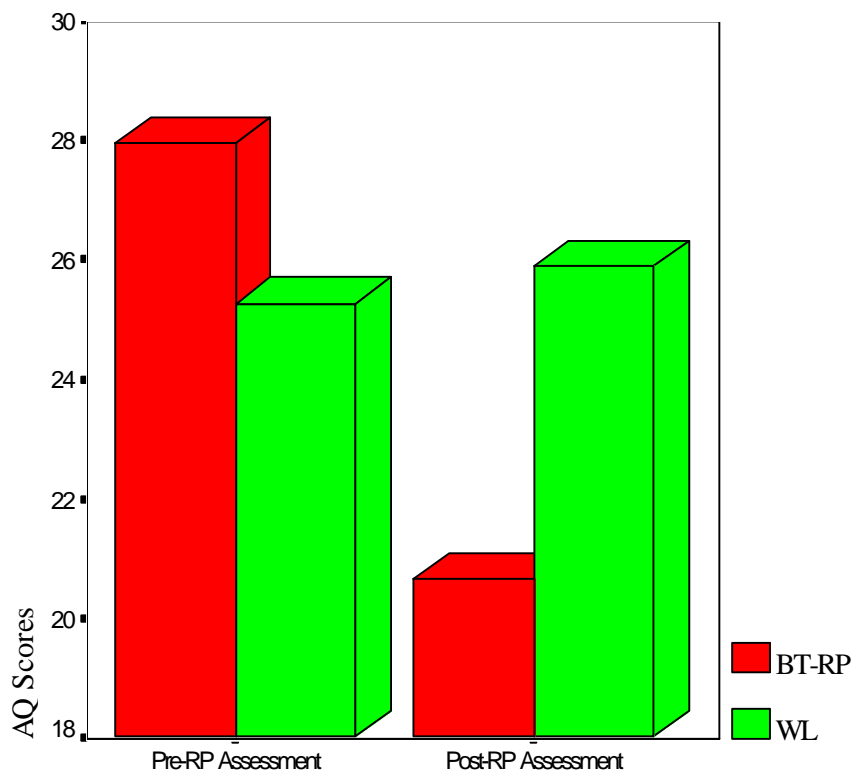
Changes in Anticipatory Anxiety (FHPA) by Condition (BT-RP vs. WL) in Phase III



Significant BT-RP Treatment Effects for Anticipatory Anxiety: Main Effect for Time; Condition by Time Interaction; Between-group Difference at Post-treatment when Controlling for Initial Levels of Anticipatory Anxiety at Pre-treatment via an ANOCOVA.

Figure 3

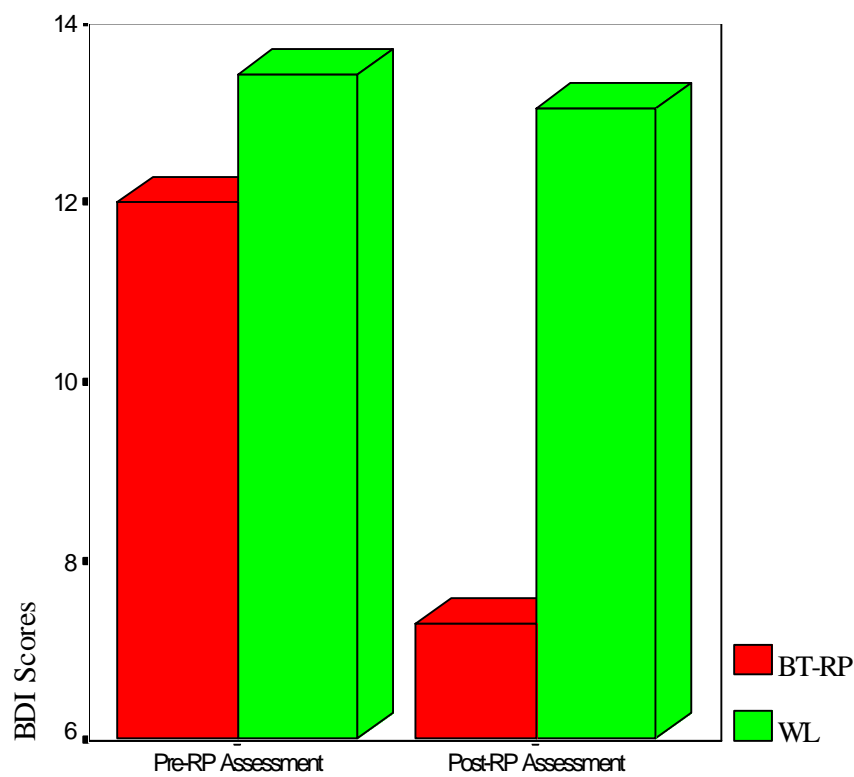
Changes in Agoraphobic Avoidance (AQ) by Condition (BT-RP vs. WL) in Phase III



