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Comparison and Generalization of Behavioral and Cognitive-Behavioral One-Session Exposure Treatments for Small Animal Phobias

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COMPARISON AND GENERALIZATION OF BEHAVIORAL AND COGNITIVE-BEHAVIORAL ONE-SESSION EXPOSURE TREATMENTS FOR SMALL ANIMAL PHOBIAS

by

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Ellen I. Koch

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CHAPTER I

INTRODUCTION

Statement of the Problem

"Anxiety disorder is the most prevalent of all the major groups of mental disorders and within this group, phobias are the most common disorder" (Lindemann, 1994, p. 161). Specific phobias involve anxiety reactions elicited by a circumscribed stimulus (Öst, 1989). According to the Diagnostic and Statistical Manual of Mental Disorders 4th Edition (DSM-IV) (American Psychiatric Association, APA, 1994), "The individual experiences a marked, persistent, and excessive or unreasonable fear when in the presence of, or when anticipating an encounter with, a specific object or situation" (p. 405). Further diagnostic criteria involve the (a) phobic stimulus provoking an anxiety response, (b) individual recognizing the excessiveness of the fear and (c) avoidance of the phobic situation (DSM-IV, APA, 1994).

The one-year prevalence rate for experiencing a specific phobia within the normal population is 9% and lifetime prevalence rates range from 10%-11.3% (DSM-IV, APA, 1994). The Epidemiologic Catchment Area Study sponsored by the National Institute of Mental Health reports lifetime prevalence rates from 7.8% to 23.3% (Robins, Helzer, Weissman, Orvaschel, Gruenberg, Burke & Regier, 1984). The lifetime prevalence rate for males is 7.2% and 13.9% for females according to Bourdon, Boyd, Rae, Burns, Thompson, & Locke (1988). Variations in these prevalence rates may be due to difficulty judging impairment without access to an

operational definition for the distress/impairment criterion (Antony, Moras, Meadows, Di Nardo, Utech, & Barlow, 1994), or the difficulty detecting phobias because symptoms are concealed due to avoidance of the stimuli (Reich, 1986). The diagnosis of a specific phobia depends on the circumstances of the individual's life, and "Although phobias are common in the general population, they rarely result in sufficient impairment or distress to warrant a diagnosis of Specific Phobia" (DSM-IV, APA, 1994, p. 408). Kleinknecht (1991) indicates that between 5%-10% of North Americans suffer from a clinically diagnosable phobia. Therefore, even though specific phobias are prevalent and effective treatments are available (Öst, 1989) many (i.e., insects, mice and snakes) are unlikely to cause significant impairment in functioning and result in few individuals seeking treatment.

According to the DSM-IV (APA, 1994), animal fears primarily begin in childhood. Fears of animals are common among children and usually diminish by age six. Therefore, the onset for animal phobia is around age seven. Öst (1987) found that animal phobias started earlier than all other phobias studied. Marks & Gelder (1966) stated that although no small animal phobias start during adulthood, individuals only presented for treatment as adults. It is estimated that as many as 40% of childhood fears continue into adulthood (Kleinknecht, 1991). It is not clear what differentiates those that lose their animal fears in the maturation process from those that do not, although McNally & Steketee (1985) suggest that differential avoidance behavior is a possible explanation. They indicate that phobic individuals consistently avoid the phobic animal and in this process limit the possibility for naturally occurring fear

reduction (McNally & Steketee, 1985), whereas, non-phobic individuals do not engage in avoidance.

Animal phobia is the most prevalent specific fear for women and the second most prevalent for men (Curtis, Magee, Eaton, Wittchen, & Kessler, 1998). Reich (1986) reports that, "...phobia is the most frequent emotional disorder in women in all age groups and one of the most common in men as well" (p. 130). In addition, he states that, "the female to male ratio in phobias is at least 2:1" (Reich, 1986, p. 130) and Bourdon et al. (1988) found a ratio of 2.7:1 for females and males with small animal fears. Animal phobias also tend to occur more intensely in females than in males (Thorpe & Salkovskis, 1997).

Fears can develop following a traumatic experience, after observing another fearful individual, or through information transmission (i.e., constant warnings) (DSM-IV, APA, 1994). These situations serve as conditioning events such that the presence of the specific conditioned stimulus (i.e., a particular animal) elicits a conditioned arousal response. McNally & Steketee (1985) found that 71% of the participants who could remember the fear onset attributed the fear to conditioning experiences involving frightening, but not painful, interactions with the animal. Öst (1985) stated that 50% of the animal phobics reported conditioning experiences in the acquisition of the phobia, 22.2% attributed the acquisition to modeling and 19.5% to information or instruction. Öst & Hugdahl (1981) reported similar percentages with 47.5%, 27.5% and 15% respectively for animal phobias. Muris, Merckelbach, & Collaris (1997) found that, "...high fearful children reported more conditioning experiences with spiders than moderate and low fearful children" (p. 934). The fearful

children also reported that the conditioning experiences made them more afraid of spiders. Nearly 41% of spider phobic children were able to report the conditioning event that initiated the fear and their parents confirmed most of these events (Merckelbach, Muris, & Schouten, 1996). Conditioning experiences are common among spider phobics, and conditioning and modeling play a more important role than informational learning when it comes to the acquisition of animal phobias (Merckelbach, Arntz, & de Jong, 1991).

Another theory about the acquisition of phobias involves the familial transmission of fears. Fyer, Mannuzza, Gallops, Martin, Aaronson, Gorman, Liebowitz, & Klien (1990) report that the rate of animal phobias is higher among relatives of animal phobics than relatives of control or situational phobic participants. Fredrikson, Annas, & Wik (1997) found that of the animal phobic participants, 37% of the mothers and 7% of the fathers had snake or spider phobia. The familial transmission of phobias may simply involve the effects of modeling by the phobic parent. Fredrickson et al. (1997) indicate that, "...the presence of specific phobias in mothers may be a more significant risk factor for the development of phobias than the presence of specific phobias in fathers" (p. 27). However, given that twice as many woman are diagnosed with animal phobias as men, one would expect to find modeling from the mother to be more significant in the development of animal phobia.

Acquisition of animal fears through modeling has also been demonstrated in monkeys (Mineka, Davidson, Cook, & Keir, 1984; Cook & Mineka, 1989, 1990). Cook & Mineka (1989, 1990) showed that monkeys could demonstrate a strong and

persistent fear of snakes by watching videotapes of other monkeys reacting fearfully to the snake stimuli (either real or toy snakes). Mineka et al. (1984) showed that monkeys raised by parents with a fear of snakes did not acquire a fear of snakes without any specific experiences with snakes (i.e., the monkey did not observe the mother's fear). Monkeys that observed their mother responding fearfully to real, toy, and model snakes did develop a fear response. Mineka et al. (1984) concludes that simply living with someone who has a fear of snakes is not sufficient to acquire a strong fear without some modeling experiences. Conditioning experiences whether direct or indirect (i.e., modeling) play a substantial role in the acquisition of animal fears.

Rachman (1968) suggests that phobic reactions can be grouped by three components: subjective, autonomic, and motor. The subjective (cognitive) aspect involves the feeling of intense fear and panic, to a perceived threat, including thoughts about what is happening and what can be done about the threat. This component involves the cognitive appraisal process and the anticipatory anxiety that occurs (Kleinknecht, 1991). The autonomic (physiological) reaction includes physiological changes (i.e., rapid breathing, sweating, trembling, etc.) that occur. The physiological and the cognitive components work together in a feedback system (Kleinknecht, 1991). The motor (behavior) response involves actually leaving the situation (i.e., flight) or becoming "frozen" and unable to move (Rachman, 1968). Behavioral responses also involve attempts to avoid (i.e., not entering situations that may contain the feared stimulus) or escape (i.e., turning away or running from the stimulus) the feared stimulus (Kleinknecht, 1991). Under intense levels of threat,

phobic individuals are likely to experience all three components. Therefore, treatment should incorporate each component either directly or indirectly.

Exposure therapy has proven successful in alleviating symptoms of specific phobia (Chambless, 1990). Two primary types of exposure treatment are used with fears including exposure to the actual stimulus (in vivo) and imaginal exposure (in vitro) to self-generated images of the feared item. The goal of exposure therapy involves the conditioned stimulus eliciting a different conditioned response such that the presence of the animal no longer elicits heightened arousal or anxiety. The individual remains in the feared situation (i.e., in the presence of the animal) until he or she realizes that the feared consequences do not happen (Öst, 1997b, 1997a, 1989).

In vivo exposure is preferred to in vitro exposure. In vitro exposure only involves "contacting" the feared stimulus imaginally, which allows the participant to discontinue exposure by ignoring the stimulus. Therefore, the therapist cannot detect if imaginal exposure is actually occurring because he or she can not see the person's images. Furthermore, the participant, not the therapist, controls the amount and occurrence of exposure, whereas during in vivo exposure the visual stimulus is more difficult to ignore, allowing the therapist to control the degree and duration of the exposure occurring. Through controlled and systematic exposure to the actual stimulus, the therapist focuses on extinguishing the arousal response in the presence of the feared animal. Throughout exposure treatment, the individual is exposed to the feared situation until the conditioned stimulus no longer evokes the arousal response and anxiety is diminished. The individual remains in the exposure situation until arousal is reduced without escaping the anxiety experienced as the conditioned

response. Skinner (1953) stated that, "Avoidance responses may be interpreted as in part an escape from the emotional components of anxiety" (p. 179). Once the anxiety response is extinguished in the presence of the animal, avoidance of the stimuli is no longer necessary.

Review of Related Literature

Variations of exposure treatment have been found to reduce symptoms of anxiety disorders in general and specific phobias in particular. The first utilization of a single session treatment for animal phobias (i.e., rat/mouse phobia) involved a single session desensitization procedure conducted by Daniels (1974). This procedure involved a two-hour desensitization session for a 15-step hierarchy. Treatment took 40 minutes to advance through the entire hierarchy. The treatment utilized a light hypnotic trance instead of relaxation training. Following the treatment procedure, the participant was able to contact several rats without tension. A six-month follow-up interview indicated that the participant did not have any difficulty touching rats.

Recent studies have shown an effective exposure treatment for specific phobias that involves only one session (Hellström & Öst, 1995; Öst, Salkovskis, & Hellström, 1991; Öst, Hellström, Kåver, 1992; Öst, 1989, 1987, 1985; Koch, Luterek, & Spates, 1998). One-session exposure treatment involves a maximum of three hours and utilizes prolonged, in vivo exposure and participant modeling to the feared stimulus (Öst, 1989, 1987). The participant agrees to remain in the exposure situation until anxiety diminishes. This involves approaching the feared stimulus, allowing anxiety to diminish, and continuing to approach the stimulus more closely (Öst, 1989). The therapist continually models how the participant should interact with the

feared stimulus. The participant gradually contacts the object by initially touching the therapist as the therapist touches the feared object and approaches full contact with the stimulus alone. The participant then begins to interact with the object more and more with the therapist merely present in the room (Öst, 1989).

Individuals suitable for this treatment include those with circumscribed phobias for one specific situation or object (animal phobias are particularly appropriate), as well as those with the motivation to alleviate symptoms of phobia and willingness to tolerate possible anxiety during the treatment. The inclusion criteria employed by Öst (Hellström & Öst, 1995; Öst, et al., 1991; Öst, 1989, 1987, 1985) assesses secondary gain issues related to treatment. Specifically, a participant cannot be receiving positive consequences for their phobia prior to treatment and no predictable negative consequences are envisioned if the phobia is successfully treated.

Single-session exposure treatment was first employed for one case of injection phobia that had been present for 12 years (Öst, 1985). The session took 90 minutes to complete, and heart rate and subjective anxiety measures were taken throughout the session. The positive effects of treatment for this individual generalized to other injection situations and results were maintained for at least four years following treatment.

Öst (1987) then utilized one-session exposure to treat multiple specific phobias. A multiple baseline design was used with three one-session treatments. Little to no generalization effects were seen across phobias. However, generalization to the natural setting for treated phobias was observed. "A clinically meaningful change took place only when treatment was directed at the phobia in question, not when some

other of the phobias were treated" (Öst, 1987, p. 183). These improvements were maintained at a six-month follow-up.

In another study, Öst (1989) conducted one-session exposure treatment, averaging 2.1 hours, for 20 participants with various specific phobias (i.e., injection, spider, rat, cat, bird, and dog). Results indicated that 90% of the participants showed a clinically significant improvement (much improved or completely recovered), which was maintained through follow-up (four year average), Öst, 1989.

In 1991, Öst et al. compared therapist-directed exposure to self-exposure for spider phobia. This study demonstrated that therapist-directed exposure was significantly better than self-directed exposure at post-treatment and one-year follow-up. Also at post-treatment and follow-up, 71% of the therapist-directed group, compared to 6% of the self-directed group, displayed clinically significant improvements. Furthermore, 88% of the individuals in the therapist-directed treatment, compared to 13% in the self-exposure group, were able to complete the entire Behavioral Avoidance Test (BAT) at post-treatment and follow-up.

Therapist-directed one-session exposure treatment was also superior to two forms of manual-directed (specific spider and general manual) self-exposure (Hellström & Öst, 1995). Therapist-directed treatment was significantly more effective than the manual-based treatments at post-test and follow-up. Of the individuals in the therapist-directed group, 80% showed clinically significant improvements at follow-up.

It should be noted that no participant has ever been harmed physically, psychologically, or socially from completing one-session exposure treatment (Öst,

1985, 1987, 1989; Öst et al., 1991; Öst et al., 1992; Hellström & Öst, 1995), and none of the participants treated with one-session exposure dropped out during treatment. This is impressive, given that drop out rates generally tend to be high when exposure procedures are utilized. Öst postulates that it is probable that this treatment is effective because catastrophic thoughts concerning the phobia are tested to the extent that anxiety is no longer present within a specific situation/setting (Öst et al., 1991). In addition, the one-session treatment is economical and not limited by the return of fears between sessions, which may occur with other treatments that involve more sessions (Öst et al., 1992).

One goal of the exposure treatment session involves the participant managing his or her fear within the natural environment when confronted with the phobic object (i.e., spider phobic is able to remove a spider from the home), and achieving a normal, non-phobic relationship to the feared stimulus. A second goal involves a large amount of "overlearning", where treatment goes beyond the first goal (Öst, 1989). This requires that the participant be comfortable interacting with the feared stimulus beyond the amount required to remove the stimulus from the environment. For example, the participant allows the stimulus to crawl on both hands. In doing so, the participant is demonstrating that he or she is capable of more than the minimal requirement for "normal" functioning. Although the participant should be unaware of the second goal, to prevent avoidance of treatment related to fear of this component, the therapist needs to continually work toward that goal (Öst, 1989).

Öst's one-session exposure procedure utilizes cognitive and behavioral interventions to facilitate change (Öst, 1997b and Öst, 1997a). A portion of the

treatment procedure involves counteracting the catastrophic beliefs elicited by contact with the feared stimulus (Öst, 1997b). Öst (1991) indicates that, "...the most important factor in one-session treatment is making explicit the patient's catastrophic thoughts concerning the phobic situation and devising the exposure situation in such a way that these can be tested out" (p. 421). However, the influence and necessity of the cognitive interventions within one-session exposure has not been empirically demonstrated within Öst's line of research.

A behavioral one-session exposure procedure was utilized in Koch, Luterek, & Spates (1998) for the treatment of small animal phobias (i.e., snakes, spiders, rats, mice, and crawling insects). This procedure was strictly behavioral without any direct cognitive intervention and showed similar results to Öst's work. The average duration of treatment was 86.8 minutes compared to the 2.1 hours required for Öst's treatment procedure. The treatment produced significant change in the behavioral, self-report, and subjectively rated dependent measures from pretest to posttest particularly in relation to the Behavioral Avoidance Test (BAT). Clinically significant improvements were produced for the treatment participants at posttest and follow-up.

This behavioral one-session exposure treatment did not utilize cognitive interventions and the question remains if a cognitive component would produce additional benefits to this already effective treatment. A study conducted by Odom, Nelson, & Wein (1978) found that guided participation was the most effective treatment as indicated on measures of BAT and participant rating of fear. However, a cognitive restructuring treatment produced more change for heart rate than the guided

participation and generally produced lower anxiety on all measures. Therefore, Odom et al. (1978) suggested that cognitive restructuring was the treatment of choice for somatic anxiety. Emmelkamp and Felten (1985) assessed cognitive processes by having some participants engage in adaptive thinking during an in vivo exposure treatment procedure. They found that both conditions produced significant changes in heart rate and behavioral avoidance. Significant differences between the two groups were only seen on the cognitive measures (Emmelkamp & Felten, 1985). Öst (1992) conducted a case study of a woman with choking phobia for liquids. Exposure in vivo was utilized initially followed by cognitive therapy. The exposure treatment alone produced minimal changes on water intake and belief ratings; whereas, dramatic changes resulted after the cognitive therapy began.

Mattick & Peters (1988) conducted another study assessing the effectiveness of exposure with and without cognitive restructuring for individuals diagnosed with social phobia. The exposure and cognitive restructuring group showed a significantly greater increase in the percentage of the BAT completed at posttest and follow-up over the exposure only group. Both groups improved on self-rated avoidance at posttest; however, only the combination group continued to improve at follow-up (Mattick & Peters, 1988). Newman, Hofmann, Trabert, Roth, & Taylor (1994) conducted a final study assessing the treatment effectiveness of a cognitive component. This study assessed cognitive change that occurred following a purely behavioral treatment procedure for social phobia. They found that the treatment procedure led to changes on the behavioral, cognitive, and subjective measures

indicating that cognitive restructuring occurs without a specific cognitive intervention.

Purpose of the Present Study

The present study evaluated behavioral and cognitive-behavioral one-session exposure treatment procedures for small animal phobias across three anxiety components (cognitive, somatic, and behavioral). This evaluation of the interventions assessed if utilizing a cognitive intervention produced additional benefits for treatment outcome over those produced by the behavioral one-session exposure procedure. This study also assessed the effectiveness of programmed generalization when utilized with each treatment. The effectiveness of the treatment and generalization procedures were assessed for short-term and long-term (up to three months) effects.

The present study tested the hypothesis that the behavioral one-session exposure treatment procedure would alleviate the symptoms of specific phobia as effectively as a comparable treatment utilizing an additional cognitive component. This study also tested the hypothesis that the programmed generalization procedure would produce greater improvement in long-term outcome than the non-programmed generalization procedure. The effectiveness of the treatment and generalization conditions was assessed based on behavioral, subjective rating, diagnostic interview, and self-report measures of anxiety.

CHAPTER II

METHODS

Participants

Forty-six participants volunteered to participate in this study (see Appendix A for Human Subject Institutional Review Board and Institutional Animal Care and Use Committee approval letters). Participants were recruited from college classes, newspaper advertisements, radio announcements, and public postings (see Appendix B for recruitment flyer and classroom solicitation script). Participants were selected from a pool of adult, men and women who, according to their own report, were afraid of small animals. The participants indicated that they avoided contact with the particular animal and/or experienced extreme distress in the presence of the animal.

All participants included in the study possessed phobic symptoms for at least one year. The animal fears targeted for this study were snake, spider, rat, mouse, and crawling insect.

Potential participants were included only if they met diagnostic criteria for specific phobia – small animal type based on the ADIS-IV, (Brown, Di Nardo, & Barlow, 1994a). Participants with and without a lenient E diagnostic criterion (fear significantly interferes in the person's life or the person has marked distress about having the phobia, DSM-IV, APA, 1994), were included in this study. Specifically, a rating of four or greater on a 0 (none) – 8 (very severe) likert scale for either interference or distress on the ADIS-IV, (Brown, et al., 1994a) differentiated partial

from full diagnostic criteria. Potential participants were excluded based on the following five criteria outlined by Öst: (1) phobia duration less than one year, (2) not available throughout the follow-up period, (3) not motivated to overcome fear or not prepared to tolerate a possible high degree of anxiety during treatment, (4) current positive consequences from phobia (i.e., insurance compensation, threat of a legal claim, etc.), and (5) predictable negative consequences if phobia is successfully treated. Participants were also excluded if they were able to engage in direct contact with the feared animal during the baseline BAT or if they had a history of physical health conditions (i.e., heart or lung disease, neurological problems, recurring chest pains, stroke, seizures, or chronic headaches or ulcers within the last 30 days). Finally, participants were excluded if they endorsed any psychoticism items on the ADIS-IV (Brown et al., 1994a). Participants who reported regular drug or medication use related to the small animal phobia were also excluded if the medication effectively treated the phobia symptoms or if the participant (in consultation with the prescribing physician) would not discontinue the medication or drug use during the length of the study. Similarly, participants receiving effective treatment for their phobia at the time of the study were excluded from participating in this study.

During the first session, 15 participants were excluded from participation based on these criteria. Seven participants were excluded based on various health conditions such as current migraines (three), asthma or breathing difficulties (two), history of seizures (one), and chest pains or heart problems (one). Four participants were excluded because they did not meet diagnostic criteria for specific phobia, and

four other potential participants were able to handle the "feared" animal during baseline.

Prior to beginning the screening session, all potential participants signed an informed consent (see Appendix C) that described the details and potential risks and benefits for participating in this study. The participants were asked to complete seven to ten sessions (screening/baseline, treatment, posttest, one, three, six, and twelve month follow-ups). The total number of sessions included participation through the three-month follow-up. In addition, participants in the programmed generalization condition were asked to attend three treatment booster sessions.

The first three sessions were conducted approximately one week apart. The first session consisted of the assessment to determine if the participant qualified for the study. The second session was the treatment session, and the third session consisted of the posttest assessments. The fourth and fifth sessions were conducted at one- and three-months after the treatment proper.

The participants who received the programmed generalization condition were offered three additional generalization sessions. These sessions were approximately 30 minutes each. One session was between the posttest and one-month follow-up assessment sessions, and the other two generalization sessions were between the one- and three-month follow-up sessions.

Design

A three-factor, repeated-measures design was utilized. The first between groups factor consisted of the treatment type (i.e., cognitive-behavioral or behavioral

one-session exposure treatment procedure) and the second between groups factor involved the generalization type (i.e., programmed or non-programmed generalization) (see Appendix D for the diagram of the study design and the participant flow through the study). The third factor is the within groups factor and consists of four assessment phases (pretest, posttest, one-month, and three-month follow-up). Each cell contained ten participants for the behavioral treatment and nine participants for the cognitive-behavioral treatment. Each participant received a one-session exposure treatment procedure and a generalization condition.

Procedures

Setting

All assessment and treatment sessions were conducted in therapy rooms within the Department of Psychology at Western Michigan University. Two separate lab settings were utilized for this study. A majority of the sessions were conducted in the initial individual and group therapy rooms. The initial individual therapy room measured 1.88 m x 3.93 m and the initial group therapy room measured 3.5 m x 6.1 m. The other individual room was 1.9 m x 2.9 m and the group room was 3.4 m x 3.2 m. Assessment sessions were conducted in the individual therapy room and the group therapy room was used for the treatment session and Behavioral Avoidance Test (BAT). A large ruler extending from the doorway to the far wall was placed on the floor of the group room. For the second treatment location, the door was propped open and the large ruler extended through the individual interview room so the ruler length was equivalent in both treatment locations. Against the far wall, a table was located with a clear glass cage on top, which contained the feared animal. A videocamera was placed in the far corner near the table.

Apparatus

During the BAT and treatment portion of the baseline, treatment, posttest and follow-up sessions, the following equipment was utilized: a Sony videocamera, digital stopwatch, clock, large ruler, and animal cage. The treatment snake was placed in a cage measuring 50.8 cm x 47.0 cm x 26.7 cm and all other treatment animals were placed in a cage measuring 62.2 cm x 32.4 cm x 31.1 cm. During follow-up sessions, these cages were utilized along with two additional cages that measured 40.6 cm x 26.7 cm x 21.0 cm. All BAT and treatment sessions were videotaped. The stopwatch measured the total duration of the behavioral assessments and the contact time with the animal while the clock was used to record the total duration of the treatment. The large ruler determined the distance between the participant and the feared animal.

Measures

Each participant's level of anxiety was measured according to self-report, diagnostic interview, behavioral, and subjective measures. The diagnostic interview Anxiety Disorders Interview Schedule for DSM-IV: Adult Version (ADIS-IV, Brown, et al., 1994a) was utilized in this study. The following self-report measures were used: (a) Fear Survey Schedule (FSS, Wolpe & Lang, 1969), (b) Spider Phobia Questionnaire (Watts & Sharrock, 1984) or other specific phobia questionnaires (i.e., snake, rat/mouse and crawling insect) based on the Spider Phobia Questionnaire, (c) Thought Checklist (TC derived from Wells, 1994; Glass, Merluzzi, Biever, & Larsen, 1982; Kendall & Hollon, 1989; and Beck, Brown, Steer, Eidelson, & Riskind, 1987); (d) Cognitive-Somatic Anxiety Questionnaire (CSAQ, Schwartz, Davidson, & Goleman, 1978); and (e) Distress Evaluation Scale (DEVS, G. Devilly, personal

communication, November, 1998). The behavioral measures consisted of the Behavior Avoidance Test duration, contact, and distance. The subjective measures included the (a) Subjective Units of Distress (SUDS) and baseline SUDS level; (b) participant and therapist ratings of phobia severity; and (c) participant's rating of expected success of treatment.

Anxiety Disorders Interview Schedule for DSM-IV: Adult Version (ADIS-IV)

The ADIS-IV (Brown, et al., 1994a), "is a structured interview designed to assess for current episodes of anxiety disorders, and to permit differential diagnosis among the anxiety disorders according to the DSM-IV criteria (APA, 1994)" (Brown, Di Nardo, & Barlow, 1994b, p. 1). Mood, somatoform, and substance use sections are included due to the high comorbidity and similarity of presenting symptoms between these disorders and the anxiety disorders (Brown, et al, 1994b). The ADIS-IV also involves screening questions for psychotic and conversion symptoms and includes a medical and family psychiatric history in order for the administrator to obtain a comprehensive evaluation of presenting anxiety complaints as well as any other comorbid disorders.

The ADIS-IV was developed over a period of years and has been updated with each diagnostic system revision. The suggested wording of questions appears in bold on the interview form and is based on years of experience interviewing and diagnosing anxiety disorders (Brown, et al., 1994b). Each diagnostic section begins with an initial inquiry involving yes/no questions that assess key features of the disorder, followed by dimensional ratings of current and past episodes of the disorder. Formal skip-out instructions are provided for that section if the key features of the

disorder are not endorsed. The second section pertains to the current episode and contains the items necessary for diagnosis. At the end of the current episode section, several questions involve determining the date of onset for that disorder and if any past episodes of that disorder have existed (Brown, et al., 1994b). The ADIS-IV requires some clinical judgment in assigning diagnoses and determining when further inquiry is necessary.

Two independent diagnosticians conducted separate interviews utilizing the ADIS-Revised (ADIS-R) and found that reliability ratings for simple phobia as a principle diagnosis was a $\underline{k}$ value of 0.82, which represents excellent agreement. The reliability of a simple phobia principal or additional diagnosis involved good agreement at 0.63 (Di Nardo, Moras, Barlow, Rapee, & Brown, 1993). The excellent reliability for principal diagnosis is encouraging, given that two independent raters selected the same principal diagnosis. Phobias that meet the criteria for a principal diagnosis may be less ambiguous than less severe fears. The reliability for the principal or additional diagnosis reflects a disagreement whether the fear was sufficient enough to warrant a clinical diagnosis (Di Nardo et al., 1993).

The reliability of diagnostic instruments relies on the diagnostic system utilized to classify disorders and the information variance. The diagnostic system continues to improve so that clinicians can utilize inclusion and exclusion criteria to improve overall diagnostic agreement. The structured interview formalizes the process through which the presenting problem is discussed by utilizing a series of predetermined questions (Shear, Klosko, & Fyer, 1989). The structured interviews

also assist in standardizing interviews to reduce the differences in information presented by the participant.

Page (1991) indicates that, "...reliability is a prerequisite for validity" (p. 266). If different diagnoses are reached based on the same data, than at least one diagnosis is questionable. The validity of the diagnosis is also related to the validity of the diagnostic system that is utilized and a comparison of the structured interview with a "standard." It is unclear what "standard" should be used to validate these interviews because the traditional clinical interview has less than perfect reliability and validity and is the reason that the structured interviews were developed initially (Peters & Andrews, 1995). Page (1991) also states that, "a well-designed structured interview would perform at least as well as a trained clinician in diagnosing anxiety disorders" (p. 266). Therefore, the ADIS-IV (Brown, et al., 1994a) is reliable for the diagnosis of specific phobia. However, its validity remains dependent on the validity of the DSM-IV, (APA, 1994).

For this study, the ADIS-IV was used as a diagnostic screening tool during the first session. However, the substance use, medical history, and family psychiatric history sections were excluded because they were determined to be more invasive than necessary for this study. In addition, the specific phobia section of the ADIS-IV was utilized at posttest and follow-up assessments to determine if the participants continued to meet diagnostic criteria for specific phobia. The diagnostic status for the treatment animal and the animal type in general (e.g., other snakes, spiders, etc.) were assessed separately during the posttest and follow-up sessions with the specific phobia section of the ADIS-IV. This allowed for the treatment effects to be studied

separately with the specific treatment animal and the generalization effects to other types of the same animal.

Fear Survey Schedule

The Fear Survey Schedule (FSS, Wolpe & Lang, 1969) is a self-report questionnaire in which the participant rates 108 situations that may cause fear or unpleasant feelings on a scale from 0 (not at all) to 4 (very much). These scores are then converted to z-scores based on male and female norms with lower scores indicating less fear. The FSS has been widely used and appears to have acceptable reliability and validity. The test-retest reliability has been found to be 0.72 (Wolpe & Lang, 1977). In another study, Klieger & Franklin (1993) reported that reliability of the FSS ranged from 0.62 to 0.84.

In addition to determining the reliability of the FSS, the concurrent validity of the FSS has been assessed by correlating a Behavioral Avoidance Test (BAT) with FSS scores. Klieger & Franklin (1993) classified participants as highly fearful based on their FSS scores and attempted to correlate this score with a behavioral avoidance task. The researchers found that participants identified as very afraid of snakes on the FSS showed relatively small amounts of behavioral avoidance. Klieger & McCoy (1994) modified the FSS to anchor the individual items in an attempt to improve the FSS criterion validity. The original FSS instructed the participant to rate each item in terms of the degree to which it caused fear or unpleasant feelings (Wolpe & Lang, 1977). Klieger & McCoy (1994) modified the instructions to only include fear responses and provided definitions of each rating such that selecting "much" or "very much" fear actually represented a phobic response. A significant correlation was

found between self-reported fear and approach behavior for both females and males ($p < .01$) (Klieger & McCoy, 1994). Both of these studies utilized a BAT that involved either touching the outside of the cage (Klieger & Franklin, 1993) or placing a hand partially in the cage (Klieger & McCoy, 1994) as a maximum step.

Utilizing the FSS allows assessment of possible changes in the specific animal phobia following treatment, as well as comparison of results with previous studies. A factor analysis of the FSS resulted in five factors that account for 90% of the total variance. Factor I consists primarily of small animals (i.e., worms, mice or rats, bats, crawling insects, cemeteries, harmless spiders, harmless snakes, and flying insects) and accounts for 83.67% of the total variance on the FSS. The present investigation examined both the individual feared animal item and the Factor I average score across sessions. The FSS was administered at pretest, posttest, and follow-ups to all participants.

Specific Phobia Questionnaires

The Spider Phobia Questionnaire (SPQ, Watts & Sharrock, 1984) contains 43 questions to which the participant responds with "yes" or "no". Five of these items are knowledge-based and do not contribute to the subscales, and were, therefore, removed from the scales used in this study. Answering "yes" scored one point for most of the questions, except for items 2, 9, 11, 25, and 37, in which "no" was scored with one point. This measure assesses dimensions of vigilance, preoccupation, and coping-avoidance, and also includes cognitive-behavioral items (Watts & Sharrock, 1984). The three primary factors (vigilance, preoccupation, and coping-avoidance) demonstrated adequate internal reliability (correlation coefficients of 0.77 to 0.81)

and moderate correlation with each other (correlation coefficients of 0.27 to 0.47). Criterion-related validity studies confirm the utility and external validity of these three subscales. "The three scales perform equally well in distinguishing individuals with phobias and normals, and in showing improved scores as a result of desensitization" (Watts & Sharrock, 1984, p. 580). Szymanski & O'Donohue (1994) report a test-retest correlation of 0.94 and internal consistency at 0.62 at pretreatment and 0.90 at post-treatment. The Spider Phobia Questionnaire was significantly correlated with the BAT ($p < .001$) (Szymanski & O'Donohue, 1994). Other Specific Phobia Questionnaires (SPQ) (i.e., snake, rat or mouse and crawling insect) modeled questions from the Spider Phobia Questionnaire (Watts & Sharrock, 1984) and were developed by the present researchers. Each of these questionnaires contained 38 items that the participant answers with "yes" or "no". Again, answering "yes" scored one point except for items 2, 9, 11, 25, and 37, in which "no" was scored with one point. These scales are scored such that the lower the score, the less animal fear.

Specific fear questionnaires generally report high internal consistencies. Fredrikson (1983) reported that individuals with a higher phobia score on their specific phobia scale (Spider Phobia Questionnaire and Snake Anxiety Questionnaire) did not differ from phobic controls on other scales (public speaking, mutilation, etc.). Correlation between fear ratings and questionnaire scores is significant, and utilizing such scales to evaluate therapeutic change is encouraged (Fredrikson, 1983). The specific fear measures were administered at pretest, posttest, and follow-ups for all participants and were analyzed with the total score and four factor scores (i.e., vigilance, preoccupation, coping-avoidance, and cognitive-behavioral items). These scales were utilized to measure changes related to the particular animal fear over time.

Thought Checklist

The Thought Checklist (TC) was derived from Wells, 1994; Glass et al., 1982; Kendall & Hollon, 1989; and Beck et al., 1987. Wells (1994) developed the Anxious Thoughts Inventory to measure individual vulnerability to multiple dimensions of anxious worry. The alpha coefficients for the three subscales range from 0.75 to 0.84. The total test-retest correlation was 0.80 and significant differences were found between clinical participants and "normals" ($p < .05$) (Wells, 1994).

Glass et al. (1982) created a scale to assess positive and negative self-statements and social interactions. The split-half reliability ranged from 0.73 to 0.86 for positive and negative self-statements respectively. This scale allows for discrimination between high and low socially anxious women.

Kendall & Hollon (1989) developed a questionnaire to identify the anxious self-statements that discriminate highly anxious individuals from those at normal levels of anxiety. The highly anxious participants demonstrated significantly higher scores ($p < .001$) than the non-anxious participants. The split-half reliability was 0.92 and the coefficient alpha was 0.94 ($p < .001$).

Beck et al. (1987) created a questionnaire that utilizes cognitions related to danger for anxiety disorders. The alpha coefficient for anxiety was 0.90 and the test-retest reliability was 0.79 ($p < .001$). The intercorrelation of subscales was 0.57.

In addition to portions of the above scales, the TC contains cognitions identified during structured interviews conducted in a previous study (Koch, Luterek, & Spates, 1998). The TC was used to assess the changes in cognitions that occur as a result of treatment. The TC was divided into positive and negative thoughts classified

by independent raters from the graduate program at Western Michigan University. The TC consisted of 43 items. Three items were excluded because they were rated as both positive and negative or neutral by raters. The TC-Negative contained 36 items and the TC-Positive consisted of four statements. Each endorsed item was scored with one point.

Cognitive-Somatic Anxiety Questionnaire

The Cognitive-Somatic Anxiety Questionnaire (CSAQ, Schwartz, et al., 1978) was designed as a 14-item anxiety symptom checklist with separate cognitive and somatic scales (seven items each). Each symptom is rated on a scale from 1 (not at all) to 5 (very much so). Schwartz et al. (1978) assessed validity by correlating the CSAQ with the State-Trait Anxiety Inventory (STAI). Both the cognitive and the somatic scales were correlated with the STAI ($p < .001$). Heimberg, Gansler, & Dodge (1987) found a significant relationship between negative and positive thoughts, self-report questionnaires, and SUDS to the CSAQ-Cognitive. In addition, they found that heart rate was significantly related to CSAQ-Somatic (Heimberg, et al., 1987). Delmonte & Ryan (1983) reported internal consistency and reliability of 0.85 for cognitive and 0.81 for somatic scales and the correlation between the two scales was 0.64.

The CSAQ was administered during all assessment sessions and the cognitive (i.e., CSAQ-Cognitive) and somatic (i.e., CSAQ-Somatic) subscales were analyzed separately. In addition, the participants were asked to complete the CSAQ related to each BAT procedure (i.e., CSAQ-BAT Cognitive and Somatic). The follow-up BAT

consisted of the treatment animal and one or two other animals (i.e., other snakes, spiders, etc.). This involved separate CSAQ scores for the treatment and the other two animals (i.e., CSAQ-BAT Treatment Cognitive and Somatic and CSAQ-BAT Other Cognitive and Somatic). For all the CSAQ scales, lower scores signified less cognitive and somatic symptoms.

Distress Evaluation Scale

Portions of the Distress Evaluation Scale (DEVS, G. Devilly, personal communication, November 1998) was utilized in this study. This scale contains six likert items. The first three items assess distress from 1 (none at all) to 9 (very distressed) during the baseline session, during treatment, and a few hours after treatment. The remaining items assess level of treatment intrusiveness from 1 (none at all) to 9 (very intrusive), treatment acceptability from 1 (not at all) to 9 (very acceptable), and whether the participant would recommend the treatment to others from 1 (not at all) to 9 (yes definitely). No reliability or validity studies have been completed on this measure. The participants completed this measure during the posttest session only.

Behavior Avoidance Test

The Behavior Avoidance Test (BAT) consisted of the participant being given directions to "Approach the animal as much as you possibly can and pick the animal up gently when you are ready." Participants then approached the feared animal as much as possible until their fear was intolerable. At the participant's initial stopping point, the assistant asked, "Are you sure that is as far as you can go, today?" This statement provided a challenge for the participant without undue pressure to make

sure an optimal performance level was reached. The assistant recorded the duration of the test from beginning to end, distance step completed (see Appendix E for BAT Distance Steps), actual contact time with the animal and the participant's overt responses (e.g., turning away, shaking, etc.) (see Appendix F for observer data collection form). The participant and assistant then left the room and the assistant asked, "Would you like to try one more time to see how far you can go?" The procedure outlined above was repeated for a second trial based on the participant's response to this question. An increase in contact time and distance steps indicated less phobic performance.

Subjective Measures

Each participant reported their expected success of treatment on a scale from 1 (extremely skeptical) to 5 (extremely confident) and the participant and the therapist rated the phobia severity on a scale from 1 (symptom free and not disabling) to 5 (extremely severe and disabling). The Subjective Units of Distress (SUDS) was rated by the participant on a 0 (least anxious the individual has ever been in relation to this animal) to 100 (most anxious the individual has ever been with this animal) scale. These measures were taken during each BAT to assess the participant's level of distress at the baseline (Baseline SUDS) and maximum stopping points (SUDS). After completing each BAT assessment, participants reentered the room at their baseline level stopping point and provided a SUDS rating at this consistent distance over time. In addition, SUDS ratings were utilized throughout the treatment procedure. Lower SUDS and phobia ratings and higher expected success of treatment ratings demonstrated improvement.

Sessions

Screening/Baseline

Screening. During the screening session each participant read and signed the informed consent (see Appendix C) and then responded to questions from the Screening Interview (Appendix G). The Screening Interview addresses many of the exclusion criteria for this study. The research assistant then interviewed the participant from the Anxiety Disorders Interview Schedule for DSM-IV: Adult Version (ADIS-IV, Brown, et al., 1994a).

Baseline. If the participant qualified for the study based on the above measures, then the baseline session began. If a participant did not qualify, the research assistant concluded the session and notified the participant that he or she did not meet the criteria for the current study. Referral information was provided for excluded participants related to possible treatment options. Qualified participants completed the following: Fear Survey Schedule (FSS, Wolpe & Lang, 1969), Spider Phobia Questionnaire (Watts & Sharrock, 1984) or other animal specific phobia questionnaire (SPQ), Thought Checklist (TC) derived from the following Wells, 1994; Glass et al., 1982; Kendall & Hollon, 1989; and Beck et al., 1987, and Cognitive-Somatic Anxiety Questionnaire (CSAQ: Schwartz et al., 1978).

At this point the participant began the Behavioral Avoidance Test (BAT). Prior to entering the group room, the assistant explained to the participant that he or she would enter another room that contains the feared animal within an enclosed cage. The cage containing the animal was placed on a table against the wall furthest from the doorway. A large ruler specifying the distance between the participant and the

animal was placed on the floor. The participant approached the animal and at the stopping point, reported a SUDS level. Each participant was offered a second trial.

Following the BAT, the participant returned to the individual therapy room and completed the CSAQ (Schwartz et al., 1978) specifically for the BAT. Finally, the participant rated his or her expected success of treatment and phobia severity, while the research assistant also rated the severity of the participant's phobia symptoms. Before leaving, the participant was asked to schedule an appointment for the treatment session.

Treatment

Participants were randomly assigned to one of two treatment procedures, cognitive-behavioral or behavioral one-session exposure. Both treatments involved gradual exposure and modeling. The goal of treatment was to have the participant hold the animal for at least one minute (not exceeding three minutes) while reporting minimal anxiety (SUDS less than 20).