Significant BT-RP Treatment Effects for Agoraphobic Avoidance: Main Effect for Time; Condition by Time Interaction; Between-group Difference at Post-treatment when Controlling for Initial Levels of Agoraphobic Avoidance at Pre-treatment via an ANOCOVA.

Figure 4

Changes in Depression (BDI) by Condition (BT-RP vs. WL) in Phase III



Significant BT-RP Treatment Effects for Depression: Main Effect for Time; Condition by Time Interaction; Between-group Difference at Post-treatment when Controlling for Initial Levels of Depression at Pre-treatment via an ANOCOVA.

CURRICULUM VITAE
1997
JOSEPH H. WRIGHT

PERSONAL INFORMATION

Birth date: April 6, 1960

Birthplace: Richmond, VA

Home Address: 2020 Garrett Road, Apartment # 415
Lansdowne, PA, 19050
(610) 284-1006

Business Address: The Center for Cognitive Therapy
University of Pennsylvania
36th and Market Streets
Philadelphia, PA, 19104
(215) 898-4100

E-Mail: jw9y@uva.edu; Will be updated in September, 1997

EDUCATION

September, 1997-
Present University of Pennsylvania
The Center for Cognitive Therapy
Philadelphia, PA, 19104
Post-doctoral Fellow in Clinical Psychology
Areas of Interest: Cognitive Therapy; Relapse Prevention;
Substance Abuse; Axis II Disorders; Clinical Supervision
Training Director: Cory Newman, Ph.D.

June, 1996-
June, 1997 University of Virginia Health Sciences Center
Department of Psychiatric Medicine
Charlottesville, VA, 22902
Pre-doctoral Intern/Resident in Clinical Psychology
Rotations: Family Stress Clinic; Institute of Law,
Psychiatry, & Public Policy; Neuropsychology
Assessment Laboratory; and Western State Hospital
Clinical Supervisors: Jeffrey T. Barth, Ph.D.,
Gary Hawk, Ph.D., Jeffrey Phillips, Ph.D., and
David T. Waters, Ph.D.

August, 1992-
August, 1997 Virginia Polytechnic Institute
and State University (VPI & SU)
Blacksburg, VA, 24061 - 0436
Ph.D. in Clinical Psychology awarded August, 1997
Dissertation Title: An Investigation of a Bibliotherapy-
based Relapse Prevention Program for Panic Attacks

Clinical Specialization: Cognitive therapy with adults;
Major Advisor: George A. Clum, Ph.D.; GPA: 3.90

August, 1986-
May, 1991

Villanova University
Villanova, PA, 19085
M.S. in General/Experimental Psychology, May, 1991
Thesis Title: The Role of Apparent Motion in Exogenous
Attention Allocation
Major Advisor: Charles L. Folk, Ph.D.

August, 1978-
May, 1983

Virginia Commonwealth University
Richmond, VA, 23221
B.S. conferred May, 1983
Major: Psychology

POSITIONS HELD

September, 1997-
Present

University of Pennsylvania
The Center for Cognitive Therapy
Philadelphia, PA, 19104
Title: **Post-doctoral Fellow in Clinical Psychology**
Duties: Conduct 20-25 hours of cognitive therapy;
complete two structured intake evaluations per week;
attend case conferences and other cognitive therapy
training seminars; participate in multi-site research project
investigating cognitive-behavioral techniques for

treating

borderline personality disorder.