Cognitive-Behavioral Treatment. The cognitive-behavioral, one-session exposure procedure was based on the work of Öst, L-G. (1997b, 1997a, 1989, 1987), Öst, L.-G., Salkovskis, P. M. & Hellström, K. (1991) and Hellström, K. & Öst, L.-G. (1995). This treatment involved both cognitive and behavioral interventions for small animal phobias. The participant was provided with a card, at the end of the baseline session, that contained coping self-statements. These statements pertained to preparing to confront and confronting the animal, coping with feeling overwhelmed, and positive statements of accomplishment. Participants were encouraged to read through the card between the baseline and treatment sessions. The therapist discussed

the participant's thoughts that accompanied the anxiety reaction in relation to the particular animal as well as the coping statements from the card. The therapist also looked at the Thought Checklist to become aware of which thoughts the participant endorsed as occurring in the presence of the animal. Throughout the treatment process, the therapist challenged these specific thoughts while continuing the behavioral exposure procedure. Specifically, the cognitive intervention did not distract from the exposure treatment. In addition, the therapist encouraged the participant to utilize the self-statements listed on the card. Through this process the therapist focused on demonstrating to the participant that the consequences he or she fears do not actually occur. If necessary, the therapist assisted the participant with developing coping statements to utilize within the treatment session. The treatment manual developed by Öst (1997b) was followed with minor modifications to allow for fewer significant differences between the two treatment procedures. In addition to the cognitive components, participants in this treatment group also received the behavioral treatment.

Behavioral Treatment. The second treatment technique involved a strictly behavioral treatment procedure utilized in a previous study (Koch, Luterek, & Spates, 1998). This treatment procedure consisted of the therapist providing instructions for and modeling each treatment step. At first, the participant observed the therapist completing each task and then either completed that step along with the therapist or on his or her own. Initially, participants were allowed to touch the therapist's elbow, forearm, and then hand, followed by the therapist touching the participant's hand, forearm and then elbow for gradual increased interaction with the animal prior to the participant completing the step independently. The participant provided a SUDS level at each treatment step/skill. The participant was allowed to signal for a break by

saying "pause" instead of moving abruptly or dropping the animal. If the participant said, "pause" the therapist waited for one minute before resuming treatment.

The successful termination criteria for both treatment procedures involved the participant completing all treatment steps (see Appendix H for the treatment steps per animal) with little to no reported subjective anxiety (SUDS less than 20). All the treatment steps were recycled until the SUDS ratings were below 20 for each step. The final treatment step involved holding the animal for at least 60 seconds. When the treatment was completed, the therapist and participant exited the room and immediately completed the BAT and questionnaire/ratings as described above. Treatment could also be terminated if the participant experienced an extreme emotional reaction based on the therapist's clinical judgment, or the participant stated that he or she would like to terminate treatment, or the three-hour session time limit was reached.

In order to remain consistent with previous studies, the treatment session was videotaped to allow the participants to watch their video at the posttest session if desired. This was done to let the participant see that he or she brought about the treatment change and the therapist only assisted with the treatment. The videotapes were also utilized to assess treatment integrity where a trained observer rated the components of the treatment to ensure the procedures were followed as specified.

Immediately following treatment, participants exited the room and completed the BAT as outlined above including an optional second trial. After the BAT was completed, the participants reentered the group room at their baseline BAT distance and provided a SUDS rating at this point. Then the participants completed the TC related specifically to treatment and the CSAQ-BAT (Schwartz et al., 1978), for the

BAT. Finally, subjective ratings were provided including therapist and participant ratings of phobia severity (during the BAT) and participant's expected success of treatment.

Posttest

The posttest session was scheduled approximately one week after the treatment session. During this session, participants completed the following measures: ADIS-IV (Brown et al., 1994a) specific phobia section, FSS (Wolpe & Lang, 1969), a specific fear measure for the participant's phobia, TC, CSAQ (Schwartz et al., 1978), DEVS (G. Devilly, personal communication, November, 1998), BAT, CSAQ for the BAT, and subjective ratings. Each participant was interviewed on the ADIS-IV Specific Phobia Section in relation to the specific treatment animal and those type of animals in general (i.e., other snakes and spiders). Following the BAT, the participant was offered the opportunity to watch his or her treatment videotape.

The treatment participants from each group were then randomly assigned to either a programmed generalization or a non-programmed generalization subgroup. The participants receiving the programmed generalization condition were asked to attend one additional session between posttest and one-month follow-up and two additional sessions between one- and three-month follow-ups. These opportunities involved approximately 30 minutes of unstructured interaction with the treatment animal and two additional types of that animal. The treatment animals consisted of a rose-hair tarantula, corn snake, brown mouse, white and black rat, and Madagascar hissing cockroach. The additional animals for the generalization condition were house spider, wolf spider, fox snake, garter snake, black mouse, white mouse, two different

size white rats, millipede and superworm. The participants completed the Animal Interaction Form (see Appendix I) in relation to these experiences. The non-generalization subgroup was not offered these generalization opportunities. In case the non-generalization group members happened to encounter the feared animal, both groups were asked to record interactions with the "feared" animal throughout the follow-up periods (see Appendix I for data collection form). Therefore, data collection on every animal interaction outside of the study was attempted.

One- and Three-Month Follow-ups

The follow-up sessions occurred one- and three-months following the treatment session. The follow-up sessions were conducted exactly like the posttest session outlined above except participants were not given the opportunity to view the treatment videotape or complete the DEVS, (G. Devilly, personal communication, November, 1998). In addition, the follow-up BAT included the treatment animal and two additional types of animals (e.g., wolf and house spider, fox and garter snake, etc.) listed above for the generalization sessions. All participants were asked to approach one animal (of their choice) and then the entire BAT was repeated with each additional animal including the option for two BAT trials per animal. Completed Animal Interaction data sheets (Appendix I) were collected from all participants during the follow-up sessions for any non-laboratory interactions with the feared animal.

Additional Research Procedures

All research assistants were trained in the study procedures. Specifically, detailed instructions were followed for each session including specific instructions

that the assistant read to the participant. All therapists received the treatment manual for both treatment procedures. Following training in the assessment and treatment procedures, assistants were supervised and observed by the investigator. All research assistants attended regular team meetings to provide further clarification and training, and to answer questions throughout the course of the study. Six research assistants completed the assessment and treatment sessions. Five of these assistants were students in the doctoral program in clinical psychology at Western Michigan University and the other assistant was an advanced undergraduate student who assisted on the previous study (Koch et al., 1998). In addition, five undergraduate assistants scored and recorded data, conducted reliability checks, and facilitated programmed generalization sessions. Graduate students, other than the investigator, conducted a majority of the screening/baseline sessions. Different assistants were used for the assessment and treatment sessions. In addition, assistants that conducted programmed generalization sessions did not complete follow-up assessments for that participant. Participants were randomly assigned to treatment therapists based on scheduling availability and treatment animal (i.e., one assistant did not work with spiders and another snakes).

CHAPTER III

RESULTS

Preliminary Analyses

Eight individuals who were selected to participate did not complete the study (three participants were assigned to the behavioral treatment and five the cognitive-behavioral treatment). Five of these participants dropped out of the study between the baseline and treatment sessions and the other three dropped out between the treatment and posttest sessions. Five of these participants could not be contacted after several attempts, two reported that they were "too busy", and one participant missed several scheduled appointments for undisclosed reasons.

Eleven participants did not complete the one-month follow-up assessment (eight in the behavioral treatment and three in the cognitive-behavioral treatment) and 19 individuals declined the three-month follow-up session (11 in the behavioral treatment and eight in the cognitive-behavioral treatment). Figure 1 depicts the dropout for each follow-up session by the treatment and generalization conditions. The three-month follow-up dropout rate includes those participants who dropped out prior to the one-month follow-up as well as prior to the three-month follow-up.

Non-parametric tests indicated that significant dropout occurred from posttest to one-month follow-up, from one-month follow-up to three-month follow-up, and from posttest to three-month follow-up ($p < .01$ for all three comparisons). For the two treatment conditions, a significant difference occurred between posttest and one-

month follow-up for the behavioral treatment ($p < .01$), between one- and three-month follow-up for the cognitive-behavioral treatment ($p < .05$), and for both treatments from posttest to three-month follow-up ($p < .01$). A significant difference was found in dropout rates from the posttest to one-month follow-up for the behavioral treatment, programmed generalization condition only ($p < .01$). No significant differences were found for dropout rates between the two follow-up sessions for any of the four groups; however, dropout rates between posttest and three-month follow-up were significant for both programmed and non-programmed generalization for the behavioral treatment and cognitive-behavioral treatment, programmed generalization groups.

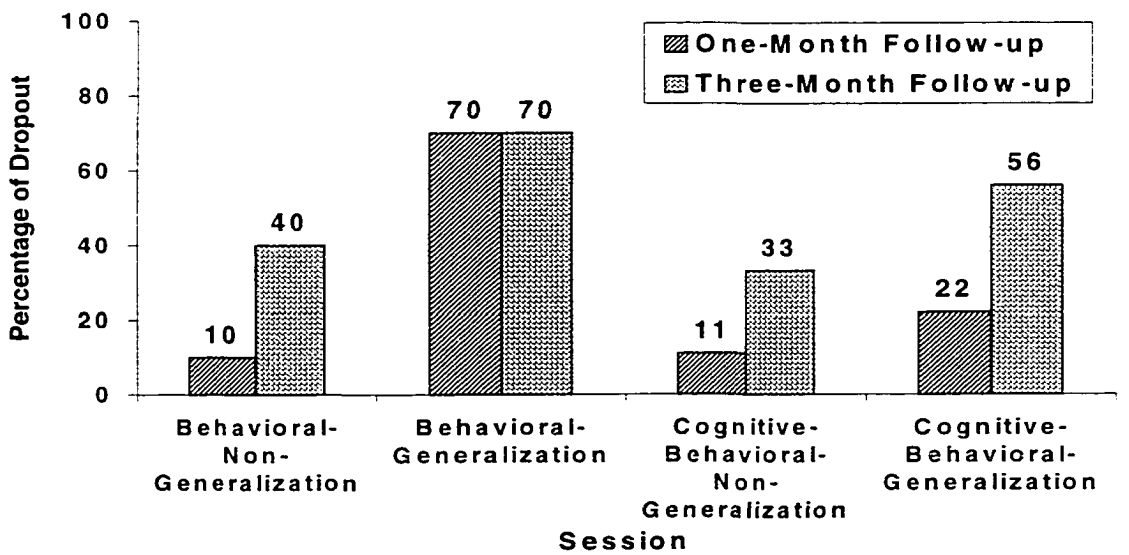

Figure 1. Percentage of Participant Dropout During Follow-up Sessions for the four Groups.

To assess the differences between completers, non-completers, and dropouts, a One-Way ANOVA with Tukey comparison was completed for all measures. The

participants who did not complete treatment had significantly more severe baseline scores on SPQ total, CSAQ-Somatic, and participant rating of phobia severity ($p < .05$ for all three). None of the other measures differed significantly between groups, including diagnostic status at pretest. Participants who dropped out prior to the one-month follow-up attained significantly lower scores on BAT Distance ($p < .05$) and reported significantly more distress during the treatment session ($p < .05$). Participants who dropped out prior to the three-month follow-up showed significantly more distress ($p < .05$) during the first session compared to participants who fully completed all sessions.

Within the programmed generalization condition, eight participants completed the first generalization session only and seven individuals participated in all three generalization sessions. Of the 19 participants in the generalization condition, four individuals did not complete any generalization sessions.

The participants in this study were primarily Caucasian, single women who were college students and worked in part-time positions without previous treatment or medications for anxiety (see Table 1 for the demographic data on the subjects).

The mean age and years of education for the behavioral participants was 24.65 and 14.5 respectively and 24.33 and 14.39 for the cognitive-behavioral group.

Reliability of the BAT Assessment

Interobserver agreement for scores on the BAT was taken during 22.5% of the sessions. This ranged from 18-30% across the total number of sessions for all participants. The overall interrater reliability for trial one distance was 83%, and 79% for the second trial. The reliability of SUDS rating was 97% for trial one and 100% for trial two.

Table 1

Frequency and Percentage of Demographic Characteristics Between Groups

		Behavioral Treatment	Cognitive-Behavioral Treatment
Phobia Criteria			
	Full	10 (50%)	7 (38.9%)
	Partial	10 (50%)	11 (61.1%)
Sex			
	Female	13 (65%)	15 (83.3%)
	Male	7 (35%)	3 (16.7%)
Race			
	Caucasian	16 (80%)	16 (88.9%)
	African American	2 (10%)	1 (5.6%)
	Hispanic	1 (5%)	0 (0%)
	Asian/Chinese	1 (5%)	1 (5%)
Current Student			
	Yes	16 (80%)	16 (88.9%)
	No	4 (20%)	2 (11.1%)
Marital Status			
	Single	15 (75%)	14 (77.8%)
	Married	4 (20%)	3 (16.7%)
	Divorced	0 (0%)	1 (5.6%)
	Missing Data	1 (5%)	0 (0%)
Employment			
	Part-time	10 (50%)	13 (72.2%)
	Full-time	3 (15%)	1 (5.6%)
	Student Only	6 (30%)	2 (11.1%)
	Missing Data	1 (5%)	2 (11.1%)

Table 1-Continued

	Behavioral Treatment	Cognitive-Behavioral Treatment
Children		
No	16 (80%)	15 (83.3%)
Yes	3 (15%)	3 (16.7%)
Missing Data	1 (5%)	0 (0%)
Past Treatment for Anxiety		
No	18 (90%)	16 (88.9%)
Yes	1 (5%)	2 (11.1%)
Missing Data	1 (5%)	0 (0%)
Anxiety Medications		
No	18 (90%)	16 (88.9%)
Yes	1 (5%)	2 (11.1%)
Missing Data	1 (5%)	0 (0%)
Animal		
Spider	11 (55%)	8 (44.4%)
Snake	5 (25%)	5 (27.8%)
Crawling Insect	4 (20%)	0 (0%)
Mouse	0 (0%)	3 (16.7%)
Rat	0 (0%)	2 (11.1%)

Treatment Integrity

Treatment integrity ratings were obtained for 24% of the overall treatment sessions including 20% of the behavioral treatments and 28% of the cognitive-behavioral treatment conditions. All treatment conditions were implemented properly and none of the participants in the behavioral condition received the cognitive

intervention or discussed their thoughts. The primary treatment components were completed 100% for both groups. For the cognitive-behavioral treatment condition this component included reviewing coping statements from the card, contradicting negative thoughts and beliefs, and not allowing the cognitive intervention to interfere with the exposure procedure. The behavioral treatment procedure did not utilize any of these components.

Diagnostic Outcomes

All participants met DSM-IV diagnosis for specific animal phobia with the utilization of a lenient E criterion (i.e., the phobia does not necessarily interfere with the person's normal routine or the phobia does not cause extreme distress) (APA, 1994). Half of the participants in the behavioral treatment met full diagnostic criteria without the lenient E criterion, while 38.9% of the cognitive behavioral participants met full criteria (see Table 1) at baseline. The length of the animal fear for the behavioral participants ranged from 7 to 35 years (M = 17.55) and 3 to 38 years (M = 16.39) for the cognitive-behavioral treatment. Sixteen participants met diagnostic criteria for other disorders in addition to animal phobia. These included another specific phobia (12); social phobia (six); panic disorder with or without agoraphobia or agoraphobia without panic disorder (three); generalized anxiety disorder (two); major depressive disorder (two); obsessive-compulsive disorder (one); post-traumatic stress disorder (one); and dysthymia (one). Six participants met diagnostic criteria for more than two disorders.

At posttest and one- and three-month follow-ups, a majority of the participants no longer met diagnostic criteria for the specific treatment animal (see Table 2). With respect to the animal type in general (i.e., other snakes, spiders, etc.), the results are

mixed, but not significantly different, between the two treatment conditions (see Table 2).

Table 2

Diagnostic Status at Posttest and Follow-up

	Full Criteria	Partial Criteria	No Diagnosis	Not Completed
Posttest - Treatment Animal				
Behavioral Treatment	0	3	17	0
Cognitive-Behavioral Treatment	0	4	14	0
One-Month Follow-up – Treatment Animal				
Behavioral Treatment	0	2	10	8
Cognitive-Behavioral Treatment	0	1	14	3
Three-Month Follow-up – Treatment Animal				
Behavioral Treatment	0	2	7	11
Cognitive-Behavioral Treatment	0	2	8	8
Posttest – General Animal				
Behavioral Treatment	3	7	10	0
Cognitive-Behavioral Treatment	1	6	11	0
One-Month Follow-up – General Animal				
Behavioral Treatment	1	4	7	8
Cognitive-Behavioral Treatment	0	7	8	3
Three-Month Follow-up – General Animal				
Behavioral Treatment	1	5	3	11
Cognitive-Behavioral Treatment	0	4	6	8

A non-parametric Wilcoxon Signed Ranks Test was completed for diagnostic status. A significant change ($p < .001$) was found from pretest to posttest for both the specific treatment animal and the animal type in general, indicating that fewer participants met diagnostic criteria following both behavioral and cognitive-behavioral treatment. No difference was found between the posttest and the follow-up sessions for either the treatment animal or the animal type in general. The diagnostic status was significantly more severe ($p < .01$) for the animal type in general compared to the treatment animal at posttest and both follow-up sessions.

Following treatment, no participants met the full diagnostic criteria for specific animal phobia related to the treatment animal including the 17 participants who met full diagnostic criteria for specific animal phobia at pretest. Of these 17 participants, three met partial diagnostic criteria for the specific treatment animal at posttest, two at one-month follow-up, and three at three-month follow-up. The remaining participants who met full criteria at pretest did not meet diagnostic criteria for animal phobia following treatment. A similar pattern emerged for the 21 participants who met partial diagnostic criteria at pretest in that four continued to meet partial criteria for the specific treatment animal at posttest and one at both the one- and three-month follow-ups.

The results for the general animal type included three participants meeting full diagnostic criteria at posttest and one at each follow-up for those with full criteria at pretest. Of these 17 participants who met full criteria at pretest, five met partial criteria for the general animal type at posttest, eight at one-month follow-up, and six at three-month follow-up. For those with partial diagnostic criteria at pretest, one met full criteria and eight met partial criteria related to the general animal at posttest, and three continued to meet partial criteria for both follow-up sessions.

Treatment Effects

For the behavioral treatment condition, 17 out of 20 participants met the terminal criteria for success (i.e., completed all steps with little or no anxiety including holding the animal for at least 60 seconds), and 14 out of 18 participants in the cognitive-behavioral treatment met terminal criteria for success. One participant in each treatment condition completed all treatment steps except picking up the animal. The remaining five participants reached the three hour treatment session time limit. One other participant also used the entire three hours for treatment, but was able to complete the final step with minimal anxiety. Another participant asked to terminate treatment following an extreme reaction and was excluded from the remainder of the study. This participant received the behavioral treatment procedure.

Several significant differences were found between participants who fully completed and those that partially completed treatment. The baseline measure differences included: Thought Checklist-Negative ($p < .05$), CSAQ-Cognitive ($p < .05$), CSAQ-Somatic ($p < .05$), BAT Distance ($p < .01$ for both trial one and trial two), Therapist Rating of Phobia Severity ($p < .05$), Participant Rating of Phobia Severity ($p < .01$), and CSAQ-BAT Cognitive ($p < .05$). All differences involved the partial completers having more severe symptoms. Full and partial treatment completers did not differ on diagnostic status at baseline or throughout the study. These two groups were significantly different for number of treatment cycles, treatment duration, all BAT measures following treatment, and therapist and participant ratings of phobia severity ($p < .01$ for each). The CSAQ-BAT cognitive

and somatic subscales were significantly different ($p < .05$) for both groups as well. These differences continued through the posttest and follow-up sessions.

All participants made statistically and clinically significant progress during the course of treatment even if the terminal criteria were not met. Participants in the behavioral treatment condition utilized an average of 4.55 treatment cycles and the cognitive-behavioral treatment group averaged 3.67 cycles. The average treatment duration for the behavioral treatment was 106.25 minutes and the cognitive-behavioral group was 94.22 minutes. The difference between cycles and duration for the two treatment conditions is non-significant. Four of the behavioral treatment participants (20%) and nine (50%) of the cognitive-behavioral treatment participants opted to watch their videotape from the treatment session at posttest.

To assess the equivalency of the dependent measures at pretest, t-tests were conducted for the two treatment groups. The behavioral and cognitive-behavioral treatment groups were equivalent on all dependent measures at pretest.

Primary Analyses

Treatment Outcomes

A repeated measures analysis of variance was conducted on the baseline, treatment (for BAT measures), posttest, and follow-up scores for the two treatment conditions on each dependent measure. Table A (see Appendix J) displays the group means and standard deviations across sessions for each dependent measure.

For each of the dependent measures, the data will be presented first graphically in figures for visual inspection. Following the visual analysis, an

appropriate statistical analysis will be described and displayed in table form.

Figure 2 displays the group mean changes from baseline through three-month follow-up for the FSS specific animal item. The performance of a non-phobic control group (data from Koch et al., 1998) is also included in the graph for comparison. Upon visual inspection, the two groups show a reduction over time. The statistical analysis confirmed that both treatments produced significant improvements from pretest to posttest ($p < .01$). The treatment effects were maintained through the follow-up period (see Table 3) with no difference between the posttest and follow-up sessions for either treatment. Both treatments resulted in significant improvements, and no differences between the treatment groups and no interactions were found.