Clinical Supervisors: Mary Anne Layden, Ph.D.,
Cory Newman, Ph.D.

June, 1996-
June, 1997

University of Virginia Health Sciences Center
Department of Psychiatric Medicine
Charlottesville, VA, 22902
Title: **Pre-doctoral Intern in Clinical Psychology**
Six-month Rotations: **Family Stress Clinic** - Conducted
family therapy utilizing structural/systemic family therapy
model. **Forensic Psychology** - Evaluated criminal
defendants regarding referrals for competency to stand trial
(CST) and mental status at the time of the offense
Neuropsychology - Completed 25

(MSO).
neuropsychology

evaluations pertaining to ADHD, closed head injuries,
dementia, heart and lung transplant candidates, stroke
victims, learning disorders, drug and alcohol abuse, and
general psychiatric referral questions. **Inpatient**
Psychiatry - Conducted individual and group therapy
with chronically mentally ill patients in state psychiatric
hospital setting. Most patients suffering from schizophrenia,
bipolar disorder, major depression, substance dependence,
and/or severe Axis II disorders.

Director of Clinical Training: Patrick C. Fowler, Ph.D.

July, 1995-

Virginia Polytechnic Institute

- June, 1996
- and State University (VPI & SU)**
University Counseling Center
Blacksburg, VA, 24061
Title: Intern in Clinical Psychology
Duties: Completed a one-year 2,000 hour internship in clinical psychology. Completed 25 hours per week of direct clinical service which included individual, couples, and group therapy, and walk-in crisis intervention. Also was involved in various outreach programs, vocational and career counseling, supervising practicum students, and developing the internship program. Designed study examining effectiveness of minimal-contact bibliotherapy for unipolar depression with college students.
Director of Clinical Training: Robert M. Miller, Ed.D.
- August, 1992-
May, 1995
- Virginia Polytechnic Institute**
and State University (VPI & SU)
Psychological Services Center
Blacksburg, VA, 24061
Title: Graduate Clinician (practicum training)
Duties: Completed three years of formal practicum training in clinical psychology. Received supervised training in psychological and behavioral assessment, diagnostic interviewing, and treatment planning and implementation. Treated clients with a range of primary presenting problems, psychosocial stressors, and DSM-IV disorders. Doctoral program at Virginia Tech adheres to a social learning/cognitive-behavioral training model with an emphasis on empirically-validated interventions.
Director of Clinical Training: Thomas H. Ollendick, Ph.D.
- May, 1994-
August, 1994
- Veterans Affairs Medical Center**
Psychology Service
Martinsburg, WV
Title: Clinical Psychology Extern
Duties: Completed 500 hour summer traineeship with a major rotation in inpatient substance abuse and minor rotations in behavioral medicine and PTSD.
Director of Clinical Training: Bruce V. Corsino, Psy.D.
- May, 1993-
August, 1993
- Veterans Affairs Medical Center**
Psychology Service
Salem, VA
Title: Clinical Psychology Extern
Duties: Completed 500 hour summer traineeship with a major rotation in outpatient psychotherapy and minor rotations in behavioral medicine and psychological assessment.
Director of Clinical Training: Jerome D. Gilmore, Ph.D.
- August, 1990-
August, 1992
- University of Pennsylvania**
The Center for Cognitive Therapy
Philadelphia, PA, 19104
Title: Volunteer Research Assistant

Duties: Responsible for conducting clinical interviews with acutely suicidal inpatients as part of an ongoing research project investigating risk factors for suicidal behavior. Attended weekly case conferences.

Research Supervisor: Aaron T. Beck, M.D.

July, 1988-
August, 1992

**Delaware County (PA) Juvenile Court
Juvenile Probation Department**
Media, PA

Title: **Juvenile Intake Counselor**

Duties: Conducted family, psychosocial, and drug/alcohol assessments; assisted with probation supervision; provided crisis counseling; and made treatment referrals.