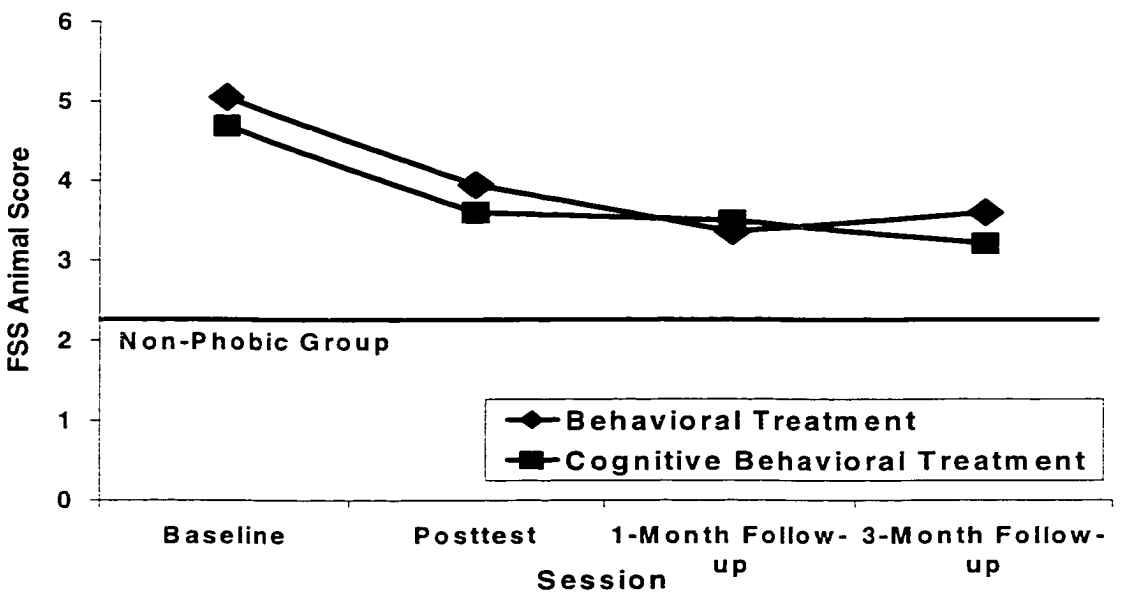

Figure 2. Fear Survey Schedule – Change in Group Means Across Sessions.

A similar pattern was found for the FSS small animal phobia factor composite score in that the factor score reduced over time ($p < .01$) without any differences

between the two treatment conditions or any interactions. The significant change occurred between the baseline and posttest sessions for both treatments. An additional change between the posttest and the first follow-up session occurred for the behavioral treatment condition only resulting in further improvement at the one-month follow-up. The effects from treatment were maintained throughout the follow-up period. A significant difference ($p < .05$) between the two treatment conditions was evident when comparing the baseline and posttest data only in that the behavioral treatment condition had higher (i.e., more fearful) scores.

Table 3

Fear Survey Schedule Results for Repeated-Measures ANOVA

Source	SS	dF	MS	F	Sig.
Between Subjects					
Groups	.775	1	.775	.313	.583
Error	42.168	17	2.480		
Within Subjects					
Trials	20.116	2.078	9.679	12.393	.000
Trials x Groups	.736	2.078	.354	.454	.646
Error	27.594	35.329	.781		

The specific phobia questionnaire total score group means across all sessions are displayed in Figure 3 along with the non-phobic group comparison. Upon visual inspection, the two treatments show a reduction over time. The statistical analysis

confirmed that both treatments produced significant improvements across sessions ($p < .01$) as well as a significant interaction ($p < .05$), which occurred between the two follow-up sessions (see Table 4). The treatment effects were maintained through the follow-up sessions with no difference between the posttest and follow-up sessions for either treatment. Both treatments resulted in significant improvements and no differences between the groups were found. Visually, the difference between the two groups at the three-month follow-up appears significant; however, this difference is not statistically significant.

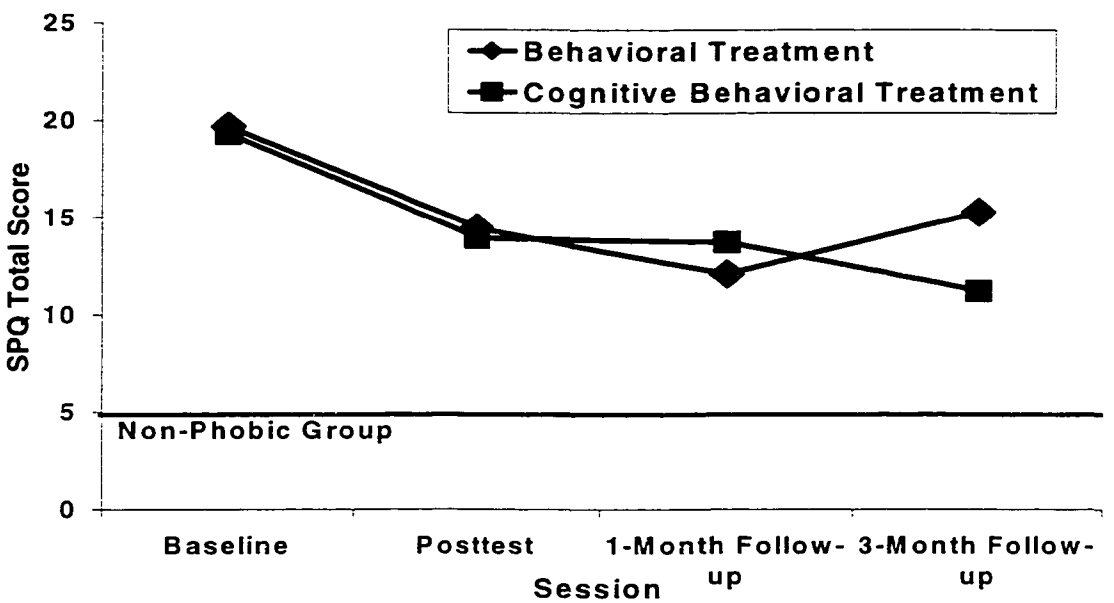

Figure 3. Specific Phobia Questionnaire – Change in Group Means Across Sessions.

For the specific phobia questionnaire, the vigilance and preoccupation subscales significantly changed over time ($p < .05$ and $p < .01$ respectively) as a result of treatment, with no difference between the treatment conditions and no interaction

effects. This change was maintained throughout the follow-up with no difference between posttest and follow-up sessions. The avoidance and cognitive-behavioral subscales also changed significantly over time ($p < .01$ for both) with no difference between the two treatment conditions. However, the change was significant between the baseline and posttest sessions. The avoidance subscale showed a significant interaction between the two follow-up sessions ($p < .05$) with a repeated-measures ANOVA on these two sessions only. The cognitive-behavioral item subscale showed a significant overall interaction ($p < .05$) which occurred between the baseline and posttest sessions. An additional change over time was found between the posttest and follow-up sessions ($p < .05$) when a repeated-measures ANOVA was completed for these sessions only.

Table 4

Specific Phobia Questionnaire Results for Repeated-Measures ANOVA

Source	SS	dF	MS	F	Sig.
Between Subjects					
Groups	14.601	1	14.601	.086	.773
Error	2722.969	16	170.186		
Within Subjects					
Trials	324.202	2.050	158.126	16.979	.000
Trials x Groups	62.758	2.050	30.609	3.287	.049
Error	305.506	32.804	9.313		

Figure 4 displays the group mean changes from baseline through three-month follow-up for the Thought Checklist negative items. Upon visual inspection, the two groups show a substantial change over time. The statistical analysis confirmed that treatment produced significant improvements over time ($p < .01$) with no differences between the two treatment conditions and no interaction effects (see Table 5). The baseline and treatment Thought Checklist negative items were equivalent, which indicates that the participants engaged in their baseline level of negative thoughts during the treatment session. The significant reduction in negative thoughts occurred between the treatment and posttest sessions. These effects were maintained throughout the follow-up sessions with no difference between the two treatments.

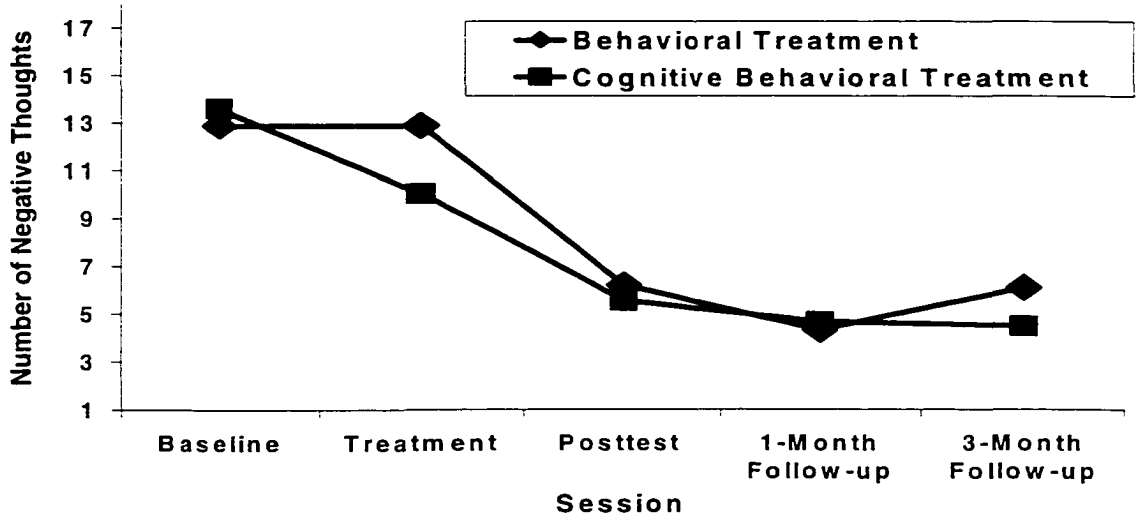

Figure 4. Thought Checklist (Negative) – Change in Group Means Across Sessions.

The Thought Checklist positive items did not show a significant change over time, but an overall significant difference between the two treatment conditions was

found ($p < .05$). No differences were found between the baseline, posttest, and follow-up sessions. A significant change occurred during the treatment session only in that participants had a greater amount of positive thoughts during treatment ($p < .05$) than at any other time with no differences between the two treatment conditions. A significant difference was found between the two groups with a repeated-measures ANOVA on the posttest and follow-up sessions only where the participants in the cognitive-behavioral treatment condition endorsed more positive thoughts, than the behavioral treatment group, during the three-month follow-up session ($p < .01$).

Table 5

Thought Checklist (Negative) Results for Repeated-Measures ANOVA

Source	SS	dF	MS	F	Sig.
Between Subjects					
Groups	40.850	1	40.850	.459	.509
Error	1336.044	15	89.070		
Within Subjects					
Trials	691.852	2.937	235.581	11.088	.000
Trials x Groups	69.123	2.937	23.537	1.108	.355
Error	935.983	44.052	21.247		

Figure 5 shows the group mean changes from baseline through follow-up for the CSAQ-Cognitive subscale. Visual inspection shows a reduction in the two groups over time. The statistical analysis confirmed that both treatments produced significant improvements in cognitive symptoms from pretest to posttest and through follow-up

($p < .01$) (see Table 6). No differences were found between the posttest and follow-up sessions for either treatment condition. Both treatments resulted in significant improvements and no differences between the treatment groups and no interactions were found.

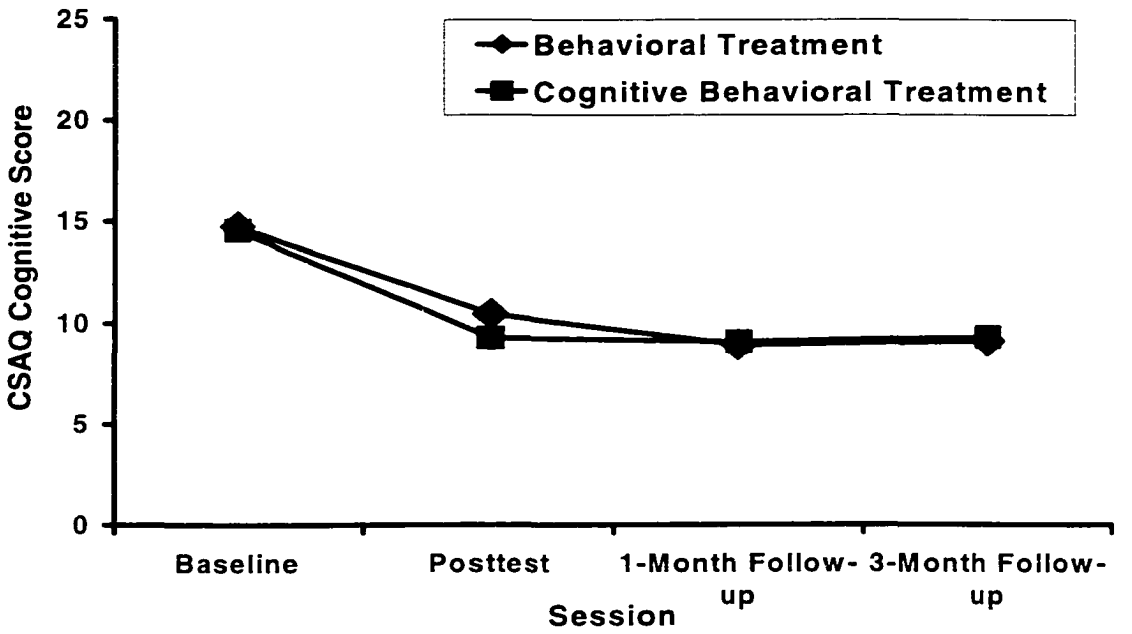

Figure 5. Cognitive-Somatic Anxiety Questionnaire (Cognitive Subscale) – Change in Group Means Across Sessions.

The same pattern was found for the CSAQ-Somatic subscale (Figure 6). Visual inspection demonstrates a reduction in the two treatment groups over time. The statistical analysis confirmed that a significant change occurred between the baseline and posttest sessions ($p < .01$). The treatment effects were maintained through the follow-up periods (see Table 7) with no differences between the posttest and follow-up sessions. Both treatments resulted in significant improvement with no differences between the treatment groups and no interactions.

Table 6

Cognitive-Somatic Anxiety Questionnaire (Cognitive Subscale)
Results for Repeated-Measures ANOVA

Source	SS	dF	MS	F	Sig.
Between Subjects					
Groups	19.477	1	19.477	.588	.454
Error	562.681	17	33.099		
Within Subjects					
Trials	288.762	1.896	152.270	10.626	.000
Trials x Groups	38.814	1.896	20.468	1.428	.254
Error	461.975	32.238	14.330		

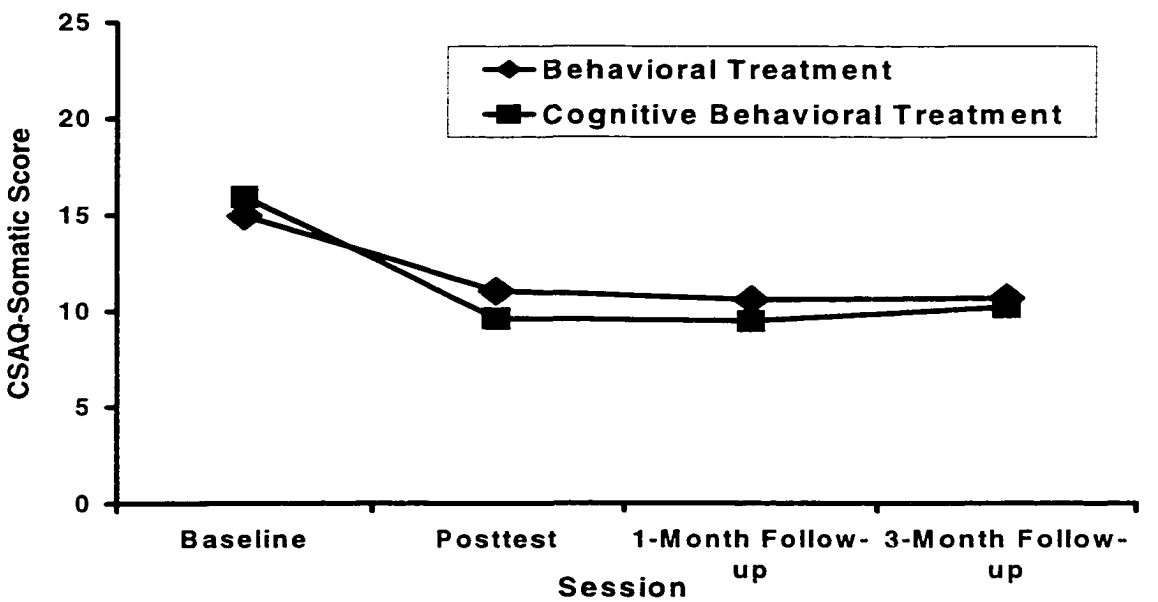

Figure 6. Cognitive-Somatic Anxiety Questionnaire (Somatic Subscale) – Change in Group Means Across Sessions.

Table 7

Cognitive-Somatic Anxiety Questionnaire (Somatic Subscale)
Results for Repeated-Measures ANOVA

Source	SS	dF	MS	F	Sig.
Between Subjects					
Groups	10.658	1	10.658	.199	.661
Error	912.000	17	53.647		
Within Subjects					
Trials	280.456	2.071	135.409	13.025	.000
Trials x Groups	51.824	2.071	25.022	2.407	.103
Error	366.044	35.210	10.396		

Figure 7 displays the group mean changes from baseline through three-month follow-up for the BAT distance and a comparison with non-phobic performance. Upon visual inspection, the two groups show a dramatic increase over time. The statistical analysis confirmed that both treatments produced significant improvements from pretest through follow-up ($p < .01$) with no difference between the two treatments and no interaction effects (see Table 8). A significant increase in distance ($p < .01$) occurred between baseline and the post-treatment as well as for baseline to posttest ($p < .01$). A significant decrease in distance ($p < .01$) occurred between the post-treatment and posttest scores. No differences were found between the posttest and follow-up sessions.

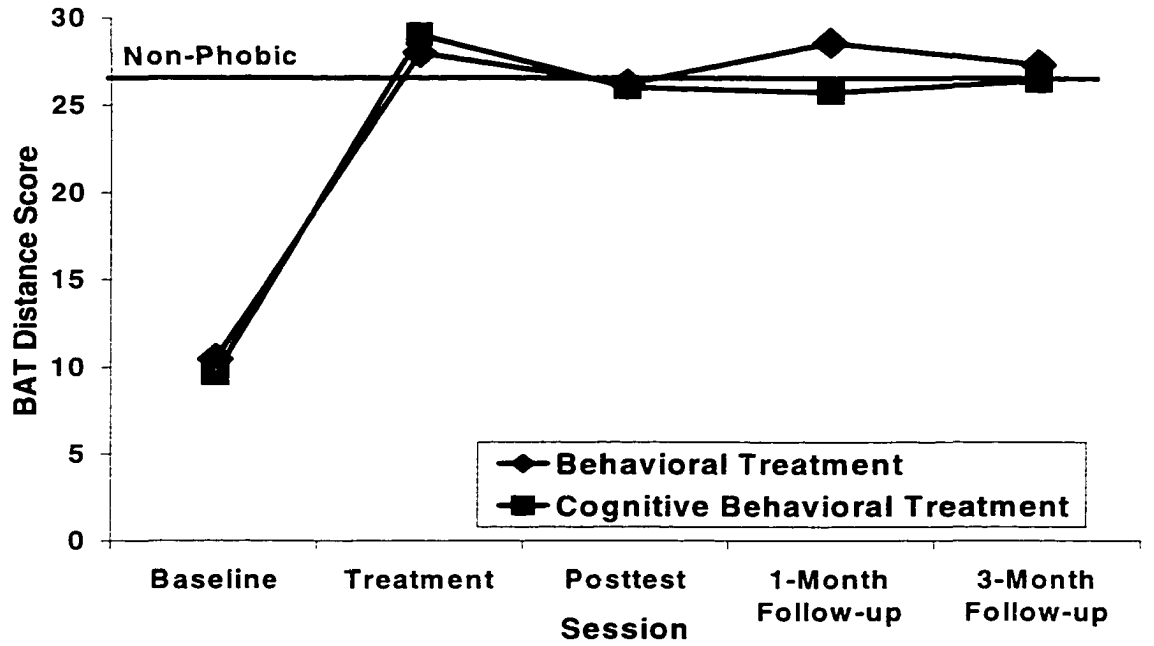

Figure 7. Behavior Avoidance Test Distance – Change in Group Means Across Sessions.

Table 8

Behavior Avoidance Test Distance Results for Repeated-Measures ANOVA

Source	SS	dF	MS	F	Sig.
Between Subjects					
Groups	44.669	1	44.669	.436	.518
Error	1742.320	17	102.489		
Within Subjects					
Trials	4731.300	1.912	2474.546	128.597	.000
Trials x Groups	1.447	1.912	.757	.039	.957
Error	625.458	32.504	19.243		

The group means change over time is displayed in Figure 8 for BAT contact time. A dramatic increase is seen across sessions. The statistical analysis confirmed that both treatments produced significant improvements from pretest through the follow-up sessions ($p < .01$) without any differences between the two treatment conditions or any interaction effects (see Table 9). A significant increase occurred between pretest and post-treatment ($p > .01$) and pretest and posttest ($p < .01$). A significant decrease was found between post-treatment and posttest ($p < .01$). No differences were found between the posttest and follow-up sessions.