Supervisor: Priscilla Schneiper, M.S.W.

August, 1991-
August, 1992

**Crozer Chester Medical Center
Crisis Service and Inpatient Psychiatry**
Chester, PA

Title: **Crisis Counselor (part-time)**

Duties: Worked as part of a multi-disciplinary psychiatric crisis team. Conducted walk-in and hot-line crisis counseling with patients with a range of psychiatric disorders. Assisted with involuntary commitment decisions and outpatient treatment referrals.

Clinical Supervisor: Dan Boone, M.S.W.

PUBLICATIONS

Refereed Journal Articles

Clum, G. A., Canfield, D. L., Van Arsdel, M., Yang, B., Febraro, G. A. R., & Wright, J. H. (in press). An expanded etiological model for suicide behavior in adolescents: Evidence for its specificity relative to depression. Journal of Psychopathology and Behavioral Assessment.

Folk, C. L., Remington, R., & Wright, J. H. (1994). Does Motion Capture Attention? Journal of Experimental Psychology: Human Perception and Performance, 2, 335-343.

Manuscripts in Preparation

Wright, J. H. & Clum, G. A. An investigation of a minimal-contact bibliotherapy approach to relapse prevention for individuals treated for panic attacks. Manuscript in preparation.

PROFESSIONAL PRESENTATIONS

Symposia

Clum, G. A., Roodman, A. A., Febraro, G. A. R., & Wright, J. H. (April, 1996). Self-Help Treatment for Panic Attack Sufferers. Symposium presented at the Annual Conference of the Southeastern Psychological Association (SEPA), Norfolk, VA.

Clum, G. A., Canfield, D. L., Yang, B., & Wright, J. H. (March, 1993). Depression, hopelessness, and problem-solving in suicidal ideation following treatment in a college sample.

Symposium presented at the Annual Conference of the Southeastern Psychological Association (SEPA), New Orleans, LA.

Clum, G. A., Priester, M., Weaver, T., Putnam, D., Pickett, C., Gould, R. A., Yang, B., Weise, K., Curtin, L., Febraro, G. A. R., & Wright, J. H. (March, 1993). Group problem-solving and group support treatments for chronic suicide ideation. Symposium presented at the Annual Conference of the Southeastern Psychological Association (SEPA), New Orleans, LA.

Folk, C. L., & Wright, J. H. (April, 1992). The role of color, abrupt onset, and apparent motion in exogenous attention allocation. Symposium presented at the Annual Conference of the Eastern Psychological Association (EPA), Boston, MA.

Poster Presentations

Roodman, A. A., Clum, G. A., Febraro, G. A. R., & Wright, J. H. (November, 1996). A test of the effects of assessment and feedback on process measures for individuals with panic attacks. Poster presented at the 30th Annual Meeting of the Association for the Advancement of Behavior Therapy (AABT), New York, NY.

Wright, J. H., & Clum, G. A. (November, 1995). Relapse prevention and the anxiety disorders. Poster presented at the 29th Annual Meeting of the Association for the Advancement of Behavior Therapy (AABT), Washington, DC.

Febraro, G. A. R., Clum, G. A., Wright, J. H., & Roodman, A.A. (November, 1995). An investigation of the differential effectiveness of bibliotherapy and self-regulatory treatment in targeting panickers. Poster presented at the 29th Annual Meeting of the Association for the Advancement of Behavior Therapy (AABT), Washington, DC.

Roodman, A. A., Clum, G. A., Febraro, G. A. R., Wright, J. H., Graves, M. A, & Campe, D. .E (November, 1995). A test of the effectiveness of assessment and feedback with panickers. Poster presented at the 29th Annual Meeting of the Association for the Advancement of Behavior Therapy (AABT), Washington, DC.

Clum, G. A., & Wright, J. H. (November, 1995). An examination of risk factors for suicidal ideation following treatment in a college sample. Poster presented at the 28th Annual Meeting of the Association for the Advancement of Behavior Therapy (AABT), San Diego, CA.