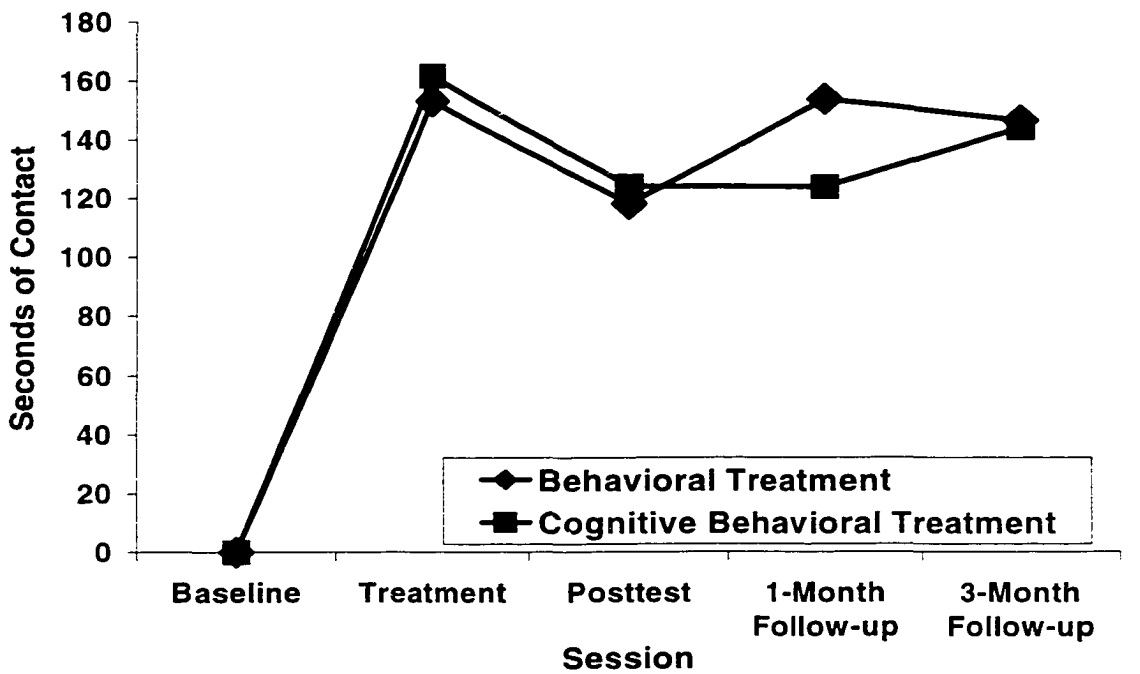

Figure 8. Behavior Avoidance Test Contact – Change in Group Means Across Sessions.

Table 9

Behavior Avoidance Test Contact Results for Repeated-Measures ANOVA

Source	SS	dF	MS	F	Sig.
Between Subjects					
Groups	2200.964	1	2200.964	.171	.684
Error	218674.320	17	12863.195		
Within Subjects					
Trials	333162.149	2.119	157244.226	51.979	.000
Trials x Groups	4138.149	2.119	1953.103	.646	.539
Error	108961.724	36.019	3025.130		

Figure 9 displays the group mean changes from baseline through follow-up for the BAT maximum stopping point SUDS level. Upon visual inspection, the two groups show a reduction over time. The statistical analysis confirmed that both treatments produced significant improvements from baseline through follow-up ($p < .01$) without any differences between the two treatment conditions and no interaction effects (see Table 10). A significant decrease occurred between baseline and treatment ($p < .01$) and between baseline and posttest ($p < .01$). A significant increase was found between treatment and posttest ($p < .01$). A significant change over time ($p < .05$) was observed with a repeated-measures ANOVA conducted on the posttest and follow-up sessions. The behavioral treatment group decreased their SUDS from posttest to both follow-up sessions and the cognitive-behavioral treatment group

SUDS levels increased slightly from posttest to one-month follow-up and then reduced between the two follow-up sessions.

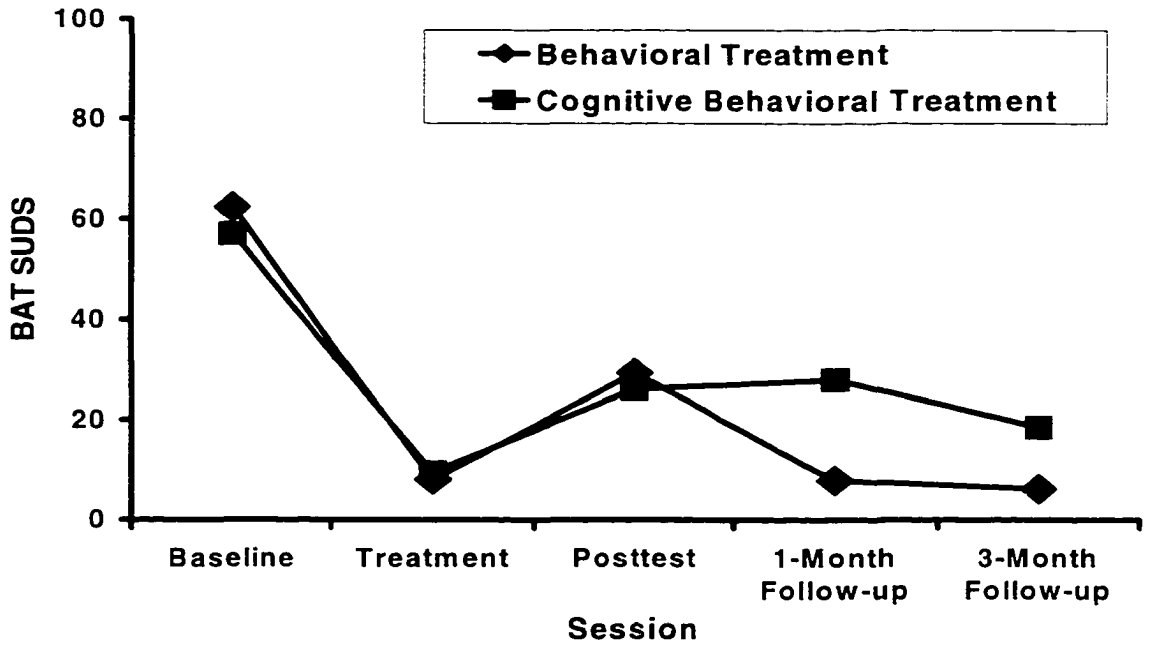

Figure 9. Behavior Avoidance Test Subjective Units of Distress – Change in Group Means Across Sessions.

Figure 10 displays the group mean changes from baseline for the SUDS level at the BAT baseline stopping point throughout the sessions. Visual inspection shows a dramatic decrease in the baseline SUDS level across sessions. The statistical analysis confirmed that both treatments produced significant improvements from pretest through follow-up sessions ($p < .01$) with no differences between groups and no interaction effects (see Table 11). The significant change occurred between the baseline and treatment sessions. The changes were maintained through the posttest and follow-up sessions without any differences between the two treatment conditions.

Table 10

Behavior Avoidance Test Subjective Units of Distress
Results for Repeated-Measures ANOVA

Source	SS	dF	MS	F	Sig.
Between Subjects					
Groups	2192.854	1	2192.854	1.835	.193
Error	20318.578	17	1195.210		
Within Subjects					
Trials	27453.946	2.009	13666.691	28.823	.000
Trials x Groups	854.157	2.009	425.203	.897	.418
Error	16192.622	34.150	474.162		

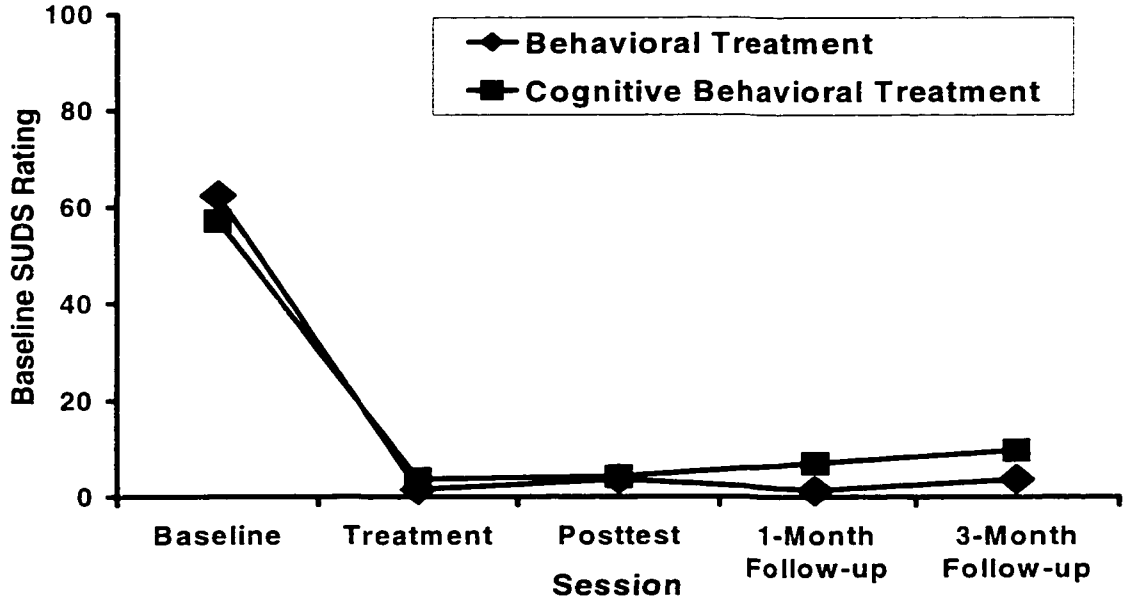

Figure 10. Behavior Avoidance Test Baseline Subjective Units of Distress – Change in Group Means Across Sessions.

Table 11

Behavior Avoidance Test Baseline Subjective Units of Distress Results for Repeated-Measures ANOVA

Source	SS	dF	MS	F	Sig.
Between Subjects					
Groups	683.337	1	683.337	1.360	.262
Error	7538.686	15	502.579		
Within Subjects					
Trials	38606.943	1.329	29052.338	67.377	.000
Trials x Groups	223.743	1.329	168.371	.390	.598
Error	8594.939	19.933	431.189		

Figure 11 displays the group mean changes from baseline through follow-up for the Therapist Rating of Phobia Severity scale including a non-phobic comparison. Visual inspection indicates a significant decrease over time. The statistical analysis confirmed that both treatments produced significant improvements across sessions ($p < .01$) with no differences between the two treatment conditions and no interaction effects (see Table 12). The significant change occurred between the baseline and treatment sessions. The changes were maintained through the posttest and follow-up sessions without any differences between the two treatment conditions.

The changes across sessions for the Participant Rating of Phobia Severity scale are displayed in Figure 12. Upon visual inspection, the two groups show a reduction over time. The statistical analysis confirmed that both treatments produced

significant improvements across sessions ($p < .01$) without any differences between the treatment conditions and no interaction effects (see Table 13). The significant change occurred between the baseline and treatment sessions, and this change was maintained through the posttest and follow-up sessions.

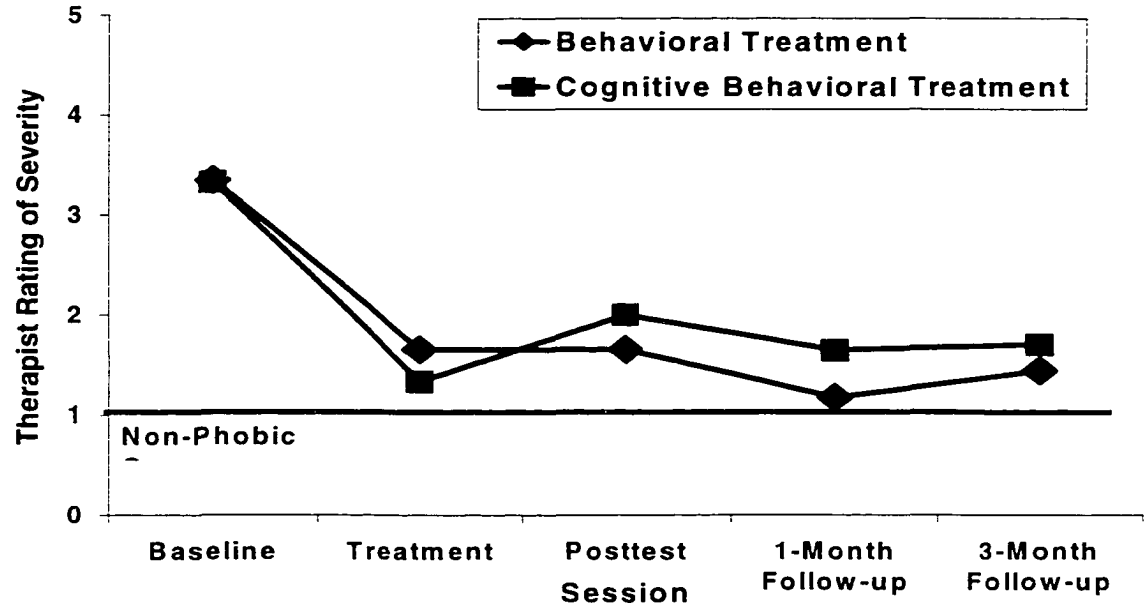

Figure 11. Therapist Rating – Change in Group Means Across Sessions.

Pearson's correlation coefficients were computed to assess the relationship between the therapist and participant ratings across sessions. The therapist and participant ratings were significantly correlated during the baseline, treatment, one-month follow-up, and three-month follow-up for the treatment animal (for all $p < .01$). In addition, the two ratings at posttest and three-month follow-up for the non-treatment animals were significantly related (for both $p < .05$). The therapist and participant ratings were all significantly correlated.

Table 12

Therapist Rating Results for Repeated-Measures ANOVA

Source	SS	dF	MS	F	Sig.
Between Subjects					
Groups	.278	1	.278	.109	.745
Error	40.711	16	2.544		
Within Subjects					
Trials	34.044	2.606	13.062	18.884	.000
Trials x Groups	1.111	2.606	.426	.616	.586
Error	28.844	41.702	.692		

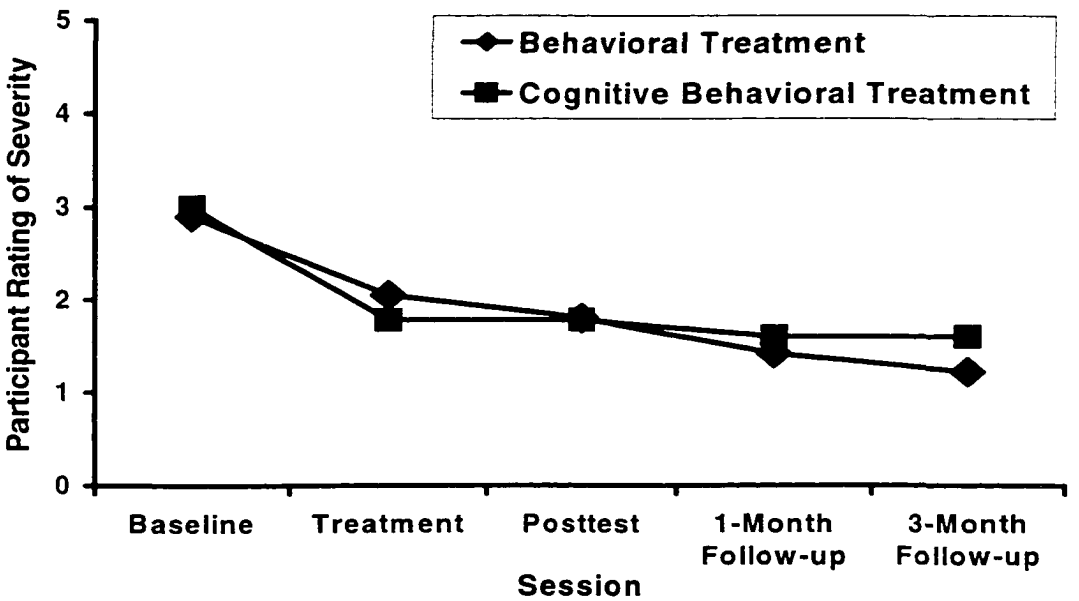

Figure 12. Participant Rating – Change in Group Means Across Sessions.

Table 13

Participant Rating Results for Repeated-Measures ANOVA

Source	SS	dF	MS	F	Sig.
Between Subjects					
Groups	1.241	1	1.241	.548	.469
Error	38.464	17	2.263		
Within Subjects					
Trials	17.967	2.988	6.013	9.315	.000
Trials x Groups	.662	2.988	.221	.343	.794
Error	32.791	50.797	.646		

Figure 13 displays the group mean changes across sessions for the participant's rating on the Expected Success of Treatment scale. Upon visual inspection, the two groups show a small increase over time. The statistical analysis confirmed that both treatments produced significant improvements from pretest to the remaining sessions ($p < .01$) without any difference between the treatment conditions and no interaction effects (see Table 14). The treatment effects were maintained throughout the posttest and follow-up sessions. A repeated-measures ANOVA conducted between the baseline and posttest sessions only and the posttest and one-month sessions only indicates a significant interaction ($p < .05$ for both).

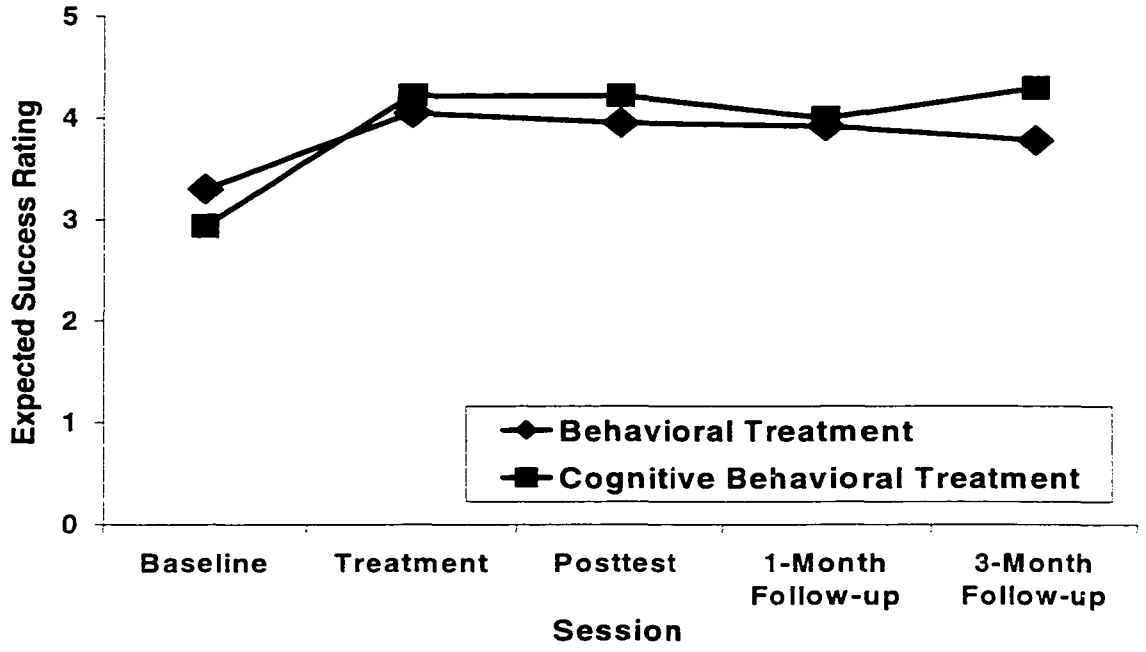

Figure 13. Expected Success of Treatment – Change in Group Means Across Sessions.

Table 14

Expected Success of Treatment Results for Repeated-Measures ANOVA

Source	SS	dF	MS	F	Sig.
Between Subjects					
Groups	1.741	1	1.741	.380	.546
Error	77.964	17	4.586		
Within Subjects					
Trials	7.455	2.604	2.863	6.696	.001
Trials x Groups	2.739	2.604	1.052	2.460	.083
Error	18.924	44.266	.428		

The CSAQ Cognitive specifically for the BAT showed a significant improvement over time ($p < .01$) with no differences between treatment conditions and no interaction effects. The significant change occurred between baseline and treatment. An additional significant ($p < .05$) change was seen between the posttest and the follow-up sessions with a repeated-measures ANOVA that included only the posttest and follow-up data. A decrease occurred between the posttest and one-month follow-up sessions. The same effects were seen for the CSAQ-BAT Somatic scale in that a significant change ($p < .01$) occurred across sessions without any differences found between the treatment conditions and no interaction effects. The significant change occurred between the baseline and treatment sessions with another significant change ($p < .01$) between the posttest and one-month follow-up sessions. No differences were found between the two follow-up sessions.

Generalization Effects

A Repeated-Measure ANOVA was completed to assess the effects related to the generalization condition for each dependent measure. Because the generalization condition was not implemented until after the posttest session, this involved the posttest (pretest data for generalization conditions) and both follow-up sessions. No significant differences over time, differences between groups, and no interaction effects were found for a majority of the measures. However, the few significant differences that were found included the SPQ Vigilance subscale, SPQ Cognitive-Behavioral items, CSAQ-BAT Somatic scale for both the treatment and other animals, and SUDS for the treatment animal. For the SPQ Vigilance subscale, the generalization condition showed between group differences ($p < .05$), between the

two follow-up sessions and an interaction effect between the posttest and one-month follow-up ($p < .05$ for both). Participants in the generalization condition increased in vigilance through the follow-ups while the non-generalization participants decreased their level of vigilance over time. The SPQ Cognitive-Behavioral items showed a significant decrease over time ($p < .05$) and the non-generalization condition produced slightly greater reductions. The CSAQ-BAT Somatic scale for the treatment animal also showed a significant reduction over time ($p < .01$), between the posttest and one-month follow-up sessions, and the reduction was greater for the generalization condition. The CSAQ-BAT Somatic scale for the other (non-treatment) animals demonstrated a significant reduction ($p = .01$) between the two follow-up sessions for both groups, with a slightly greater decrease for the generalization condition. No differences were found on the CSAQ-BAT Cognitive scale for the other animals or the therapist and participant ratings of phobia severity for the other animals between generalization conditions, time and no interaction effects. The SUDS for the treatment animal also showed a significant reduction across sessions ($p < .05$). This change was greater for the generalization condition.

For the 19 participants in the generalization condition, One-Way ANOVAs were completed with each measure to determine if differences existed for those who did not complete any generalization sessions compared to participants who completed either one or all three generalization sessions. The four participants who did not complete any generalization sessions received the behavioral treatment. Participants who completed all three generalization sessions had significantly more severe phobia (less individuals with partial phobia criteria) ($p < .05$) at pretest than those that completed only one generalization session. The phobia diagnosis was not

significantly different for those that did not complete any generalization sessions compared to those that completed one or three sessions. The participants who completed all three generalization sessions also endorsed significantly more items on the baseline SPQ Cognitive-Behavioral subscale compared to those that only completed one session of generalization ($p < .05$). Those participants who did not complete any generalization sessions had a significantly greater amount of negative thoughts from the Thought Checklist during treatment ($p < .05$) compared to those that completed all the generalization sessions. In addition, the participants who did not complete any generalization sessions rated the treatment as significantly more intrusive compared to those that completed one or three generalization sessions ($p < .05$ for both). The participants who completed all three generalization sessions indicated that they experienced significantly less distress during the treatment compared to those that completed one or no generalization sessions ($p < .05$ for both). No other differences between these three groups were significant.

Interaction Between Treatment and Generalization Conditions

A 2 x 2 repeated-measures ANOVA was completed with the two treatment and two generalization conditions. The overall within-subjects interaction was significant for contact ($p < .05$). The overall between-subjects interaction was significant for contact ($p < .05$) and therapist rating of phobia severity ($p < .05$).

Figure 14 displays the contact time for the four treatment and generalization groups. The within-subjects interaction for contact was significant between baseline and treatment ($p < .05$), baseline and posttest ($p < .05$), and between baseline,

posttest, and one-month follow-up ($p < .05$). The between-subjects interaction for contact was significant between baseline and treatment ($p < .05$), baseline and posttest ($p < .05$), treatment to posttest ($p < .01$), posttest and one-month follow-up ($p < .05$), one-month to three-month follow-ups ($p < .01$), and between posttest and both follow-ups ($p < .05$), and pretest, posttest, and one-month follow-up ($p < .05$). The behavioral, non-generalization and cognitive-behavioral, generalization groups consistently held the animal longer than the cognitive-behavioral, non-generalization and behavioral, generalization groups across all sessions. However, these four groups were not significantly different from one another.

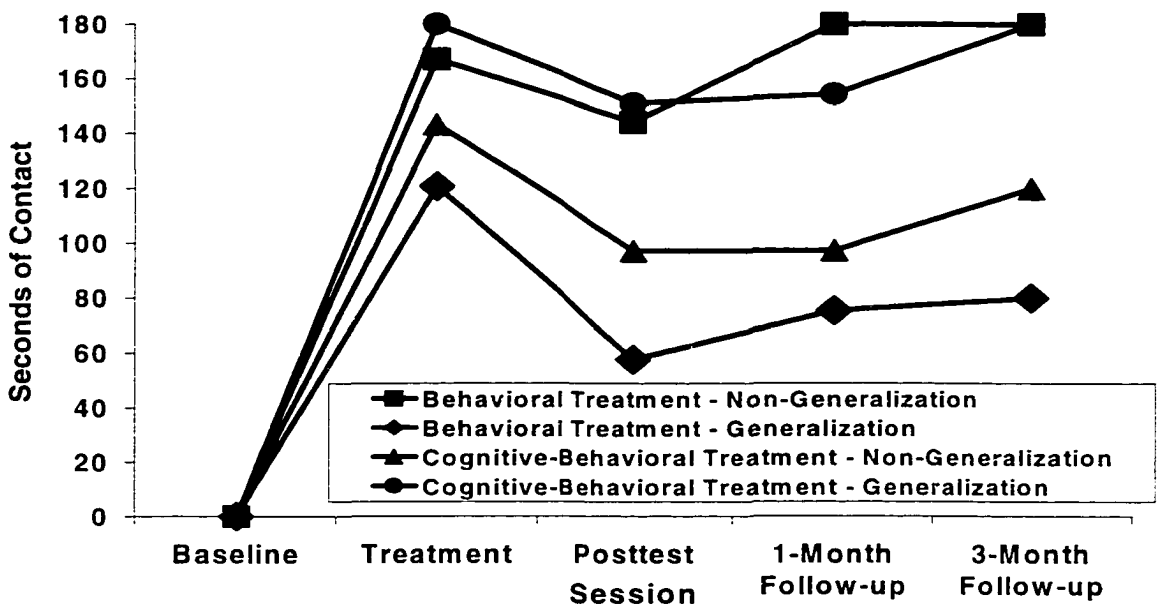

Figure 14. Behavior Avoidance Test Contact Time – Change in Group Means Across Sessions for All Conditions.

Figure 15 shows the changes in therapist rating for phobia severity across sessions for the generalization and treatment conditions. Along with the significant

overall between-subjects interaction, a significant interaction occurred between baseline and posttest ($p < .05$), treatment and posttest ($p < .05$), posttest and one-month follow-up ($p < .05$), one-month and three-month follow-up ($p < .05$), posttest and two follow-up sessions ($p < .05$), and baseline, posttest and one-month follow-up ($p < .05$). Consistent with contact times, the therapist ratings were less severe for the cognitive-behavioral, generalization and the behavioral, non-generalization conditions and more severe for the cognitive-behavioral, non-generalization and the behavioral, generalization groups. These four groups were not significantly different from one another.

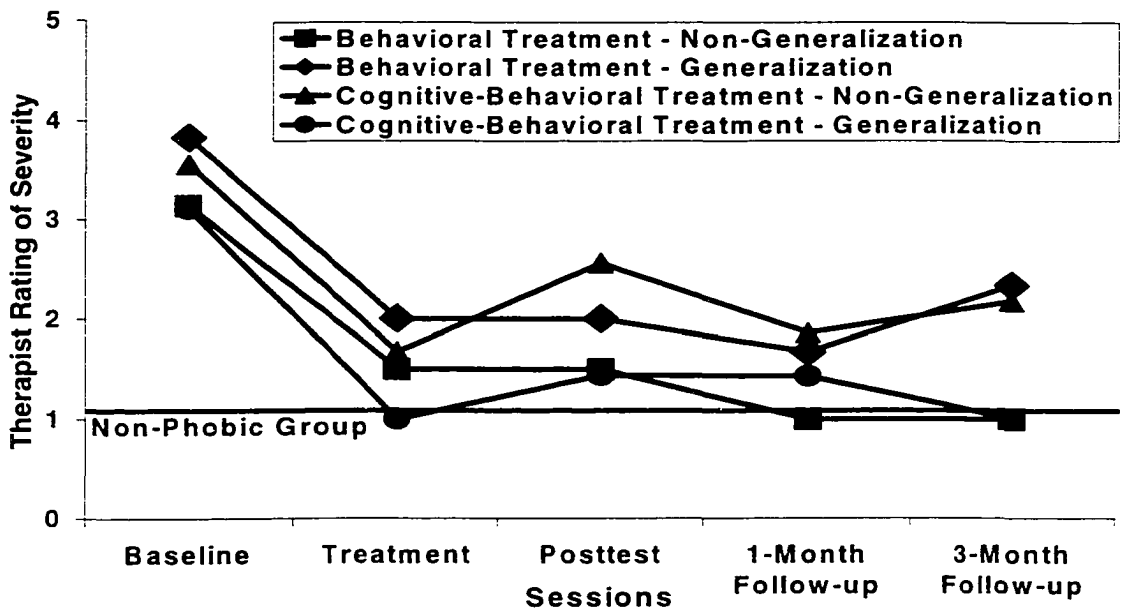

Figure 15. Therapist Rating – Change in Group Means Across Sessions for All Conditions.

The changes over time for the treatment and generalization conditions are shown in Figure 16 for the Behavioral Avoidance Test Distance scores. A within-

subjects interaction was found between the posttest and two follow-up sessions ($p < .01$) for the distance score. Between-subjects interaction effects were significant between baseline and posttest ($p < .05$), treatment and posttest ($p < .05$), posttest and one-month follow-up ($p < .05$), one- and three-month follow-ups ($p < .05$), and baseline, posttest, and one-month follow-up ($p < .05$). Again the cognitive-behavioral, generalization and behavioral, non-generalization conditions showed greater BAT distance compared to the cognitive-behavioral, non-generalization and behavioral, generalization conditions for both the within- and between-subject interactions. These four groups were not significantly different from one another.

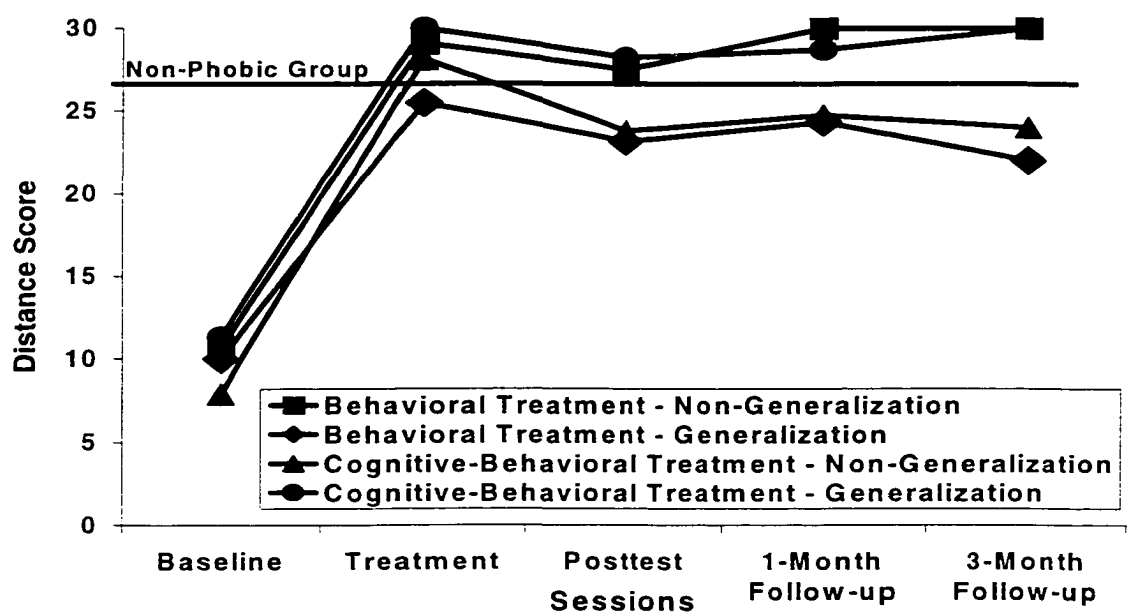

Figure 16. Behavior Avoidance Test Distance - Change in Group Means Across Sessions for All Conditions.

Additional within- and between-subject interactions were found for the groups when the overall interactions across all sessions were not significant. This included

within-subject interactions from posttest to the two follow-up conditions for the FSS Factor and Thought Checklist Negative ($p < .05$ for both). For both of these, the behavioral, generalization had more severe scores, but the groups were not significantly different. Significant between-subjects interactions were found for CSAQ-BAT Cognitive and Baseline SUDS ($p < .05$ for each) for the treatment and posttest sessions. The cognitive-behavioral, generalization and behavioral, non-generalization groups performed better than the cognitive-behavioral, non-generalization and the behavioral, generalization conditions for both of these measures. The behavioral, non-generalization condition had a significantly lower Baseline SUDS rating than the cognitive-behavioral, non-generalization group at the treatment session. No other significant differences were found between the four groups for CSAQ-BAT Cognitive or Baseline SUDS across sessions. A within-subjects interaction was found between posttest and one-month follow-up for the CSAQ-Cognitive subscale ($p < .05$). Again, the cognitive-behavioral, generalization group had the lowest scores and the behavioral, generalization condition had the highest scores. No significant differences between the four groups were found on this measure.

No significant differences were found between the four groups for any baseline measure. The behavioral, non-generalization group had a significantly lower ($p < .05$) baseline SUDS score compared to the cognitive-behavioral, non-generalization group during the treatment session. For the second BAT trial Contact score, the behavioral, non-generalization group was significantly higher than the behavioral, generalization and the cognitive-behavioral, non-generalization groups (p

< .05 for both) at posttest. The cognitive-behavioral, non-generalization group reported significantly ($p < .05$) more distress during the treatment session than the cognitive-behavioral, generalization group. In addition, both the behavioral, non-generalization and the cognitive-behavioral, non-generalization groups reported that the treatment condition was significantly more intrusive ($p < .01$ and $p < .05$, respectively) compared to the cognitive-behavioral, generalization condition. A significant difference was found for the SPQ Vigilance subscale at both follow-up sessions. For the one-month follow-up, the behavioral, generalization condition was significantly worse than the three other groups ($p < .01$ for comparison with behavioral, non-generalization and cognitive-behavioral, non-generalization and $p < .05$ for cognitive-behavioral, generalization). At the three-month follow-up, the behavioral, generalization group remained significantly worse than the cognitive-behavioral, non-generalization group ($p < .05$) on the SPQ Vigilance subscale. No other significant differences were found between the four groups.

Additional Analyses

Effect Size

Treatment effect sizes were computed with Glass's Delta: $\frac{(M_{pre} - M_{post})}{SD_{pre}}$. The pretest standard deviation for contact was 0, so the posttest standard deviation was used for contact scores. The overall effect sizes were averaged for behavioral, self-report, and subjective rating measures. Table 15 depicts the effect sizes for each treatment condition. The effect sizes for behavioral measures ranged from 1.35 for contact and 3.26 for distance for the behavioral treatment and 1.58 for contact and

2.95 for distance for the cognitive-behavioral treatment. For the behavioral treatment, the SPQ-Cognitive-Behavioral items had the lowest effect size at 0.05 and for the cognitive-behavioral treatment the TC positive had the lowest effect size at 0.34. For both treatment conditions, the FSS Animal had the largest effect size at 1.30 and 1.31 for the behavioral and cognitive behavioral treatments respectively. Expected success of treatment was the lowest effect size for the behavioral treatment at 0.53 and the SUDS was the lowest for the cognitive-behavioral treatment at 1.00. For both treatment conditions, the Baseline SUDS was the largest effect size with 2.21 and 1.70 for the behavioral and cognitive-behavioral treatments, respectively.

Table 15

Treatment Effect Sizes Across Measures

	Behavioral Treatment	Cognitive-Behavioral Treatment
Behavioral Measures	2.25	1.96
Self-Report Measures	0.76	0.87
Subjective Ratings	1.43	1.31

Trial Two BAT Measures

The percentage of participants that choose to complete a second trial of the BAT are listed in Table 16 across sessions. Paired Samples T-Tests were computed for the differences between trial one and trial two on the BAT measures. The only significant difference was the distance measure at baseline, which increased

significantly ($p < .01$) from trial one to trial two. Utilizing the second trial distance score did not produce any differences compared to the repeated-measures ANOVA completed for the trial one distance value. A comparison between the two treatment and generalization conditions for the second trial BAT found significant interactions for contact between baseline and posttest ($p < .01$ for both between- and within-subjects) and between treatment and posttest ($p < .01$ for between-subjects), and distance between treatment and posttest ($p < .01$ for both within- and between-subjects). The cognitive-behavioral, generalization and behavioral, non-generalization conditions had more contact and distance than the cognitive-behavioral, non-generalization and behavioral, generalization groups. At posttest, the behavioral, non-generalization condition had significantly more contact time compared to the behavioral, generalization and the cognitive-behavioral, non-generalization groups ($p < .05$ for both). No other differences were found between these four groups. No significant interactions were found across all sessions for any trial two BAT measures.

BAT Overt Responses

Participant overt responses were recorded during the BAT assessments. The overt responses included shaking/trembling, crying/eyes watering, holding self, and turning way/not looking. A dramatic reduction was found in turning away/not looking with 16 participants displaying this behavior at baseline; and only two following treatment, and three at posttest. Holding self reduced from seven to three, to one across sessions. Crying/eyes watering also reduced from six at baseline, to zero following treatment, and one at posttest. Occurrences of shaking/trembling did not change with two, two, and three participants engaging in this behavior across

sessions. This trend continued for each overt behavior during both follow-up sessions as well.

Table 16

Percentage of Participants That Completed the BAT Trial Two Across Sessions

	Behavioral Treatment	Cognitive-Behavioral Treatment
Baseline	45%	39%
Treatment	45%	44%
Posttest	55%	39%
One-Month Treatment Animal	17%	13%
One-Month Animal 2	18%	21%
One-Month Animal 3	20%	23%
Three-Month Treatment Animal	56%	30%
Three-Month Animal 2	37%	30%
Three-Month Animal 3	33%	30%

Additional Animals for BAT Follow-up Assessments

During the first follow-up BAT assessment, 88.5% of the participants initially selected the treatment animal followed by the other two animals. For the three-month follow-up, 68.4% of the participants selected the treatment animal first. According to a Kruskal-Wallis Non-Parametric Test, no differences were found between the two treatment and two generalization conditions related to the order of animal selection.

The differences between the measures for the treatment animal and the other animals were compared using a Paired Samples T-Test. The therapist and participant ratings for the treatment animal were significantly different from ratings for the other animals at both follow-up sessions ($p < .01$ for all four comparisons). In addition, the CSAQ-BAT cognitive and somatic scales for the treatment animal were significantly different from the CSAQ-BAT other cognitive and somatic subscales at the one-month follow-up ($p < .05$ for cognitive and $p < .01$ for somatic). Also, the three-month follow-up approached significance. The ratings and scales for the other animals were more severe than for the treatment animal in all cases.

A repeated-measures ANOVA for the generalization and treatment conditions resulted in significant within-subject interaction effects between the two follow-up sessions for the Therapist Rating of Other Animal Severity ($p < .05$) and Distance Trial One Animal Three ($p < .05$). On both measures the cognitive-behavioral, generalization group demonstrated superior performance and the behavioral, generalization group showed the poorest performance. However, the four groups were not significantly different from one another.

DEVS Items

Independent Samples T-Tests were conducted on the DEVS items. A significant difference ($p < .05$) occurred for the intrusiveness of the treatment procedure overall. The participants in the behavioral treatment condition rated the treatment as significantly more intrusive compared to the participants who received the cognitive-behavioral treatment. Both treatment groups rated the treatment within the "somewhat intrusive" range. Participants from both treatment conditions rated the

baseline and treatment sessions to be somewhat distressing, and also indicated that they were not very distressed following the treatment session. Both treatment groups rated the treatment they received as highly acceptable and they would probably recommend the treatment to friends or family members with animal fears.

Cognitive Coping Card Use

Participants in the cognitive-behavioral treatment intervention reported that they read over or thought about the coping self-statements on the card from 1 to 90 minutes (M = 10.5 minutes) prior to the treatment session. Most participants tended to look at the card briefly. During the treatment session, participants utilized the card from a few seconds to throughout the treatment. During treatment, four participants used the card less than 10% of the time, seven between 10-40%, three 50-75%, and two for 75% or greater. More use of the cognitive coping card (greater than 75%) during treatment was related to significantly less distance and contact time at posttest and less distance for the treatment animal at the one-month follow-up. In addition, more use of the card was related to significant increases in distress following treatment (i.e., FSS factor score, therapist and participant ratings for the treatment animal, CSAQ-Cognitive and CSAQ-Somatic for the treatment animal at the one-month follow-up; and FSS factor score, CSAQ-Somatic, therapist and participant ratings for the treatment animal, and CSAQ-BAT – Somatic for the treatment animal at the three-month follow-up). Use of the coping card at least 50% of the time during treatment was related to greater SUDS rating at posttest and the three-month follow-up, greater SPQ Preoccupation and Avoidance subscales, CSAQ – Somatic scale, and greater therapist and participant ratings for phobia severity. Use of the cognitive card for at least 75% of the treatment session resulted in a trend of more treatment cycles

and less distance during the post-treatment BAT. Participants who utilized the cognitive card more during treatment, were not significantly more phobic prior to or following treatment. However, more use of the card appears to be related to greater difficulty with treatment and more severe responses on specific measures following treatment.