Wright, J. H., Youngberg, R. A., & Beck, A. T. (August, 1992). Clinical and psychosocial predictors of suicidal risk. Poster presented at the Annual Convention of the American Psychological Association (APA), Washington, DC.

DISSERTATION RESEARCH

Title: An Investigation of a Minimal-Contact Bibliotherapy Approach to Relapse Prevention for Individuals Treated for Panic Attacks. Research was designed to test the efficacy of a minimal contact bibliotherapy-based relapse prevention (BT-RP) program for participants with DSM-IV panic attacks following an initial cognitive-behavioral bibliotherapy intervention. Active BT-RP treatment condition was compared to a waiting-list control (WL) group that received the same initial bibliotherapy intervention. The six-month RP program utilized the following treatment components: cognitive restructuring; instructions in how to maintain a therapeutic self-exposure and coping skills training program; exercises designed to enlist social support for panic recovery; a written protocol to follow in the event of a setback; general stress reduction techniques; and brief monthly telephone contacts with researchers. **Results** - indicated that the BT-RP group experienced significant reductions over time in panic cognitions, anticipatory anxiety, agoraphobic avoidance, and depression, whereas the WL control group did not. Moreover,

a higher proportion of participants in the BT-RP group manifested clinically significant improvement for panic-free status and agoraphobic avoidance in comparison to the WL group. At post-treatment, participants in the BT-RP condition reported experiencing significantly fewer full-blown panic attacks during the six-month treatment trial based on an index of retrospective recall of panic frequency. When controlling for initial levels at pre-treatment, participants in the BT-RP group evidenced significantly lower levels of state anxiety, depression, anticipatory anxiety, panic cognitions, and avoidance at post-treatment. Trends toward significance in the BT-RP group were found at post-treatment for increases in panic coping skills, and confidence in coping skills. Empirical support for the efficacy of a minimal-contact bibliotherapy-based RP program was demonstrated.

TEACHING EXPERIENCE

Teaching Assistant at Villanova University (1986-1988) and Virginia Tech (1992-1995). Served as a GTA for following undergraduate courses: General Psychology; Abnormal Psychology; Cognitive Psychology; Advanced Social Psychology; and Motivation. Primary duties included developing and administering exams and conducting exam review sessions; assigning readings and leading journal club discussions; preparing and delivering lectures; and tutoring. Have also independently taught several undergraduate laboratories in general psychology, motivation, and cognitive psychology.

GRADUATE COURSEWORK

Master's Program (Villanova University) - Theories of Psychotherapy; Behavior Modification in Counseling; Psychopathology; Personality Theories; Behavior Therapy; Professional Seminar in Research Methods; Statistics; Cognition and Learning; Sensation and Perception; and Organizational Psychology.

Doctoral Program (Virginia Tech) - Intellectual Assessment; Adult Psychopathology; Child Psychopathology; Two semesters of Statistics; Social Psychology; Personality Theories; Advanced Psychotherapy; Personality Assessment; Behavioral Assessment and Treatment; Clinical Ethics; Biological Basis of Behavior; Marital and Family Therapy; Interventions in Psychological Systems (group and family therapy); and Substance Use and Abuse.

PROFESSIONAL AFFILIATIONS

American Psychological Association (APA)
Association for the Advancement of Behavior Therapy (AABT)

REFERENCES

Jeffrey T. Barth, Ph.D., Professor, Chief of Psychology, Chief of Neuropsychology, Department of Psychiatric Medicine, *University of Virginia Health Sciences Center.* (Primary supervisor on neuropsychology rotation).

George A. Clum, Ph.D., Professor, Department of Psychology, *Virginia Polytechnic Institute and State University (VPI & SU); Member of Virginia State Board of Psychology.* (Major advisor, dissertation chairperson, clinical supervisor).

Aaron T. Beck, M.D., Professor Emeritus, Department of Psychiatry, *University of Pennsylvania Medical School; President, The Beck Institute for Cognitive Therapy and Research.* (Supervised research on risk factors for suicide; Attended case conference on cognitive therapy supervised by Dr. Beck on a weekly basis for two years).