Animal Interaction Form

Generalization Session Interactions. The Animal Interaction Form was completed for the 28 (14 from first generalization session and seven each for the second and third sessions) generalization sessions completed. Participants recorded infrequent occurrence of several overt responses for the generalization sessions including: shaking (7.1%), crying (0%), holding self (10.7%), turning away (17.9%), sweating (21.4%), trembling (17.9%), eyes watering (0%), asking for help (17.9%), closing eyes (7.1%), screaming (0%), and other (28.6%). The rating for comfort with the animal interaction was very comfortable for 33.3% and somewhat comfortable for 48.1% of the participants. For symptom severity, 63% of participants reported being symptom free and 22.2% slightly severe. The amount of distress experienced during the interaction was none to minimal for 74.1% of the participants.

Non-Laboratory Interactions. Twenty-six Animal Interaction Forms were completed for contact with the feared animal outside of the laboratory setting. Twenty of these were completed at home and either mailed in or brought to the next session and six were completed during a session for a previous interaction. Seven interaction forms were completed by three participants in the behavioral – non-programmed generalization condition, eight forms by three participants in the behavioral – programmed generalization group, 10 forms by three participants in the cognitive-

behavioral – non-programmed generalization condition and one form from a participant in the cognitive-behavioral – programmed generalization group. The following overt responses were recorded for these "home" interactions: shaking (26.9%), crying (7.7%), holding self (3.8%), turning away (50%), sweating (11.5%), trembling (23.1%), eyes watering (7.7%), asking for help (38.5%), closing eyes (15.4%), screaming (3.8%), and other (46.2%). The rating for comfort with the animal interaction was 30.8% very uncomfortable and 38.5% somewhat uncomfortable. The severity of phobia symptoms primarily ranged from symptom free (11.5%), and slightly severe (38.5%), to moderately severe (34.6%). The average amount of interaction distress fell within the somewhat distressed range. The amount of distress experienced for the next few hours was none to minimal (76%).

The interaction differences between the generalization session and non-laboratory interactions with the feared animals were analyzed with an independent samples t-test. The "home" interactions were significantly shorter, more uncomfortable, involved more severe symptoms and resulted in more distress during the interaction ($p < .01$ for each of these).

Clinical Significance

Clinical significance was computed utilizing the means and standard deviations for the treatment participants and the non-phobic control subjects from a previous study (Koch et al., 1998) based on the procedure outlined by Jacobson & Revenstorf (1988). The cut-off score method was used to classify participants as most likely belonging in the functional or dysfunctional range at baseline and posttest. Figure 17 shows the percentage of participants who fell within the non-phobic range of functioning both at baseline and posttest across self-report, behavioral, subjective

ratings, and diagnostic status for all treatment participants. Following treatment, 82% of participants no longer met full or partial diagnostic criteria for specific phobia related to the treatment animal and 80% of participants were within the non-phobic range for their baseline SUDS at posttest. An independent samples t-test between the treatment and non-phobic control participants indicated that these two groups were not significantly different on the BAT Distance and Baseline SUDS at posttest. The posttest BAT contact time was significantly greater for the treatment participants compared to the non-phobic control participants. However, the cut-off time for the non-phobic participants ($\underline{M}$ = 44.73) was 60 seconds; whereas, the treatment participants ($\underline{M}$ = 120.97) utilized 180 seconds maximum cut-off time for holding the animal. The non-phobic participants had significantly more functional scores on the remaining measures ($\underline{p} < .01$ for each) compared to the treatment participants.

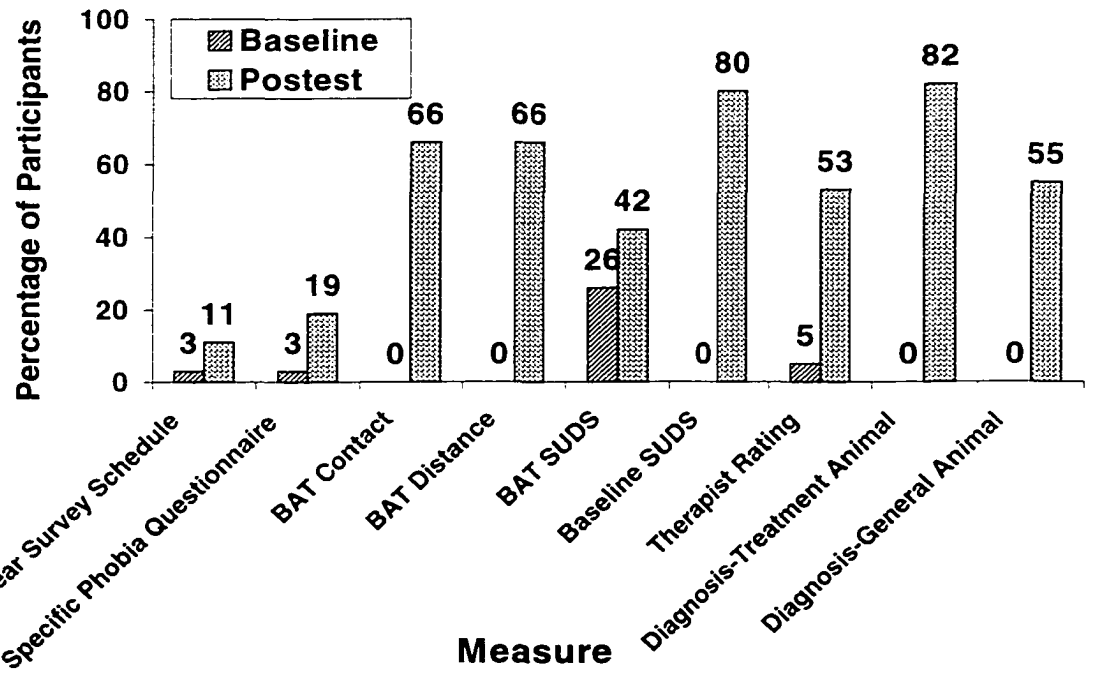

Figure 17. Percentage of Clinically Significant Change from Baseline to Posttest.

Intent-to-Treat Analysis

An intent-to-treat analysis was completed in which the pretest scores were carried forward to the posttest and follow-up sessions for those participants who completed baseline and not treatment and those that completed the treatment session but not the posttest session. In addition, the previous scores were carried forward for those participants who did not complete the follow-up sessions. This allows these participants to be included as if they would have not improved based on treatment or additional sessions. This analysis included a maximum of 23 participants in each treatment group. No significant differences were found between the two treatments on any measure. A significant change across time ($p < .01$) occurred for all measures except for the second trial BAT scores, which were non-significant. Therefore, significant improvements were found from treatment even when dropout and non-completer participants were included in the analysis.

A significant change ($p < .01$) and improvement was found between baseline and treatment session data for all measures except Thought Checklist Negative, which improved significantly between the treatment and posttest sessions ($p < .01$). No differences were found between the treatment and posttest sessions for the Baseline SUDS, Participant Rating of Phobia Severity, Expected Success of Treatment, and the CSAQ-BAT Cognitive subscale. The Thought Checklist Positive ($p < .01$), Contact ($p < .01$), Distance ($p < .01$), SUDS ($p < .01$), Therapist Rating of Phobia Severity ($p = .01$), and CSAQ-BAT Somatic subscale ($p < .05$) were all worse from the treatment to the posttest sessions. All participants showed significant improvements ($p < .01$ for all measures except the CSAQ Cognitive-Behavioral items where $p < .05$) between baseline and posttest on all measures except the Thought Checklist Positive which was non-significant. The CSAQ-BAT Cognitive ($p < .05$) and Somatic ($p < .01$)

subscales and the FSS factor ($p < .05$) score all improved significantly from posttest to one-month follow-up. The scores on the other measures did not change significantly between the posttest and one-month follow-up. No significant changes were seen between the two follow-up sessions on any measure.

CHAPTER IV

DISCUSSION

Comparison with Previous Research

Consideration of the Main Hypotheses

The results of the present study support previous evidence that one-session exposure treatment had a significant effect on alleviating symptoms of small animal phobia. In addition, this treatment was effective for reducing behavioral, cognitive, and somatic symptoms related to the phobia with and without the utilization of a cognitive treatment component. The first hypothesis was supported in that all participants showed dramatic improvement in the alleviation of specific phobia symptoms following both one-session exposure treatment procedures. However, since the laboratory generalization procedure used in this study did not improve treatment outcome through the three-month follow-up the second hypothesis was not supported. The significant amount of dropout during the follow-up sessions may have prevented the detection of any differences based on the generalization condition.

This study utilized a modified treatment procedure based on Öst's one-session exposure treatment (Öst 1997b, 1997a, 1989). This modified, strictly behavioral, treatment was also used in Koch et al. (1998). A cognitive component was added to the present behavioral treatment procedure for the cognitive-behavioral one-session exposure treatment, and showed similar results to Öst's in the alleviation of specific phobia symptoms. The two treatment conditions were not significantly different in

terms of treatment duration. However, the behavioral treatment was rated as significantly more intrusive compared to the cognitive-behavioral treatment. Based on this, the cognitive-behavioral one-session exposure treatment procedure was preferred by participants over the behavioral one-session exposure treatment.

No meaningful differences were found based on the generalization condition. However, a combination of the generalization condition and the behavioral treatment resulted in a greater amount of dropout during the follow-up sessions. The increased demand for additional generalization sessions may have reduced participant's commitment to the completion of the study. Possibly these treatment booster sessions were thought to be unnecessary or too time consuming for the typical college student schedule. Over the course of the two studies completed with the modified one-session exposure procedure, some participants reported generalization of treatment effects to other types of the feared animal, whereas, other participants did not report such generalization. This study attempted to improve treatment generalization through additional exposure to the treatment and other animals within a controlled laboratory setting without success. Perhaps future studies should assess the effectiveness of non-laboratory based generalization.

Another factor that may have contributed to generalization, was the type of treatment animal utilized. This seemed particularly true for spider treatment (most frequently selected among participants) where the participants interacted with a rose-hair tarantula. Participants would not encounter this animal within their natural environment and the typical house spider behaves differently from the tarantula (e.g., moves quickly and sometimes unpredictably). The use of up to three generalization

sessions did not improve the participant's comfort with handling house and wolf spiders. Initially, the rose-hair tarantula works well for treatment because of its predictability; however, perhaps prior to terminating treatment the participant should interact with other types of the feared animal that are found in his or her natural environment. This change may serve to improve treatment effectiveness and generalization.

In addition, the use of a controlled laboratory setting with the feared animal in an enclosed cage may reduce generalization to settings where contact with the feared animal is uncontrolled and unpredictable. Also, in the natural environment an assistant would not be available to help the participant in the case of an emergency. However, despite the use of a controlled laboratory setting, many participants no longer met diagnostic criteria for the feared animal at posttest and follow-up.

Consideration of the Outcome Measures

The findings in the present investigation with respect to the BAT and the self-report measures of fear were consistent with the results of previous studies (Koch et al., 1998; Hellström & Öst, 1995; Öst et al., 1992; Öst et al., 1991; Öst, 1989). In particular, the treatment was effective in significantly reducing fear on behavioral measures (i.e., BAT Distance, SUDS, Baseline SUDS, etc). Clinically significant improvements were found for 66% of the participants in relation to the BAT Contact and Distance, 80% for Baseline SUDS, and 82% for not meeting partial or full diagnostic criteria for the treatment animal. These participants functioned within the non-phobic range following treatment. The self-report measures were the least likely to show clinically significant improvements. This was consistent with the previous

study (Koch et al., 1998) that utilized the behavioral one-session exposure treatment procedure. Perhaps the behavioral and cognitive-behavioral one-session exposure treatment procedures produce the greatest benefit for behavioral and subjective ratings. Another possibility was that the self-report measures utilized were not sensitive enough to detect the quick reduction of symptoms that occurs with a one-session treatment. Only a few participants reported contacting the feared animal between sessions. Perhaps many participants did not encounter the feared animal between treatment and posttest/follow-up to test the effects of treatment and determine their progress with respect to answering the questionnaires.

A conflicting finding between the present study and previous research conducted by Öst (1989) pertains to participant dropout before or after treatment. For this study, five qualified participants did not complete treatment and three participants did not complete the posttest session after finishing treatment. Only one participant dropped out during the treatment procedure proper. Öst reports zero to minimal dropout over the course of several studies. The results from this study are consistent with Koch et al, 1998, where eight participants dropped out prior to the treatment session. It is unclear why the differences exist for dropout between these two research labs. Perhaps a sufficient treatment rationale was not provided during the two studies that utilized the behavioral treatment procedure. This may impact treatment follow through.

Almost all participants completed the entire treatment procedure (i.e., handled the animal for at least 60 seconds while reporting little or no anxiety). Thirty-one of the 38 participants in this study were able to meet that criterion.

Limitations of the Study

One limitation of this study was a potential selection bias. All participants were self-referred with small animal fears in response to advertisements for a small animal phobia treatment study. In addition, a majority of the participants were college students who were receiving extra credit from undergraduate psychology courses based on research participation. Perhaps some of the dropout during the follow-up sessions was a result of students who were no longer receiving extra credit for their participation. Additionally, some students were not available for follow-up sessions because of extended breaks (i.e., summer vacation) or not returning to the university for the following academic year.

Another possible limitation of this study was the incorporation of participants with full and partial diagnostic criteria for animal phobia. However, no differences were found in baseline measures, treatment effectiveness, or dropout for either diagnostic group. The ADIS-IV specific phobia section and the inability to touch the feared animal during baseline were the inclusion criteria for animal phobia. Perhaps the use of a threshold of symptom severity based on the ADIS-IV, FSS, or SPQ would have eliminated the one participant who fell within the functional group at baseline based on the FSS and SPQ. In addition, four participants met criteria for inclusion based on the ADIS-IV, but were able to touch the animal during the baseline BAT. Future studies should include additional criteria of a minimal cut-off on a measure found to distinguish phobic from non-phobic individuals.

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Appendix A

Human Subjects Institutional Review Board and Institutional Animal Care and Use Committee Approval Letters

WESTERN MICHIGAN UNIVERSITY

Date: 12 March 1999

To: Richard Spates, Principal Investigator
Ellen Koch, Student Investigator for independent research
Andrea Kozak, Student Investigator for independent research

From: Sylvia Culp, Chair Sylvia Culp

Re: HSIRB Project Number 99-02-09

This letter will serve as confirmation that your research project entitled "Comparison and Generalization of Cognitive-Behavioral and Behavioral One-Session Exposure Treatments of Small Animal Phobias" has been **approved** under the **full** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 12 March 2000

WESTERN MICHIGAN UNIVERSITY
INVESTIGATOR IACUC CERTIFICATE

Title of Project: Comparison and Generalization of Cognitive-Behavioral and Behavioral One-Session Exposure Treatments for Small Animal Phobias.

The information included in this IACUC application is accurate to the best of my knowledge. All personnel listed recognize their responsibility in complying with university policies governing the care and use of animals.

I declare that all experiments involving live animals will be performed under my supervision or that of another qualified scientist. Technicians or students involved have been trained in proper procedures in animal handling, administration of anesthetics, analgesics, and euthanasia to be used in this project.

If this project is funded by an extramural source, I certify that this application accurately reflects all procedures involving laboratory animal subjects described in the proposal to the funding agency noted above.

Any proposed revisions to or variations from the animal care and use data will be promptly forwarded to the IACUC for approval.

_____ Disapproved _____ Approved __K__ Approved with the provisions listed below

Provisions or Explanations:

see attached sheet

IACUC Chairperson — Date 4/21/99

Acceptance of Provisions

Signature: Principal Investigator — Date 4/12/99

IACUC Chairperson Final Approval — Date 4/21/99

Approved IACUC Number 99-02-01

Rev. 3/92
IAC-B

Appendix B

Recruitment Flyer and Classroom Solicitation Script

Small Animal Phobia/Fear Treatment Study

Clinical researchers at Western Michigan University are currently seeking individuals to participate in a treatment study that will evaluate the treatment of the following small animal fears:

Snakes

Spiders

Rats/Mice

Crawling Insects

If you currently experience intense fear or avoidance in the presence of the above animals you may be eligible for participation in this study. Participation will involve answering several questionnaires during several sessions and one treatment session at WMU. You must be at least 18 years old to participate. If you would like to find out more about this study please contact Ellen or Andrea at 387-4332. Please leave a message indicating your name, phone number and the best time to reach you.

Recruitment Script

Introduce yourself-Today, I am going to talk to you about a research study being conducted through the clinical psychology department at Western Michigan University in hopes of recruiting participants.

This study is for individuals who experience intense fear or avoidance of the following small animals: snakes, spiders, rats, mice, or crawling insects. This study is a treatment study so participants will receive free treatment for their fears during the course of the study. It entails filling out questionnaires and answering several questions during several sessions, along with one treatment session. The first session takes approximately 1½ hours to complete and will determine if you qualify to participate in the study. The second session is the treatment session, and the longest session, lasting no more than three hours. This session can be completed in a shorter amount of time, but this much time is allowed if needed. Several other follow-up sessions are approximately ½ hour each in length.

If you or someone you know may be interested in participating in this study or would like to learn more about the study, please take a card. The card has a phone number where you can reach us for questions. When you call please leave your name, phone #, and the best time to call and someone will get back to you. (Pass the cards out)

Thank you for your time.

Appendix C

Informed Consent Form

Participation in an Investigation
Western Michigan University
Department of Psychology

Principal Investigator: C. Richard Spates, Ph.D.
Research Associates: Ellen I. Koch, M.A. & Andrea L. Kozak, M.A.

I have been invited to participate in a research project entitled "Comparison and Generalization of Behavioral and Cognitive-Behavioral One-Session Exposure Treatments for Small Animal Phobias." This research is intended to study the effectiveness and generalizability of two different one-session exposure treatments for small animal phobias. The information collected from this study may be used for Ellen Koch's dissertation project.

I will be asked to attend seven private sessions at least one week apart and of no more than one hour each in length except for the first and second sessions, which will be two and three hours maximum respectively. I will be asked to meet with a research assistant for these sessions at Western Michigan University. The first session will involve completing a screening questionnaire and one diagnostic interview, Anxiety Disorders Interview Schedule for DSM-IV to determine if I qualify for the study. If the questionnaire and interview indicate that I will be excluded from the remainder of the study, I will be provided with a therapist referral list including the services offered at the Psychology Clinic, Western Michigan University. The second part of the first session will involve completing four more questionnaires, the Fear Survey Schedule, a specific fear measure, Thought Checklist, and Cognitive-Somatic Anxiety Questionnaire. I will also complete a Behavioral Avoidance Test, which will consist of attempting to come as close as possible with the animal that I fear. I will also be asked to rate the amount of anxiety I am feeling, my phobia severity and expected success for treatment. The second session will involve a treatment procedure that will be only one-session and a maximum of 3 hours in length. During this treatment procedure the therapist will gradually assist me in overcoming my fear and avoidance of the animal. I will be asked to rate my level of discomfort in the presence of the animal throughout treatment. The third session will involve completing five questionnaires, the Fear Survey Schedule, a specific fear measure, Thought Checklist, Cognitive-Somatic Anxiety Questionnaire, and the Distressed Evaluation Scale, the Behavioral Avoidance Test, and rating of discomfort, phobia severity and treatment success. The one-month, three-months, six-months and one-year follow-up sessions will be the same as the third session without the Distressed Evaluation Scale. The Behavioral Avoidance Test and the entire treatment session will be videotaped.

If I choose not to participate in this research study, I may receive a similar treatment for my small animal fear from the Psychology Clinic. As in all research,

there may be unforeseen risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or additional treatment will be made available to me except as otherwise stated in this consent form. One potential risk of my participation in this project is that I may be emotionally upset in the presence of the feared animal (during the Behavioral Avoidance Test and treatment). However, trained therapists are prepared to terminate the treatment session and provide crisis counseling should I become significantly upset and s/he is prepared to make a referral if I need further counseling about this topic. I will be responsible for the cost of therapy if I choose to pursue it. Should I receive a bite from the animal, the research assistants will offer immediate first aid treatment and refer me to emergency medical personnel for further evaluation. I will be responsible for any medical costs from this evaluation.

One way in which I may benefit from this study is to eliminate my fear of the specific animal. Both of these treatments have been shown to be effective for others with small animal phobias similar to mine. Others with small animal phobias may benefit from the knowledge that is gained from this research. Once the study is completed, I may also receive a general summary of the results if I wish.

All the information collected from me is confidential. That means that my name will not appear on any papers on which this information is recorded. The forms will all be coded, and the investigators will keep a separate master list with the names of participants and the corresponding code numbers. Once the data are collected and analyzed, the master list will be destroyed. All other forms will be retained for a minimum of five years in a locked file in 2505 Wood Hall.

I may refuse to participate or quit at any time during the study without prejudice, penalty, or risk of any loss of service I would otherwise have. If I have any questions or concerns about this study, I may contact either Ellen Koch or Andrea Kozak at 387-8303 ext. 1 or Dr. Richard Spates at 387-4332. I may also contact the Chair, Human Subjects Institutional Review Board (387-8293) or the Vice President for Research (387-8298) if questions or problems arise during the course of the study.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right corner of each page. Subjects should not sign this document if the corner does not show a stamped date and signature.

My signature below indicates that I have read and/or had explained to me the purpose and requirements of the study and that I agree to participate.

_____ _____

Signature Date

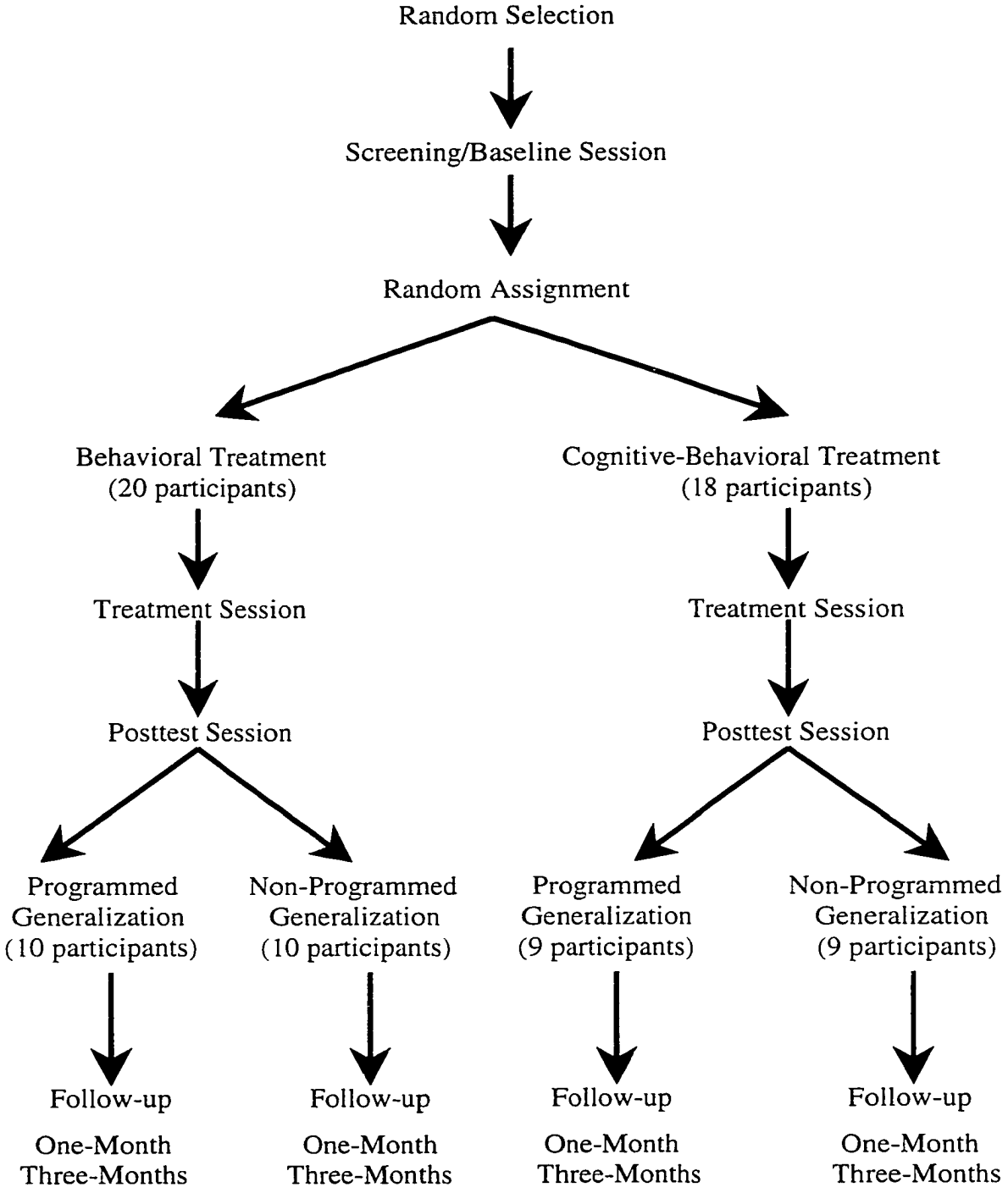
Consent obtained by: _____ _____

Initials of Researcher Date

Appendix D

Diagram of Study Design

Diagram of Participant Flow through the Study



Appendix E

Behavioral Avoidance Test Distance Steps

Behavior Avoidance Test (BAT) Distance Scoring Steps

0 = Does not enter the room
1 = Completely crosses the line at #1
2 = Completely crosses the line at #2
3 = Completely crosses the line at #3
4 = Completely crosses the line at #4
5 = Completely crosses the line at #5
6 = Completely crosses the line at #6
7 = Completely crosses the line at #7
8 = Completely crosses the line at #8
9 = Completely crosses the line at #9
10 = Completely crosses the line at #10
11 = Completely crosses the line at #11
12 = Completely crosses the line at #12
13 = Completely crosses the line at #13
14 = Leans forward and looks in cage.
15 = Touches the outside of the animal cage.
16 = Touches the top of the animal cage.
17 = Touches the bottom of the animal cage away from the animal.
18 = Touches the bottom of the animal cage near the animal.
19 = Touches the animal for 0 - 4 seconds not continuously.
20 = Touches the animal for less than 4 seconds continuously.
21 = Touches the animal for 5 – 19 seconds not continuously.
22 = Touches the animal for 20 – 60 seconds not continuously.
23 = Touches the animal for 5 – 19 seconds continuously.
24 = Touches the animal for 20 – 39 seconds continuously.
25 = Touches the animal for 40 – 59 seconds continuously.
26 = Touches the animal for 60 seconds or more continuously.
27 = Picks up the animal for 1 – 19 seconds.
28 = Picks up the animal for 20 – 39 seconds.
29 = Picks up the animal for 40 – 59 seconds.
30 = Picks up the animal for 60 seconds or more.

Appendix F

Behavioral Avoidance Test Observer Data Collection Form

Participant Number: _____ Date: _____ Observer: _____

Session (circle one): Baseline Treatment Posttest

Observation Form for Behavioral Avoidance Test (BAT)

Duration Measure: Time in seconds from beginning of the BAT until the SUDS.

Total Trial One: _____ Total Trial Two: _____

Contact time: _____ (3 minute cut-off) Contact time: _____ (3 minute cut-off)

Distance Measure: Number on last fully passed mark or on BAT criteria.

Trial One: _____ Trial Two: _____

SUDS: Rating given by the participant following the assistant's final verbal prompt.

Trial One: _____ Trial Two: _____

Baseline Level (Step) SUDS: _____

Overt Responses – Check all that apply:

	Trial 1	**Trial 2**
Shaking/Trembling	☐	☐
Crying/Eyes Watering	☐	☐
Holding Self	☐	☐
Turning Away/Not Looking	☐	☐
Other (_____)	☐	☐

Comments: The participant's response to the BAT and level of severity:

_____

Assistant's and Participant's rating of phobia severity:

Please rate the severity of your phobia symptoms according to the following scale:

1 = Symptom free and not disabling.

2 = Slightly severe and disabling.

3 = Moderately severe and disabling.

4 = Excessively severe and disabling.

5 = Extremely severe and disabling.

Assistant's rating for severity of phobia: _____ (rate prior to asking for the participant's rating)

Participant's rating for phobia severity: _____

Participant's rating of expected success of treatment:

Having now been given the explanation for the treatment (Having now received the treatment), please express your current level of confidence regarding the treatment outcome:

1 = Extremely skeptical that the treatment will have positive effects

2 = Somewhat skeptical that the treatment will have positive effects.

3 = Withholding judgment; equally confident and skeptical.

4 = Somewhat confident that the treatment will have positive effects.

5 = Extremely confident the treatment will have positive effects.

Participant's rating for expected success of treatment: _____

Posttest Session Only:

Watched Video: Yes No

Appendix G

Screening Interview Form

Participant Number: _____ Date: _____ Assistant: _____

Screening Interview

What specific small animal fear are you seeking treatment for (circle one)?

Snake Spider Rat/Mouse Crawling Insect (which type of insect?)

Have you had this fear for over 6 months? Yes No If yes, how long? _____

Answering No leads to exclusion from the study.

Have you ever had a history of the following conditions:

Seizure

Yes No

Neurological Problem	Yes	No
Heart Disease (i.e., Palpitations)	Yes	No
Lung Disease (i.e., Shortness of Breath or Trouble Breathing)	Yes	No
Recurring Chest Pain	Yes	No
Stroke	Yes	No

Are you currently experiencing (within the last 30 days) the following conditions:

Ulcer	Yes	No
Migraines	Yes	No

Answering Yes to any of the above leads to exclusion from the study.

Are you taking any medications? Yes No

If yes, medication name, dosage amount, and length of time taking each medication.

Are any of the above medications taken for your phobic condition? Yes No

If yes, are they working?

Answering Yes leads to exclusion unless medications are discontinued

Are you currently receiving treatment specifically for your phobic condition?
Yes No If yes, please specify what the treatment consists of.

Answering Yes leads to exclusion from this study.

Do you feel you use drugs or alcohol to help relieve anxiousness caused by your phobia? Yes No

Are you available for six more sessions over the next year? Yes No

Answering No leads to exclusion.

Do you want to get rid of your animal fear? Yes No
If yes, are you willing and prepared to tolerate some anxiety during treatment?
Yes No

Answering No to either question leads to exclusion from this study.

Are you currently receiving any benefits (i.e., insurance compensation, threat of a legal claim, etc.) due to your phobia? Yes No

Answering Yes leads to exclusion from this study.

Do you foresee any negative consequences occurring if your phobia is successfully treated? Yes No

Answering Yes leads to exclusion from this study.

Appendix H

Treatment Steps for All Animals

Treatment Steps for All Animals

1. Progressing from the participant's BAT baseline stopping point to the cage
2. Touching the outside of the container – 10 seconds
3. Touching the container opening with fingertips inside the cage – 10 seconds
4. Touching the inside of the container, hand on the bottom of the cage – 10 seconds

11. Picking up the animal with both hands for increasing periods of time up to 60 seconds
12. Picking up the animal with both hands for more than 60 seconds (not to exceed 3 minutes)

Spider Specific Treatment Steps (one less step than all other animals)

5. Using a card to get the spider in a cup – 3 times
6. Chasing the Spider – for increasing periods of time up to 30 seconds
7. Touching the spider with two fingers – 3 seconds
8. Touching the spider for greater periods of time up to 60 seconds
9. Cupping the spider for greater periods of time up to 60 seconds

Snake Specific Treatment Steps

5. Touching the snake with two fingers – 3 seconds
6. Touching the snake for greater periods of time up to 60 seconds
7. Touching the snake from underneath (cupping) for greater periods of time to 60 seconds
8. Touching the snake with two fingers while the therapist holds the animal above the cage for increasing periods of time up to 60 seconds
9. Touching the snake with one full hand while the therapist holds the animal above the cage for increasing periods of time up to 60 seconds
10. Touching the snake with both hands while the therapist holds the animal above the cage for increasing periods of time up to 60 seconds

Crawling Insect Specific Treatment Steps

Steps 5 through 9 are the same as for the snake

11. Holding the insect with both hands (therapist picks up the animal) for increasing periods of time up to 60 seconds

Rat/Mouse Specific Treatment Steps

Same as the steps for the snake except cupping over the top of the animal instead of underneath

Appendix I

Animal Interaction Form

Animal Interaction Form

Participant Number: Date: Total Time Spent with Animal:

- Describe setting:

- Describe animal (size, kind, etc.):

- Describe how felt:

  Immediately before the interaction:

  During the interaction:

  Immediately after the interaction:

- Please check all the following responses that you experienced:

☐ Shaking	☐ Trembling
☐ Crying	☐ Eyes Watering
☐ Holding Self	☐ Asking Others for Help
☐ Turning Away	☐ Closing Eyes
☐ Sweating	☐ Screaming
☐ Other _____	

- Circle the response that best answers the question:

A. Rate comfort in interacting with the animal:

1 = Very comfortable – very willing to interact with the animal again

2 = Somewhat comfortable – willing to interact with the animal again

3 = Equally comfortable and uncomfortable – may interact with animal again

4 = Somewhat uncomfortable – unwilling to interact with the animal again

5 = Very uncomfortable – very unwilling to interact with the animal again

B. Rate symptom severity when interacting with the animal:

1 = Symptom free and not disabling

2 = Slightly severe and disabling

3 = Moderately severe and disabling

4 = Excessively severe and disabling

5 = Extremely severe and disabling

C. How much distress did you experience?

1	2	3	4	5	6	7	8	9
none at all			somewhat distressed				very distressed	

D. After interacting with the animal, how much distress did you experience for the next few hours?

1	2	3	4	5	6	7	8	9
none at all			somewhat distressed				very distressed	

- Any Additional Comments:

Appendix J

Table A

Table A

Means and Standard Deviations of Dependent Measures

Measure and Session	Behavioral Treatment	Cognitive-Behavioral Treatment
Fear Survey Schedule – Specific Animal Item		
Baseline	5.05 (0.85)	4.69 (0.83)
Posttest	3.95 (0.98)	3.60 (0.80)
1-Month Follow-up	3.36 (1.10)	3.50 (1.18)
3-Month Follow-up	3.60 (0.99)	3.21 (1.06)
Fear Survey Schedule – Small Animal Factor		
Baseline	3.36 (0.56)	3.01 (0.52)
Posttest	3.00 (0.40)	2.63 (0.37)
1-Month Follow-up	2.77 (0.40)	2.60 (0.50)
3-Month Follow-up	2.83 (0.53)	2.56 (0.52)
Specific Phobia Questionnaire – Total		
Baseline	19.70 (5.69)	19.33 (5.72)
Posttest	14.45 (6.83)	13.94 (6.28)
1-Month Follow-up	12.08 (7.17)	13.71 (6.60)
3-Month Follow-up	15.25 (8.71)	11.20 (6.68)
Specific Phobia Questionnaire – Vigilance		
Baseline	7.35 (2.72)	5.89 (2.25)
Posttest	5.50 (3.10)	4.29 (2.34)
1-Month Follow-up	5.33 (3.89)	4.00 (2.45)
3-Month Follow-up	6.25 (4.95)	3.60 (2.59)

Table A-Continued

Measure and Session	Behavioral Treatment	Cognitive-Behavioral Treatment
Specific Phobia Questionnaire – Preoccupation		
Baseline	4.50 (2.70)	4.17 (2.48)
Posttest	3.15 (2.46)	3.12 (2.55)
1-Month Follow-up	1.75 (2.22)	2.86 (2.48)
3-Month Follow-up	2.38 (2.26)	2.20 (2.30)
Specific Phobia Questionnaire – Avoidance		
Baseline	5.70 (2.08)	7.00 (3.16)
Posttest	3.70 (2.41)	5.06 (2.77)
1-Month Follow-up	3.50 (2.54)	5.29 (3.17)
3-Month Follow-up	4.75 (2.82)	4.30 (2.98)
Specific Phobia Questionnaire – Cognitive-Behavioral Items		
Baseline	2.15 (0.99)	2.22 (1.17)
Posttest	2.10 (1.07)	1.47 (0.80)
1-Month Follow-up	1.50 (1.24)	1.57 (0.76)
3-Month Follow-up	1.87 (1.25)	1.10 (0.57)
Thought Checklist Negative		
Baseline	12.90 (5.97)	13.61 (6.57)
Treatment	12.88 (6.58)	10.06 (5.96)
Posttest	6.20 (4.48)	5.56 (4.38)
1-Month Follow-up	4.33 (4.77)	4.67 (4.58)
3-Month Follow-up	6.11 (4.94)	4.50 (4.03)

Table A-Continued

Measure and Session	Behavioral Treatment	Cognitive-Behavioral Treatment
Thought Checklist Positive		
Baseline	1.95 (1.39)	2.06 (1.30)
Treatment	3.29 (1.05)	3.06 (0.83)
Posttest	2.45 (1.57)	2.50 (1.29)
1-Month Follow-up	1.92 (1.68)	1.93 (1.71)
3-Month Follow-up	1.89 (1.27)	2.70 (1.34)
Cognitive-Somatic Anxiety Questionnaire – Cognitive		
Baseline	14.75 (6.97)	14.56 (5.60)
Posttest	10.45 (4.75)	9.28 (2.24)
1-Month Follow-up	8.92 (3.96)	9.07 (2.89)
3-Month Follow-up	9.11 (2.57)	9.30 (3.13)
Cognitive-Somatic Anxiety Questionnaire – Somatic		
Baseline	14.95 (4.64)	15.94 (5.27)
Posttest	11.05 (4.35)	9.61 (2.30)
1-Month Follow-up	10.58 (4.66)	9.47 (2.29)
3-Month Follow-up	10.67 (4.64)	10.20 (3.82)
Behavioral Avoidance Test Distance		
Baseline	10.45 (4.83)	9.61 (5.56)
Treatment	28.00 (5.02)	29.06 (3.33)
Posttest	26.20 (5.76)	26.00 (6.25)
1-Month Follow-up	28.58 (3.32)	26.60 (6.17)
3-Month Follow-up	27.33 (5.39)	26.40 (7.72)

Table A-Continued

Measure and Session	Behavioral Treatment	Cognitive-Behavioral Treatment
Behavioral Avoidance Test Contact Time		
Baseline	0.00 (0.00)	0.00 (0.00)
Treatment	153.20 (65.46)	161.67 (52.80)
Posttest	118.15 (87.18)	124.11 (78.66)
1-Month Follow-up	153.83 (61.36)	123.87 (78.41)
3-Month Follow-up	146.67 (67.82)	144.00 (75.89)
Behavioral Avoidance Test SUDS Rating		
Baseline	62.40 (26.54)	57.11 (31.04)
Treatment	8.10 (14.49)	9.56 (13.71)
Posttest	29.30 (25.32)	26.11 (23.60)
1-Month Follow-up	7.92 (14.43)	28.00 (31.67)
3-Month Follow-up	6.22 (8.41)	18.50 (24.16)
Baseline Behavioral Avoidance Test SUDS		
Baseline	62.40 (26.54)	57.11 (31.04)
Treatment	1.50 (3.19)	3.72 (8.33)
Posttest	3.61 (8.37)	4.18 (6.87)
1-Month Follow-up	1.25 (3.11)	7.00 (11.92)
3-Month Follow-up	3.67 (7.28)	9.70 (16.08)
Therapist Rating of Phobia Severity		
Baseline	3.35 (1.18)	3.33 (1.14)
Treatment	1.65 (1.23)	1.33 (0.77)
Posttest	1.65 (0.93)	2.00 (1.19)
1-Month Follow-up	1.17 (0.39)	1.64 (0.93)
3-Month Follow-up	1.44 (1.01)	1.70 (1.06)

Table A-Continued

Measure and Session	Behavioral Treatment	Cognitive-Behavioral Treatment
Participant Rating of Phobia Severity		
Baseline	2.90 (0.97)	3.00 (1.03)
Treatment	2.05 (0.94)	1.78 (0.88)
Posttest	1.80 (1.01)	1.78 (0.81)
1-Month Follow-up	1.42 (0.51)	1.60 (0.91)
3-Month Follow-up	1.22 (0.44)	1.60 (1.07)
Expected Success of Treatment		
Baseline	3.30 (1.22)	2.94 (0.80)
Treatment	4.05 (1.10)	4.22 (0.88)
Posttest	3.95 (1.10)	4.22 (0.73)
1-Month Follow-up	3.92 (1.08)	4.00 (1.00)
3-Month Follow-up	3.78 (1.20)	4.30 (1.06)
Behavioral Avoidance Test Cognitive-Somatic Anxiety Questionnaire – Cognitive		
Baseline	16.90 (7.88)	16.83 (6.84)
Treatment	10.30 (4.45)	9.89 (4.11)
Posttest	9.95 (4.88)	10.00 (4.33)
1-Month Follow-up	7.92 (2.02)	8.40 (2.72)
3-Month Follow-up	7.22 (0.44)	9.20 (3.55)

Table A-Continued

Measure and Session	Behavioral Treatment	Cognitive-Behavioral Treatment
Behavioral Avoidance Test Cognitive-Somatic Anxiety Questionnaire – Somatic		
Baseline	17.85 (5.59)	17.89 (5.12)
Treatment	11.90 (5.23)	10.06 (2.01)
Posttest	12.40 (4.49)	11.61 (3.96)
1-Month Follow-up	9.25 (2.26)	9.27 (3.22)
3-Month Follow-up	8.22 (1.30)	9.40 (3.98)
Behavioral Avoidance Test Cognitive-Somatic Anxiety Questionnaire – Cognitive, Non-Treatment Animals		
1-Month Follow-up	11.82 (6.91)	9.93 (5.05)
3-Month Follow-up	12.33 (8.28)	9.70 (4.14)
Behavioral Avoidance Test Cognitive-Somatic Anxiety Questionnaire – Somatic, Non-Treatment Animals		
1-Month Follow-up	14.00 (5.44)	12.27 (4.73)
3-Month Follow-up	12.78 (6.65)	9.80 (2.66)
Therapist Rating of Phobia Severity – Non-Treatment Animals		
1-Month Follow-up	2.55 (1.04)	2.14 (0.95)
3-Month Follow-up	2.50 (0.93)	2.10 (1.29)
Participant Rating of Phobia Severity – Non-Treatment Animals		
1-Month Follow-up	2.64 (1.36)	2.07 (0.96)
3-Month Follow-up	2.13 (1.36)	1.90 (1.10)

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